

TITLE V AIR PERMIT APPLICATION REVIEW - 501(c)(1) Modification

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Applicant : Headquarters XVIII Airborne Corps and Fort Bragg Military AGZA-PW-EE, Building 3-1333 Butner Road		Site Location: Fort Bragg, N. C.	County: Cumberland
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Cecil C. Cross III/Robert Hayden SAIC (Consultants)		Phone: (910) 432-8467 Phone: (919) 836-7575	Fax: (910-432-4188 Fax: (919) 832-7243
Review Engineer: Booker T. Pullen	Signature:	Begin Review Date: June 29, 2004	End Review Date:
Regional Contact: Robert Kennedy	Regional Office: Fayetteville	SIC Code: 9711	Application Number: 2600102.04A
Existing Permit Number: 04379T23	New Permit Number: 04379T24	Applicability: 501(c)(1) change/RICE MACT, Subpart ZZZZ does not apply to existing generators, but will apply to new generator/EPA issued a 'stay' in the applicability of lean premix gas-fired combustion Turbines being subject to the Combustion Turbine MACT, Subpart YYYY	

I. Introduction:

The Fort Bragg Military Base that is located at Building 3-1333 Butner Road, Cumberland County, Fort Bragg, North Carolina was issued its initial Title V Permit (No. 04379T20) on December 14, 2000, with an expiration date of November 30, 2005. Since that time, a PSD modification has occurred (PN 04379T21), and two 502(b)(10) modifications have been made (PN 04379T22 and PN 04379T23). Fort Bragg now requests a Significant permit modification per application No. 2600102.04A at the facility which will be issued as Permit No. 04379T24.

A letter requesting a permit modification was initially received by the DAQ on February 20, 2004. However, the actual application was not received by the DAQ until June 15, 2004. The application was considered complete on this date. This application contained several other changes not specified in the initial letter. The application was amended on September 13, 2004. All of the requests will be processed together and submitted to a 30 day public notice comment period, followed by a 45 day EPA comment period. This permit modification will go through the 30-day public notice and the 45-day EPA notice, and the previously modified sources will obtain the permit shield.

II. Purpose of this application:

- A. Fort Bragg is currently requesting that the DAQ allow the continued usage of four boilers (ID Nos. ES-15B, ES-16B, ES-17B, and ES-18B). These boilers were scheduled to be removed from service as part of the PSD Avoidance modification request (Air Permit No. 04379T23, issued March 13, 2003) and the installation of the steam generation/cogeneration turbine unit that is currently under construction. The facility wishes to continue the usage of the four boilers as backup units and place the NOx emissions from these boilers under the existing PSD Avoidance NOx Limit of **75 tons** per year.
- B. Construction and operation of one paint spray booth (ID No. ES-10C, MACT Subpart GG) with associated thermal oxidizer unit.
- C. Construction and operation of one abrasive blast booth (ID No. IES-04AB, insignificant activity).
- D. Delete the thirteen underground gasoline storage tanks (ID Nos. ES-32F, 33F, 34F, 35F, 36F, 37F, 38F, 39F, 40F, 41F, 42F, 43F, 44F). These tanks are located at a gasoline service station.

These tanks will be removed from the permit in accordance with a policy guidance memo from Mr. John Seitz, Director of the Office of Air Quality Planning and Standards for the US EPA. The subject of this memorandum, "Major Source Determinations For military installations Under The Air Toxics, New Source Review, and Title V Operating Permit Programs of the Clean Air Act", includes specific language on the Title V applicability of leased, contract-for-service, and defense agencies.

II. Purpose of this application: (Continued)

D. (Continued)

The Army and Air Force Exchange Service (AAFES) is a non-appropriated fund activity (NAF) of the Department of Defense (DOD) and has direct control over the operation, dispensing of fuels, tracking of inventory, and scheduling the deliveries of gasoline to the various service stations located at Fort Bragg. The memorandum from Mr. John Seitz described a “defense agency” as a component of the DOD that was established by the Secretary of Defense to perform a supply or service activity common to more than one military department. Also, this memorandum states that when making major source determinations at military installations, the EPA believes that it is appropriate to consider pollutant-emitting activities that are under the control of different military services or activities under the control of defense agencies not to be under common control. The AAFES appears to be a type defense agency that was established by the DOD to provide services to more than one military Department.

E. Remove the one diesel storage tank (ID No. ES-45F) from the permit. This tank was never installed. Remove two 20,000 gallon underground gasoline storage tanks from the insignificant activities list. These tanks do not exist according to Fort Bragg.

F. Revise permit conditions in 15A NCAC 2D .0524: NSPS 40 CFR Part 60, Subpart GG for sulfur dioxide and NOx from the cogeneration turbine/steam generating unit to list the four sampling options (i.e. daily sampling, flow proportional sampling, sampling from a unit’s storage tank, or sampling each delivery) currently listed in 40 CFR Part 75, Appendix D, in accordance with the most recently published NSPS, Subpart GG, “Stationary gas turbines”. This NSPS was revised and published in the Federal Register on July 8, 2004. This was also the effective date of the revision.

G. Add new diesel fuel-fired emergency generator (ID No. ES-34G, 600 kW) at the facility.

III. Changes to existing permit per this application No. 2600102.04A:

Changes to existing permit per this application No. 2600102.04A:

Old Page No.	New Page No.	Condition No.	Changes
Cover Letter			
Page 1	Page 1	Heading and body of letter	Revised issue date, revised permit number, changed “complete application” received date
Page 2	Page 2	Heading and body of letter	Revised issued date at the top of letter, and changed the effective date of permit to reflect modification
Page 3	Page 3	Insignificant activities list (Page 1 of 3)	Revised permit number
Page 4	Page 4	Insignificant activities list (Page 2 of 3)	Revised permit number
Page 5	Page 5	Insignificant activities list (Page 3 of 3)	Revised permit number, added abrasive blast booth (ID No. IES-04AB) to table Removed two underground gasoline storage (20,000 gallon capacity each) because the tanks do not exist at the site
Page 6	Page 6	Changes to existing permit table	Revised table
Changes to Part I, Operation Permit			
Page 1	Page 1	Front page of permit	Changed permit No., “replaces permit No.”, issue date, effective date, application No., complete application date,
Page 3	Page 3	Permitted sources table	Removed note at the bottom of the table for the four boilers,
Page 4	Page 4	Permitted sources table	Added new emergency generator (ID No. ES-34G)

-Continued on the next page-

Permit No. 04379T24

Changes to existing permit per this application No. 2600102.04A (Continued):

Page 5	N/A	Permitted sources table	Added new source ID No. ES-10C and associated control device (ID No. ECD-PB10) Removed underground gasoline storage tanks (ID Nos. ES-32F through 44F)
Page 8	Page 8	Section 2.1 A. 4. g.	Changed reporting period for PSD Avoidance condition to a six-month time period versus quarterly
Page 10	Page 10	Section 2.1 B. 4. g.	Changed reporting period for PSD Avoidance condition to a six-month time period versus quarterly
All pages	All pages	Each Page	Revised Permit Number at the top of each page.
Page 13	Page 13	Section 2.1 C. 4. f.	Changed reporting period for PSD Avoidance condition to a six-month time period versus quarterly
Page 13	Page 13	Section 2.1. D	Removed note for permitted sources (ID Nos. ES-15B, 16B, 17B, and 18B) stating that the boilers will be removed from operation after the new cogeneration facility becomes operational Added 15A NCAC 2D .0317 to table, changed the NOx PSD Avoidance condition to a total of 75 tons per year. These emissions are included with cogeneration/turbine system
Changes to PART II, Construction and Operation Permit			
Page 15	Page 15	Section 2.1 D	Removed Specific Condition 4 for NOx. The NOx PSD Avoidance condition for the four boilers is now included with PSD Avoidance condition in Multiple Emission Section 2.2
Page 15	Page 15	Section 2.1 D	Item No. "5" became Item No. "4"
Page 16	Page 15		Changed reporting period for PSD Avoidance condition to a six-month time period versus quarterly
Page 19	Page 18	Section 2.1, G.	Added 15A NCAC 2D .0317 to table
Page 21	Page 20	Section 2.1, G. 4	Changed reporting period for PSD Avoidance condition to a six-month time period versus quarterly
Page 22	Page 21	Section 2.1, G. 5	Changed reporting period for PSD Avoidance condition to a six-month time period versus quarterly
		Section 2.1, H	Added 15A NCAC 2D .0317 to table
Pages 24	Page 23	Section 2.1, H. 4. d.	Changed reporting period for PSD Avoidance condition to a six-month time period versus quarterly
Pages 25	Page 24	Section 2.1, H. 5. e.	Changed reporting period for PSD Avoidance condition to a six-month time period versus quarterly
Page 27	Page 26	Section 2.1 J	Added "Nitrogen dioxide" to regulated pollutant table, See Multiple Emissions Section 2.2 H Added new emergency generator (ID No. ES-34G) Added HAPs, MACT information to table

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Permit No. 04379T24

Changes to existing permit per this application No. 2600102.04A (Continued):

Page 27	Page 27	Section 2.1 G. Section 2.1 K.	Added MACT Language, Subpart ZZZZ Rearranged summary table of applicable regulations by placing all steam generation regulations and turbine regulations together
Page 27	Page 27	Section 2.1 K	Added 15A NCAC 2D .0317 to table The allowable heat emission rate was changed to 0.19 lbs PM per million Btu heat input because the four boilers are no longer being removed
Pages 28-32	Pages 28-32	Section 2.1 K.	Rearranged applicable regulations by placing all steam generation regulations and turbine regulations together
Page 31	Page 30	Section 2.1 K	Changed the last data point for testing the turbine NOx emissions to 90% - 100% in accordance with the most recently promulgated NSPS, Subpart GG
Page 39	N/A	Section 2.1 O.	Removed the 14 underground storage tanks located at the gasoline service station from the permit along with the associated regulations
N/A	Page 39-42	Section 2.1 O.	Added new paint spray booth (ID No. ES-10C) as "Item O" to the permit along with associated control device (ID No. ECD-PB10) and applicable regulations
Page 42	Page 42	Multiple Emissions Section 2.2 B	Added boilers (ID Nos. ES-15B, 16B, 17B, 18B) to the PSD Avoidance condition
Page 43	Pages 43	Multiple Emissions Section 2.2 B	Revised NOx calculation equation to include boilers, and added NOx emission factors for boilers
Page 44	Page 44	Multiple Emissions Section 2.2 D	Added paint spray booth ES-10C to list for 15A NCAC 2D .0958 applicability
Page 65	Page 45	Multiple Emissions Section 2.2 G	Added the "PSD" conditions for the peak shaving generators originally located in the Part II, Construction Section of the previous permit
N/A	Page 54	Other Applicable Requirements	Added "Other Applicable Requirements" Section 2.3
Pages 53-62	Pages 55-63	General Conditions	Added most current General Conditions for military bases
Page 63	Page 65	Part II, Section 1	Revised: application to No. 2600102.04A, complete application date, revised Permitted Emission sources table accordance with the most recent application
Page 64	Page 62	Part II, Section 2, Item 1	Revised the applicable regulation list
Page 64-65	Page 62	Part II, Section 2, Items 2 & 3	Revised the description of subject sources
Page 65	N/A	Part II, Section 2, Items 5, 6, and 7	Removed requirements from the permit

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IV. Facility Description:

Fort Bragg is a military base and home to approximately 50,000 active duty soldiers.

V. Statement of Compliance:

The DAQ has reviewed the compliance status of this facility. Mr. Robert Hayden of the FRO, performed a facility inspection on March 24, 2004 and the facility was determined to be in compliance with all applicable requirements. The applicant has certified that the facility will be in compliance with all applicable requirements at the time of permit effective date will continue to comply with these 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.

VI. Summary of Emission Sources and For which this 501(c)(1) Modification Is Being Issued

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-33B NSPS, Subpart GG	One natural gas, No. 2 fuel oil-fired cogeneration gas turbine (60.32 million Btu per hour maximum heat input, 5.0 megawatt electrical output),	None	None
ES-34B NSPS, Subpart Dc	One heat recovery steam generation unit (61.2 million Btu per hour maximum supplemental heat input),	None	None
ES-10C MACT, Subpart GG	One dry filter paint spray booth with associated natural gas fired burner (3.3 million Btu per hour heat input)	ECD-PB10	One thermal oxidizer (1.2 million Btu per hour heat input)
ES-15B – NSPS ES-16B – NSPS ES-17B – NSPS ES-18B – NSPS	Four natural gas/No. 2 fuel oil/on-specification used No. 2 fuel oil-fired boilers (36.5 million Btu per hour heat input capacity each), located in Building C-2337 [82nd Div].	None	None
ES-34G MACT, Subpart ZZZZ	Diesel-fired emergency generator (600 kW)	None	None

VII. Emission Source-by-Source Evaluation

A. One natural gas, No. 2 fuel oil-fired cogeneration turbine (60.32 million Btu per hour maximum heat input, 5.0 megawatt electrical output, NSPS Subpart GG, ID No. ES-33B) along with a heat recovery steam generator supplied with supplemental heat (natural gas-fired, 61.2 million Btu per hour maximum heat input, NSPS Subpart Dc, ID No. ES-34B)

1. **Description:** The natural gas/No. 2 fuel oil-fired cogeneration turbine will eventually replace four existing natural gas/No. 2 fuel oil/on-specification used No. 2 fuel oil-fired boilers located in Building C-2337. The exhaust gases from the turbine will be sent through a steam generation unit to produce steam that will be used to supply 125-pounds per square inch steam for the comfort heating and domestic hot water needs of buildings in this area of the installation. The NSPS, Subpart GG defines this turbine as a combined cycle gas turbine. However, a combined cycle turbine usually uses the exhaust from the primary turbine to produce steam to run a secondary turbine that also produces electrical energy. That is not the case in the scenario at Fort Bragg. The steam produced in the generation unit is used to produce comfort heat at the base. Their system is better described as a cogeneration system. Supplemental heat (**natural gas-fired duct burner**) is supplied to the steam generation unit at a rate of *61.2 million Btu per hour maximum heat input*. Also, this turbine will generate supplemental electrical power to be used at the base. The turbine contains a combustion chamber design using lean premix staged combustion that minimizes the production of NOx.

Calculation of design heat input capacity is based on the maximum fuel input rate of both the turbine and the steam generation unit using the information provided in the application.

Description	Type of Fuel	Design Fuel Input	Btu content of fuel	Design heat input (mmBtu/hour)
Turbine	Natural gas	58,511 cubic feet/hr	1,031 Btu per cubic foot	60.32 million Btu per hour
Turbine	No. 2 fuel oil	422 gallons/hr	141,000 Btu per gallon	59.5 million Btu per hour
Heat Exchanger	Natural gas	59,360 cubic feet/hr	1,031 Btu per cubic foot	61.2 million Btu per hour

$$\text{Turbine firing natural gas} \Rightarrow \frac{58,511 \text{ cubic feet}}{\text{hour}} \times \frac{1,031 \text{ Btu}}{\text{cubic feet}} \times \frac{\text{million Btu}}{10^6 \text{ Btu}} = \frac{60.32 \text{ million Btu}}{\text{hour}} \text{ (heat input capacity)}$$

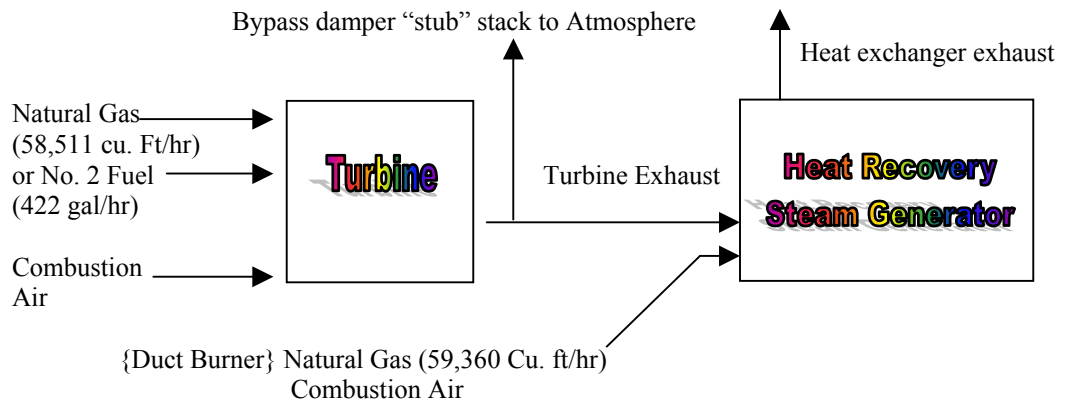
$$\text{Turbine firing No.2 fuel oil} \Rightarrow \frac{422 \text{ gallons}}{\text{hour}} \times \frac{141,000 \text{ Btu}}{\text{gallon}} \times \frac{\text{million Btu}}{10^6 \text{ Btu}} = \frac{59.5 \text{ million Btu}}{\text{hour}} \text{ (heat input capacity)}$$

$$\text{Heat exch. firing natural gas} \Rightarrow \frac{59,360 \text{ cubic feet}}{\text{hour}} \times \frac{1,031 \text{ Btu}}{\text{cubic feet}} \times \frac{\text{million Btu}}{10^6 \text{ Btu}} = \frac{61.2 \text{ million Btu}}{\text{hour}} \text{ (heat input capacity)}$$

2. Applicable Regulatory Requirements: This cogeneration system will be installed in the near future. The gas turbine **will not** be used as a peak shaver at any time. This system **is subject** to 40 CFR Part 60, Subpart GG “Standards of Performance for Stationary Gas Turbines” and will be installed after October 1977 with a heat input greater than 10.7 gigajoules per hour based on the lower heating value of the fuels fired in the turbine. This turbine **does not** fit the definition of an “electric utility stationary gas turbine” as described by NSPS, Subpart GG because the electricity produced is to be used on the site and not sold to any utility power distribution system. Also the size of the turbine is below the threshold of 107.2 gigajoules per hour (100 million Btu per hour heat input).

This turbine **is not subject to** 15A NCAC 2D .1418 “New Electric Generating Units, Large Boilers, and Large I/C Engines” because it is hooked up to a generator that is less than 25 megawatt nameplate capacity and none of the electricity will be sold.

This heat exchanger system (ID No. ES-34B) is subject to 40 CFR Part 60, Subpart Dc because it is a steam generating unit that will be constructed after June 9, 1989 and has a maximum Btu heat input greater than 10 million Btu per hour but less than 100 million Btu heat input per hour. The turbine will have a separate “stub” stack used for emergency bypass when the steam generation unit is down or of line.



The following provides a summary of limits and/or standards for the emission source(s) described above.

Regulated Pollutant	Limits/Standards	Applicable Regulation
Steam generation unit		
Particulate matter	0.19 million Btu per hour heat input	15A NCAC 2D .0503
Visible emissions	20 percent opacity (6-minute average) except for on 6-minute period per hour of not more than 27 percent opacity	15A NCAC 2D .0521 40 CFR Part 60, Subpart Dc
Sulfur dioxide	2.3 lbs per million Btu heat input	15A NCAC 2D .0516
Turbine only		
Visible emissions	20 percent opacity	15A NCAC 2D .0521
Sulfur dioxide	Fuel ≤ 0.8% sulfur by weight	15A NCAC 2D .0524 40 CFR Part 60, Subpart GG
Nitrogen dioxide	0.0189 % by volume @ 15% oxygen (gas) 0.0187 % by volume @ 15% oxygen (oil)	15A NCAC 2D .0524 40 CFR Part 60, Subpart GG
Turbine and Steam generation unit		
Nitrogen dioxide	Less than 75 tons per consecutive 12 month period See Multiple Emissions Section VIII	15A NCAC 2Q .0317 (15A NCAC 2D .0530) PSD Avoidance

a. 15A NCAC 2D .0503 “Particulates From Fuel Burning Indirect Heat Exchangers”
----Steam Generation Unit (ID No. 34B)----

Regulation Analysis:

- i. The heat recovery steam generating unit (ID No. ES-34B) is subject to 40 CFR Part 60, Subpart Dc, however, this NSPS Regulation does not have a particulate emission standard for steam generating units that burn natural gas. Therefore, the State regulation for particulate emissions has been placed in the permit.

Emissions of particulate matter from the combustion of natural gas in steam generating unit (ID No. ES-34B) that are discharged from this source into the atmosphere shall not exceed **0.20 pounds per million Btu heat input**. [15A NCAC 2D .0503(a)]

$$E_{\text{allow}} = 1.090 \times Q^{-0.2594}$$

E = allowable emission limit for particulate matter in
lbs/million Btu heat input

Q = maximum heat input in million Btu per hour

There have been many boilers at this facility and some of which have been removed. The total heat input values for indirect fired heat exchangers was calculated using the information from the Initial Title V permit. As of the date of the cogeneration modification the total heat input at the facility was approximately 745 million Btu per hour. The last group of boilers that were installed at the facility (ID Nos. ES-24B, 25B, 26B, and 29B), have an allowable emission rate of 0.20 lbs of PM per million Btu heat input. In the permit for the cogeneration facility (Permit No. 04379T23) the heat input for the four boilers that were scheduled to be removed was subtracted from the total heat input prior to the calculation for the allowable particulate emission rate from the steam generating unit. However, since these boilers are now scheduled to remain, the heat input from these sources must also remain in the existing total heat input for the facility to calculate the allowable PM emission rate for the steam generating unit.

This steam generating unit (ID No. ES-34B) is subject to 40 CFR Part 60, Subpart Dc. The only heat input used to evaluate the unit for Subpart Dc will be the supplemental source (61.2 million Btu heat input). The heat coming from the exhaust of the turbine was not used.

According to the application, the heat input rate for the heat exchanger is 61.2 million Btu per hour.

Q_{total} at the site after this modification = 745.0 + 61.2 = 806.2 million Btu per hour heat input.

$$E_{\text{allow}} = 1.090 \times Q^{-0.2594}$$

$$E_{\text{allow}} = 1.090 \times (806.2)^{-0.2594}$$

$$E_{\text{allow}} = \mathbf{0.19}$$

Steam Generating Unit

Particulate matter emissions from the heat exchanger when **firing natural gas** for supplemental heat, are estimated using the maximum heat input of the heat combustion spreadsheet using 5th edition Supplement D, AP-42 factors, Section 1.4 and a heating value of 1,031 Btu per standard cubic feet of natural gas.

Maximum design capacity firing natural gas = 61.20 million Btu per hour heat input

Maximum design fuel firing rate = 59,360 cubic feet per hour (fuel input rate)

AP-42 factor = 7.6 lbs PM/10⁶ cubic feet of gas,

Heating value of natural gas = 1,031 Btu per cubic foot

$$\frac{59,360 \text{ cubic feet}}{\text{hour}} \times \frac{7.6 \text{ lbs PM}}{10^6 \text{ cubic feet}} \times \frac{1.0 \text{ hour}}{61.20 \text{ million Btu}} = \frac{0.007 \text{ lbs PM}}{\text{million Btu heat input}}$$

Compliance is indicated when firing natural gas in the heat exchanger since the actual emission rate (**0.007 lbs PM per million Btu heat input**) is less than the allowable emission rate (**0.19 lbs PM per million Btu heat input**).

Testing [15A NCAC 2D .0501(c)(3)]

- ii. If emissions testing is required, the testing shall be performed in accordance General Condition JJ in Section 3 of the permit. If the results of this test are above the limit given in Section VI. A. 2. a. i. above, the Permittee shall be deemed in noncompliance with 15A NCAC 2D .0503.
- iii. Since this steam generating unit is subject to NSPS Subpart Dc, monitoring, recordkeeping, and reporting is required even though it fires only natural gas. The Permittee shall record and maintain records of the amounts of each fuel burned during **each month** rather than each day. Guidance for NSPS boilers which burn natural gas and other low sulfur, low particulate fuels was followed in deciding the frequency in which fuel records needed to be recorded (reference the memorandum dated February 28, 1992, from John B. Rasnic of the EPA, Stationary Source Compliance Division).

b. 15A NCAC 2D .0524, 40 CFR Part 60, Subpart Dc --“Visible Emissions”

----Steam Generation Unit (ID No. 34B)----

Regulation Analysis

- i. NSPS Subpart Dc does have a visible emissions standard for a steam generating unit with greater than 30 million Btu per hour heat input. The opacity standards under this section apply at all times except during periods of startup, shutdown, or malfunction when burning natural gas. Per this regulation visible emissions shall not be more than **20 percent opacity** when averaged over a six-minute period except for one six-minute period per hour of not more than **27 percent opacity**.

Testing [15A NCAC 2D .0501(c)(8)]

- ii. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 2D .0501(c)(4) and General Condition JJ found in Section 3. If the results of this test are above the limit given in Section VI. A. 2. b. i. above, the Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524.

Monitoring/Recordkeeping/Reporting

- iii. No monitoring, recordkeeping, or reporting is required for visible emissions from the firing of natural gas in steam generation unit (ID No. ES-34B).

Note: The turbine gases mainly pass through the steam generating unit stack and then out the stack. However, the turbine does have a bypass damper which will allow exhaust gases to exit a “stub” stack in case the steam generation unit is not operational.

c. 15A NCAC 2D .0516 “Sulfur Dioxide Emissions From Combustion Equipment”

----Steam Generation Unit Only (ID No. 34B)----

- i. The Permittee shall comply with all applicable provisions, including the notification, testing, recordkeeping, and monitoring requirements contained in Environmental Management Commission Standard 15A NCAC 2D .0524 "New Source Performance Standards (NSPS) as promulgated in 40 CFR Part 60 Subpart Dc, including Subpart A "General Provisions." [15A NCAC 2D .0524]

Emission Limitations [15A NCAC 2D .0524]

- ii. 2.3 lbs sulfur dioxide per million Btu heat input.

Monitoring/Recordkeeping [15A NCAC 2Q .0508(f)]

- iii. Since this steam generating unit is subject to NSPS Subpart Dc, monitoring, recordkeeping, and reporting is required even though it fires only natural gas. The Permittee shall record and maintain records of the amounts of each fuel burned during **each month** rather than each day. Guidance for NSPS boilers that burn natural gas and other low sulfur, low particulate fuels was followed in deciding the frequency in which fuel records needed to be recorded (reference the memorandum dated February 28, 1992, from John B. Rasnic of the EPA, Stationary Source Compliance Division).
The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524 if these records are not maintained.

Reporting [15A NCAC 2Q .0508(f)]

- iv. Periods of excess emissions from any time period during which the sulfur content of the natural gas exceeds 2.3 lbs per million Btu per hour.
- v. The Permittee shall submit a summary report of the monitoring activities listed above by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

d. 15A NCAC 2D .0521 "Control Of Visible Emissions"

----Turbine (ID No. ES-33B)-----

i. **Regulation Analysis:**

The turbine (ID No. ES-33B) will be installed after July 1, 1971, and is therefore subject to 15A NCAC 2D .0521(d). Per this regulation visible emissions shall not be more than **20 percent opacity each** when averaged over a six-minute period except that six-minute periods averaging more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period.

Compliance is indicated with this regulation because the turbine will be firing mainly natural gas, with No. 2 fuel oil as a back up fuel.

Testing [15A NCAC 2D .0501(c)(8)]

- ii. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 2D .0501(c)(8) and General Condition JJ in Section 3 of the Permit. If the results of this test are above the limit given in Section VI. A. 2. d. i. above, the Permittee shall be deemed in noncompliance with 15A NCAC 2D .0521.

Monitoring [15A NCAC 2Q .0508(f)]

- iii. No monitoring, recordkeeping, or reporting is required for visible emissions from the turbine (ID No. ES-33B) when firing natural gas or No. 2 fuel oil.

e. 15A NCAC 2D .0524, 40 CFR Part 60, Subpart GG, "Sulfur Dioxide"

-Turbine (ID No. 33B)-

Regulation Analysis:

- i. The natural gas/No. 2 fuel oil-fired turbine (ID No. ES-33B) is subject to the sulfur dioxide requirements of this Subpart because it is a stationary gas turbine with a heat input greater than 10.7 gigajoules (10.14 million Btu per hour) that will be built after October 3, 1977.

On or after the date on which the performance test required to be conducted by 40 CFR §60.8 is complete, the Permittee shall comply with the following condition (40 CFR Part 60, §60.333(b).

- (A) No owner of operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any stationary gas turbine any gases which contain sulfur dioxide in excess of 0.015 percent by volume at 15 percent oxygen on a dry basis or burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8 percent by weight.

Mr. Cecil Cross of SAIC, the consultants for Fort Bragg, called on February 20, 2003 and stated that the fuel sulfur content method would be used to monitor the sulfur content of fuel fired in the turbine.

Testing [15A NCAC 2Q .0508(f), 40 CFR §60.335]

- ii. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 2D .0501(c)(4) and General Condition JJ found in Section 3. If the results of this test are above the limit given in Section VI. A. 2. e. i. above, the Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524.

- iii. **Notification** [15A NCAC 2Q .0508(f)]

The Permittee shall comply with all applicable provisions, including notification requirements contained in Environmental Management Commission Standard 15A NCAC 2D .0524, "New Source Performance Standards"(NSPS) as promulgated in 40 CFR Part 60, Subpart GG, including Subpart A "General Conditions". The Permittee is required to **NOTIFY** the Regional Supervisor, Division of Air Quality, in **WRITING**, of the following:

- (A) the date construction (40 CFR 60.7) of an affected facility is commenced, postmarked no later than 30 days after such date; and
(B) the actual date of initial start-up of an affected facility, postmarked within 15 days after such date.

Monitoring/Recordkeeping [15A NCAC 2Q .0508(f), 40 CFR §60.60.334]

- iv. Turbine (ID No. ES-33B) receives No. 2 fuel oil from bulk storage tanks located on the military base. These tanks receive their supply from tank trucks. The monitoring requirements shall be as follows when firing No. 2 fuel oil in the turbine:
- (A) The maximum sulfur content of any **No. 2 fuel oil** received at the **site** and burned in the turbine shall not exceed **0.8 percent by weight**. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524, Subpart GG if the sulfur content of the No. 2 fuel oil exceeds this limit.
- (B) To assure compliance, the Permittee shall monitor the sulfur content of the **No. 2 fuel oil** in accordance with any of the four options found in 40 CFR Part 75, Appendix D (i.e. daily sampling, flow proportional sampling, sampling from a unit's storage tank, or sampling each delivery). Sampling method shall be recorded in a logbook (written or electronic format) on a quarterly basis and include the following information:
- (1) the name of the fuel oil supplier;
 - (2) the maximum sulfur content of the fuel oil received during the quarter;
 - (3) the method used to determine the maximum sulfur content of the fuel oil; and
- (C) A certified statement signed by the responsible official that the records of the fuel oil sampling represents all of the No. 2 fuel oil fired during the time period.
The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524, Subpart GG if the sulfur content of the oil is not monitored and recorded.

(D) The monitoring requirements shall be as follows when firing **natural gas** in the turbine: The owner or operator may elect not to monitor the total sulfur content of the gaseous fuel combusted in the turbine, if the gaseous fuel is demonstrated to meet the definition of natural gas in 40 CFR Part 60, §60.331(u), regardless of whether an existing custom schedule approved by the administrator for subpart GG requires such monitoring. The owner or operator shall use one of the following sources of information to make the required demonstration:

- (1) The gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less; or
- (2) Representative fuel sampling data which show that the sulfur content of the gaseous fuel does not exceed 20 grains/100 scf. At a minimum, the amount of fuel sampling data specified in section 2.3.1.4 or 2.3.2.4 of appendix D to part 75 of this chapter is required.

v. **Notification** [15A NCAC 2Q .0508(f)]

The Permittee shall comply with all applicable provisions, including notification requirements contained in Environmental Management Commission Standard 15A NCAC 2D .0524, “New Source Performance Standards”(NSPS) as promulgated in 40 CFR Part 60, Subpart GG, including Subpart A “General Conditions”. The Permittee is required to NOTIFY the Regional Supervisor, Division of Air Quality, in WRITING, of the following:

- (A) the date construction (40 CFR 60.7) of an affected facility is commenced, postmarked no later than 30 days after such date; and
- (B) the actual date of initial start-up of an affected facility, postmarked within 15 days after such date.

Reporting [15A NCAC 2Q .0508(f), 40 CFR §60.334]

- vi. Periods of excess emissions from any time period during which the sulfur content of the No. 2 fuel oil exceeds 0.8 percent by weight shall be reported to the DAQ.
- vii. The Permittee shall submit a summary report of the monitoring activities listed above by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

**f. 15A NCAC 2D .0524, 40 CFR Part 60, Subpart GG, --Nitrogen Dioxide--
--Turbine (ID No. 33B)-**

Regulation Analysis:

- i. The natural gas/No. 2 fuel oil-fired turbine (ID No. ES-33B) is subject to the nitrogen dioxide requirements of this Subpart because it is a stationary gas turbine with a heat input greater than 10.7 gigajoules (10.14 million Btu per hour) built after October 3, 1977.

On or after the date on which the performance test required to be conducted by 40 CFR §60.8 is complete, the Permittee shall not cause any gases to be discharged into the atmosphere that contain nitrogen dioxide in excess of the calculation found by the following equation listed in §60.332(a)(2) of this Subpart, at 15 percent oxygen and on a dry basis.

$$STD_{nat.gas} = 0.0150 \frac{(14.4)}{Y} + F$$

Where: $STD_{nat.gas}$ = Allowable NOx emissions when firing natural gas (percent by volume at 15 percent oxygen and on a dry basis)

$Y_{nat.gas}$ = Manufacture’s rated heat rate at manufacture’s rated load (kilojoules per watt hour). The value of Y shall not exceed 14.4 kilojoules per watt-hour.

$F_{nat.gas}$ = NOx emission allowance for fuel-bound nitrogen in the natural gas as defined in 40 CFR §60.332 (a)(3) **(for pipeline quality natural gas, Nitrogen ≤ 0.015 percent by weight, F = 0)**

SAIC, the consultant for Fort Bragg, states that the manufacturer says that the value of “Y” in the equation above is 10,854 btu/kw-hr when firing natural gas in the turbine. This must be converted to kilojoules per watt-hour.

$$\frac{10,854 \text{ Btu}}{\text{kW} - \text{hour}} \times \frac{1,055 \text{ joules}}{\text{Btu}} \times \frac{1 \text{ kW}}{1000 \text{ watt} - \text{hour}} \times \frac{1 \text{ kilojoule}}{1000 \text{ joules}} = \frac{11.45 \text{ kilojoules}}{\text{watt} - \text{hour}}$$

$$STD_{nat. gas} = 0.0150 \frac{(14.4)}{11.45} + 0$$

$$STD_{nat. gas} = 0.0189 \text{ percent by volume at 15 percent oxygen and on a dry basis}$$

The calculated value using the above equation is **0.0189 percent by volume at 15 percent oxygen and on a dry basis (189 ppmv)**, and this will be placed into the Title V Permit. The vendor has guaranteed a NOx emission rate if 25 ppmv (0.00025) from the turbine when firing natural gas. **Compliance is indicated with the NOx emission rate.**

$$STD_{No.2 fuel oil} = 0.0150 \frac{(14.4)}{Y} + F$$

Where: $STD_{fuel\ oil}$ = Allowable NOx emissions when firing No. 2 fuel oil (percent by volume at 15 percent oxygen and on a dry basis)
 $Y_{fuel\ oil}$ = Manufacture’s rated heat rate at manufacture’s rated load (kilojoules per watt hour). The value of Y shall not exceed 14.4 kilojoules per watt-hour.

$F_{fuel\ oil}$ = NOx emission allowance for fuel-bound nitrogen in the fuel oil as defined in 40 CFR §60.332 (a)(3)

SAIC, the consultant for Fort Bragg, states that the manufacturer says that the value of “Y” in the equation above is 10,954 btu/kw-hr when firing No. 2 fuel oil in the turbine. This must be converted to kilojoules per watt-hour.

$$\frac{10,954 \text{ Btu}}{\text{kW} - \text{hour}} \times \frac{1,055 \text{ joules}}{\text{Btu}} \times \frac{1 \text{ kW}}{1000 \text{ watt} - \text{hour}} \times \frac{1 \text{ kilojoule}}{1000 \text{ joules}} = \frac{11.56 \text{ kilojoules}}{\text{watt} - \text{hour}}$$

$$STD_{No.2 fuel oil} = 0.0150 \frac{(14.4)}{11.56} + 0$$

$$STD_{No.2 fuel oil} = 0.01869 \text{ percent by volume at 15 percent oxygen and on a dry basis}$$

The calculated value using the above equation is **0.0187 percent by volume at 15 percent oxygen and on a dry basis (187 ppmv)**, and this will be placed into the Title V Permit.

The vendor has guaranteed a NOx emission rate if 96 ppmv (0.00096) from the turbine when firing No. 2 fuel oil. **Compliance is indicated with the NOx emission rate.**

Testing [15A NCAC 2Q .0508(f), 40 CFR §60.60.335]

- ii. An initial performance test for nitrogen dioxide is required for this combustion turbine (ID No. ES-33B). The testing shall be performed in accordance with 40 CFR §60.335 or EPA approved alternate test method. During the initial performance test to determine the fuel consumption necessary to comply with the allowable NOx emissions as calculated in 40 CFR §60.332, the Permittee shall establish four data points (NOx emission rates) at 30%, 50%, 75% and 90% - 100% of peak load or at four points in the normal operating range of the gas turbine. **In accordance with 40 CFR 60.334(c)(1), the Nitrogen content limit of the No. 2 fuel oil shall be set using baseline conditions during the initial performance test.**

Within 60 days after achieving the maximum production rate at which the facility will be operated, but not later than 180 day after the initial start-up of the affected facility, the Permittee shall conduct the required performance test(s) and submit a written report of the test(s) to the Raleigh Regional Supervisor, Division of Air quality.

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 at a lesser rate if specified by the Director or his delegate. All associated testing costs are the responsibility of the Permittee.

iii. Notification [15A NCAC 2Q .0508(f)]

The Permittee shall comply with all applicable provisions, including notification requirements contained in Environmental Management Commission Standard 15A NCAC 2D .0524, "New Source Performance Standards"(NSPS) as promulgated in 40 CFR Part 60, Subpart GG, including Subpart A "General Conditions". The Permittee is required to NOTIFY the Regional Supervisor, Division of Air Quality, in WRITING, of the following:

- (A) the date construction (40 CFR 60.7) of an affected facility is commenced, postmarked no later than 30 days after such date; and
- (B) The actual date of initial start-up of an affected facility, postmarked within 15 days after such date. If emissions testing is required, the testing shall be performed in accordance with 40 CFR §60.335 or an EPA approved alternative method. If the results of this test are above the limit given in Section VI. A. 2. f. i. above, the Permittee shall be deemed in noncompliance with the nitrogen dioxide standard of 40 CFR Part 60, Subpart GG.

Monitoring/Recordkeeping [15A NCAC 2Q .0508(f), 40 CFR §60.60.334]

- iv. Turbine (ID No. ES-33B) burns No. 2 fuel oil that it receives from bulk storage tanks located on the military base. These tanks receive their supply from tank trucks. The monitoring requirements are as follows:
 - (A) The owner or operator of any stationary gas turbine subject to the provisions of this subpart shall satisfy the oil nitrogen monitoring requirements under Subpart GG.
 - (B) To assure compliance, the Permittee shall monitor the nitrogen content of the **No. 2 fuel oil** in accordance with any of the four options found in 40 CFR Part 75, Appendix D (i.e. daily sampling, flow proportional sampling, sampling from a unit's storage tank, or sampling each delivery). Sampling method shall be recorded in a logbook (written or electronic format) on a quarterly basis and include the following information:
 - (1) the name of the fuel oil supplier;
 - (2) the maximum nitrogen content of the fuel oil during the quarter;
 - (3) the method used to determine the maximum nitrogen content of the fuel oil; and
 - (C). A certified statement signed by the responsible official that the records of fuel oil supplier certification submitted represents all of the No. 2 fuel oil fired during the period.
 - (D) The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0524, Subpart GG if the sulfur content of the oil is not monitored and recorded.
- v. Nitrogen content monitoring **is not** required when burning natural gas in turbine (ID No. ES-33B).

Reporting [15A NCAC 2Q .0508(f), 40 CFR §60.334]

- vi. The Permittee shall submit a summary report of the monitoring activities by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

g. 15A NCAC 2D .0530 “Prevention Of Significant Deterioration” (PSD AVOIDANCE)

The Fort Bragg military base is considered major for PSD purposes. Therefore, this modification requested in Permit 04379T21, issued August 20, 2001, had to have potential emissions of criteria pollutants that were less than the PSD Significance levels in accordance with 40 CFR Part 51, §51.166(b)(23)(i). When Fort Bragg applied for the PSD Avoidance permit, the four boilers (ID Nos. ES-15B, 16B, 17B, and 18B) were to be removed from service after successful operation of the turbine/steam generating unit. The calculations for the PSD Avoidance condition in the previous permit No. 04379T24 are listed in the following pages. The three consecutive years of operation (1998-2000) were found using the annual emissions inventory. These average values of actual emissions were netted against the potential emissions of criteria pollutants from the new cogeneration system.

Table I

Criteria pollutants emitted at Fort Bragg when firing fuel in the four boilers listed above from 1998 –2000)

Year	1998			1999		2000		1998-2000	
	Fuel	Gas	No. 2 f.o.	Used Oil	Gas	No. 2 f.o.	Gas	No. 2	Average
TSP		2.52 tpy	1.31 tpy	0.13 tpy	2.3 tpy	0.4 tpy	1.7 tpy	0.3 tpy	2.9 tpy
PM-10		2.52 tpy	0.71 tpy	0.11 tpy	2.3 tpy	0.2 tpy	1.7 tpy	0.2 tpy	2.6 tpy
PM-2.5		2.52 tpy	0.54 tpy	0.08 tpy	2.3 tpy	0.2 tpy	1.7 tpy	0.1 tpy	2.5 tpy
SO2		0.2 tpy	46.5 tpy	0.22 tpy	0.2 tpy	14.0 tpy	0.1 tpy	9.6 tpy	23.6 tpy
NOx		33.2 tpy	13.1 tpy	0.09 tpy	30.0 tpy	3.9 tpy	22.0 tpy	2.7 tpy	35.0 tpy
CO		27.9 tpy	3.27 tpy	0.02 tpy	25.2 tpy	1.0 tpy	19.0 tpy	0.7 tpy	25.7 tpy
VOC		1.83 tpy	0.22 tpy	0.0005 tpy	1.7 tpy	0.1 tpy	1.2 tpy	0.1 tpy	1.7 tpy
Pb		0	0	0	0	0	0	0	0.0

Note: The 1998 PM2.5 data was based on the 1999 PM10/PM2.5 ratio.

Example calculation for the NOx three-year average of actual emissions (tpy).

$$\{(33.2 + 13.1 + 0.09) + (30.0 + 3.9) + (22.0 + 2.7)\} \text{ tons} \div 3 \text{ years} = 34.996 \text{ tons NOx per year (rounded to 35.0 tpy)}$$

Potential emissions of criteria pollutants from the new turbine/steam generating unit cogeneration system were found using both Vendor Guarantee data, and AP-42 factors from section 3.1 “Stationary Gas Turbines”, table 3.1-2a, and from section 1.4 “Natural gas Combustion” for the steam generation unit. See the listed values in Table II below for calculations using vendor data.

The Calculation of the hourly and yearly emission rates using the vendor data is as follows:

The vendor guaranteed a NOx emission rate from the turbine of 25 ppmv on natural gas, at 102,200 ACFM and 967 degrees F (792K). The vendor guaranteed a NOx emission rate from the turbine of 96 ppmv on No. 2 fuel oil, at 98,400 ACFM and 967 degrees F (792K).

Turbine-NOx (firing natural gas)

$$102,200 \frac{\text{ACFM exhaust}}{\text{min ute}} \times \frac{273 \text{ SCFM}}{792 \text{ ACFM}} \times \frac{25.0 \text{ NOx}}{1E+06} \times \frac{46 \text{ lb}}{359 \text{ SCF}} \times \frac{60 \text{ min utes}}{\text{hour}} = 6.77 \frac{\text{lbs}}{\text{hour}}$$

Turbine-NOx (firing No. 2 fuel oil)

$$98,400 \frac{\text{ACFM exhaust}}{\text{min ute}} \times \frac{273 \text{ SCFM}}{792 \text{ ACFM}} \times \frac{96.0 \text{ NOx}}{1E+06} \times \frac{46 \text{ lbs}}{359 \text{ SCF}} \times \frac{60 \text{ min ute}}{\text{hour}} = 25.02 \frac{\text{lbs}}{\text{hour}}$$

Recovery Steam Generating Unit-NOx (firing natural gas only)

The vendor guaranteed a NOx emission rate from the steam generating unit of 0.10 lbs/mmBtu. The unit burns only natural gas and has a capacity of 61.2 mmBtu/hour heat input.

$$0.1 \frac{\text{lbs NOx}}{\text{mmBtu}} \times \frac{61.2 \text{ mmBtu}}{\text{hour}} = 6.12 \frac{\text{lbs NOx}}{\text{hour}}$$

Table II

Potential emissions from the turbine/steam generating system using vendor data

Pollutant	Vendor Guarantee	Lbs/hour	Tons/year
Steam Generating Unit (ID No. ES-34B)			
PM (natural gas-fired)	0.01 lbs/MMBTUH	0.61 lbs PM/hour	2.68 tons PM/year
NOx (natural gas-fired)	0.10 lbs/MMBTUH	6.12 lbs NOx/hour	26.81 tons NOx/year
CO (natural gas-fired)	0.08 lbs/MMBTUH	4.90 lbs CO/hour	21.44 tons CO/year
VOC (natural gas-fired)	0.02 lbs/MMBTUH	1.22 lbs VOC/hour	5.36 tons VOC/year
Turbine (ID No. ES-33B)			
NOx (natural gas-fired)	25 PPMV	6.77 lbs NOx/hour	22.9 tons NOx/year *
NOx (No. 2 fuel oil)	96 PPMV	25.02 lbs NOx/hour	25.0 tons NOx/year **
CO (natural gas-fired)	50 PPMV	8.2 lbs CO/hour	27.84 tons CO/year *
CO (No. 2 fuel oil)	50 PPMV	7.9 lbs CO/hour	7.93 tons CO/year **
VOC (natural gas-fired)	25 PPMV	See Note below	0.43 tons VOCs/year *
VOC (No. 2 fuel oil)	25 PPMV	See Note below	0.024 tons VOCs/year **

* Potential emissions based on maximum usage per year of 6760 hours firing natural gas.

** Potential emissions based on maximum usage per year of 2000 hours firing No. 2 fuel oil.

Note: VOC not used, could not convert from PPMV without a molecular weight; therefore, an emission factor was used

The Potential emissions from the turbine/steam generating system that did not have vendor data supplied were calculated using AP-42 factors. The AP-42 factors used were taken from section 3.1 “Stationary Gas Turbines”, table 3.1-2a, and from section 1.4 “Natural gas Combustion” for the steam generation unit. See the listed values in Table III below for the values calculated using AP-42 factors.

Heat Recovery Steam Generating Unit-NOx (firing natural gas only)

The AP-42 SO₂ emission rate for the steam generating unit is 0.6 lbs/mm cubic feet. The unit burns only natural gas with a design input rate of 59,360 cubic feet per hour. Some sample calculations are included below to indicate the methods used for the values in Table III.

$$0.6 \frac{\text{lbs SO}_2}{10^6 \text{ cubic feet}} \times \frac{59,360 \text{ cubic feet}}{\text{hour}} = 0.0356 \frac{\text{lbs SO}_2}{\text{hour}}$$

Turbine-NOx (firing natural gas)

Design heat input rate when firing natural gas = 60.32 million Btu per hour

$$\frac{6.60 \times 10^{-3} \text{ lbs TSP}}{1 \times 10^6 \text{ Btu}} \times \frac{60.32 \times 10^6 \text{ Btu}}{\text{hour}} \times \frac{6760 \text{ hours}}{\text{year}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} = 1.346 \frac{\text{tons TSP}}{\text{year}}$$

Turbine-NOx (firing No. 2 fuel oil)

Design heat input rate when firing No. 2 fuel oil = 59.5 million Btu per hour

$$\frac{1.20 \times 10^{-02} \text{ lbs TSP}}{1 \times 10^6 \text{ Btu}} \times \frac{59.5 \times 10^6 \text{ Btu}}{\text{hour}} \times \frac{2000 \text{ hours}}{\text{year}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} = 0.714 \frac{\text{tons TSP}}{\text{year}}$$

Table III

Potential emissions from the turbine/steam generating system using AP-42 Factors

Pollutant	AP-42 Factor	Lbs/hour	Tons/year
Steam Generating Unit (ID No. ES-34B), AP-42 section 1.4 "Natural gas Combustion"			
SO ₂ (natural gas-fired)	0.6 lbs/mm cubic ft	0.0356 lbs SO ₂ /hour	0.156 tons SO ₂ /year
Lead (natural gas-fired)	2.71E-04 lbs/mm cubic ft	1.60865 E-05 lbs Pb/hour	7.05E-05 tons Pb/year
Turbine (ID No. ES-33B) section 3.1 "Stationary Gas Turbines", Table 3.1-2a			
TSP (natural gas-fired)	6.60E-03 lbs/mmBtu	0.398 lbs TSP/hour	1.346 tons TSP/year *
TSP (No. 2 fuel oil)	1.20E-02 lbs/mmBtu	0.714 lbs TSP/hour	0.714 tons TSP/year **
SO ₂ (natural gas-fired)	3.40E-03 lbs/mmBtu	0.205 lbs SO ₂ /hour	0.693 tons SO ₂ /year *
SO ₂ (No. 2 fuel oil)	3.30E-02 lbs/mmBtu	1.96 lbs SO ₂ /hour	1.96 tons SO ₂ /year **
VOC (natural gas-fired)	2.10E-03 lbs/mmBtu	0.126 lbs VOC/hour	0.428 tons VOC/year *
VOC (No. 2 fuel oil)	4.10E-04 lbs/mmBtu	0.024 lbs VOC/hour	0.024 tons VOC/year **
Pb (natural gas-fired)	0	0	0
Pb (No. 2 fuel oil)	0	0	0

* Potential emissions based on maximum usage per year of 6760 hours firing natural gas.

** Potential emissions based on maximum usage per year of 2000 hours firing No. 2 fuel oil.

The values from Table II and Table III were added together to get the maximum potential increases of criteria pollutants from addition of the new turbine/steam generation system. The average actual emissions of the four boilers (ID Nos. ES-15B, 16B, 17B, and 18B) that were to be removed upon successful operation of the turbine/steam generation system, for the years 1998 through 2000 are listed in Table I. The net increase in criteria pollutants is equal to the difference of the average actual emissions and the potential emissions of this new system. These values will be listed in Table IV of this review.

Table IV

Net emissions from the modification

Pollutant	Source			Total (tpy)	Decreases (tpy)	Net Increase (tpy)
	Turbine		Steam generator			
	Natural gas	No. 2 oil	Natural gas			
	Tons/year	Tons/year	Tons/year	Tons/year	Tons/year	Tons/year
PM	1.346 tpy	0.714 tpy	2.68 tpy	4.74 tpy	2.90 tpy	1.84 tpy
PM10	1.346 tpy	0.714 tpy	2.68 tpy	4.74 tpy	2.60 tpy	1.84 tpy
PM2.5	1.346 tpy	0.714 tpy	2.68 tpy	4.74 tpy	2.50 tpy	1.84 tpy
SO ₂	0.693 tpy	1.96 tpy	0.156 tpy	2.81 tpy	23.6 tpy	-20.8 tpy
NO _x	22.90 tpy	25.0 tpy	26.81 tpy	74.71 tpy	35.0 tpy	39.71 tpy
CO	27.84 tpy	7.93 tpy	21.44 tpy	57.21 tpy	25.7 tpy	31.51 tpy
VOCs	0.428 tpy	0.024 tpy	5.36 tpy	5.81 tpy	1.70 tpy	4.11 tpy
Lead	0.00 tpy	0.0 tpy	7.05E-05 tpy	0.0 tpy	0.00 tpy	0.0 tpy

The Net increases found in Table IV shall now be compared to the PSD major source significant increase (tons/year) to determine if a PSD modification is required for this project.

Table V

Pollutant	Net increase in criteria pollutants	PSD Significance level	PSD Modification Required
PM	1.84 tpy	25 tpy	No
PM10	1.84 tpy	15 tpy	No
PM2.5	1.84 tpy		No
SO ₂	-20.8 tpy	40 tpy	No
NO _x	39.71 tpy	40 tpy	No
CO	31.51 tpy	100 tpy	No
VOCs	4.11 tpy	40 tpy	No
Lead	0.0 tpy	0.6 tpy	No

The values in Table V above are based on burning natural gas only in the steam generation unit for 8,760 hours per year, the burning of natural gas in the turbine for 6,760 hours per year, and the burning of No. 2 fuel oil at 2000 hours per year.

An equation will be placed in the body of the permit which will show the method of calculating the NOx emissions for a consecutive twelve month time period along with the maximum yearly limit of **75 tons of NOx** (= 40 tons allowed by the regulations, plus the 35 tons per year decrease when the four boilers are removed).

As stated earlier in this review, the calculations in the previous few pages, were used to arrive at the 75 ton per year limit for the PSD Avoidance condition. With the request in this application 2600102.04A, the four boilers that were to be removed from service, are now needed as backup boilers in case of emergency. Therefore, the DAQ has decided to leave these boilers on the permit, as requested by Fort Bragg, and place them under the existing 75 ton PSD Avoidance Condition. **These boilers will only operated in the event that the turbine/steam generating unit is not in service.**

VI. Emission Source-by-Source Evaluation (continued)

B. One dry filter-type paint spray booth (ID No. ES-10C, MACT Subpart GG) using epoxy primer and non-reactive water reducible Chemical Agent Resistant Coating along with two natural a natural gas-fired burners with associated thermal oxidizer (ID No. ECD-PB10) located in Building P-3354.

1. Description: Rotary Winged Aircraft will be prepared for painting by abrasive blasting in a blast booth and subsequently painted using epoxy primer and Chemical Agent Resistant Coatings. These paints will be thinned in an 80:20 ratio with aircraft type thinner. A rotary concentrator with a catalytic oxidizer (RCCO) type Voc emission control device will be operated during the paint application process. There are two natural gas fired burners associated with this emission source; (1) paint booth natural gas burner and (2) Catalytic oxidizer natural gas burner. The paint booth natural gas-fired burner is used to heat the make-up air stream entering the paint booth (direct- fired). Combustion emissions are vented through the paint booth and the RCCO unit. The catalytic oxidizer natural gas burner is a standard direct fire burner.

2. Applicable Requirements: This booth will be installed in the near future. This booth **is not** subject to any New Source Performance Standard.

Regulated Pollutant	Limits/Standards	Applicable Regulation
Particulate	$E = 4.10 (P)^{0.67}$ (For process weight rates $\leq 60,000$ lbs) Where P = process weight rate (tons/hr) E = allowable emission rate for PM (lbs/hr)	15A NCAC 2D .0515
Visible emissions	20 percent opacity	15A NCAC 2D .0521
Volatile organic compounds	Work practice standards	15A NCAC 2D .0958
	Less than 40 tons per year	15A NCAC 2D .0317 15A NCAC 2D .0530 (PSD Avoidance)
HAPs	Limits in MACT	15A NCAC 2D .1111 (40 CFR Part 63, Subpart GG)

a. 15A NCAC 2D .0515: Particulates From Miscellaneous Industrial Processes

i. Emissions of particulate matter from paint booth (ID No. ES-10C) shall not exceed an allowable emission rate as calculated by the following equation: [15A NCAC 2D .0515(a)]

$$E = 4.10 \times P^{0.67} \quad \text{Where} \quad \begin{array}{l} E = \text{allowable emission rate in pounds per hour} \\ P = \text{process weight in tons per hour} \end{array}$$

Liquid and gaseous fuels and combustion air are not considered as part of the process weight.

Testing [15A NCAC 2D .0501 (c)(3)]

- ii. If emissions testing is required, the testing shall be performed in accordance with General Condition JJ. If the results of this test are above the limit given in Section VI. B. 2. a. above, the Permittee shall be deemed in noncompliance with 15A NCAD 2D .0515.

Monitoring/Recordkeeping [15A NCAC 2Q .0508(f)]

- iii. The Permittee shall maintain production records that specify the types of finishes and materials processed and shall make these records available to a DAQ authorized representative upon request. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0515 if the production records are not maintained or the types of materials and finishes are not monitored.

b. 15A NCAC 2D .0521: Control Of Visible Emissions

- i. Visible emissions from the paint spray booth (ID No. ES-10C) shall not be more than **20 percent** opacity each when averaged over a six-minute period. However, six-minute averaging periods may exceed 20 percent not more than once in any hour and not more than four times in any 24-hour period. In no event shall the six-minute average exceed 87 percent opacity. [15A NCAC 2D .0521 (d)]

Testing [15A NCAC 2D .0501(c)(8)]

- ii. If emissions testing is required, the testing shall be performed in accordance with 15A NCAC 2D .0501(c)(8) and General Condition JJ. If the results of this test are above the limit given in Section VI. B. 2. b. i. above, the Permittee shall be deemed in noncompliance with 15A NCAC 2D .0521.

Monitoring [15A NCAC 2Q .0508(f)]

- iii. To assure compliance, **once a month** the Permittee shall observe the emission points of this source for any visible emissions above normal. The Permittee shall establish "normal" for the source in the first 30 days following the effective date of the permit. If visible emissions from this source are observed to be above normal, the Permittee shall either: (a) be deemed to be in noncompliance with 15A NCAC 2D .0521 or (b) demonstrate that the percent opacity from the emission points of the emission source in accordance with 15A NCAC 2D .0501(c)(8) is below the limit given in Section VI. B. 2. b. i. above in this building. If the demonstration in (b) above cannot be made, the Permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0521.

Recordkeeping [15A NCAC 2Q .0508(f)]

- iv. The results of the monitoring shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:
 - (A) the date and time of each recorded action;
 - (B) the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
 - (C) the results of any corrective actions performed.The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0521 if these records are not maintained.

Reporting [15A NCAC 2Q .0508(f)]

- v. The Permittee shall submit a summary report of the observations postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

c. 15A NCAC 2D .0958: Work Practices For Sources Of Volatile Organic Compounds

- (1) Pursuant to 15A NCAC 2D .0958, for all sources that use volatile organic compounds (VOC) as solvents, carriers, material processing media, or industrial chemical reactants, or in similar uses that mix, blend, or manufacture volatile organic compounds, or emit volatile organic compounds as a product of chemical reactions, and whose emissions of VOC are greater than 15 pounds per day; the Permittee shall:
 - i. store all material, including waste material, containing volatile organic compounds in tanks or in containers covered with a tightly fitting lid that is free of cracks, holes, or other defects, when not in use,
 - ii. clean up spills of volatile organic compounds as soon as possible following proper safety procedures,
 - iii. store wipe rags containing volatile organic compounds in closed containers,
 - iv. not clean sponges, fabric, wood, paper products, and other absorbent materials with volatile organic compounds,
 - v. transfer solvents containing volatile organic compounds used to clean supply lines and other coating equipment into closable containers and close such containers immediately after each use, or transfer such solvents to closed tanks, or to a treatment facility regulated under section 402 of the Clean Water Act,
 - vi. clean mixing, blending, and manufacturing vats and containers containing volatile organic compounds by adding cleaning solvent and close the vat or container before agitating the cleaning solvent. The spent cleaning solvent shall then be transferred into a closed container, a closed tank or a treatment facility regulated under section 402 of the Clean Water Act. [15A NCAC 2D .0958(c)]

- (2) **When cleaning parts with a solvent containing a volatile organic compound, the Permittee shall:**
 - i. flush parts in the freeboard area,
 - ii. take precautions to reduce the pooling of solvent on and in the parts,
 - iii. tilt or rotate parts to drain solvent and allow a minimum of 15 seconds for drying or until all dripping has stopped, whichever is longer,
 - iv. not fill cleaning machines above the fill line,
 - v. not agitate solvent to the point of causing splashing. [15A NCAC 2D .0958(d)]

Monitoring

- (3) To assure compliance with paragraphs (a) and (b) above, the Permittee shall, at a minimum, perform a visual inspection once per month of all operations and processes utilizing volatile organic compounds. The inspections shall be conducted during normal operations. If the required inspections are not conducted the Permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0958.

Recordkeeping

- (4) The results of the inspections shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:
 - i. the date and time of each inspection; and
 - ii. the results of each inspection noting whether or not noncompliant conditions were observed.

If the required records are not maintained, the Permittee shall be deemed to be in noncompliance with 15A NCAC 2D .0958.

Reporting

- (5) The Permittee shall submit a summary report of the observations by January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified.

d. 15A NCAC 2Q. 0317: AVOIDANCE CONDITIONS for 15A NCAC 2D. 0530: PREVENTION OF SIGNIFICANT DETERIORATION- Volatile Organic Compounds

i. In order to avoid applicability of this regulation, paint spray booth (ID No. ES-10C) shall discharge into the atmosphere less than **40 tons of VOCs** per consecutive 12-month period. [15A NCAC 2D .0530]

ii. **Testing** [15A NCAC 2D .0501(c)(3)]

If emissions testing is required, the Permittee shall perform such testing in accordance with General Condition JJ found in Section 3. If the results of this test are above the limit given in Section VI. B. 2. d. i. above, the Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530.

Additional Testing

iii. Under the provisions of NCGS 143-215.108, the Permittee shall demonstrate compliance with the emission limit(s) above by testing the thermal oxidizer (ID No. ECD-PB10) for **Volatile Organic Compounds** in accordance with a testing protocol approved by the DAQ. Details of the emissions testing and requirements can be found in Section 3 - General Condition JJ. Testing shall be completed and the results submitted within **one year of issuance of permit** unless an alternate date is approved by the DAQ. If the results of this test are above the limit given in Section VI. B. 2. d. i. above, the Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530.

Monitoring/Recordkeeping [15A NCAC 2Q .0508 (f)]

iv. Calculations of VOC emissions per month shall be made at the end of each month. VOC emissions shall be determined by multiplying the total amount of each type of VOC-containing material consumed during the month by the VOC content of the material. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the amounts of VOC containing materials or the VOC emissions are not monitored and recorded.

v. Calculations and the total amount of VOC emissions shall be recorded monthly in a logbook (written or electronic format). The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the VOC emissions exceed this limit.

vi. To assure compliance, the Permittee shall perform inspections and maintenance as recommended by the manufacturer, if any. As a minimum, the inspection and maintenance program shall include:

- (A) monthly external inspection of the ductwork noting the structural integrity; and
- (B) annual (for each 12 month period following the initial inspection) internal inspection of the concentrator, oxidizer, and associated inlet/outlet valves noting the structural integrity.

The Permittee shall ensure the proper performance of the catalytic oxidizer when in operation by monitoring the following parameters in accordance with the schedule given below. These parameters shall be established during the initial performance test.

- (A) Weekly check of gas flowrate to the oxidizer (range = ___ to 2644 SCFM),
- (B) Weekly check of maximum temperature before the catalyst bed (range = ___ to ___ °F),
- (C) Weekly check temperature rise across the catalyst bed (range = ___ to ___ °F), and
- (D) Pressure drop across the catalyst bed (range = 6.5 to 8.0 inches of water).

Reporting [15A NCAC 2Q .0508(f)]

vii. The Permittee shall submit a summary report of monitoring and recordkeeping activities within 30 days after each calendar year quarter, due and postmarked on or before January 30 of each calendar year for the preceding three-month period between October and December, April 30 of each calendar year for the preceding three-month period between January and March, July 30 of each calendar year for the preceding three-month period between April and June, and October 30 for the calendar year for the preceding three-month period between July and September. The report shall contain the following:

- (A) The monthly VOC emissions for the previous 14 months. The emissions shall be calculated for each of the 12-month periods over the previous 14 months.

Reporting [15A NCAC 2Q .0508(f)]

vii. The Permittee shall submit a semi-annual summary report, acceptable to the Regional Air Quality Supervisor, of monitoring and recordkeeping activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December, and July 30 of each calendar year for the preceding six-month period between January and June. The report shall contain the following:

(A) The monthly VOC emissions for the previous 17 months. The emissions must be calculated for each of the 12-month periods over the previous 17 months;

e. 40 CFR Part 63, Subpart GG, “National Emission Standards For Aerospace Manufacturing and Rework Facilities”

The Permittee shall comply with all applicable provisions, including the reporting, recordkeeping and monitoring requirements contained in Environmental Management Commission Standard 15A NCAC 2D .1111 “Maximum Achievable Control Technology” (MACT) as promulgated in 40 CFR Part 63, Subpart GG “National Emission Standards for Aerospace Manufacturing and Rework Facilities”, including Subpart A “General Provisions.”

C. One diesel fuel-fired emergency generator (ID No. ES-34G) located in building No. 2-5353 (GISA Area)

1. **Description:** This emergency generators is fired by diesel fuel only. The maximum operation of this emergency generator shall not exceed 500 hours per the 1995 EPA guidance from John S. Seitz, Director of the Office of Air Quality Planning and Standards. Emissions from the generators are uncontrolled.
2. **Applicable Regulatory Requirements:** NSPS does not apply to any of these emergency generators. 40 CFR Part 63, Subpart ZZZZ, Stationary Reciprocating Internal Combustion Engines, (RICE)” will apply because this engine is considered a new source because it will commence construction after December 19, 2003.

The following provides a summary of limits and/or standards for the emission source(s) described above.

Regulated Pollutant	Limits/Standards	Applicable Regulation
Sulfur dioxide	2.3 pounds per million Btu heat input	15A NCAC 2D .0516
Visible emissions	20 percent opacity	15A NCAC 2D .0521
HAPs	See Other Applicable Requirements Section IX	15A NCAC 2D .1111

a. 15A NCAC 2D .0516 “Sulfur Dioxide Emissions from Combustion Sources”

Regulation Analysis:

- i. Emissions of sulfur dioxide from each source shall not exceed **2.3 pounds per million Btu heat input**. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard.

This emergency generator fires diesel fuel (No. 2 fuel oil) which contains 0.5% sulfur by weight when it is sold in North Carolina.

Compliance is indicated since the actual of sulfur dioxide from No. 2 fuel oil with 0.5% sulfur by weight will be less than the allowable emissions (**2.3 pounds SO₂ per million Btu heat input**).

Monitoring/Recordkeeping/Reporting [15A NCAC 2Q .0508(f)]

- ii. No monitoring, recordkeeping, or reporting is required for sulfur dioxide emissions from the firing of diesel fuel in this emergency generator.

b. 15A NCAC 2D .0521"Control Of Visible Emissions"

Regulation Analysis:

- i. This generator will be installed after July 1, 1971, and is therefore subject to the State regulation 15A NCAC 2D .0521(d). Per this regulation visible emissions shall not be more than **20 percent opacity** when averaged over a six-minute period except that six-minute periods averaging more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period for each boiler.

Compliance is expected with this regulation under normal operation.

Monitoring/Recordkeeping/Reporting [15A NCAC 2Q .0508(f)]

- ii. No monitoring, recordkeeping, or reporting is required for visible emissions from the firing of diesel fuel in this generator.

VIII. Multiple Emissions

15A NCAC 2D .0530: PREVENTION OF SIGNIFICANT DETERIORATION--- Nitrogen Dioxide--

- 1. In order to avoid applicability of 15A NCAC 2D .0530(g) for major sources and modifications, the turbine/steam generation unit cogeneration system (ID Nos. ES-33B & 34B) and boilers (ID Nos. ES-15B, 16B, 17B, and 18B), shall discharge into the atmosphere less than **75 tons of nitrogen dioxide** per consecutive 12-month period.

Testing [15A NCAC 2Q .0501 (c)(4)]

- 2. If emissions testing is required, the Permittee shall perform such testing in accordance with 15A NCAC 2D .0501(c)(4) and General Condition JJ found in Section 3 of this permit. If the results of this test are above the limit given in Section 2.2 B. 1. above, the Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530.

Monitoring/Recordkeeping [15A NCAC 2Q .0508(f)]

- 3. The Permittee shall keep monthly records of the amount of natural gas and No. 2 fuel oil used, including certification of the fuel, in a logbook (written or in electronic format). The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the fuels are not monitored.
- 4. The use of fuels in the turbine/steam generation unit cogeneration system (ID Nos. ES-33B & 34B) and boilers (ID Nos. ES-15B, 16B, 17B, and 18B) shall be limited such that nitrogen dioxide emissions shall not exceed **75 tons for any consecutive 12-month period**. Calculations shall be made monthly and recorded in a logbook (written or in electronic format), according to the following formula for the firing of No. 2 fuel oil and natural gas in the turbine/steam generation unit cogeneration system:

$$A = \left[(B_{\text{steam unit}} \times \frac{6.12 \text{ lbs NOx}}{\text{hour}}) + (C_{\text{turbine}} \times \frac{6.80 \text{ lbs NOx}}{\text{hour}}) + (D_{\text{turbine No.2 oil}} \times \frac{25.0 \text{ lbs NOx}}{\text{hour}}) \right] \times \frac{\text{tons NOx}}{2000 \text{ lbs NOx}}$$

Where: A = total emissions of nitrogen dioxide (tons/month)

B = total hours of operation per each month burning natural gas in the steam generation unit

C = total hours of operation per month burning natural gas in the **turbine**

D = total hours of operation per month burning No. 2 fuel oil in the **turbine**

6.12 lbs NOx/hr (vendor supplied emission factor for steam generation unit firing natural gas)

6.80 lbs NOx/hr (vendor supplied emission factor for turbine firing natural gas)

25.0 lbs NOx/hr (vendor supplied emission factor for turbine firing No. 2 fuel oil)

Calculations shall be made monthly and recorded in a logbook (written or in electronic format), according to the following formula for the firing of No. 2 fuel oil and/or natural gas in the four boilers (ID Nos ES-15B, 16B, 17B, 18B):

$$E = \left[(F_{\text{boilers nat. gas}} \times \frac{190 \text{ lbs NOx}}{\text{million cubic feet}}) + (G_{\text{boilers No.2 fuel Oil}} \times \frac{71.0 \text{ lbs NOx}}{1000 \text{ gallons fuel oil}}) \right] \times \frac{\text{tons NOx}}{2000 \text{ lbs NOx}}$$

E = total emissions of nitrogen dioxide (tons) emissions from the four boilers for each month
F = total cubic feet per month of natural gas burned in boilers
G = total gallons of No. 2 fuel oil/on specification No. 2 fuel oil burned in the boilers for the month

190 lbs NOx/million cubic foot {AP-42 factor for boiler firing natural gas (fifth edition, supplement D)}

71 lbs NOx/1000 gallons {AP-42 factor emission factor for boiler firing No. 2 fuel oil (fifth edition, supplement E)}

The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if records are not kept, and/or if the total nitrogen dioxide emissions from the four boilers (ID Nos. ES-15B, 16B, 17B, & 18B) and the turbine/steam generation unit cogeneration system (ID Nos. ES-33B & 34B) exceed 75 tons per consecutive 12-month period.

Reporting [15A NCAC 2Q .0508(f)]

5. The Permittee shall submit a summary report, acceptable to the Regional Air Quality Supervisor, of monitoring and recordkeeping activities postmarked on or before January 30 of each calendar year for the preceding six-month time period between July and December, July 30 of each calendar year for the preceding six-month time period January and June. The report shall contain the following:
 - i. The monthly nitrogen dioxide emissions for the previous 12 months. The emissions must be calculated for each of the 12-month periods over the previous 17 months;
 - i. The monthly quantities of natural gas and used No. 2 fuel oil consumed for the previous 17 months.

IX. Other Applicable Requirements

- **Emergency generator (ID No. ES-34G)**

Fort Bragg is possibly subject to this subpart 40 CFR Part 63, Subpart ZZZZ, Stationary Reciprocating Internal Combustion Engines" (RICE). The initial notification for this subpart is 120 days after the startup of a new stationary RICE. Since Fort Bragg has not notified the DAQ that this source is subject to the RICE MACT, no requirements will be placed in the permit except the general requirements for all MACTs.

- X. A Professional Engineers Seal was included with the application. Mr. Timothy J. Skone, of Science Applications International Corporation, sealed the forms for the paint booth (ID No. ES-10C) and the abrasive blasting operation (ID No. IES-04AB).
- XI. A consistency determination is required and was included along with the application. Fort Bragg Military Base has jurisdiction in the zoning for the facility.
- XII. An application fee of \$834.00 is required and was received by the DAQ on June 15, 2004.
- XIII. The appropriate number of copies of the application were received by the DAQ on June 15, 2004.
- XIV. The application contained the Reduction and Recycling Form.
- XV. The application was signed by an authorized official as defined by 15A NCAC 2Q .0304(j).
- XVI. **Air toxics does not apply:** Air toxic emissions come from the combustion of natural gas (turbine, steam generation unit, burners in paint booth ES-10C and the combustion of No. 2 fuel (in turbine). Combustion sources are currently exempted from triggering air toxics in accordance with 15A NCAC 2Q .0702 (a)(18).

The new paint spray booth (ID No. ES-10C) will use only non-reactive, water reducible Chemical Agent Resistant Coatings (CARC) that have substantially reduced VOC levels and no toxic air pollutant components.

XVII. MACT Standards: Fort Bragg is possibly subject to the following MACT:

Therefore, if the apparently affected sources are still in service at this facility, and the facility is still major for HAPs as of the compliance date or their initial notification date of each MACT, the affected sources will have to be in compliance with each specific MACT.

The facility has not made an initial notification to the DAQ to state whether they are subject to the following subparts, therefore, no requirements will be placed in the permit other than the general requirements of all MACTs.

Regulated Pollutant	Requirements	Applicable Regulation
HAPs	Notification requirements	15A NCAC 2D .1111 40 CFR §63.9
TAPs	State enforceable only	15A NCAC 2Q .0705

1. 15A NCAC 2D .1111 MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (MACT - 40 CFR PART 63)

- a. The Permittee shall comply with all applicable provisions, including Notification Requirements per 40 CFR §63.9.
- b. The Permittee shall submit the initial notification to the following per 40 CFR §63.9(a)(4)(ii) and 15A NCAC 2Q .0508(f):
 - i. Division of Air Quality, Permitting Section
 - ii. Division of Air Quality, Regional Office Permitting Section, and
 - iii. EPA-Region IV

State-Enforceable Only

2. 15A NCAC 2D .0705 EXISTING FACILITIES AND SIC CALLS

- a. For sources at a facility subject to a MACT standard a permit application shall be required demonstrating compliance with the 15A NCAC 2D .1100 in accordance with the schedules included therein.

A. 40 CFR Part 63, Subpart ZZZZ, Stationary Reciprocating Internal Combustion Engines”
Fort Bragg is possibly subject to this subpart.

1. **40 CFR §63.6590(b)(3):** A stationary RICE which is an existing spark ignition 2 stroke lean burn (2SLB) stationary RICE, an existing spark ignition 4 stroke lean burn (4SLB) stationary RICE, **an existing compression ignition (CI) stationary RICE, an existing emergency stationary RICE,** an existing limited use stationary RICE, or an existing stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, does not have to meet the requirements of this subpart and of subpart A of this part. No initial notification is necessary.

It appears that all of the existing **emergency generators** (commenced construction or reconstruction prior to December 19, 2002) at Fort Bragg are exempt from the RICE MACT. However, the facility must keep a copy of the applicability determination for five years in accordance with **§63.10(b)(3)**.

All of the existing **compression ignition** (diesel fired) generators or peak shaving units (commenced construction or reconstruction prior to December 19, 2002) at Fort Bragg are exempt from the RICE MACT. However, the facility must keep a copy of the applicability determination for five years in accordance with **§63.10(b)(3)**.

2. The one new emergency generator (ID No. ES-34G, 600kW maximum output) that will be added to this facility will possibly be subject to the following limited use requirements in accordance with 40 CFR Part 63, §63.6590. This section states the following:

§63.6590(a)(2): New stationary RICE.

A stationary RICE is new if you commenced construction of the stationary RICE on or after December 19, 2002.

§63.6590(b)(1): Stationary RICE Subject to limited requirements.

An affected source which meets either of the criteria in paragraph (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(d).

- (i) The stationary RICE is a new or reconstructed **emergency stationary RICE**; or
- (ii) The stationary RICE is a new or reconstructed limited use stationary RICE.

Emergency generator (ID No. ES-43G) must meet the initial notification requirements as listed in 40 CFR Part 63, Subpart ZZZZ, §63.6645(d) if it is subject to this requirement.

B. 40 CFR Part 63, Subpart YYYY, Stationary Combustion Turbines”

Fort Bragg is possibly subject to this subpart.

On March 5, 2004, EPA published final national emission standards for hazardous air pollutants (NESHAP) for stationary combustion turbines. As part of the NESHAP, EPA established eight subcategories of stationary combustion turbines. Elsewhere in this Federal Register, EPA is publishing a proposed rule to delete four of these subcategories from the source category list required by section 112(c)(1) of the Clean Air Act (CAA). The EPA has made an initial determination that the four subcategories satisfy the criteria for deletion from the source category list established by section 112(c)(9)(B). In this companion action, EPA is proposing to **stay the effectiveness** of the combustion turbines NESHAP for new sources in the **lean premix gas-fired turbines** and diffusion flame gas-fired turbines subcategories, which are the two principal subcategories we are proposing to delist.

This action is necessary to avoid wasteful and unwarranted expenditures on installation of emission controls which will not be required if the subcategories are delisted.

Turbine (ID No. ES-33B) is a lean premix gas-fired/No. 2 fuel oil-fired turbine, and is therefore part of the category that EPA has issued a “stay” as far as applicability to the Combustion MACT, Subpart YYYY, when firing only natural gas. There is also a section in the preamble (Federal Register/Vol 69, No. 67 Wednesday, April 7, 2004/Proposed Rules, page 18330) of this MACT that states that “for the purposes of the MACT standards, stationary combustion turbines have been divided into eight subcategories. Four of the subcategories are the subject of the proposed delisting rule: (1) Stationary lean premix combustion turbines when firing gas and when firing oil at sites where all turbines fire oil no more than 1,000 hours annually (also referred to as “lean premix gas-fired turbines”). This statement indicates that the lean mix oil-fired turbines are also called and categorized as “lean premix gas-fired turbines”. Therefore, turbine (ID No. ES-33B) is not subject to Subpart YYYY, at this time.

C. Other MACT Standards (not mentioned above) that Fort Bragg may be possibly subject to.

Table VI

Description	Subpart	Effective Date	New/Reconstr.	Compliance Date (New/reconstruct.)	Compliance Date (Existing)
Auto & Light Duty Truck	IIII	6/25/04 Fed. Reg. Pg. 22602	After 12/24/02 Fed. Reg. Pg. 22624	6/25/04 or start up Fed. Reg. Pg. 22624	4/26/07 Fed. Reg. Pg. 22624
Industrial, Commercial, and Institutional Boilers and Process Heaters	DDDDD	11/12/04 Not published in FR yet 9/23/04	After 1/13/03 Not yet published in Federal Register	11/12/04 or start up Not yet published in Federal Register	9/13/07 Not yet published in Federal Register
Large Appliances	NNNN	7/23/02 Fed. Reg. Pg. 48254	After 7/23/02 Fed. Reg. Pg. 48264	7/23/02 or start up Fed. Reg. Pg. 48264	7/25/05 Fed. Reg. Pg. 48264
Metal Furniture	RRRR	5/23/03 Fed. Reg. Pg. 28606	After 4/24/02 Fed. Reg. Pg. 28620	5/23/03 or start up Fed. Reg. Pg. 28620	5/23/06 Fed. Reg. Pg. 28620
Misc. Metal Parts and Products*	MMMM	1/2/04 Fed. Reg. Pg. 130	After 8/13/02 Fed. Reg. Pg. 159	1/2/04 or start up Fed. Reg. Pg. 160	1/2/07 Fed. Reg. Pg. 160
Plastic Parts*	PPPP	4/19/04 Fed. Reg. Pg. 20968	After 12/4/02 Fed. Reg. Pg. 20992	4/19/04 or start up Fed. Reg. Pg. 20993	4/19/07 Fed. Reg. Pg. 20993
Wood Building Products	QQQQ	5/28/03 Fed. Reg. Pg. 31746	After 6/21/02 Fed. Reg. Pg. 31761	5/28/03 or start up Fed. Reg. Pg. 31761	5/28/06 Fed. Reg. Pg. 31761
Military MACT (DLSME) Defense Land Systems & Misc. Equipment	?????	?????	?????	?????	?????

* These MACTs have been placed in the Federal Register, but installations owned or operated by the Armed Forces of the U.S. (DOD facilities) have been exempted from the requirements of this subpart.

DOD facilities are exempt from Subpart MMMM in accordance with 40 CFR Part 63, §63.3881(c)(4). DOD facilities are exempt from Subpart PPPP in accordance with 40 CFR Part 63, §63.4481(c)(3).

For the existing sources that Fort Bragg has at the facility which possibly fall under the MACT standards listed in Table VI above, the DAQ will not place any requirements in the current permit because the compliance dates for these sources have not passé and the facility has not provided the initial notification that their facilities are subject to specific MACTs.

Also, as noted in the table, the EPA along with some military representatives, is currently working on a military MACT called Defense Land System & Miscellaneous Equipment (DLSME) for coating operations at installations owned or operated by the Armed Forces of the U.S.

XIX. Public Notice

A thirty-day public notice is required for this modification. The notice will run in a newspaper of general circulation in this area called the _____.

Public notice period:

Public comments:

EPA comment period:

EPA comments:

XX. Recommendations

This modification issued under section 501(c)(1) changes for the Fort Bragg Military Base, located in Fort Bragg, North Carolina, has been reviewed by the DAQ to determine compliance with all procedures and requirements. The DAQ has determined that this facility is complying or will achieve compliance as specified in the permit with all applicable requirements.

This permit contains a Part II “Construction” Permit.

Issue permit No. 04379T24.