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NORTH CAROLINA DIVISION OF AIR QUALITY

Air Quality Action Request

County: *New Hanover*

Name General Electric Company Global Nuclear Fuel - Americas, LLC	Location 3901 Castle Hayne Road Wilmington, NC 28402	Reg/Co./Prem.No. 08/65/00070
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Contact Priti Mathur, EHS Specialist	Address P.O. Box 780 M/C G-26 Wilmington, NC 28402	Telephone 910-675-5295
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Type Action: CI EE <u>XX</u> SR PC VE PI	Other:
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Air Program Status 03	Class: Synthetic Minor Chg:
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Action Requested By WiRO	Address/Phone 910-796-7215	Rec'd Date NA
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Last Insp: 09/28/05	Action Date: 09/27/06	Next Insp: 09/30/07
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Permit: 1756R17 Issued: 12/15/04 Expires: 12/01/09	Stip: NA Met Y/N: NA
Permit: 1161R19 Issued: 12/03/04 Expires: 12/01/09	

Recommendations: Inspect facility as scheduled	Signature: Scott Sanders 	Date: 10/02/06
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Dist: Yellow (Central Files)	Blue (Region)	White (Inspector)
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- Contact was made with Mark Leik, EHS Manager, Priti Mathur, EHS Specialist, and Karen Williams, EHS Specialist.
- The inspection was lead by Priti Mathur, EHS Specialist. The inspection consisted of going through the facility and inspecting the permitted equipment. Opacity readings were obtained from various positions on the facility with the majority taken on the roof. General Electric / Global Nuclear Fuel must follow Nuclear Regulatory Commission regulations and is subject to frequent and extensive inspections by the Nuclear Regulatory Commission.
- Applicable regulations for General Electric, Permit No. 1161R19, are as follows:
 - 2D. 0202 " Emission Inventory Requirement "
 - 2D. 0515 " Particulates from Miscellaneous Industrial Processes "
 - 2D. 0521 " Control of Visible Emissions "

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- 2D. 0535 " Excess Emissions Reporting and Malfunctions "**
- 2D. 0958 " Work Practices for Sources of Volatile Organic Compounds "**
- 2Q. 0315 " Synthetic Minor Facilities "**

North Carolina Air Quality Permit No. 1161R19

Issued: 12/03/04

Expires: 12/01/09

- a) *one packed, cross flow-type, wet scrubber and mist eliminator (ID No. E0007916, 250 gallons per minute nominal liquid injection rate) installed on the SCO metal cleaning and striking operation (ID No. SCO4),*

The opacity reading for visible emissions was 0% at the time of the inspection. This control device has a control efficiency of 95%. This process operates 24 hours per days and 7 days per week. Maintenance checks are done weekly to ensure optimum efficiency. Emissions from this process are based on gallons used. Pursuant to the 2003 Emissions Inventory, the controlled actual emissions from this process are as follows: Nitric Acid - 33.20 pounds; Hydrogen Chloride - 0.0025 pounds. This equipment is located in the GE Nuclear Energy section of the plant.

- b) *one cross-flow wet scrubber (ID No. 9122 - 37.8 gallons of water per minute nominal injection rate) installed on a large parts cleaning system (ID No. AE1)*

This equipment was not operating at the time of the inspection. The scrubber has a control efficiency of 95%. This equipment is no longer in service. GE has not operated this equipment in a few years.

- c) *one cross-flow wet scrubber (ID No. 9122 - 37.8 gallons of water per minute nominal injection rate) installed on a large parts cleaning system (ID No. AE2)*

The opacity reading for visible emissions was 0% at the time of the inspection. This process is basically a water based cleaning process. This equipment is usually operated on the first shift. Pursuant to the 2003 Emission Inventory, this process had no reportable emissions.

- d) *one lubricant application booth (ID No. AE3) and one curing oven (ID No. AE4)*

This equipment was not operating at the time of the inspection. The process runs on a batch mode that depends on the availability of parts. No control device is associated with this process. Actual emissions in 2003 for the lubricant application booth are as follows: VOC - 2.90 pounds; MEK - 0.97 pounds; Toluene - 1.94 pounds. Actual emissions in 2003 for the curing oven are as follows: VOC - 0.13 pounds; MDI - 0.13 pounds.

- e) *one mist eliminator system consisting of a centrifugal mist separator, a metal mesh coalescing filter (4.0 square feet of filter area), and a bagfilter (110 square feet of filter area) installed on a coolant return fume hood (ID No. AE7)*

This process is no longer emitting to the atmosphere. The stack outlet has been covered. Pursuant to the 2003 Emission Inventory, this process had no reportable emissions.

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- f) *one packed-tower wet scrubber (ID No. 9050 - 49.2 gallons of water per minute nominal injection rate) in FPI installed on an automated parts washer (ID No. AE8)*

The opacity reading for visible emissions was 0% at the time of the inspection. Pursuant to the 2003 Emission Inventory, this process had no reportable emissions.

*** Pursuant to **Specific Condition and Limitation No. 8** in Permit No. 1161R19 the Permittee must have facility-wide PM-10 emissions less than 100 tons per consecutive twelve (12) month period. To comply with this limit, the Permittee must follow the following requirements:

Inspection and Maintenance Requirements

- a) All Permitted Fabric Filters that are in Operation

To comply with the provisions of this Permit and ensure that the maximum control efficiency is maintained, the Permittee shall perform periodic inspections and maintenance as recommended by the manufacturer on all fabric filters that are in operation. These requirements are not specified for units that are not in operation.

An annual internal inspection shall be conducted on the bagfilters by the Permittee to ensure the structural integrity such that the optimum control efficiency is achieved. The results of this inspection, and any maintenance performed on the bagfilter(s), shall be recorded in a log book, kept onsite, and made available to the DAQ upon request.

- b) All Permitted Scrubbers

To comply with the provisions of this permit and ensure that the maximum control efficiency is maintained, the Permittee shall perform periodic inspections and maintenance as recommended by the manufacturer. As a minimum, the inspection and maintenance program will include inspection of spray nozzles, packing material, chemical feed system (if so equipped), and the cleaning/calibration of all associated instrumentation.

A logbook (written or electric format) for each scrubber shall be kept onsite and made available to DAQ personnel upon request. Any variance from manufacturers' recommendations shall be investigated with corrections made and date of actions recorded in the logbook.

General Electric is in compliance with their Inspection and Maintenance Requirements. General Electric keeps all of their maintenance logs on the computer and are printed quarterly. The computer is programmed to keep a continuous status on all scrubbers and baghouses. General Electric also performs a hands on inspection of the scrubbers and baghouses yearly. A hands on inspection of the scrubber on AE8 is done monthly. A hands on inspection of the scrubber on SCO4 is done weekly.

All of the permitted equipment contained in Permit No. 1161R19 is located in the GE Nuclear Energy, Aircraft and Service Components building and was operating in compliance with Air Quality regulations at the time of the inspection.

4. Applicable regulations for Global Nuclear Fuel - Americas, LLC, Permit No. 1756R17, are as follows:

- 2D. 0202 " Emission Inventory Requirement "
- 2D. 0503 " Particulates from Fuel Burning Indirect Heat Exchangers "
- 2D. 0515 " Particulates from Miscellaneous Industrial Processes "
- 2D. 0516 " Sulfur Dioxide Emissions from Combustion Sources "
- 2D. 0521 " Control of Visible Emissions "
- 2D. 0535 " Excess Emissions Reporting and Malfunctions "
- 2D. 0958 " Work Practices for Sources of Volatile Organic Compounds "
- 2D. 1100 " Control of Toxic Air Pollutants "
- 2D. 1208 " Other Incinerators "
- 2Q. 0315 " Synthetic Minor Facilities "
- 2Q. 0711 " Emission Rates Requiring a Permit "

North Carolina Air Quality Permit No. 1756R17

Issued: 02/15/04

Expires: 12/01/09

- a) *one 1,200 pounds per hour capacity, natural gas-fired multiple chambered incinerator (ID No. S13, primary burner, 1.5 million Btu/hr minimum heat input and secondary burner, 2.5 million Btu/hr minimum heat input) burning Type 0 waste and used oil and controlled by a flue gas quencher (ID No. S0004572, 58 gal/ min water nominal), a venturi scrubber (ID No. S0004570, 100 gal/min water nominal), a vertical countercurrent packed bed scrubber (ID No. S0004573, 162 gal/min water nominal), and a bagfilter (ID No. S0004605, 1,696 sq. ft. of filter area, nominal) installed in series*

The incinerator was not operating during the inspection. This equipment has not operated at all this year and has not operated since the first week of October 2005. This "incinerator" is a uranium recovery unit. This area is contained and highly secured due to possible radiation, therefore, requiring a dress out procedure. The combined control efficiency of the control devices is 99.5%. Pursuant to the 2003 Emissions Inventory, the process emitted the following pollutants after controls in 2003: CO - 1.19 tons; NOx - 1.42 tons; PM - 0.11 tons; SO2 - 17.10 pounds; VOC - 0.08 tons; Ammonia - 91.20 pounds; Fluorides - 0.80 pounds; Formaldehyde - 2.14 pounds; and HCL - 3.39 pounds. Any other emitted pollutant was very minimal.

To ensure compliance with the toxic emissions limits for arsenic and cadmium, the charge into the incinerator shall not exceed 1,200 pounds per hour of Type 0 waste and used oil. Under **Specific Condition A, Item 10 (b)**, the previous year's log of waste charge rates into the incinerator, in units of pounds per hour, shall be reported to the Regional Supervisor, Division of Air Quality within thirty (30) days after each calendar year. This report, received January 31, 2006, indicates compliance with the charging rate for calendar year 2005. The maximum charge rate for the incinerator was 332 pounds per hour for combustible waste boxes. No used oil was burned in 2005. A copy of the report is attached.

- b) *one bagfilter with 178 square feet of filter area nominal installed on a 100 ton capacity hydrated lime storage tank (ID No. S37)*

This process was not in operation during the inspection. The process and control device is located in the waste treatment area. The control efficiency of the bagfilter is 99.5 %. The maximum process rate for the process is 10 tons per hour. This process currently runs about eight (8) hours per week. The annual

throughput for 2003 was 0.13 pounds, for 2004 was 0.12 pounds, and for 2005 was 0.21 pounds. Pursuant to the 2005 Emissions Inventory, the process emitted the following pollutant after controls in 2005: PM – 0.21 pounds.

- c) ***two steam jacketed wastewater treatment plant sludge (calcium fluoride) dryers (ID No. S07) controlled by one impingement-type wet scrubber (ID No. S0002304, 6 gallons of water per minute nominal) installed in series with one cyclonic wet scrubber (ID No. S0002302, 4 gallons of water per minute nominal)***

This process was not in operation during the inspection and has not operated in many years. The process and control device is located in the waste treatment area. The dry conversion process has taken over much of this process. The control efficiency of the control devices is 95%. Pursuant to the 2003 Emission Inventory, the process emitted zero pollutants.

- d) ***two natural gas and/or No. 2 fuel oil-fired 350 horsepower boilers (ID Nos. FM12 and FM14)***

The south boiler (FM14) was operating at 0% at the time of the inspection. One boiler runs continuously. The north boiler (FM12) is going to be removed from the facility. These boilers are located in the boiler room in the same vicinity as the incinerator. The boilers have an operation schedule of 24 hours per day, 7 days per week, and 52 weeks per year (8760 hours total). The boilers are fueled with natural gas or No. 2 fuel oil. Natural gas only has been burned since 2002.

- e) ***one natural gas and/or No. 2 fuel-oil fired 600 horsepower boiler (ID No. S04)***

This boiler was not operating during the inspection. This boiler has not operated in approximately six years. The boiler is located in the waste treatment area and is fueled with natural gas or No. 2 fuel oil.

- f) ***one 650 kW diesel fuel-fired emergency generator (ID No. S35)***

This generator was not operating during the inspection. It operated 43.7 total hours in 2005.

- g) ***two diesel fuel-fired load shedding generators (ID Nos. S39 and S40) each with a capacity of 1,250kW***

These generators were not operating during the inspection. S39 operated 43.5 hours in 2005 and S40 operated 27.3 hours in 2005.

- h) ***one system 541X dissolver and liquid filter area (ID No. FM03) and one system 546X FMOX conversion area exhaust (ID No. FM04) both controlled by one impingement plate-type wet scrubber, 762 gallons of water per minute nominal)***

This process was operating at 0% opacity at the time of the inspection. This process operates 24 hours per day, 7 days per week, and 50 weeks per year. The control device has a control efficiency of 99%. Pursuant to the 2005 Emission Inventory, this process emitted the following pollutants after controls in 2005: Fluorides - 0.11 pounds.

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- i) **one process operation in the uranium waste recovery system (ID No. FM06) controlled by a cross flow gravity spray chamber (ID No. H0008002, S-965, 120 gallons of water per minute nominal), a condenser (De-entrainer, ID No. S0007450), a venturi scrubber (ID No. S0008740, 30 gallons of water per minute nominal), and a plate tower scrubber (ID No. H0008000, 3 gal. water min. nominal)**

This process was not operating at the time of the inspection. This process operates infrequently. The dry conversion took over and cut down some of the waste associated with this process. The control device has a control efficiency of 99%. Pursuant to the 2003 Emission Inventory, this process emitted the following pollutants after controls in 2003: Fluorides - 0.27 pounds.

- j) **one powder preparation system (ID No. FM15) composed of nine hammermills (ID Nos. W0008021-W0008026 and W0008028-W0008030) controlled by a filter housing unit (7 square feet of filter area, nominal) ducted to the system 2020 exhaust**

This process was not operating during the inspection and operates very infrequently. Only one of the nine hammermills operates. The other hammermills have not operated in several years. Pursuant to the 2003 Emission Inventory, this process had no reportable emissions.

- k) **three identical dry conversion process (DCP) lines (ID No. H3001) controlled by one HF recovery system including two countercurrent absorption columns (ID Nos. DCP06005 and DCP06006)**

The opacity reading for visible emissions was 0% at the time of the inspection. This process operates 24 hours per day, 7 days per week, and 50 weeks per year. The control devices have a control efficiency of 99%. Pursuant to the 2005 Emissions Inventory, this process emitted 0.02 pounds of Fluorides and 2.03 pounds of Hydrogen Fluoride (HF).

- l) **the HF Building emergency vent (ID No. H3003) controlled by an emergency ventilation two stage wet scrubber system (ID No. DCP09010), 25 gallons of water per minute nominal)**

The control device has a control efficiency of 98%. This process was not operating at the time of the inspection. It operates only in an emergency situation when HF levels have been detected at high levels. Pursuant to the 2005 Emissions Inventory, this process emitted 0.005 pounds of Hydrogen Fluoride.

- m) **one drum sand blasting unit (ID No. S58) controlled by one filter housing unit (3,616 square feet filter area nominal)**

This process was not operating during the inspection. Sandblasting is currently being done infrequently. This process operated 84 hours in 2003, 75 hours in 2004, and 60 hours in 2005. The control efficiency of the control device is 99.5%. Pursuant to the 2005 Emission Inventory, the process emitted the following pollutant after controls in 2005: PM - 6.0 pounds.

- n) **one combined exhaust (ID no. FM01) from the north chemical area dust collection system (system 541) and the south chemical area dust collection system (system 546) controlled by a spray-type wet scrubber (ID No. H0007143), 600 gallons of water per minute nominal)**

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The process operation schedule is 24 hours per day, 7 days per week, and 50 weeks per year (8400 hours total). The control device has a control efficiency of 99%. The opacity reading for visible emissions was 0% at the time of the inspection. Pursuant to the 2005 Emission Inventory, the process emitted 0.1 pounds of Fluorides.

- o) one FCO etch line (ID No. FC02) controlled by a cross flow wet scrubber (ID No. M0007940), 250 gallons of water per minute nominal)*

The process has an operation schedule of 24 hours per day, 7 days per week, and 50 weeks per year (8400 hours total). The control device has a control efficiency greater than 95%. The opacity reading for visible emissions was 0% at the time of the inspection. This process is located in the Nuclear Energy Fuel Component Operations building. Pursuant to the 2005 Emission Inventory, the process emitted the following pollutants after controls in 2005: Fluorides - 27.90 pounds; Nitric Acid - 143.0 pounds.

- p) one grit blast operation (ID No. FC06) composed of two grit blasters units controlled by two filter housing units (ID Nos. M0002200 and M0002208), 1,410 square feet filter area each, nominal)*

The process has an operation schedule of 10 hours per day (day shift), 5 days per week, and 50 weeks per year. The control device has a control efficiency 99.85%. The opacity reading for visible emissions was 0% at the time of the inspection. This process is located in the Nuclear Energy Fuel Component Operations building. Pursuant to the 2005 Emission Inventory, this process emitted the following pollutant after controls in 2005: PM - 50.82 pounds.

*** Pursuant to **Specific Condition and Limitation No. 10** in Permit No. 1756R17, the Permittee must not exceed a charge rate of 1,200 pounds per hour into the incinerator. This limitation will ensure compliance with the emission limits for Arsenic (0.166 pounds per year) and Cadmium (1.66 pounds per year). For compliance purposes, the Permittee must submit in writing (thirty days after each calendar year) the previous year's log of waste charge rates into the incinerator. This report was received on January 31, 2006. Global Nuclear Fuel did not exceed a charge rate greater than 332 pounds per hour for calendar year 2005. *Global Nuclear Fuel is in compliance with Specific Condition and Limitation No. 10.*

*** Pursuant to **Specific Condition and Limitation No. 12** in Permit No. 1756R17, the Permittee must have facility-wide NOx and SO2 emissions less than 100 tons per consecutive twelve months.

- A) To ensure enforceability of this limit, the following restrictions shall apply:

- (i) the operating hours of the 650kW generator (ID Nos. S35) shall not exceed 240 hours per consecutive twelve-month period.

This generator operated a total of 43.7 hours in 2005.

- (ii) the operating hours of the two 1,250kW load shedding generators (ID Nos. S39 and S40) shall not exceed 1320 hours per generator per consecutive twelve (12) month period.

These generators operated a total of 70.8 hours in 2005.

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- (iii) the sulfur content of the No. 2 fuel oil used for the boilers (ID Nos. ES-FM12, ES-FM14, and ES-S04) shall be limited to 0.4 percent by weight. (These boilers are allowed to operate 8,760 hours per year.)
- (iv) the sulfur content of diesel fuel used for the diesel generators shall be limited to 0.2 percent by weight.

The sulfur content for the No. 2 fuel oil combusted in the generators and boilers is less than 0.2 % by weight. Certifications are sent from the vendor. These sulfur content percentages are less than 0.05%, which indicates compliance.

- a) For compliance purposes, the Permittee shall record monthly and total annually the following:
 - (a) the hours of operation for each generator
 - (b) the facility-wide gallons of No. 2 fuel oil and diesel fuel combusted.

- (B) The Permittee must have facility-wide Hydrogen Fluoride emissions less than 10 tons per consecutive twelve months. To ensure enforceability of this limit, the following restrictions shall apply:

- (i) To comply with this limit, the Permittee shall maintain a minimum flow rate of 20 liters per hour (0.088 gal/min) to each washing column (i.e., scrubber) associated with the HF recovery system (ID No. ES-H3001) during normal source operations.

Global Nuclear Fuel's computer keeps a status report on the minimum flow rate of each scrubber associated with the Hydrogen Fluoride system. Per calculations, 21.0 pounds of HF was emitted in 2005. Compliance is achieved with the flow rates for the scrubbers and total emissions of HF per year to avoid Title V.

- (C) The Permittee must have facility-wide PM-10 emissions less than 100 tons per consecutive twelve (12) months. To ensure enforceability of this limit, the following restrictions shall apply:

- (i) Inspection and Maintenance Requirements for all Permitted Fabric Filers that are in Operation

To comply with the provisions of this Permit and ensure that the maximum control efficiency is maintained, the Permittee shall perform periodic inspections and maintenance as recommended by the manufacturer on all fabric filters that are in operation. An annual internal inspection shall be conducted on the bagfilters by the Permittee to ensure the structural integrity such that the maximum control efficiency is achieved. The results of this inspection, and any maintenance performed on the bagfilters, shall be recorded in a logbook (written or electronic format) that will be kept onsite and made available to the DAQ upon request.

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- ii) Inspection and Maintenance Requirements for all Permitted Wet Scrubbers that are in Operation.

To comply with the provisions of this permit and ensure that the maximum control efficiency is maintained, the Permittee shall perform periodic inspections and maintenance as recommended by the manufacturer on all scrubbers that are in operation. As a minimum, the inspection and maintenance program will include inspection of spray nozzles, packing material, chemical feed system (if so equipped), and the cleaning/calibration of all associated instrumentation.

A scrubber logbook (written or electronic format) for all scrubbers that are in operation shall be kept onsite and made available to DAQ personnel upon request. Any variance from manufacturers' recommendations shall be investigated with corrections made and date of actions recorded in the logbook.

Global Nuclear Fuel is in compliance with their Inspection and Maintenance Requirements. Global Nuclear Fuel keeps all of their maintenance logs on the computer. The computer is programmed to keep a continuous status on all scrubbers and baghouses. Global Nuclear Fuel also performs a hands on inspection of the scrubbers and baghouses annually at a minimum and as recommended by the manufacturer.

*Global Nuclear Fuel is in compliance with **Specific Condition and Limitation No. 12.***

All of the permitted equipment contained in Permit No. 1756R17 was operating in compliance with Air Quality regulations at the time of the inspection.

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