March 27, 2008

Mr. Scott P. Murray
Licensing & Liabilities COE
GE Nuclear
3901 Castle Hayne Rd.
Wilmington, NC 28402

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE ENVIRONMENTAL ASSESSMENT FOR GLOBAL NUCLEAR FUEL – AMERICAS LLC MATERIALS LICENSE SNM-1097 RENEWAL (TAC L32670)

Dear Mr. Murray:

By letter dated April 2, 2007, Global Nuclear Fuel – Americas LLC (GNF-A) submitted an application to renew its Nuclear Regulatory Commission (NRC) License SNM-1097 for a forty-year term. While preparing the environmental assessment (EA) to support the evaluation of this license renewal request, NRC staff reviewed the submitted application materials and identified several areas requiring clarification. Many of these topics were discussed during the February 14, 2008 site visit. Enclosed is a document containing the NRC staff's requests for additional information (RAIs).

Your full and complete responses to the enclosed RAIs are necessary for the staff to complete its review. In order to meet our schedule, we need to receive your RAI responses within 30 days following the date you receive this letter.

If you have any questions, please contact Ms. Johari Moore of my staff by telephone at (301) 415-7694 or by email at jam7@nrc.gov (Johari.Moore@nrc.gov after 4/10/2008). Written response can be provided to:

Johari Moore
c/o Document Control Desk
U.S. Nuclear Regulatory Commission
Mail Stop T-8F05
Washington, DC, 20555-0001

Thank you for your assistance.

Sincerely,

/RA/

Gregory F. Suber, Branch Chief
Environmental Review Branch
Environmental Protection and Performance
Assessment Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Docket No.: 70-1113
License No.: SNM- 1097

Enclosure:
Requests for Additional Information (RAIs)

cc: Merritt N. Baker, NRC

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OFC	FSME/EPPAD/ERB	FSME/EPPAD/ERB	FSME/EPPAD/ERB
NAME	JMoore	AWalker-Smith	GSuber
DATE	03/26/08	03/27/08	03/27/08

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REQUESTS FOR ADDITIONAL INFORMATION (RAIs) SUPPORTING THE ENVIRONMENTAL ASSESSMENT FOR THE RENEWAL OF U.S. NUCLEAR REGULATORY COMMISSION LICENSE NO. SNM–1097 FOR GLOBAL NUCLEAR FUEL-AMERICAS, WILMINGTON, NORTH CAROLINA

RAI 1

Clarify Whether Any New or Modified Processes or Facilities are Associated with the License Renewal

There have been various changes to the facilities and processes at Global Nuclear Fuel-Americas (GNF-A) since the previous license renewal, such as the transition from an Ammonium Diuranate (ADU) process to a Dry Conversion Process (DCP). It is not clear from the Environmental Report (ER) Supplement you provided (GNF-A, 2007) whether any new or modified processes or facilities are being planned in connection with this license renewal request. It is also unclear whether any new or modified processes or facilities are planned over the term of the renewal (e.g. new or modified processes or facilities that may become necessary with expansion due to increased client demand and production). Please provide a clarification of the following:

(1) Clarify whether there are plans for any new processes, operations, facilities, etc. associated with this license renewal request.

(2) Clarify whether there are any plans to add or modify processes or facilities within the 40-year renewal term, and describe any associated environmental impacts such as changes in the type or quantity of effluents.

(3) Clarify whether any changes will require expansion beyond the existing site footprint and describe any associated environmental impacts.

RAI 2

Identify Any Substantive Maintenance Activities Necessary to Support Current and Future Operations and Describe the Associated Impacts

The ER Supplement does not identify any activities (i.e., replacement or major maintenance of facilities or equipment) that GNF-A would need to perform over the 40-year license renewal period in order to continue operations. Please identify any such activities and describe their associated impacts.

RAI 3

Clarify the Extent of Undisturbed Land on the Site

The ER provides information on the size and layout of the property and the location of major buildings and facilities; however, it does not clearly define how much of the property has been disturbed or remains undisturbed. Please describe the extent of existing development on the property as well as how the boundaries of the developed

area may change over the term of this renewal with any planned modifications as described in RAI 1.

RAI 4

Describe Transportation Modes and Traffic Conditions

The ER Supplement identifies existing roads in the vicinity of the GNF-A site as well as recent road construction; however, the ER Supplement does not describe the local traffic conditions, including conditions that have resulted from this new construction. Additionally, the ER Supplement does not address the transportation modes (e.g., truck, rail, or barge) GNF-A uses to transport products, supplies, and waste to or from the site. Please describe the local traffic conditions and identify the transportation modes used to support GNF-A operations.

RAI 5

Clarify Whether the Developed Areas of the Site Have Experienced Flooding

The ER Supplement indicates that portions of the property are in the 100-year floodplain; however, the developed areas are located above the floodplain. It is unclear whether any of the developed areas have experienced flooding. Please state whether the developed areas of the property have ever experienced flooding, and if so, please provide details of the impacts.

RAI 6

Clarify Which Aquifer GNF-A and the Surrounding Facilities Use

The GNF-A site has two aquifers; a shallow aquifer and a deep or principal aquifer. According to the ER Supplement, the source for the site's potable and process water is the deep or principal aquifer. According to Section 3.6.2 of the previous license renewal environmental assessment (EA) (NRC, 1997), the shallow aquifer is the source of fresh water for residential, commercial, and industrial facilities in the area. Please verify that GNF-A currently uses only the deep aquifer.

RAI 7

Provide Water Consumption Information for GNF-A and Discuss Any Issues in Meeting Long-Term Water Demand

The ER Supplement does not identify the amount of water GNF-A currently consumes and whether this amount may change in the future. Also, there is no discussion of GNF-A's ability to meet its planned water demand over the 40-year license renewal period. Please, identify the amount of water that GNF-A uses, identify the amount of water that GNF-A plans to use in the future, and discuss expectations in meeting the water demand over the term of the renewal.

RAI 8

Expand Description of Regional Historical and Cultural Resources

The ER Supplement identifies one historical artifact (cemetery) located on the site. However, the ER Supplement does not indicate (1) when or where historical and cultural analyses were conducted or (2) whether management guidelines, operating procedures, or memorandums of understanding with the State Historical Preservation Officer exist concerning the protection or mitigation procedures in the event of archeological discoveries at the site. Please discuss the scope of any previous historical and cultural resource analyses. Also, please describe the GNF-A plan for managing future discoveries of previously unidentified historical or cultural resources on site, including any guidelines concerning protection or mitigation for new discoveries.

RAI 9

Identify Plans, Outstanding Actions, and Potential Impacts Associated With Remaining Ammonium Diuranate Process Material, Equipment, or Wastes

The ER Supplement indicates that the DCP has replaced the ADU process. However, the ER Supplement also indicates that certain equipment or facilities associated with the ADU process are still present onsite. For example, the uranium recovery unit has been placed on standby. Nitrate basins in the waste treatment area were emptied of liquids and solids but still remain and currently contain mostly rainwater. It is not clear whether the final disposition for the remaining ADU process material, equipment, and wastes has been achieved or what plans GNF-A has for these items. Please identify any plans or outstanding actions associated with remaining material, equipment, or wastes from the ceased ADU process and describe the associated impacts.

RAI 10

Describe Planned Future Liquid Effluent Treatment, Permitting, and Associated Impacts, and Describe Any Associated Changes to the Current System

The liquid effluent treatment system described in the ER Supplement discharges the effluent into the Northeast Cape Fear River under National Pollutant Discharge Elimination System (NPDES) permit NC0001228 (North Carolina Division of Water Quality, 2006). GNF-A applied for and was granted permit WQ0031317 to construct and operate a wastewater treatment and reclaimed water utilization facility that would not discharge waste into surface waters (North Carolina Division of Water Quality, 2007a,b). The ER Supplement does not provide any information on this new system that eliminates liquid effluent discharge to surface water. Please provide the following information or provide justification for its absence:

(1) Describe the new liquid effluent treatment system including the associated permitting, waste streams, and impacts, and state whether any new land was disturbed.

(2) Describe how the new system affects the status of the current system (i.e., whether this supplements or replaces, completely or in part, the old system).

(3) If portions or all of the old system will no longer be used, describe the plans and final disposition associated with any remaining material, equipment, or wastes from the old system and describe associated impacts.

RAI 11

Provide Updated Land Use Information

The ER Supplement does not contain a land use section providing a description of the surrounding offsite area. For example, no updated description of facilities within 8 km [5 mi] of GNF-A are provided in the ER Supplement. Please provide an updated description of local land use.

RAI 12

Provide Demographic and Socioeconomic Information

The ER Supplement does not contain GNF-A's employment levels or the local demographic and socioeconomic information such as population and economic characteristics and trends. For the environmental review, it would be important to know not just the total number of employees at the entire complex, but the specific number involved in activities that relate directly to fuel manufacturing operations (i.e. employees whose positions would likely become obsolete if fuel manufacturing operations ceased). Please provide a description of GNF-A's employment levels along with local current and projected demographic and socioeconomic information.

RAI 13

Update the Existence, Levels, Management, and Impacts of Groundwater Contamination

The ER Supplement references groundwater contamination discovered in 1991 and limits the information concerning this event to shallow aquifer monitoring data for pH, fluoride, ammonia, and nitrates. The previous license renewal EA discusses two groundwater contamination discoveries in 1991. The first discovery was organic chemicals including trichloroethylene in the deep aquifer. In response, additional wells and a pump and treat system were installed. The second discovery was the presence of uranium, nitrates, and fluorides in the shallow aquifer beneath part of the Fuel Manufacturing Operations building. In response, additional wells were installed, soil was excavated, and a horizontal groundwater collection system was installed. To facilitate an assessment of current water quality and potential cumulative impacts and to understand remediation progress and goals, please provide the following:

(1) Identify all known cases of aquifer contamination requiring or undergoing remediation.

(2) State whether the contamination source has been identified and eliminated.

(3) Describe impacts from the contamination.

(4) Relate levels of all contaminants to any target or regulatory limits.

(5) Provide information on contaminated water management.

(6) Explain the conditions that would allow termination of the remediation process.

(7) Provide information on monitoring plans for early identification of any future inadvertent water contamination.

RAI 14

Clarify the Existence, Levels, Management, and Impacts of Onsite Soil Contamination

As identified in the current ER Supplement and described in the previous license renewal EA, soils have been contaminated from past GNF-A activities. It is unclear whether the GNF-A site contains contaminated soil undergoing or requiring future remediation. Please provide the following:

(1) Identify all known areas undergoing or requiring future remediation.

(2) State whether the contamination sources have been identified and eliminated.

(3) Describe impacts from the contamination.

(4) Relate levels of all contaminants to any target or regulatory limits.

(5) Provide information on contaminated soil management.

(6) Explain the conditions that would allow termination of the remediation process.

(7) Provide information on monitoring plans for early identification of any future inadvertent soil contamination.

RAI 15

Provide Aquatic Resource Information

The ER Supplement does not contain aquatic resource information. Please provide a current, basic description of the aquatic species and habitat.

RAI 16

Provide Nonradiological Air Permit and Emission Information

The ER Supplement indicates that the site operates under a North Carolina Department of Environment and Natural Resources air permit. The ER Supplement also indicates that the State reviews air emissions levels when the permit is renewed and an emissions inventory report for toxic air pollutants is submitted every 5 years. However, the ER Supplement does not provide information concerning permit limits and conditions or any nonradiological air emission levels or concentrations. Please provide the following:

(1) Identify all air permits that pertain to the GNF-A complex.

(2) Explain whether each permit applies specifically to facilities that fabricate fuel (and the related or supporting activities) or the entire Wilmington complex (including enrichment test loop operations, aircraft engines operations, etc.).

(3) Describe the limits and conditions (i.e., emissions levels or process throughputs) for each permit for both National Ambient Air Quality Standards and National Emissions Standards for Hazardous Air Pollutants.

(4) Provide the relevant information (i.e., measured or modeled emission levels or process throughputs) for comparison to permit limits and conditions.

RAI 17

Clarify the Wastewater and Stormwater NPDES Description and Expand if Appropriate

The ER Supplement indicates that the process and sanitary wastewaters are regulated under NPDES and that the site has an individual stormwater NPDES permit. Exhibit E–2, in the ER Supplement, identifies five surface water sampling points (outfalls) and the associated sampling parameters and frequency. However, it is not clear which outfalls are associated with the NPDES permit. In addition, the sampling parameters and frequency in Exhibit E–2 do not appear to match the sampling information presented in the Memorandum of Agreement (North Carolina Division of Water Quality, 2006), revising the NPDES requirements for upstream and downstream water quality monitoring. Other exhibits in the ER Supplement provide sampling information for the five outfalls, but compliance limits are only identified for the process and sanitary wastewater streams. It is unclear whether all permit conditions have been identified. Based on the description in the ER Supplement in Section E–13 and Exhibit E–2, it is unclear how many sampling points are used for NPDES compliance monitoring or whether there is just one wastewater NPDES permit for the GNF-A complex. Please provide the following:

(1) Identify all NPDES permits with which the entire Wilmington complex must comply.

(2) Explain which outfalls are associated with each permit and whether each permit applies specifically to the fuel fabrication (and related or supporting activities) or the entire Wilmington complex.

(3) Relate the sampling parameters and frequency description in the ER Supplement to those in the Memorandum of Agreement.

(4) If warranted, include limits and conditions of each permit and relevant compliance data for comparison to these limits and conditions.

RAI 18

Clarify the Short-Term and Long-Term Management of Low-Level Radioactive Waste

Section 1.2.3.6 of the 2007 License Renewal Application and the previous EA state that noncombustible low-level radioactive waste is sent offsite for disposal. However, the flowchart in the ER Supplement indicates that noncombustible low-level radioactive waste is stored onsite and that combustible low-level radioactive waste is incinerated onsite. During the site visit, GNF-A staff indicated that the incinerator had not been in operation for about 2 years. Please provide the following:

(1) Clarify the current manner in which noncombustible low-level radioactive waste is managed including onsite storage capacity.

(2) Clarify the long-term plans (over the 40-year license renewal period) for managing noncombustible low-level waste if shipping to Barnwell is not an option.

(3) Describe the management of combustible low-level waste, including the storage capacities and any impacts of storage along with the processing capabilities and utilization of the onsite incinerator.

RAI 19

Provide Generation Rates for Solid Waste Streams

The ER Supplement did not provide generation rates for the following solid waste categories: low-level radioactive (combustible and noncombustible), hazardous, and nonhazardous. Please provide the generation rates for these waste categories for at least the last 3 years as well as future projections for the term of the renewal and indicate whether the rates provided are for the fuel fabrication and related or supporting activities or for the entire Wilmington complex. The generation rates for the fuel fabrication and supporting activities are of primary interest. Data for at least the last 3 years is requested so that trends and variations can be identified.

RAI 20

Identify the Amount of Dilute Hydrofluoric Acid Waste Generated From the Dry Conversion Process and Verify the Characterization and Management of this Waste

Section C-1 of the ER Supplement states that the dilute hydrofluoric acid (typically 1 - 2%) from the DCP is neutralized through the site's NPDES-permitted waste operations. Please provide the following:

(1) Identify the amount of dilute hydrofluoric acid waste generated.

(2) Verify that the characterization of the waste as "typically 1-2%" is accurate.

(3) Describe the management (i.e., treatment and disposal) of this waste.

RAI 21

Clarify the Management of All Resource and Recovery Conservation Act Hazardous Waste

Exhibit C-7 in the ER Supplement identifies two types of Resource Conservation and Recovery Act (RCRA) hazardous wastes and indicates that both are treated and/or disposed of offsite. Exhibit C–8 identifies four types of RCRA waste (including alkaline cleaner) that, according to the previous EA, were treated onsite and discharged as a liquid effluent. Please clarify the treatment and disposal of all RCRA waste.

RAI 22

Provide Historical Radiological Dose Exposure Data for the Liquid Effluent Pathway for Compliance with Public Health Regulations

Dose calculations for public exposure to airborne effluent releases were included in the ER Supplement, but similar calculations for public exposure to liquid effluent releases were not included. The ER Supplement states that direct inhalation of airborne releases is the most likely intake pathway for the public. However, the ER Supplement indicates that the largest annual dose calculation for airborne exposure from 1995 to 2005 was at 4 percent of the 10 CFR Part 20 limit, while the largest concentration measured at the liquid effluent site discharge location over the same time period was at 41 percent of the 10 CFR Part 20 limit. The level of public exposure to the combined effluents is unclear. Please provide historical public exposure data (dose calculations for at least the last 5 years) for the liquid effluent pathway for comparison to 10 CFR Part 20 limits. Data for at least the last 5 years is requested so that trends and variations can be identified.

RAI 23

Provide Historical Radiological Dose Exposure Data for Compliance with Occupational Health Regulations

Dose calculations for workers are not included in the ER Supplement. Please provide historical occupational exposure data (dose calculations for at least the last 5 years) for comparison to 10 CFR Part 20 limits. Data for at least the last 5 years is requested so that trends and variations can be identified.

RAI 24

Provide Occupational Injury and Fatality Rates and a Summary of Health Effects Studies

Occupational health data for workers is not included in the ER. Please provide the following and note whether the information provided is specifically for employees working to support fuel fabrication operations or for all employees at Wilmington complex:

(1) Injury rates, such as the total recordable incident rate, and the relevant industry standard for comparison.

(2) Occupational fatality rates or fatalities.

(3) Existence and summary information of any health effects studies.

RAI 25

Identify Reasonably Foreseeable Future Actions and Cumulative Impacts

The ER Supplement does not include adequate information to facilitate an evaluation of the cumulative impacts of a 40-year renewal of the GNF-A license. Please identify and discuss any known current and reasonably foreseeable future actions taking place at the Wilmington complex, which are not related to fuel fabrication operations that may cumulatively impact the affected area, including the General Electric (GE) laser enrichment test loop and the potential GE laser enrichment facility, as well as local activities outside of the Wilmington complex.

References:

GNF-A. "Site Environmental Report Supplement for the Period 1995–2005." Wilmington, North Carolina: GNF-A. 2007.

North Carolina Division of Water Quality. "Permit No. WQ0031317 Global Nuclear Fuels– America, LLC Wastewater Treatment and Reclaimed Water Utilization System." Raleigh, North Carolina: North Carolina Department of Environment and Natural Resources. 2007a. <http://h2o.enr.state.nc.us/lau/documents/WQ0031317dp070326.pdf> (December 11, 2007).

North Carolina Division of Water Quality. "Permits Renewal Due." 2007b. <http://h2o.enr.state.nc.us/bims/reports/permits/renewalsNon-DischargeWIRO.pdf> (December 11, 2007).

North Carolina Division of Water Quality. "Memorandum of Agreement Between the State of North Carolina's Division of Water Quality and the Lower Cape Fear River Program Permittees." Raleigh, North Carolina: North Carolina Department of Environment and Natural Resources. 2006.

NRC. "Environmental Assessment for Renewal of Special Nuclear Material License No. SNM–1097." Washington, DC: NRC. 1997.