

**U.S. NUCLEAR REGULATORY COMMISSION
INFORMATION COLLECTION PLAN FOR THE
THE GENERAL ELECTRIC – HITACHI GLOBAL LASER ENRICHMENT
FACILITY (GLE) ENVIRONMENTAL SITE VISIT**

May 1, 2009

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D/27

GENERAL INFORMATION (GE)

ITEM NO.	
GE-1	<p>Provide an overall site tour that shows:</p> <ul style="list-style-type: none"> • The proposed GLE Study Area, and locations of major proposed project facilities including <ul style="list-style-type: none"> ○ GLE Facility building, electrical substation, wastewater lift stations, access roads, guard houses, water tower, stormwater detention basin, waste management buildings, and depleted uranium hexafluoride (UF₆) cylinder storage yards. ○ Proposed locations of cooling towers, cooling water system intake and discharge points, and points of environmental emissions from the proposed facility. • Major existing air emission sources and control equipment (e.g., boilers, diesel generators), and their release points on the site. • Existing and proposed locations of major indoor and outdoor noise sources (e.g., pumps, transformers) and control measures on the site. • Existing structures and facilities onsite, including the Wilmington Site final process lagoon, sanitary wastewater treatment facility, and SILEX test loop facility • Proposed interfaces between the proposed facility and existing infrastructure, and • Surrounding areas and features including major roads, and the nearest and other nearby residences.
GE-2	<p>Provide originals of all Environmental Report Rev. 0, December 2008 (the "ER") figures in .jpeg, .png or .tif format at a resolution of at least 300 dpi, and sized correctly. (Note: these are not needed at the site visit itself, but could be provided shortly thereafter.)</p>
GE-3	<p>Provide separate layers for GIS files given in the attached list as shapefiles. (Note: these are not needed at the site visit itself, but could be provided shortly thereafter.)</p>
GE-4	<p>Provide available ER references in either electronic or hard copy form. For documents that will be regularly used by the EIS team (e.g., the ER and site environmental report), provide both hard copy and electronic versions, and have at least two copies for review. For electronic copies, provide multiple computer terminals (e.g., laptops) for viewing these at the site visit.</p>
GE-5	<p>Provide or make available copies of environmentally relevant permits related to the existing facilities at the site.</p>
GE-6	<p>Provide copies of the input/output files and calculation packages for the major computer codes used in the preparation of the ER, including AERMOD, MOBILE6, NONROAD model, XOQDOQ, COMPLY, GENII, MODFLOW, and RADTRAN. Note, these are also requested in individual topical areas below.</p>

GE-7	<p>Provide a team of knowledgeable experts to discuss the assumptions made, the data and models used and the results presented in the ER in the following disciplines:</p> <ul style="list-style-type: none">• Accident Analysis• Air Quality, Meteorology, and Noise• Cultural Resources• Cumulative Impacts• Ecology• Human Health – Non Radiological• Human Health – Radiological• Hydrology and Geology• Socioeconomics and Environmental Justice• Transportation• Waste Management
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ACCIDENT INFORMATION (AC)

ITEM NO.	
AC-1	Provide the definitions used for the likelihood categories "not unlikely," "unlikely," and "highly unlikely" as they apply to the GLE Facility. Provide descriptions of the accidents considered in the analysis including the likelihood category and time-dependent source terms (releases of radionuclides and chemicals to the environment) for each accident. Identify the bounding accident for each likelihood category. Provide this information for both chemical and radiological accidents.
AC-2	Provide information on how the accident sequences were developed, how the accidents were classified into individual likelihood categories and how the consequences were calculated. Provide the inputs and outputs of the computer models used to calculate the consequences. Provide the consequences and risks of the bounding accidents (both chemical and radiological) in each likelihood category. Provide the consequences to workers (in plant and other workers on site) and the general public.
AC-3	Provide information on preventive and mitigative measures that would be in place to minimize the impacts of the bounding accidents.
AC-4	Provide copies of the Integrated Safety Assessment (ISA) and the Emergency Plan (EP).

AIR QUALITY, METEOROLOGY, AND NOISE (AQ)

ITEM NO.	
AQ-1	Provide the Universal Transverse Mercator (UTM) coordinates or latitude and longitude of air emission and noise sources (existing and proposed), and neighboring sensitive receptors (e.g., nearest and nearby residences, schools, hospitals, nursing homes, daycare centers). An electronic file of a map is preferred to read off the coordinates.
AQ-2	<p>The items to be discussed with the knowledgeable air quality/meteorology expert during the site visit include:</p> <ul style="list-style-type: none"> • The basis of the air quality and meteorology in the ER (Sections 3.6 and 4.6 and related appendices) including general assumptions, emission inventories and emission control measures, air quality modeling, and their impact analysis. • General routine activities during the operational period to identify air emission sources. • Heat sources and dissipation systems on the site. • Existing and future major air emission sources around the facility. • General air quality conditions around the facility, in New Hanover County, and the region. • Emissions inventories and air dispersion modeling for hazardous air pollutants (HAPs) and toxic air pollutants (TAPs). • Local and regional meteorological patterns. • Variations of meteorological variables and air dispersion patterns resulting from proximity to the Atlantic Ocean.
AQ-3	<p>The items to be discussed with the knowledgeable noise expert at the site visit include:</p> <ul style="list-style-type: none"> • The basis of the noise analysis in the ER (Sections 3.7 and 4.7) including general assumptions, noise emission inventories and noise control measures, noise propagation modeling, and their impact analysis. • Existing and future major noise sources around the facility. • Recent noise measurements on the site. • Noise complaints and their resolution if any.
AQ-4	Provide input and output data (including raw and processed data) and calculation packages for the major computer codes used in the air quality modeling analysis, including AERMOD modeling system (AERMAP/AERMET/AERSURFACE/AERMOD), MOBILE6, NONROAD model, and XOQDOQ; electronic files are preferred.
AQ-5	Provide input and output data (including octave-band sound levels, directivity, emission point and height, and receptor grids) used in the noise propagation modeling analysis; electronic files are preferred.
AQ-6	If available, provide emissions data for greenhouse gases (e.g., CO ₂) associated with construction and operation of the GLE facility.
AQ-7	Provide available copies of air permits related to existing facilities on the Wilmington Site.
AQ-8	Provide sound levels for major interior noise sources and exterior noise sources (e.g., pumps, transformers) during operation. No noise modeling for these sources was presented in the ER.

ITEM NO.	
AQ-9	Provide air emission inventories for PM _{2.5} which were not presented in the emissions summary tables of the ER. Note that air dispersion and deposition behaviors and associated health impacts of PM _{2.5} are different from those of PM ₁₀ .

CULTURAL RESOURCES INFORMATION (CR)

ITEM NO.	
CR-1	The ER mentions 22 previously known sites but does not identify what types of sites these are (base camp, village, towns, etc.). Provide copies of the sites forms for these sites.
CR-2	Have there been any interactions with the Eastern Band of Cherokee Indians of North Carolina or other Native Americans in the region? Provide copies of any correspondence or interactions with Native Groups.
CR-3	Does the existing plant maintain Environmental Protective Measures? There is a high potential for archaeological sites to be on the plant grounds. How does the facility operator ensure that cultural resources on the property are protected? Provide a copy of the environmental review and protection procedures that are used to protect resources on the site.
CR-4	Provide a copy of the procedures used for unexpected discoveries of human or archaeological remains.

CUMULATIVE IMPACT INFORMATION (CI)

ITEM NO.	
CI-1	Provide a description of the region of influence used in bounding the cumulative impacts analysis.
CI-2	Provide a description of the methodology used to identify reasonably foreseeable future actions in the region of influence.
CI-3	Provide information on the habitats and land cover types that would be affected by developments on site.
CI-4	A fairly detailed description of the types of impacts that would result from other facility development on the Wilmington Site is provided in the ER. If available, provide comparable information for offsite developments.
CI-5	To determine the magnitude of cumulative impact on the Wilmington Site, the cumulative amount of resource use (past, present, and future) should be compared to the existing baseline (total acres of different habitat or land cover types, wastewater treatment capacities, water supply system capacity, electric system capacity). Similarly, a regional comparison to baseline is needed for all projects (offsite and onsite).
CI-6	During the site tour, show the locations of other proposed facilities on the Wilmington Site.

ECOLOGY INFORMATION (EC)

ITEM NO.	
EC-1	<p>Have environmental personnel that prepared the wetlands and ecological resources sections of the ER (and/or that conducted the wetland and ecological field surveys) available to answer questions related to impacts on ecological resources associated with the construction, operation, and mitigation of the GLE Facility. Specific aspects to be discussed include wetland impacts; stream crossings; stormwater detention basin; upland habitat loss, modification and fragmentation; and potential wildlife-human interactions.</p>
EC-2	<p>Provide a tour of key habitat areas (e.g., areas that would be directly impacted by project construction; and areas that represent the various terrestrial, wetland, and aquatic habitat types present in the project area). These areas should include:</p> <ul style="list-style-type: none"> • Location for the proposed GLE Facility; • Possible locations of new road segments and utility lines; • Access road crossing areas of Unnamed Tributary #1; • Other unnamed tributaries and Northeast Cape Fear River; • Wetlands WA, WB, WC, and WD; • Process lagoons, detention basins, woodland ponds, and other ponded waters at the Wilmington Site. • Other major wetland and terrestrial habitat types within the Wilmington Site boundary; • Areas where rare plants have been recorded; • Existing facilities at the Wilmington Site (e.g., other buildings, roads); • Areas that typify where vegetation maintenance practices are conducted; and • Major and significant habitats near the project (this could be done as a driving tour, if time permits).

HUMAN HEALTH – NON RADIOLOGICAL INFORMATION (HH/NR)

ITEM NO.	
HH/NR-1	<p>The items to be discussed with the knowledgeable human health expert for non-radiological exposures during the site visit include:</p> <ul style="list-style-type: none">• Current levels of contaminants in air, water, and soil in the vicinity of the plant, including emission rates for uranium compounds, hydrogen fluoride (HF), and criteria air pollutants from the existing Fuel Manufacturing Operation (FMO) plant and contaminant levels in the shallow and principal aquifer under the site.• The availability of any public health studies that have been conducted as a result of concerns for potential health impacts from chemical emissions from the existing FMO facility.• The expected occupational exposure levels to be present in the proposed GLE facility for uranium compounds, HF, and any other process related toxic chemicals and any monitoring, mitigation measures, control devices, and safety procedures that will be employed to control exposures to acceptable levels.• Laser safety as well as general occupational safety programs that will be used in the proposed GLE facility.

HUMAN HEALTH – RADIOLOGICAL INFORMATION (HH/R)

ITEM NO.	
HH/R-1	Provide information on the radiation protection plan for the existing FMO facility and the proposed GLE facility.
HH/R-2	Provide the liquid effluent releases for the existing FMO facility and doses from these releases to the maximally exposed individual (MEI) and the public. Section 3.11.2 (page 3.11-2) of the ER mentions gaseous effluent releases but nothing is mentioned about the liquid effluent releases and its contribution to the MEI dose. To demonstrate compliance with the dose limits in 10 CFR 20 and 40 CFR 190, dose contributions from both gaseous and liquid effluents should be included.
HH/R-3	<p>Provide background concentration in the vegetation in the region (e.g., recent reports from the North Carolina Division of Radiation Protection [NCDRP]).</p> <p>A summary of NCDRP data from analysis of vegetation samples collected from locations approximately one mile north and one mile south of GNF-A Wilmington is shown in Exhibit E-21(GNF-A ER 2007). This exhibit indicates gross alpha concentration in many vegetation samples. The GLE ER (page 3.11-2) mentions that these analyses “show very low gross alpha activity concentrations, thus indicating no radiological impact from Site operations. Based on these data, no future radiological impact from the FMO facility to cropland and agricultural areas in the vicinity of the site would be expected.”</p>
HH/R-4	Provide information on the uranium isotopic mix found in onsite and offsite soil samples collected on the Wilmington Site. Tables 3.11-6 and 3.11-7 in the GLE ER list average uranium concentrations in soil samples collected onsite and offsite in ppm. A different isotopic mix would result in different soil activities. The onsite soil concentration would be used in estimating the dose to the construction worker.
HH/R-5	<p>Provide information about the ongoing and planned radiological environmental monitoring program for FMO and GLE.</p> <p>Table 3.11-6 provides uranium concentrations at two locations (20 and 21) up to 1997. These two sample locations had the maximum uranium concentrations. The measurement at these locations was discontinued in 1998 because the use of the storage pad was minimized at that time and the soil concentration at those locations had stabilized. What is the current soil concentration at those locations? Would the construction workers be near these locations? Would these areas be disturbed in any way during GLE operation?</p>
HH/R-6	<p>Provide information about existing groundwater and surface water contamination and its impacts to the public.</p> <p>Exhibit E-19 (GNF-A ER, 2007) lists the surface water concentrations in the samples collected at two onsite and one offsite location (the data are only up to 1999) and in some of the onsite samples concentrations greater than 100 pCi/L were observed. Similarly, Exhibit E-30 in the GNF-A ER (2007) lists concentrations in supply wells. For 2003 and 2004 in supply well #9A Exhibit 30 lists gross alpha and beta concentrations > 500 pCi/L.</p>
HH/R-7	Provide input and output data and calculation packages, and a knowledgeable expert who can discuss application of the COMPLY computer code. GLE ER Section 3.11.4.1 (page 3.11-3 and 3.11-4) mentions that EPA’s COMPLY code was used to calculate the MEI and population doses.
HH/R-8	Provide justification for using 200,000 persons in calculating the population dose. The ER Section 3.11.4.1 (page 3.11-3) does not identify the region of influence.

HH/R-9	If available, provide more current data on radioactive gaseous emissions, airborne gross alpha and isotopic concentrations in different directions, uranium concentration in soil, radiation dose to nearest resident, and recordable accidents. The latest data provided in Tables 3.11-1 to 3.11-7 and 3.11-10 of the GLE ER is for 2005.
HH/R-10	Provide any available public health studies that have been conducted in the vicinity of the site for potential health impacts from radioactive effluent (gaseous and liquid) releases from the existing FMO facility. These studies would establish the baseline for the Wilmington area.
HH/R-11	Provide the calculation of doses to workers during site preparation and construction activities. Construction workers would be exposed to onsite soil contamination, direct exposure sources, liquid and gaseous emissions from existing release locations. The ER does not provide construction worker doses. To estimate these doses, one would need different media concentrations to which the workers may be exposed at the locations where the construction activities would occur, number of workers involved in those activities, and the time spent at those locations.
HH/R-12	Provide information on the distances from the proposed facility to the nearest site boundary for each radial sector, and the distances to the nearest residence, school, and other sensitive receptor locations (such as hospitals, agricultural areas, etc.).
HH/R-13	Provide estimated doses to the occupational workers from the proposed facility. The workers would be exposed to radiation during the normal operation of the proposed facility. The ER does not provide estimation of the occupational dose.
HH/R-14	ER Section 4.12.2.2.2 (page 4.12-10) mentions that GENII (version 2.06) code was used to calculate doses. Provide information on exposure pathways and the calculation of doses to the public and populations. Provide input and output data and calculation packages, and a knowledgeable expert who can discuss application of the GENII computer code.
HH/R-15	Different sample types (continuous film badges, TLDs, pocket dosimeters, continuous air particulate filter, grab samples, sample of liquid effluent, storm water grab samples) in different media (direct radiation, air, surface water, treated process wastewater effluent, treated sanitary wastewater effluent, groundwater, storm water, soil, and sediment) are collected under the GLE environmental monitoring program. Provide the latest measurement results from the environmental monitoring program. ER Table 6-1 provides the summary of the GLE environmental monitoring program, but the results of these measurements are not provided. This would help in defining the baseline of the site and also the adequacy of the sampling plan for the proposed facility. The ER does have some data from previous years (for example Tables 3.4-3 and 3.4-4 show groundwater data from 2002-2006; Table 3.4-8 shows surface water data from 1997 – 2006; Table 3.4-11 provides uranium content in storm water for 2003)
HH/R-16	Provide information on the public and occupational health impacts from decontamination and decommissioning activities.

HYDROLOGY AND GEOLOGY INFORMATION (HY)

ITEM NO.	
HY-1	Provide the current NPDES permit for the Wilmington Site, and information on past and proposed future pollutant discharges.
HY-2	Provide documentation on the groundwater monitoring plan (well locations, sampling frequency, well construction, drilling logs, and cross sections).
HY-3	Provide MODFLOW input files (general, non-proprietary format) used in work in Appendix P, and documentation and input files for any modeling updates, including transport of trichloroethylene (TCE).
HY-4	Provide a copy of the facility Stormwater Pollution Prevention Plan.
HY-5	Provide a tour of current site facilities, present and proposed outfalls, surface water features, wetlands, production wells, remediation systems, and the stormwater system.
HY-6	Provide information regarding outfall dimensions, elevations, receiving surface waters' velocity distributions and cross sectional areas, and bathymetry near outfalls
HY-7	Provide historical site groundwater monitoring reports (reports for the previous 10 years are of interest).
HY-8	Provide permits for surface water use and groundwater use
HY-9	<p>The items to be discussed with the knowledgeable hydrology expert during the site visit include:</p> <ul style="list-style-type: none"> • Water flow rates or use rates for cooling, service, blowdown, potable, sewage, discharges, remedial system); • Additives to water systems; • Documentation regarding any notices of violation; • Any radioactivity releases or general contaminant releases to groundwater, including TCE; • Past or potential future dredging operations; and • Groundwater quality issues

SOCIOECONOMICS/ENVIRONMENTAL JUSTICE INFORMATION (SE)

ITEM NO.	
SE-1	Provide copies of any correspondence and communications with local and regional officials and citizens confirming that there are no additional areas with minority and low-income populations within 4 miles of the GLE site, beyond those identified in the ER.
SE-2	Provide copies of any correspondence and communications with local and regional officials and citizens confirming that areas within 4 miles of the GLE site are not used for subsistence purposes by low income or minority groups.
SE-3	Provide copies of any correspondence and communications with local public officials to determine significance of impact of GLE construction and operation on the provision of local public and educational services.
SE-4	Provide any correspondence and communications with local public officials to determine significance of impact of GLE construction and operation on housing availability in the region, and any conflicts with proposed housing developments in the vicinity of the site.
SE-5	<p>For the region of influence, provide data on indirect economic impacts of facility pre-construction, construction, operation, and decommissioning, estimated using input-output multipliers, including:</p> <ul style="list-style-type: none"> • Impacts on labor income • Impacts on employment

TRANSPORTATION INFORMATION (TR)

ITEM NO.	
TR-1	Provide information about the assumptions and input parameters used for the RADTRAN calculations performed in support of the radioactive transportation risk analysis. Relevant input parameters include external dose rates for shipments, shipment dimensions, crew distance, and stops information. Provide the RADTRAN input and output files from the incident-free analysis for all material types (UF ₆ feed, UF ₆ product, UF ₆ tails, empty cylinders with heels, and LLRW).
TR-2	Provide additional information necessary to perform a RADTRAN accident risk analysis. Such information includes the radionuclide inventory (Ci content) for shipments of each material type (UF ₆ feed, UF ₆ product, UF ₆ tails, empty cylinders with heels, and low-level radioactive waste).
TR-3	<p>Provide information on the number of radioactive material shipments and types that currently take place at the Wilmington Site. The number of these types of shipments is relevant to a proper discussion of cumulative impacts in the EIS and is relevant to potential exposures to a maximally exposed individual near the site entrance.</p> <p>This information could be discussed in more detail with the transportation expert during the site visit.</p>

WASTE MANAGEMENT INFORMATION (WM)

ITEM NO.	
WM-1	Provide information on the types and quantities (e.g., mass/volume) of waste that might be expected to be generated from the construction of the GLE facility and where they may be taken for disposal.
WM-2	<p>The items to be discussed with the knowledgeable waste management expert during the site visit include:</p> <ul style="list-style-type: none"><li data-bbox="431 556 1379 646">• The basis for the estimated waste volumes provided in the ER for operations of the GLE facility. A discussion of the sources of the waste (e.g., the industrial processes used) is needed to understand the types and quantities of wastes generated.<li data-bbox="431 661 1395 724">• The radionuclide inventory of the wastes generated. Such information is required for the transportation analysis (See TR-2)

GE Silex Acceptance Review

Air Quality

NUREG 1748 chapter 6 was used to perform acceptance review of GE Silex's application. The following is result of this review.

NUREG 1748 requirement	GE Silex Application	Differences
Meteorology and Climatology		
Description of general climate of the region	3.6.1.2,	
Discussion of severe weather phenomena	3.6.1.2, 3.6.2.7, 3.6.2.6	
Monthly and annual air temp, dewpt	3.6.2.1, 3.6.2.6.1 and 3.6.2.6.2	
Monthly and annual summaries of Precipitation	3.6.2.2, 3.6.2.6.2	
Description of local airflow pattern	3.6.1.2, 3.6.2.3, 3.6.2.8	
Description of baseline air quality in the region,	3.6.3 (see below under air quality)	
Monthly and annual wind roses	3.6.2.3, 3.6.2.4, 3.6.2.6.3	
Hourly avg wind speed, direction	3.6.2.3, 3.6.2.6.3	
Estimated monthly mixing height	3.6.2.5	
Topographic data	3.6.2.8	
Air Quality		
General Description of Regional Air Quality,	3.6.3.3, fig 3.6-37, fig 3.6-38, Fig 3.6-39, (4.6.2)	(Could not really find general description of regional air quality except what has been discussed under "attainments" status of the region). Section 4.6.2 covers some brief general air quality description.
Table Comparing regional air quality parameters to NAAQS for the area	3.6.3.1, 3.6.3.2, tables 3.6-14, 3.6-15, 3.6-16	None
Air Pollutants for which there are non-attainments or maint areas in the region and a map relating the site to these areas	3.6.3.3, fig 3.6-37, fig 3.6-38, Fig 3.6-39,	None
Local or regional emission inventory	3.6.3.4, 3.6.3.5	None
Air Quality Impact		
Description of gaseous effluents	4.6.2 (various sections)	
Table comparing effluent	Table 4.6.2	

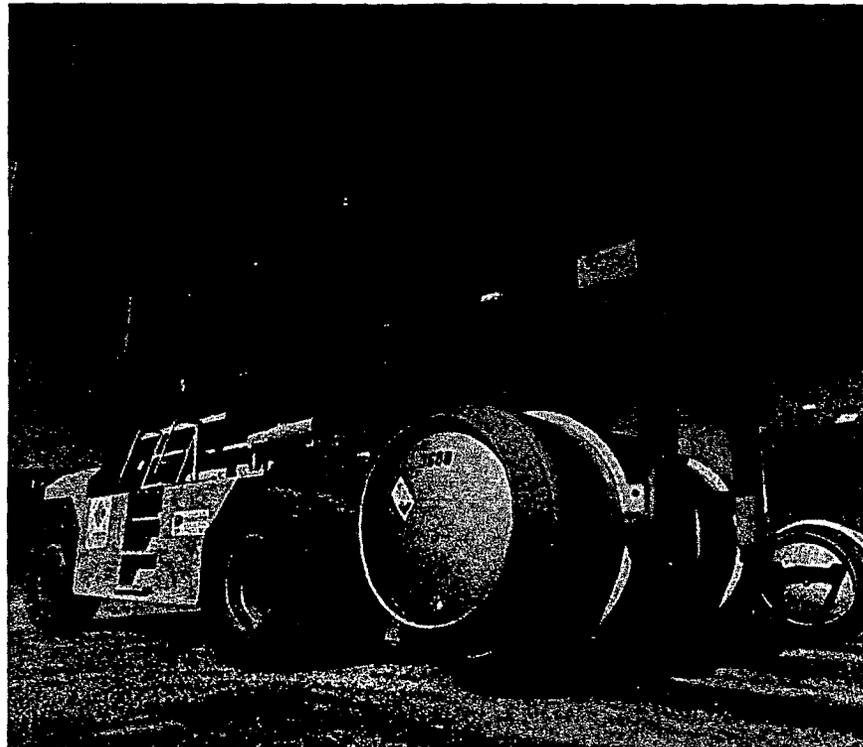
conc. to regional air quality parameters		
Release pt characteristics	Has generic description of release pt	
Description of gaseous effluent control systems	4.6.2 (various sections)	
Detailed descriptions of models and assumptions	Appendix R and S	
Normalized concentration and/or relative deposition	4.6.2.2.2 and Table 4.6-4,	
Descriptions of visibility impacts	4.6.3	
Description of mitigative measures of air quality	4.6.2 (various sections) 5.6	
Description of cumulative air quality impact	4.6.2.2.2, 4.6.4, tables 4.6-5 and 4.6-5.	

General Electric-Hitachi Global Laser Enrichment (GLE)
 Consultation Letters

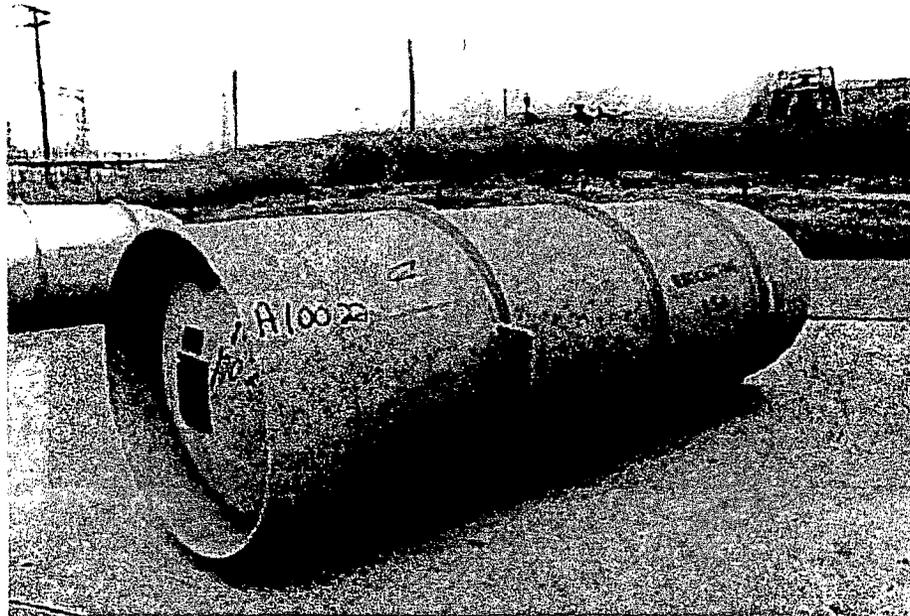
Agency/Tribe	Outgoing		Reply	
	Date	Reference	Date	Reference
US Fish and Wildlife Service	5/1/09	ML091100107	6/8/09	ML091700024
NC SHPO	5/1/09	ML091100219	6/2/09	ML091630258
NC Department of Administration – NC Dpt. Transportation – NC Dpt. Environment and – Natural Resources – NC Dpt. Agriculture – Flood Area Mapping Program	5/14/09	ML091330018	6/22/09	ML091730327
NC Department of Labor (OSH NC) (re: laser safety)	6/15/09	ML091620188		
NOAA Fisheries	6/18/09	ML091660499		
New Hanover Planning Dpt.	6/22/09	ML091630272		
U.S. Army Corps of Engineers (re: wetlands)				
NC DENR – Radiation Protection Section re: data from State's monitoring of Wilmington site (monitoring because of GNF-A)		Have asked ANL for input on which data we want to request		
Tribes/Associations – Coharie – Cumberland County Association for Indian People – Eastern Band of Cherokee – Guilford Native American Association – Haliwa-Saponi – Sappony – Lumbee – Meherrin – Metrolina Native American Association – Triangle Native American Society – Waccamaw-Siouan – Catawba – United Keetoowah Band of Cherokee – Cherokee Nation of Oklahoma – Tuscarora				

On Wed May 20, 2009, Dan O'Rourke (from ANL) and Haimanot Yilma (from NRC) met with Mr. Nathan Henry to gather information on archaeological resources (on the GLE facility) that could be impacted as a result of the proposed action. During the meeting, Mr. Henry acknowledged receiving an archaeology survey result from GEH. He indicated that based on the results of the survey, one site was identified as a prehistoric, short term habitation that maybe eligible for inclusion on the National Register of Historical Places under Criterion D. He recognizes that GEH plans to preserve this site as Historical significant and maintain its integrated (i.e, no construction near this site). However, he expressed a concern that, if not appropriately marked, this site could potential be destroyed 10 to 20 years down the line. He indicated that, the best solution to this problem is to remove/relocate any items discovered from this site.

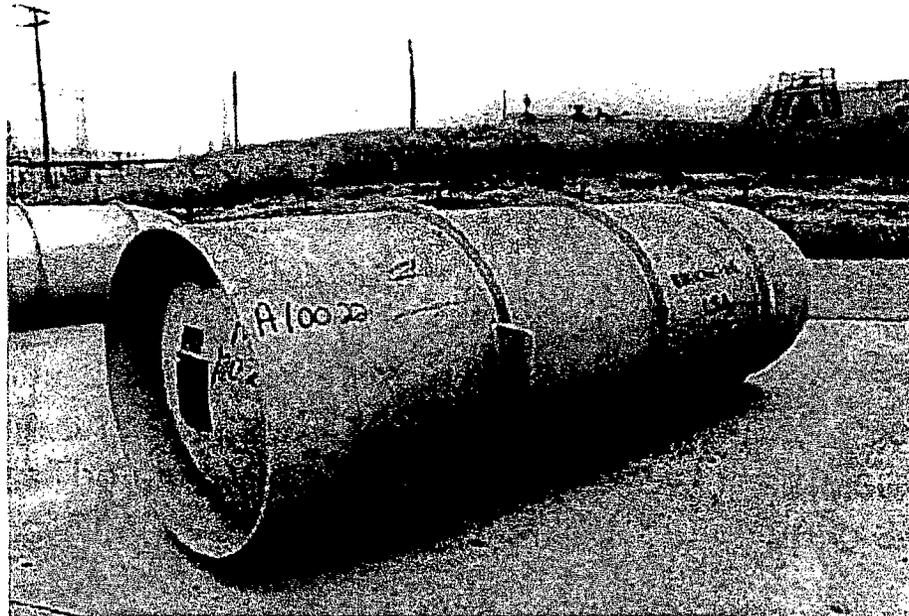
Natural uranium cylinders normally have a dose rates of 1 to 3 Mrem/hr on contact and less than .25 mRem/hr at 30 cm.



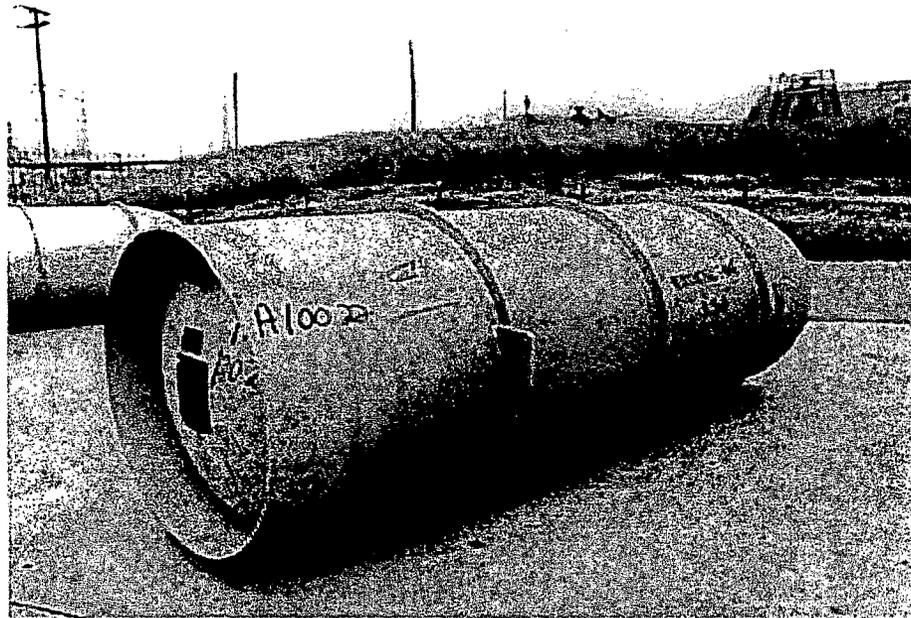
Depleted Uranium cylinders normally have a radiation levels of 1 to 2 mRem/hr
contact and less than .25 mRem/hr at 30 cm.



Enriched Uranium cylinders normally have a radiation levels of 2 to 5 mRem/hr on contact and 1 to 2 mRem/hr at 30 cm.



Processed, (empty) cylinders which contain heels (residual UF₆ and non volatile daughter products) may have a point source radiation levels of 40 to 80 mRem/hr on contact and 3 to 7 mRem/hr at 30 cm. They will be stored in a radiologically controlled area (fenced in with appropriate controls) and away from the general plant population.



Estimated dose to the GLE occupational work force

- The balance of the GLE process facility & equipment will have general area radiation levels of less than .1 mRem/hr (blending, vaporization, etc.) and all other staffed areas (offices etc.) will be well below the level of .1 mRem/hr. The dose at the GE/Hitachi site boundary fence is expected to be less than 1 mRem per year.
- The annual dose received by the facility workers operating the process equipment is estimated to be an average of 50 to 200 mRem per year based on a dose rate averaging .1 mrem/hr for 2080 hours and actual time spent in the area.
- The highest estimated dose to be received at the GLE has been determined to be the individuals handling, and storing the empty cylinders in the cylinder storage yard and the cylinder wash area. The estimated dose of 200 to 520 mRem per year is based on a dose rate averaging .5 mRem/hr and the worker spending up to 30% to 50% of his time in this area.

Uranium content in UF6 cylinders

Type Cylinder	Capacity	Function	Radionuclide Inventory
UF6 Feed Cylinder (48Y) (Natural .711 % U235)	12501 Kgs	Feed cylinder	6.83-4 Ci/Kg
Tails Cylinder (48G) (Depleted U238)	12501 Kgs	Tails cylinder	3.96 -4 Ci/Kg
Product Cylinder (30B) (3.5% U235)	2277 Kgs cylinder	Enriched Product	2.20-3 Ci/Kg
Heel Cylinder (Non volatile fluorides)	12501 Kgs	processed cylinder	3 to 7 Kg Heel

UF₆ Cylinder Heels

UF₆ heels

Unloading of UF₆ cylinders usually is accomplished by heating the cylinder in an autoclave. The UF₆ then sublimates (becomes a gas) and is fed into the receiving plant. However, there are also gamma-emitting decay products of the U-238 and U-235 present in the cylinder, namely Th-234, Pa-234m, and Th-231. They have grown in within a few months after the chemical separation of the uranium, and they do not form gaseous compounds with fluorine. They rather tend to concentrate in a residue called "heels" which is not removed from the cylinder.

These decay products (in particular Pa-234m) happen to be the major source of gamma radiation in the cylinder; the uranium itself emits only smaller amounts of gamma radiation. In a full cylinder, only a small fraction of the gamma radiation generated reaches the cylinder surface, since most of the gamma radiation is shielded by the uranium contained. In an "empty" cylinder, however, the major source of gamma radiation is still present in the heels and now reaches the cylinder surface nearly unhindered.

GE-Hitachi Global Laser Enrichment (GLE) Environmental Impact Statement

EPPAD Major Milestones in Red

Environmental Contractor (Argonne) Deliverables in Blue

NMSS Milestones in Green

Milestone	Planned as of 3/19	Planned as of 6/9	Actual updated 6/22	Comment
<u>Environmental Report</u>				
- Receipt of Environmental Report	1/30/09	1/30/09	1/30/09	
- ER Acceptance Review Letter Sent	3/12/09	3/12/09	3/12/09	
- Proposed Action & Alt. (A1)	4/01/09	4/01/09	4/01/09	
- NRC Review of Task A1	4/08/09	4/08/09	4/08/09	
- Preliminary Outline/TOC (A2)	4/08/09	4/08/09	3/17/09	
- NRC Review of Task A2	4/15/09	4/15/09	4/15/09	
- Site Visit Information Needs (Task Area 1)	4/23/09	4/24/09	4/24/09	
<u>License Application – NMSS Actions</u>				
- Receive remainder of license application	4/30/09	6/30/09		
- NMSS completes acceptance review	7/31/09	7/31/09		
- Notice of Opportunity for Public Hearing	8/28/09	8/28/09		
- NMSS issues RAIs	10/30/09	10/30/09		
- GLE responds to NMSS RAIs	11/30/09	11/30/09		
- NMSS issues SER	12/31/10	12/31/10		
<u>Scoping Meeting</u>				
- NOI FRN Finish Concurrence	3/27/09	3/27/09	3/27/09	
- NOI FRN published in FR	4/17/09	4/09/09	4/09/09	
- Complete scoping presentation, posters	5/12/09	5/11/09	5/11/09	
- Hold Scoping Meeting	5/19/09	5/19/09	5/19/09	
- Issue Meeting Summary	6/06/09	6/06/09	6/05/09	
- End of Scoping Period	6/19/09	8/31/09	8/31/09	Scoping period extended because of delay in Applicant submission of complete license application
- Draft Scoping Summary Report	7/17/09	9/25/09		
- NRC Review of Scoping Summary	7/24/09	10/2/09		
- Final Scoping Summary Report (A3)	8/07/09	10/16/09		
- Issue Scoping Summary Report	8/17/09	10/28/09		
<u>Consultations</u>				
- Initiate Consultations				
SHPO	4/03/09	5/1/09	5/1/09	
U.S. Fish and Wildlife	4/03/09	5/1/09	5/1/09	(Letter to Clearinghouse goes to NCDENR, DOT, Dpt.
NC State Clearinghouse	4/03/09	5/14/09	5/14/09	Agriculture, Flood Plain Mapping Program)

NCDOL	-	6/17/09	6/15/09	(Re: laser safety)
NOAA Fisheries	-	6/17/09	6/18/09	
New Hanover County	-	6/17/09	6/22/09	(Re: future projects and CAMA designations)
US Army Corps of Engineers	-	6/17/09		
Tribes	-	6/22/09		

RAIs

- RAI Input (B2)	7/21/09	9/29/09	
- Prepare RAIs / Begin Concurrence	7/24/09	10/02/09	
- Issue RAIs	8/05/09	10/14/09	
- Receive RAI responses	9/04/09	11/13/09	

Draft EIS

- Revised Proposed Action & Alt. (B4)	6/02/09	6/02/09	6/01/09
- Draft Affected Environment (B5)	6/16/09	7/17/09	
- Draft Impacts Section (B6)	6/30/09	9/04/09	
- NRC review of B4, B5, B6	7/07/09	9/11/09	
- Preliminary Draft EIS	8/24/09	10/30/09	
- NRC Review of Preliminary Draft EIS	9/01/09	11/6/09	
- Working Copy of Draft EIS (C1)	9/30/09	12/11/09	
- NRC Review of Working Copy of DEIS	10/07/09	12/18/09	
- Draft EIS Review Meeting (C2)	10/21/09	1/19-1/22/10	
- Camera-Ready Draft EIS (C3)	11/18/09	2/09/10	
- Issue Draft EIS	12/31/09	3/26/10	
- DEIS Public Comment Meeting	02/04/10	4/27/10	
- Issue meeting summary	02/14/10	5/18/10	
- Public Comment Period Ends	03/16/10	6/09/10	
- Issue Ltr to GEH to Resolve Comments	03/29/10	6/12/10	
- Response from GEH	04/20/10	7/14/10	
- Draft Compilation of Comments (D1)	05/18/10	8/9/10	
- NRC Review of Draft Compilation	06/01/10	8/23/10	
- Final Compilation (D2)	06/29/10	9/14/10	
- NRC Review Compilation	07/06/10	9/21/10	

Final EIS

- Preliminary FEIS (E1)	06/15/10	9/06/10	
- Review Preliminary FEIS	06/28/10	9/17/10	
- FEIS Review Meeting (E2)	07/20/10	10/08/10	
- FEIS for Publication (E3)	08/10/10	10/29/10	
- Concurrence - FEIS, FRN, Notices	08/10/10	11/12/10	
- Review by Linda S and OIS / Staff rev.	08/19/10	11/23/10	

1/10	- Printing by Guy B	08/31/10	12/03/10
2/20/10	- Deliver 5 copies to EPA HQ	09/01/10	12/06/10
3/20/10	- Issue FRN, FEIS, EPA Filing Letter	09/09/10	12/14/10
<u>Hearings</u>			
	- ASLB completes evidentiary hearings for contested hearing	8/31/11	12/14/11

3/20/10
Fisher

3/20/10
Fisher

3/20/10
Fisher

3/20/10
Fisher

3/20/10

Ridge, Christianne

From: Behram Shroff
Sent: Tuesday, February 24, 2009 3:00 PM
To: Christianne Ridge
Cc: Andrea Kock
Subject: More on GE Hitachi Global Laser Enrichment project

Categories:

In the Waste Management sections 3.10/4.10, the applicant states that "High-level radioactive wastes or mixed wastes (a type of waste that contains both hazardous and radioactive source, special nuclear, or by-product material, as defined by the Atomic Energy Act) are **not** generated at the Wilmington Site. This should be verified. While I have no reason to doubt the veracity of the statement, an intervener may question it because it's often assumed that nuclear facilities always generate dangerous radioactive waste.

From: Christianne Ridge
Sent: Tuesday, February 24, 2009 2:12 PM
To: Behram Shroff
Cc: Andrea Kock
Subject: RE: GE Hitachi Global Laser Enrichment project

Behram, thank you for the timely review.

From: Behram Shroff
Sent: Tuesday, February 24, 2009 1:58 PM
To: Christianne Ridge
Cc: Andrea Kock
Subject: GE Hitachi Global Laser Enrichment project

For the purpose of Acceptance Review, I have reviewed the following resource areas in the Description of Affected Environment and Environmental Impacts chapters per the guidance in NUREG 1748: Land Use, Transportation, Noise, Historic and Cultural Resources, Socioeconomics and Waste Management. These resource areas are respectively in Sections 3.1/4.1, 3.2/4.2, 3.7/4.7, 3.8/4.8, 3.10/4.10, and 3.12/4.12 of the applicant's Environmental Report (ER).

The ER and material presented in it is comprehensive and provides the data and analysis necessary for the NRC to evaluate it for acceptance and subsequent granting of a license. The applicant's analysis addresses impacts associated with site preparation, construction, operation, and decommissioning; cumulative impacts are also addressed. There is little in the area of alternatives analysis as only the Proposed Action and No Action are addressed. While this is not enough to reject the application, it is an area that needs to be acknowledged and addressed.

Based on my review and evaluation, I recommend continuance of the licensing process .

Received: from HQCLSTR02.nrc.gov ([148.184.44.77]) by OWMS01.nrc.gov
([148.184.100.43]) with mapi; Tue, 24 Feb 2009 14:59:53 -0500
Content-Type: application/ms-tnef; name="winmail.dat"
Content-Transfer-Encoding: binary
From: Behram Shroff <Behram.Shroff@nrc.gov>
To: Christianne Ridge <Christianne.Ridge@nrc.gov>
CC: Andrea Kock <Andrea.Kock@nrc.gov>
Date: Tue, 24 Feb 2009 14:59:54 -0500
Subject: More on GE Hitachi Global Laser Enrichment project
Thread-Topic: More on GE Hitachi Global Laser Enrichment project
Thread-Index: AcmWsd4IUvqfL8+T36zqHijTCPjwgAAd/BQAAF7HsA=
Message-ID:
<B4ECC0E252653F48B3F57C3B833465E80E341A3C09@HQCLSTR02.nrc.gov>
Accept-Language: en-US
Content-Language: en-US
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X-MS-Exchange-Organization-SCL: -1
X-MS-TNEF-Correlator:
<B4ECC0E252653F48B3F57C3B833465E80E341A3C09@HQCLSTR02.nrc.gov>
MIME-Version: 1.0

Ridge, Christianne

From: Christianne Ridge
Sent: Thursday, February 26, 2009 8:23 AM
To: Andrea Kock; Timothy Johnson
Subject: Call from GE-Hitachi

Categories:

Yesterday I received a phone call from Julie Olivier at GE-Hitachi.

She asked what the typical time is between the end of an acceptance review and the EIS scoping meeting. I told her the typical time was six weeks (which is what was done for LES) but that this case might be slightly different because of the two-part application.

She asked when we would want to visit the contractor that prepared GEH's environmental report. I told her we may want to visit after the scoping meeting but before we send RAIs.

She asked for an example of a supplemental environmental report. I sent her the ADAMS accession number for a supplemental environmental report for GNF-A.

Author: Susan Wolf

Date: October 8, 2008

Reviewer: Paul Andrews

Date:

Subject: Documentation of radiation dose modeling

Section No.	Subsection No.	Figure/Table Number	Other	Page Number
4.12				

Background:

The potential offsite radiological impacts to key receptors from routine effluent releases were assessed through calculations estimating the annual committed effective dose equivalent (CEDE). The term "dose equivalent" refers to a 50-year committed dose equivalent. The sum of the effluent related doses and direct dose equivalents provides an estimate of the total effective dose equivalent (TEDE) associated with the combined Wilmington site operations (proposed GLE facility + existing FMO facility). The calculated annual dose equivalents were then compared to regulatory (EPA and NRC) radiation exposure standards as a way of illustrating the magnitude of potential impacts. The key receptors (critical populations) evaluated were the resident nearest to the proposed GLE facility and the maximum exposed individual (MEI, located just south of the southern site boundary near the FMO, as shown in Figure 4.12-2). The MEI is a hypothetical person living at the point of highest projected total uranium concentrations near the site boundary. The dose impact was evaluated for inhalation and cloud plume immersion and direct dose from ground plane deposition resulting from gaseous emissions from both emitters at the Site. The dietary contribution of radiological dose from consuming locally produced meats, vegetables, and dairy was not considered based on the very low concentrations measured in nearby vegetation resulting from FMO operations. Similarly, no radiological contamination of drinking water is anticipated or considered in the analysis. The analysis included dose equivalent assessments for four age groups (adults, teens, children, and infants) for these pathways.

Doses were calculated using GENII (version 2.06), which was developed for the U.S. EPA to provide a set of programs for calculating radiation dose and risk from radionuclides released to the environment. GENII implements dosimetry models recommended by the International Commission on Radiological Protection (ICRP) in Publications 26, 30, 48, and 56 through 72, and the related risk factors published in Federal Guidance Report 13. The option to calculate doses and/or risks using ICRP-30 and -48 factors (Federal Guidance Reports 11 and 12) was selected as these methods have

been approved by DOE. The ICRP dosimetry and risk models are considered to be state-of-the-art by the international radiation protection community and have been adopted by most national and international organizations as their standard dosimetry methodology (Napier, 2007). The NRC's XOQDOQ air dispersion model was used to estimate the offsite airborne unitized concentrations and relative deposition rate of uranium isotopes averaged for one year of emissions.

Box A

Results:

Dose equivalents for the MEI and the nearest resident were calculated by pathway for the total body in adults, teens, children, and infants, and are presented in Tables 4.12-1 and 4.12-2, respectively. The CEDE for the adult MEI from the combined FMO and GLE emissions was calculated to be $8.1E-6$ mSv ($8.1E-4$ mrem) per year. For the adult full-time resident nearest to the proposed GLE facility, the CEDE from the combined FMO and GLE emissions was calculated to be $5.8E-6$ mSv ($5.8E-4$ mrem) per year. These doses are well below the EPA 10 mrem per year standard and the NRC TEDE 100 mrem per year limit.

Box B

Calculations/Logic: How was the answer to the results (Box A) obtained?

See below.

Box C

References:

Napier, Bruce A. 2007. *GENII Version 2 Users' Guide*. Prepared for U.S. Environmental Protection Agency under Contract DE-AC05-76RLO 1830.

USEPA. 1993. *Federal Guidance Report No. 12. External Exposure to Radionuclides in Air, Water, and Soil*. EPA-402-R-93-081.

USEPA. 1999. *Federal Guidance Report No. 13. Cancer Risk Coefficients for Environmental Exposure to Radionuclides*. EPA-402-R-99-001.

NRCS (National Resource Conservation Service). 2006b. *U.S. General Soil Map (STATSGO)*. Online information. U.S. Department of Agriculture, National Resource Conservation Service, National Cartography and Geospatial Center, Fort Worth, TX. Available at <http://www.ncgc.nrcs.usda.gov/products/datasets/statsgo/index.html> (accessed September 6, 2007).

Rationale for model selection:

GENII (version 2.06) was developed for the U.S. EPA to provide a set of programs for calculating radiation dose and risk from radionuclides released to the environment. GENII implements dosimetry models recommended by the ICRP in Publications 26, 30, 48, and 56 through 72, and the related risk factors published in Federal Guidance Report 13. The ICRP dosimetry and risk models are considered to be state-of-the-art by the international radiation protection community and have been adopted by most national and international organizations as their standard dosimetry methodology (Napier, 2007). The GENII model is fully documented, reviewed, and tested. GENII (version 1.0) was released by DOE in 1988. EPA released version 2.0 in 2002, incorporating improved transport models, exposure options, dose and risk estimation, and user interfaces. It is being actively maintained and updated by an EPA contractor. Other models were also investigated; we did not use COMPLY because it is a screening model (not intended to represent actual doses to real people) and older and its data inputs and outputs are poorly documented.

MEI documentation:

Modules =

- Constituent (linked to all 4 other modules)
 - Selected GENII Radionuclide Database. This module allows the user to select constituents of concern. The database also provides some key chemical properties for other modules.
 - ↗○ Selected U234, U235, U236, U238, Th231, and Th234. Note that user is forced to include thorium automatically when selecting uranium constituents (because thorium is the resulting decay product); we did not populate or utilize any input, intermediate, or output data for thorium (no emission rates provided by client, assumed to be 0).
 - Used all default chemical/physical properties.
- User_defined (linked to Exposure_Pathways)
 - Selected FRAMES ATO Air Module. This module was used because we had calculated the concentrations, deposition rates, and/or external dose in air (using XOQDOQ and stack emission rates, not discussed here). The constituent concentrations, deposition rates, and external doses all at user provided points in time, are entered directly through the interface. This module does not compute the ingrowth of progeny because the user is assumed to know everything about the source, including progeny emission. Therefore, this module assumes that the progeny emissions are input along with the parent emissions.
 - All constituents described as flux type = particle 1 and output type = air concentration with dry deposition.
 - The constituent description used was fine particles with a radius of 1 μm . This was chosen, rather than a gas, because it allowed the model to calculate effects of soil inhalation and external ground exposure. This small radius was chosen because it was assumed that the isotopes depositing would likely be in the form of UO_2F_2 , which is a particulate that forms from gaseous UF_6 .
 - Data are same for year = 0 and 1. Data were generated using XOQDOQ and stack emission rates; data entry by P. Andrews and confirmed by S. Wolf.

P1 dry Bq/m ² /yr	AC P1 Ci/m ³		
0.010271337	6.24253E-19	U234	MEI
0.000401463	2.44E-20	U235	MEI
4.52028E-06	2.75E-22	U236	MEI
0.001459012	8.87E-20	U238	MEI

- Exposure_Pathways (linked to Receptor_Intakes)
 - Selected *GENII V.2 Chronic Exposure Module*. The GENII chronic exposure module may be used to estimate concentrations in exposure media for groundwater, surface water, and atmospheric transport

pathways. The analysis accepts concentration data for waterborne pathways, and annual average atmospheric transport values. Deposition to soil from air or irrigation may be considered prior to the start of the exposure period. The results of the analysis are written in annual increments for the duration of exposure defined by the user. Exposure pathways include domestic water use (including irrigation of home gardens), agricultural product consumption, aquatic food consumption, recreational surface water activities, and soil contamination pathways. Losses by leaching, harvest removal, and radioactive decay from the surface soil are evaluated.

- The **main control screen** ("Controls") for the GENII chronic exposure user interface allows the user to make general selections on exposure pathways to include, and to define some basic parameters for the exposure analysis. The general selections allow inclusion (control box checked) or exclusion of general classes of exposure pathways.
 - Animal product ingestion (UNCHECKED)
 - Terrestrial food ingestion (UNCHECKED)
 - Aquatic food ingestion (UNCHECKED)
 - Recreational surface water exposures (UNCHECKED)

Duration of exposure is the time period over which the individual is exposed. It is measured from the time given for the start of exposure. VALUE ENTERED = 1.0 yr

End of release period is the elapsed time measured from time zero to the end of the release. Exposures may be evaluated beyond this time period for exposure to residual activity. VALUE ENTERED = 1.0 yr

Time from start to exposure is the time from zero to the beginning of the intake analysis. The duration of exposure begins at the end of the "time from start to exposure." VALUE ENTERED = 0.0 yr

Air deposition time prior to exposure is used when atmospheric releases are being evaluated. This time period is measured backwards from the "time from start to exposure" and must be less than or equal to that time parameter. VALUE ENTERED = 0 yr

Absolute humidity is used in the special tritium models only. VALUE ENTERED = DEFAULT = 0.008 kg/m³ (not utilized)

Fraction of plant roots in surface soil is used in the food crop and animal feed analyses and represents the fraction of plant roots that are in the contaminated

soil layer. The uptake by plants is assumed to be proportional to this fraction. VALUE ENTERED = DEFAULT = 1.0 fraction (not utilized)

Average daily rain rate is used to estimate the interception fraction from rain when wet deposition rates are provided in the atmospheric transport output file (ATO), and the user has selected the option to allow the code to calculate the wet deposition interception fraction. Note that the rainfall rates are not transferred with the ATO file, and a consistent value must be re-entered here. The value should reflect the rate "when it is raining", not the annual average. VALUE ENTERED = 3.1 mm/hr (more realistic average rainfall rate (when raining) for Wilmington of 3.1 mm/hr was substituted for the default value of 1 mm/d), based on examination of National Weather Service observations from Wilmington Airport.

Soil - Leaching Screen

The *type of leach rate constant* option allows selection of the method for specifying the soil loss rate constant for the leaching model. The rate constant may be defined in three ways: use of values in the GENII transport factor data file, calculation of rate constants from user supplied parameters, or input of rate constants (for each radionuclide). The method is selected from the pull-down list. When use of the GENII transport factor data file is selected, no additional input is needed for this screen. VALUE ENTERED = GENII default leach rates

Soil - Resuspension Screen

The *type of model to run* selects the model to use to evaluate air concentration from calculated soil concentrations. Four options are available: none (no resuspended contamination), use mass loading model, use Anspaugh model, and user input of resuspension factor. VALUE ENTERED = Use Anspaugh model (b/c this model assumes that material deposited will always be fresh)

The *mass loading factor for resuspension model* parameter is GREYED OUT.

The *depth of topsoil available for resuspension* parameter is entered when the Anspaugh model is selected. This parameter represents the thickness of soil in which the deposited activity has been mixed. VALUE ENTERED = 1 cm (default)

The *resuspension factor* is GREYED OUT.

Soil - Surface Soil Screen

The *surface soil areal density* is used to convert concentrations expressed per unit area to concentrations expressed per unit soil mass. VALUE ENTERED = 35496.0 mg/cm² (NRCS , 2006b)

The *surface soil layer used for density* is the depth of soil used in calculation of the soil areal density. VALUE ENTERED = 13.7 in (Both the MEI and nearest resident locations are in the Johnston-Dorovan-Meggett soil regime. The maximum depth of the top layer for each type was averaged together.)

The *surface soil density* is the soil mass density used to calculate the soil areal density. VALUE ENTERED = 1.02 g/cm³ (Both the MEI and nearest resident locations are in the Johnston-Dorovan-Meggett soil regime. The midpoints of the range for bulk density were averaged.)

Agriculture - General Screen

This screen allows the user to describe harvest removal, deposition to plants, and resuspension to plant surfaces, and loss by weathering from plant surfaces. Most concentrations as estimated using the assumption that radionuclides behave as small (micron-range) particles.

The *radionuclide removal due to harvesting* option allows the user to activate ("x" in box) the calculation of radionuclide loss due to harvest removal of each food crop and animal product feed. VALUE ENTERED = not activated.

The *user defined dry deposition retention fraction to plants* option allows the user to select the method for evaluating the dry deposition retention fraction. If this option is activated ("x" in box), then the user is allowed to enter the dry deposition retention fraction to plants (next parameter). If not activated, the code uses the default method based on plant biomass. VALUE ENTERED = not activated.

The *dry deposition retention fraction to plants* is GREYED OUT.

The *user defined wet deposition retention fraction to plants* option allows the user to select the method for evaluating the wet deposition retention fraction. If this option is activated ("x" in box), then the user is allowed to enter the wet deposition retention fraction to plants (next parameter). If not activated, the code uses the default method based on biomass and rainfall rate. VALUE ENTERED = not activated.

The *wet deposition retention fraction to plants* is GREYED OUT.

The *resuspension factor from soil to plant surfaces* is used to evaluate the air concentration above the plants from resuspension of particulate activity.
VALUE ENTERED = 1.00E-09 1/m (default)

The *deposition velocity from soil to plant surfaces* is used to estimate the amount of resuspended activity deposited onto plants. VALUE ENTERED = 0.001 m/s (default)

The *weathering half life from plants* is used to evaluate the weathering loss rate constant for loss of activity between deposition (wet or dry) and harvest.
VALUE ENTERED = 14.0 d (default)

Agriculture - Animal Feed Screens - ALL SCREENS GREYED OUT.

Agriculture - Food Crop Screens – ALL SCREENS GREYED OUT.

Agriculture - Intake Delays Screen – GREYED OUT.

Pathways Screen

The selection of exposure pathways is controlled on this screen. Each pathway may be selected for inclusion in the analysis for the current exposure location. The following pathways may be selected.

Animal product (meat, poultry, milk, eggs) ingestion – GREYED OUT.

Food crop (leafy vegetables, root vegetables, fruit, grains) ingestion – GREYED OUT.

Aquatic food (fish, mollusks, crustacea, aquatic plants) ingestion – GREYED OUT.

Drinking water ingestion – GREYED OUT.

Inadvertent shower water ingestion – GREYED OUT.

Inadvertent swimming water ingestion – GREYED OUT.

Inadvertent soil ingestion (based solely on RESIDENTIAL soils) – NOT ACTIVATED

Inhalation of outdoor air contaminated from atmospheric transport. For complete exposure coverage, also select Indoor air. – ACTIVATED

Inhalation of indoor air, which includes contributions from outdoor air plus contaminants released from domestic water during showering and other uses. For complete coverage, also include outdoor air. – ACTIVATED

Inhalation of suspended soil from prior air or irrigation deposition – ACTIVATED

External exposure from waterborne activity while swimming – GREYED OUT.

External exposure from waterborne activity while boating – GREYED OUT.

External exposure from sediment activity while on shoreline – GREYED OUT.

External exposure from soil activity (based solely on RESIDENTIAL soils) –

ACTIVATED

External exposure to airborne activity from atmospheric transport – ACTIVATED

The external exposure to air may be evaluated using the finite plume model or the semi-infinite plume model. When the finite plume model is checked, the external dose values are read directly from the atmospheric transport file (ATO) and no calculations are performed for this pathway in the GENII chronic exposure module. Otherwise, a semi-infinite plume is assumed and the dose is to be based on the air concentration. *Finite plume model* – NOT ACTIVATED.

- Receptor_Intakes (linked to Health_Impacts)
 - Selected *GENII V.2 Receptor Intake Module*. The GENII V.2 intake module may be used to estimate annual, time-integrated intakes from exposure to contaminated soil, groundwater, surface water, and atmospheric transport pathways. Up to 6 age groups may be specified.
 - 4 age groups selected. Age group 1 (infant) defined as 0 – 1 yr. Age group 2 (child) defined as 2 – 12 yr. Age group 3 (teen) defined as 13 – 19 yr. Age group 4 (adult) defined as 20 – 70 yr. Data for each pathway selected is the same for each age group.
 - Pathway = *external exposure to air*.
 - *Daily plume immersion exposure time* = 24.0 hr
 - *Yearly plume immersion exposure time* = 365.0 day
 - Pathway = *external ground exposure*.
 - *Indoor shielding factor* = 0.7 unitless (FGR12, p.189)
 - *Outdoor shielding factor* = 1.0 unitless
 - *Daily external ground exposure time* = 24.0 hr
 - *Yearly external ground exposure time* = 182.5 day
 - *Fraction of time spent indoors* = 0.7 fraction (FGR12, p.190)
 - *Fraction of time spent outdoors* = 0.3 fraction
 - Pathway = *external exposure while swimming*
 - ALL DEFAULTS USED
 - Pathway = *external exposure while boating*
 - ALL DEFAULTS USED
 - Pathway = *external exposure to shoreline*
 - ALL DEFAULTS USED
 - Pathway = *food crop ingestion*
 - ALL DEFAULTS USED
 - Pathway = *animal product ingestion*
 - ALL DEFAULTS USED
 - Pathway = *aquatic food ingestion*
 - ALL DEFAULTS USED
 - Pathway = *drinking water ingestion*
 - ALL DEFAULTS USED

- Pathway = *water ingestion while swimming*
 - ALL DEFAULTS USED
- Pathway = *water ingestion while showering*
 - ALL DEFAULTS USED
- Pathway = *inadvertent soil ingestion*
 - ALL DEFAULTS USED
- Pathway = *air inhalation (data from Federal Guidance Report No. 13, Table 3.1; assume 1 year old = infant, 10 year old = child, 15 year old = teen, 20+ = adult)*
 - *Air inhalation rate = 5.2 m³/day (infant)*
 - *Air inhalation rate = 15.3 m³/day (child)*
 - *Air inhalation rate = 20.1 m³/day (teen)*
 - *Air inhalation rate = 22.2 m³/day (adult)*
 - *Air inhalation period = 365.0 day/year*
 - *Fraction of a day outdoor inhalation occurs = 0.3 fraction*
- Pathway = *resuspended soil inhalation (data from Federal Guidance Report No. 13, Table 3.1)*
 - *Resuspended soil inhalation rate = 5.2 m³/day (infant)*
 - *Resuspended soil inhalation rate = 15.3 m³/day (child)*
 - *Resuspended soil inhalation rate = 20.1 m³/day (teen)*
 - *Resuspended soil inhalation rate = 22.2 m³/day (adult)*
 - *Resuspended soil inhalation period = 365.0 day/year*
 - *Fraction of a day inhalation of resuspension = 1.0 fraction*
- Pathway = *indoor air inhalation (data from Federal Guidance Report No. 13, Table 3.1)*
 - *Indoor inhalation rate = 5.2 m³/day (infant)*
 - *Indoor inhalation rate = 15.3 m³/day (child)*
 - *Indoor inhalation rate = 20.1 m³/day (teen)*
 - *Indoor inhalation rate = 22.2 m³/day (adult)*
 - *Indoor inhalation period = 365.0 day/year*
 - *Fraction of a day indoor inhalation occurs = 0.7 fraction*
- Health Impacts
 - Selected *GENII V.2 Health Impact Module*. The GENII V.2 health impact module calculates health impacts from intake or exposure to radionuclides. Radionuclide health impacts may be reported as radiation dose, cancer incidence, or fatal cancer incidence. Radiation risk calculations can be based on ICRP dosimetry and health effects conversion factors (user defined), or on EPA/HEAST radionuclide slope factors. The module includes consideration of domestic water use, farm product consumption, aquatic food consumption, surface water recreational activities, soil contact exposure, and air exposures.

- **Method Selections** Screen. Three options are available. Check the appropriate box.
- **Calculate dose and risk using ICRP-30/48 factors (Federal Guidance Reports 11 and 12):** This option allows calculation of doses and/or risks using DOE-approved methods. The radiation dosimetry is based on ICRP Publication 30 (as updated), as provided in Federal Guidance Reports 11 and 12 or DOE compilations DOE/EH-0070 and DOE/EH-0071. THIS OPTION ACTIVATED.
- **Calculate dose and/or risk using ICRP-60/72 and EPA risk factors:** This option allows calculation of doses and/or risks using EPA-approved methods. The radiation dosimetry is based on ICRP Publications 60 and 72, as provided in the supporting documents for Federal Guidance Reports 12 and 13. THIS OPTION NOT SELECTED
- **Calculate risk using EPA slope factors:** This option allows calculation of radiation risk using EPA slope factors. Slope factors were originally provided in the EPA Health Effects Assessment Summary Tables (HEAST); HEAST is no longer published by EPA and the slope factors are now taken from the Federal Guidance Report No. 13 values for adults. THIS OPTION NOT SELECTED
- Selection of **Calculate dose and risk using ICRP-30/48 factors** activates a "Method Parameters" tab. Options for calculating radiation dose, fatal cancers, or cancer incidence are available. Select one or more. ONLY "CALCULATE RADIATION EFFECTIVE DOSE EQUIVALENT COMMITMENT (CEDE)" SELECTED.
- Two additional parameters related to the estimation of external dose rates are also required. These should be set with the values used in preceding modules.
- *Thickness of contaminated soil/sediment layer – SOILT = 0.3 m*
- *Density of contaminated soil/sediment layer – SLDN = 1020 kg/m³*

Nearest resident documentation:

All same as MEI except concentration data =

- User_defined (linked to Exposure_Pathways)
 - Data are same for year = 0 and 1. Data were generated using XOQDOQ and stack data; data entry by P. Andrews and confirmed by S. Wolf.

P1 dry Bq/m ² /yr	AC P1 Ci/m ³		
0.004659041	4.29E-19	U234	Nearest resident
0.000182072	1.92E-20	U235	Nearest resident
2.05921E-06	2.18E-22	U236	Nearest resident
0.000661771	6.99E-20	U238	Nearest resident

Nearest fenceline (to GLE stack) documentation:

All same as MEI except concentration data =

- User_defined (linked to Exposure_Pathways)
 - Data are same for year = 0 and 1. Data were generated using XOQDOQ and stack data; data entry by P. Andrews and confirmed by S. Wolf.

P1 dry Bq/m ² /yr	AC P1 Ci/m ³		
0.003163315	4.13E-19	U234	Nearest fenceline
0.000123635	1.61E-20	U235	Nearest fenceline
1.39203E-06	1.82E-22	U236	Nearest fenceline
0.000448985	5.87E-20	U238	Nearest fenceline



United States Department of the Interior

FISH AND WILDLIFE SERVICE
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August 6, 2008

Mr. Henry Wicker
U. S. Army Corps of Engineers
Wilmington Regulatory Field Office
P. O. Box 1890
Wilmington, North Carolina 28402-1890

Subject: Action ID # SAW-2007-00073, Carolina Cement Company (Titan America),
New Hanover County, North Carolina

Dear Mr. Wicker:

This letter provides the comments of the U. S. Fish and Wildlife Service (Service) on the subject Public Notice (PN), dated June 6, 2008. The applicant, Carolinas Cement Company (a subsidiary of Titan America), has applied for a Department of the Army (DA) permit to construct a cement manufacturing plant and operate a quarry for limestone and marl in an area east of the Town of Castle Hayne along the southern bank of the Northeast Cape Fear River. These comments are submitted in accordance with the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661-667d). Comments related to the FWCA are to be used in your determination of compliance with 404(b)(1) guidelines (40 CFR 230) and in your public interest review (33 CFR 320.4) in relation to the protection of fish and wildlife resources. Additional comments are provided regarding the District Engineer's determination of project impacts pursuant to section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

The Service has been involved with early coordination on this project. A Service biologist attended scoping meetings on June 7 and September 26, 2006. A Service biologist participated in the conference call to discuss the assessment of aquatic resources at the Castle Hayne alternative site on July 22, 2008.

Project Area

The only alternative for the proposed quarry and cement plant mentioned in the PN would be located east of Castle Hayne in New Hanover County, North Carolina. The proposed project would be located on an approximately 1,868-acre site on Ideal Cement Road approximately 2.6 miles east of Interstate 40 and north of Holly Shelter Road. This site alternative is bordered to the north by the Northeast Cape Fear River, to the east by Island Creek, and to the south by Holly Shelter Road. The site alternative includes undeveloped forested lands, an existing aggregate quarry pit currently operated by Martin

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Marietta Materials, as well as an inactive cement manufacturing plant, formerly operated by Ideal Cement.

The proposed site is bordered on the north by the Northeast Cape Fear River, a blackwater river which is a major tributary to the Cape Fear River. The eastern boundary is formed by Island Creek. The reach of the Northeast Cape Fear River within the proposed project area is classified as "B Sw" water. The North Carolina Division of Water Quality (NCDWQ) defines class "B" as waters suitable for primary recreation, including frequent or organized swimming and any other best used specified by the "C" classification which includes aquatic life propagation and maintenance of biological integrity, wildlife, secondary recreation, and agriculture. "Swamp waters" (Sw) is a supplemental surface water classification for waters classified by the Environmental Management Commission and which are topographically located so as to generally have very low velocities and other characteristics which are different from adjacent streams draining steeper topography. Island Creek is classified as "C Sw".

The Northeast Cape Fear River has been classified as "joint water" which means that fishing activities in this water body are jointly regulated by the North Carolina Marine Fisheries Commission and the North Carolina Wildlife Resources Commission (NCWRC). The Northeast Cape Fear River is designated as a primary nursery area (PNA) in the North Carolina Division of Marine Fisheries (NCDMF) database (Kimley-Horn 2006, p. 6). A PNA is a designated area in an estuarine system where initial post-larval development takes place. These areas are usually located in the uppermost sections of a system where populations are uniformly very early juveniles. According to the National Marine Fisheries Service (NMFS), the Northeast Cape Fear River as well as its associated riverine wetlands would also be regulated as Essential Fish Habitat because it serves as a primary nursery area, (Kimley-Horn 2006, p. 6). The tidally influenced reaches of the Northeast Cape Fear River support estuarine dependent species such as red drum (*Sciaenops ocellatus*), summer flounder (*Paralichthys dentatus*), and various shrimp species (e.g., *Penaeus* spp.) as well as a number of anadromous species such as shad (*Alosa* spp.), blueback herring (*Alosa aestivalis*), striped bass (*Morone saxatilis*), and shortnose sturgeon (*Acipenser brevirostrum*).

Island Creek has been classified as "inland water" which means that fishing activities in this water body are regulated by the NCWRC. Island Creek is not designated as a primary or secondary nursery area (Kimley-Horn 2006, p. 6). However, the creek is recognized as an anadromous fish spawning area.

Four plant communities were identified within the Castle Hayne alternative site based upon limited field review and interpretation of aerial photography (Kimley-Horn 2006, pp. 6-7). These communities include: cypress-gum swamp (blackwater subtype); mesic mixed hardwood forest (Coastal Plain subtype); non-riverine wet hardwood forest; and xeric sandhill scrub. Approximately 294 acres of cypress-gum swamp are situated along the floodplain of the Northeast Cape Fear River and Island Creek (Kimley-Horn 2006, p. 8). This wetland system is dominated by bald cypress (*Taxodium distichum*), water

tupelo (*Nyssa aquatica*), swamp black gum (*Nyssa biflora*), and green ash (*Fraxinus pennsylvanica*).

Approximately 115 acres of non-riverine wet hardwood forest occur throughout the site associated with intermittent drainages and on poorly drained interstream flats, not flooded by the Northeast Cape Fear River or Island Creek. This community is generally located topographically upgradient from the cypress-gum swamps and often connects with the swamp systems in the lower topographic areas of the site. This wetland system is dominated by loblolly pine (*Pinus taeda*), sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), swamp chestnut oak (*Quercus michauxii*), cherrybark oak (*Quercus pagoda*), and scattered yellow poplar (*Liriodendron tulipifera*).

Proposed Actions and Anticipated Impacts

The PN states that purpose of the proposed project is to establish a quarry from which the applicant can extract marl and limestone that will support manufacturing Portland cement to supply the eastern North Carolina market in an economically viable fashion. To be economically viable, the resource to be mined must be within a three mile radius of the manufacturing facility and must provide for a long-term (at least 30 years) marl and limestone resource of sufficient quality that can be recovered in a systematic and cost-effective manner. Based on the economies of scale and the projected market demand, the proposed plant will have a capacity of 2.3 million short tons per year of finished Portland cement. Furthermore, the manufacturing facility must be accessible to suitable modes of transportation. Titan America's Roanoke Cement Company facility currently moves 50% of the Portland cement it produces by rail in the mid-Atlantic region.

The PN states that it is important to locate a Portland cement operation where quarrying, manufacturing, and transportation costs and logistics allow for long-term production in an economical and efficient manner. The magnitude of the necessary investment in property and personnel requires the Portland cement industry to develop production plans based on long-term horizons. Since 1950, no manufacturing facility of the size proposed has commenced operations without 40 to 50 years of reserves, and currently operating Portland cement plants have been operating an average of 44 years. Based on this, the applicant requires at least a 30-year resource reserve to construct the proposed facility.

The subject PN considers only a single alternative for the mine and cement plant. However, because the Castle Hayne alternative site requires approvals from federal and state agencies under both the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA), a joint Federal and State Environmental Impact Statement (EIS) will be prepared. The U.S. Army Corps of Engineers will serve as the lead agency for the process. The EIS will be the NEPA document for the DA permit evaluated by the Wilmington District, U. S. Army Corps of Engineers (Corps) and the SEPA document for the State of North Carolina (CAMA permit). Based on the size, complexity, and potential impacts associated with the Castle Hayne alternative site, the PN states that the applicant has been advised by the Corps to identify and disclose the environmental impacts of the proposed project in an Environmental Impact Statement

(EIS). Within the EIS, the applicant will conduct a thorough environmental review, including an evaluation of a reasonable number of alternatives.

Wetland Impacts - The PN states that proposed quarrying action at the Castle Hayne alternative would impact approximately 493 acres of wetlands. This total includes approximately 214 acres of wetlands located within areas under the jurisdiction of the State's Coastal Area Management Act (CAMA) of 1974. While the nature of the impacts is not specified in the PN, it is likely that the existing vegetation of the site would be eliminated.

Air Quality Impacts - The operation of the quarry and manufacturing facility would produce emissions into the air. The impacts on air quality of the various alternatives will be considered in the Corps' EIS.

Water Quality Impacts - The operation of a quarry and manufacturing facility is likely to impact both surface water and ground water. The impacts of ground water withdrawals and surface water runoff at the Castle Hayne alternative site are not discussed in the PN, but are listed as topics for the EIS.

Compensatory Wetland Mitigation - The PN does not present a plan for compensatory wetland mitigation for the Castle Hayne alternative site. However, as part of the EIS, the applicant will develop a compensatory mitigation plan for this site along with the other alternative locations. Each plan would provide a detailed discussion of the methodology and approach to compensate for unavoidable impacts to waters of the United States including wetlands.

Federally protected species - The early scoping report on the Castle Hayne alternative site provided the federally-listed species known to occur in New Hanover and Pender Counties (Kimley-Horn 2006, pp. 8-9). The lists include coastal species such as sea turtles and seabeach amaranth (*Amaranthus pumilus*) would not occur in the project area. The current PN does not address potential adverse impact to federally protected species, but notes habitat evaluations and field surveys are ongoing. A technical report detailing the methodologies and results of the protected species study will be included as an appendix to the EIS. Such data should be supplied for each alternative site.

Service Concerns and Recommendation for Environmental Impact Statement

Need, Purpose, and Development of Alternatives - As discussed by Kimley-Horn (2006, p. 2), there is a need for Portland cement in North Carolina. The current need is being met by production in South Carolina, Tennessee, Virginia, and foreign imports arriving at Wilmington. The primary market for the proposed Castle Hayne facility would be within a 120-mile radius of the site, an area including Wilmington, Raleigh, and Myrtle Beach, South Carolina.

Within the EIS, there should be a single section that discusses the alternatives that would address the stated project purpose. Planning should consider sites within the entire

market area of the proposed plant, both primary and potential markets of less importance. This section should be completely free of any evaluation of the alternatives and no alternative should be eliminated for reasons other than failure to address the project purpose. Start up costs should not be used as justification for eliminating an alternative unless such costs render the effort unfeasible. If a certain alternative, other than the required consideration of the no action alternative, would not address the stated project purpose, it should not be introduced. There is no point in discussing an alternative that does not address the project purpose. Once the geographic area of market is defined and potential sites identified, the environmental impacts of each site should be evaluated. While start up costs will vary among feasible locations for the mine/plant, the Corps should carefully scrutinize any determination by the applicant that there is only a single suitable site within the entire market area to be served by the facility.

After the potential sites are established, the various environmental impacts of each site can be developed and used to determine the least environmentally damaging practicable alternative. Some of the major environmental issues that require consideration are discussed in the following paragraphs.

General Habitats of the Sites – The habitat values of the various alternatives should be carefully considered. The one site addressed in the PN is a forested alluvial floodplain. These wetlands in the mid-Atlantic region are important to many birds as breeding, wintering, and migrating stop-over habitat (Kellison et al. 1998, p. 314). These forests provide food and cover for wildlife throughout the year. Seasonal flooding produces shallow, warm water areas where many kinds of water life spawn and feed (Harris et al. 1984, p. 7). Flooded bottomland hardwood forests are nurseries for many fish species. Many of these species are dependent on the resources of the river, its tributaries, and its floodplain during all or part of their life cycle or seasonal cycle.

The alternative identified near Castle Hayne contains tidal, freshwater, forested wetlands, a unique subset of alluvial wetlands. This wetland type occurs along rivers where flooding is influenced by lunar or wind tides (North Carolina Wildlife Resources Commission [hereafter NCWRC] 2005, p. 260) and included both forested areas and marshes with dense herbaceous vegetation. The basic characteristics of tidal cypress-gum swamp in North Carolina are discussed by Schafale and Weakley (1990, pp. 253-255). These forests are regularly to irregularly flooded with freshwater lunar or wind tides and there is little or no salinity in the water. Tidal flooding brings seawater-derived nutrients and varying amounts of sediment into the community which probably makes the tidal forests more productive than the non-tidal blackwater subtype of cypress-gum swamp (Schafale and Weakley 1990, p. 254).

The North Carolina Wildlife Action Plan identifies the Northeast Cape Fear River as a priority area for habitat protection (NCWRC 2005, p. 369). This designation is based in part on information from Smith et al. (2002), the North Carolina Natural Heritage Program (NCNHP) and the NCWRC. Priority areas have high species diversity, rare species, and endemic species. These areas are also considered to be critical to the

survival of certain species by providing, for example, spawning area, and/or contain diverse biological communities.

The EIS for the proposed mine/plant should carefully consider the general habitat value of each site alternative. Sites in North Carolina that have a high priority for habitat protection and or contain rare or endemic species should be avoided if at all possible.

Migratory Birds – Any site for a 50-year mining and cement manufacturing facility is likely to impact migratory birds. While other sites should be developed and evaluated in the EIS, the Castle Hayne site is the only one identified in the current PN. This site includes a portion of the alluvial floodplain of the Northeast Cape Fear River. In alluvial floodplains of the southern United States, many birds are found across the hydrologic gradient and show no particular affinity for cover type of hydrologic regime (Wigley and Lancia 1998, p. 218 and references therein). Wigley and Lancia (1998, p. 219-222) provide a table with selected birds associated with southern forested wetlands, including alluvial floodplains and flatwood/wetland mosaics that may be impacted by the Castle Hayne alternative site.

The Service has adopted a “focal species strategy” which uses selected species of birds to direct conservation actions aimed at returning these species, and others occupying the same habitat, to healthy and sustainable levels. Based on this strategy, the Service’s Southeastern Region has developed specific resource priorities and focal species. Focal species of the Service are those that: (1) demonstrate high conservation needs; (2) represent a broader group of species sharing the same or similar conservation needs; (3) receive a high level of the Migratory Bird Program efforts; and, (4) have a great likelihood that factors affecting their status can realistically be addressed.

Swainson’s warbler (*Limnothlypis swainsonii*) is a Service focal species on the South Atlantic Coastal Plain. The species is considered to be an interior forest breeding bird. This migratory species overwinters in Cuba and Mexico and breeds in the southeastern United States. It is present in the coastal plain and mountains of North Carolina from early April through late September (Potter et al. 1980, p. 300). Throughout most of its breeding range the species occupies floodplain forests with a dense understory but little ground cover, such as natural gaps in older forests (Wells 2007, p. 341). The species is included as one of the 100 “at risk birds” in North America (Wells 2007, pp. 341-343) due to the loss of breeding areas as large tracts of bottomland forest were cleared. The loss or fragmentation of breeding and wintering habitats currently supporting Swainson’s warbler continues in many parts of the species’ range (Wells 2007, p. 342). It is likely that this species breeds in the floodplain forests of the Castle Hayne site and would be adversely impacted by the selection of this site.

The prothonotary warbler (*Protonotaria citra*) is another interior forest breeding bird of the South Atlantic Coastal Plain that is a focal species of the Service. In North Carolina, the species is a common summer resident along the coast and throughout the coastal plain from early April through late September (Potter et al. 1980, p. 299). Breeding habitat consists of natural cavities in a tree, stump, or wooden structure (Potter et al. 1980, p.

299). While breeding habitat is probably most abundant in cypress swamps, nests may be found in other types of swamps and heavily wooded borders of lakes and streams. Wells (2007, pp. 333-334) states that this species breeds in flooded forests and along water edges of lakes, ponds, and slow moving rivers. The birds generally prefer mature forests larger than 250 acres with little understory and permanent water. Wells include this species as one of the 100 "at risk" birds in North America and notes that the clearing of large tracts of bottomland hardwood forest declines in the population of this warbler. One of several conservation measures for the species is an increase in the acreage of bottomland hardwood forests that are managed to attain beneficial conditions prothonotary warblers (Wells 2007, p. 335). It is likely that this species breeds in the floodplain forests of the Castle Hayne site and would be adversely impacted by the selection of this site.

The rusty blackbird (*Euphagus carolinus*) is a Service focal species on the South Atlantic Coastal Plain. This migratory species breeds in the boreal forests of Canada and Alaska and spends the winter in the southeastern United States. Wintering areas include wet forests and swamps such as bottomland hardwood forests and cypress swamps. In North Carolina, this species is mostly a spring and fall transient, but it winters erratically throughout the state and is sometimes locally abundant, particularly in the eastern counties (Potter et al. 1980, p. 347). The species has one of the steepest population declines of any North American bird (Wells 2007, p. 381) and is recognized as an "at risk" species (Wells 2007, pp. 381-384). In addition to habitat losses in breeding areas, wintering habitat in the United States has been greatly reduced (Wells 2007, p. 382). Twenty-five percent of forested wetland habitat in the southeastern United States was lost between the 1950s and 1980s (Wells 2007, p. 382). It is possible that this species overwinters in the floodplain forests of the Castle Hayne site and would be adversely impacted by the selection of this site.

The Corps should compare impacts to migratory birds, especially the focal species designated by the Service, at the Castle Hayne site alternative with other possible locations for the quarry and plant site. This comparison should recognize the high value and diversity of the habitat within the floodplain wetlands at the Castle Hayne site. For birds which require large areas of mature forested wetlands, such as interior forest breeding birds, there may be no unoccupied alternatives to the habitats on the site. For these species small fragments of habitat would not provide adequate habitat and the "at risk" birds discussed above may experience further population declines. The large, forested wetland tract at the Castle Hayne site represents a very valuable resource that may be irreplaceable within the landscape of southeastern North Carolina.

Fisheries Issues - The Cape Fear River and its major Northeast Cape Fear River tributary are the only major river systems in North Carolina flowing directly into the Atlantic Ocean (Street et al. 2005, page 40). They are therefore hydrologically unique among North Carolina estuaries. The flushing rate for the lower estuary is approximately 14 days, the most rapid turnover among major estuaries in North Carolina (Street et al. 2005, page 40). They are also the only river systems in North Carolina to possess diurnal tidal freshwater riverine, stream, marsh and forested wetlands ecosystems (Leonard and Davis

1981, Schafale and Weakley 1990), a further unique hydrological feature. Finally, they are among the few southeastern river systems that possess a full complement of native diadromous (species that travel between salt and fresh water) fish species such as alewife (*Alosa pseudoharengus*); American eel (*Anguilla rostrata*); American shad (*Alosa sapidissima*); Atlantic sturgeon (*Acipenser oxyrinchus*); blueback herring; hickory shad (*Alosa mediocris*); sea lamprey (*Petromyzon marinus*); shortnose sturgeon, and striped bass (Schwartz et al. 1982, Mallin et al. 2001).

Because of their migratory nature and the unique ecological roles they perform, these diadromous species have been made a high priority for restoration and conservation by all federal and state fishery management agencies. In particular, the NCWRC has made the Atlantic and shortnose sturgeons, and the sea lamprey, priority aquatic species in the Cape Fear River basin (NCWRC 2005, p. 366). Habitat areas for these species within the Cape Fear and Northeast Cape Fear estuaries may qualify as Strategic Habitat Areas (SHA's) which are currently undergoing designation by the North Carolina Marine Fisheries Commission, Coastal Resources Commission, and Environmental Management Commission (Street et al. 2005, page 481 ff.).

One of the highest priorities of the Service in the Southeastern United States is the conservation of interjurisdictional fish. These are non-listed fish that because of the scope of their geographic distributions or migrations are managed by two or more states, nations, and/or tribal governments. The focal, interjurisdictional species of the Service that may occur at the Castle Hayne alternative site include the Atlantic sturgeon, striped bass, American eel, and American shad. The Service strongly recommends that the site selected for the mine and cement plant not create any direct, indirect, or cumulative adverse impacts on these focal species and not result in any loss or degradation of their habitats.

Because of the juxtaposition of oceanic saline, mesohaline, and oligohaline conditions coupled with the highest diurnal tidal range of any North Carolina estuary, the Cape Fear River estuary, including the tidal portion of the Northeast Cape Fear River, has a high fish species diversity, with in excess of 250 species documented, from 88 families (Schwartz et al. 1982) More recent data is available in reports of the Lower Cape Fear River Program located at < <http://www.uncwil.edu/cmsr/aquaticecology/LCFRP/reports.htm> > and the reports by Hackney et al. (2008) regarding monitoring of potential increased tidal ranges in the Cape Fear River ecosystem due to Wilmington Harbor deepening, available at < <http://www.saw.usace.army.mil/wilmington-harbor/main.htm> >. An ecosystem with so many distinct ecological features merits the highest level of conservation measures to ensure its future sustainability.

The NMFS representative participating in the conference call of July 22, 2008, indicated that the area of the Castle Hayne alternative is considered Essential Fish Habitat (EFH) because it is designated as Primary Nursery Area by the State of North Carolina. The applicant and the Corps should undertake a thorough assessment of the threats to EFH that would result from the selection of the Castle Hayne alternative site. Furthermore,

there should be a thorough evaluation of the cumulative impact of other existing and future proposed threats to EFH in coastal North Carolina. In this regard, the applicant and Corps may find it useful to review and reference Collins et al. (2000).

The draft Aquatic Resource Characterization submitted on behalf of the applicant is inadequate as presently designed for either characterizing the fishery and benthic macroinvertebrate resources present, or for establishing a baseline against which any impacts of the Castle Hayne alternative site could be assessed if it is ultimately selected. The study should be redesigned to consider the recommendations made by fishery management agencies during the July 22, 2008, conference call hosted by the Corps, between the applicant, their consultants, and agency representatives. Specific recommendations are provided below for refining the study. The applicant is encouraged to analyze and use existing data from the above-referenced University of North Carolina-Wilmington extensive monitoring programs to supplement any data collected specifically for this project.

Assessment of Aquatic Resources – As noted, the conference call of July 22, 2008, discussed the plan for assessing aquatic resources at the site of the Castle Hayne alternative site. The stated purpose of the plan is to “...evaluate aquatic resources in the vicinity of the Castle Hayne Project.” The resources include fish and benthic macroinvertebrates. The objectives include the characterization of: (1) the existing species composition and relative abundance of fish and macroinvertebrates; (2) water quality; (3) sediment quality; (4) habitat conditions adjacent to the project site; and, (5) the relative quality or condition of aquatic resource and water/sediment. The goal of the assessment is to provide a basis for the aquatic resources sections of the existing environment section of the EIS, as well as providing information for assessment of potential impacts to aquatic resources.

The proposed sampling regime as further described in the characterization contains significant deficiencies and will not attain these objectives. The proposed three synoptic sampling events are simply inadequate for either aquatic resource characterization, or impact assessment. As recommended by agency representatives during the July 22, 2008, conference call, sampling should be conducted at a minimum on a monthly basis, at all eleven specified sites (or relocated sites as discussed during the call). Further, there should be targeted sampling for anadromous and catadromous fish species during the spring spawning (for anadromous species) and immigration (for American eel) periods, and during fall out-migration periods, on a weekly or biweekly basis. Sampling should encompass at a minimum an entire calendar year so that all combinations of seasonal flows and temperatures are adequately addressed. Sampling station locations should be adjusted per the discussion during the conference call of July 22, 2008.

The proposed water quality and sediment sampling parameters and techniques, as they related to fisheries resources, should be reviewed by staff of the North Carolina Division of Water Quality, U.S. Environmental Protection Agency, and the Service's Contaminants Program staff. Any identified inadequacies should be submitted for addressing to the applicant. Fishery management agency staff indicated to the applicant's

consultants that the lower Cape Fear River ecosystem, including the Northeast Cape Fear River, is a very dynamic system, therefore grab samples spaced widely temporally would not be sufficient to characterize the habitats present. The proposed sampling regime should be supplemented to include minimum monthly sampling, for a minimum twelve-month period, with intensive periods in which continuous monitoring is conducted to determine the daily cycles of such parameters as dissolved oxygen, temperature and depth changes associated with lunar tides.

The proposed methods for assessing aquatic invertebrates may be satisfactory, pending review by the other state and federal agencies as above noted. However, the proposed frequency is inadequate for characterization and assessment, and should be increased to cover at least twelve months. Macroinvertebrate sampling of the tidal freshwater swamps also should be conducted to characterize benthos which may be seasonally or tidally available to foraging fish species.

The comments provided above regarding frequency of sampling and temporal coverage also apply to fisheries resources. In addition, per the recommendation of the North Carolina Division of Marine Fisheries, gill nets should be added as a sampling device at least at all the open water stations. The applicant should consult the referenced reports from sampling programs conducted by the University of North Carolina-Wilmington with a view toward using the data in them to supplement and further characterize the affected aquatic ecosystems.

Water Quality Issues - Pollution is one of the American public's greatest environmental concerns, and the Service expects that the EIS for this project will rigorously evaluate pollutant loads to air and water from the facility and potential for impacts to important natural resources of the Northeast Cape Fear River.

Gerard (1999) discusses water quality issues in the Cape Fear River. He notes that the river is a system and that activities, such as clear cutting stream banks upstream, directly affects the quality of water downstream. Scientists are recommending riparian buffers, green spaces abutting stream banks, to filter out sediment and toxins. Dr. Michael Mallin of the University of North Carolina at Wilmington notes (Gerard 1999) that the Cape Fear is "not in bad condition, compared to the Neuse and the Pamlico, but it's right on the edge. Continuing watershed development and the removal of wetlands will push it over the edge. The wetlands are what really is saving the Cape Fear."

In evaluating the Castle Hayne alternative site, priority and conventional pollutant discharges to air and water should be quantified. In addition to comparing increased loading to air and water quality standards, it would be helpful to estimate the impacts on current ambient air and water quality conditions. Impacts to sensitive resources should receive special attention. Among North Carolina's threatened and endangered fishes, the shortnose sturgeon appears the most sensitive to pollutants (Dwyer et al. 2005) and sturgeon may occupy the receiving waters. The potential for heavy metal accumulation in the region's sediments and biota warrants special attention. As in many areas of the eastern United States, mercury is a problem parameter in eastern North Carolina with fish

consumption advisories in place in the State due to excessive mercury loadings. The southeastern part of North Carolina is a regional hotspot, so additional loadings will be a concern. The EIS should discuss the emissions of mercury and the deposition fate of any airborne mercury loads.

Federally Protected Species and State Special Status Species - The Service has reviewed available information on federally-threatened or endangered species known to occur in both New Hanover and Pender Counties. We have also reviewed information from the NCNHP database. Occurrence records in the NCNHP database can be accessed by topographic quadrangle (quad) of the U. S. Geological Survey (USGS). Data from USGS quads provide the most project-specific information on species which should be considered in permitting this project. The project area is mostly in the Mooretown quad, but includes a smaller area of the Scotts Hill quad. The occurrence data of special status species within these quads can be obtained on the internet at < <http://www.ncnhp.org/Pages/heritagedata.html> > and conducting a database search.

Another useful resource at the NCNHP web page is the virtual workroom. This resource is available to the public and allows the user to determine the species which have been reported (called an element occurrence) within two miles of a selected point. The summary data provides the status of the species at various geopolitical levels (state, federal, and global) and brief comments on the habitat of the species. The virtual workroom help guide should be used for terms and acronyms in the information provided. On July 28, 2008, a query of the area around the Castle Hayne alternative yielded 14 species. The Corps and the applicant should use this resource or similar data on rare species in evaluating the alternatives.

The potential impacts to the federally endangered shortnose sturgeon should be fully evaluated. While the Service indicated during the call of July 22, 2008, that Moser and Ross (1995) had tracked shortnose sturgeon into the Northeast Cape Fear River, a cursory review of their published literature did not reveal such movements. The applicants should contact Drs. Moser or Ross to determine if shortnose sturgeon were tracked in the vicinity of the proposed project.

As noted during the July 22, 2008, conference call, the applicant should consult with the NMFS regarding the necessity for conducting section 7 consultations for Atlantic and shortnose sturgeons. Potential impacts to these species will be considered by the Protected Resources Division of the NMFS which is concerned about the restoration of the shortnose sturgeon in the Cape Fear River. Impacts to this species should be carefully considered in the evaluation of site alternatives.

The federally-endangered the West Indian manatee (*Trichechus manatus*) has been reported in the vicinity of the project area. The species is known to occur in New Hanover and Pender Counties and there is a current occurrence record in the Mooretown quad. The Northeast Cape Fear River and some its larger tributaries may provide suitable habitat for manatees that move along the Atlantic Coast and into inland waters during summer months and are seasonal transients in North Carolina, primarily from June

through October. Manatees may travel in water as shallow as one to two meters (3.3 -6.6 feet) deep. The species moves extensively when in North Carolina waters and past occurrence records cannot be used to precisely determine the likelihood that it will be present at a particular construction site.

While manatee occurrences are rare in North Carolina, project planning and the selection of the actual site should consider potential impacts to this species. The Service has developed "Guidelines for Avoiding Impacts to the West Indian Manatee - Precautionary Measures for Construction Activities in North Carolina Waters." These guidelines are available on our web site at < http://nc-es.fws.gov/mammal/manatee_guidelines.pdf>. The potential for employing a barge system at the Castle Hayne alternative creates greater risk to this species. Other sites which would only use rail or trucks for the transportation network would eliminate the threat to this species. The risk to manatees created by a barge transport system should be considered in the evaluation of alternative sites.

The protected species provided in the early scoping report lists the American alligator (*Alligator mississippiensis*) as a threatened species (Kimley-Horn 2006, p. 8). From a federal perspective, the alligator is not a listed species in North Carolina. It is listed as threatened due to similarity of appearance (T/SA) with the American crocodile (*Crocodylus acutus*) which only occurs in southern Florida. Taxa listed as T(S/A) are not biologically endangered or threatened and are not subject to section 7 consultation. However, the species is considered threatened by the State and should be considered in site selection.

In addition to those species that are currently protected by the ESA, site selection and project planning should also consider federal species of concern (FSC). A FSC is under consideration for listing, but current information is insufficient to support listing at this time. These species may or may not be listed in the future. Every effort should be made to avoid adverse impacts to any FSC in order to prevent the need for formal listing in the future.

The evaluation of special status species should consider several species of bats. Bats in the United States feed almost exclusively on insects and are extremely beneficial (Harvey 1992, p. 4). The southeastern myotis (*Myotis austroriparius*) is a FSC with occurrence records in both New Hanover and Pender Counties. There is a current record in the NCNHP database for the species in the Mooretown quad. The species roosts in hollow trees near water. The northern myotis (*Myotis septentrionalis*) occurs in the NCNHP virtual workroom data near the Castle Hayne alternative site and is on the State "watch list" indicating that the species is thought to be rare and of conservation concern in the State, but not warranting active monitoring at this time. Rafinesque's big-eared bat (Coastal Plains subspecies) (*Corynorhinus rafinesquii macrotis*) is a FSC and has been reported in both Pender and New Hanover Counties. The species occurs in the NCNHP virtual workroom data near the Castle Hayne alternative site. This species roosts in hollow trees near water.

Hollow trees, and other standing, dead trees (snags), provide important habitat not only to bats mentioned above, but also to a host of vertebrate and invertebrate species. Since such snags are often not tolerated in residential and other developed area, they are often limited to large tracts of undeveloped land such as the wetlands of the Castle Hayne alternative site. The environmental analysis of the various alternatives should consider the impacts on this important, but often unappreciative, habitat feature.

The bald eagle (*Haliaeetus leucocephalus*) has been reported in Pender County, but not within the two USGS quads surrounding the Castle Hayne alternative site. In the July 9, 2007 Federal Register(72:37346-37372), the bald eagle was declared recovered, and removed (de-listed) from the Federal List of Threatened and Endangered wildlife. This delisting took effect August 8, 2007. After delisting, the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d) becomes the primary law protecting bald eagles. The Eagle Act prohibits take of bald and golden eagles and provides a statutory definition of "take" that includes "disturb". The Service developed National Bald Eagle Management Guidelines to provide guidance to land managers, landowners, and others as to how to avoid disturbing bald eagles. For more information, visit < <http://www.fws.gov/migratorybirds/baldeagle.htm> >.

Bald eagles usually nest within a few miles of a sizable body of water such as a river, bay, or lake. Project planning should ensure that all potential sites near such water bodies, including the Castle Hayne alternative site, do not have bald eagle nests.

Project planning and site selection should compare the wide range of State protected and priority species at the Castle Hayne alternative site with other potential sites. Data from the NCNHP quad reports, the NCNHP virtual workroom, and the NC Wildlife Action Plan (NCWRC 2005, pp. 366-367) should be used. A few selected species suggest the biological diversity that may occur on the Castle Hayne alternative site. The nutmeg hickory (*Carya myristiciformis*), is a tree that can grow to 100 feet high; occurs along the banks of rivers and swamps in rich moist soil; has only been reported from Pender County in North Carolina, and is considered endangered by the State. The Cape Fear spike (*Elliptio marupiobesa*) is a mussel endemic to North Carolina, is reported in the NCNHP virtual workroom data near the Castle Haynes alternative, is a priority aquatic species (NCWRC 2005, p. 367) in the Cape Fear River Basin, and has a State status of special concern. Swamp jessamine (*Gelsemium rankinii*) is reported in the NCNHP virtual workroom data near the Castle Haynes alternative site, occurs in the floodplain of blackwater rivers and streams, and has a State status of significantly rare (on the periphery of its range).

Compensatory Wetland Mitigation – The ability to provide adequate wetland compensatory mitigation should be critical factor in the selection of the site. While the Service prefers that an adequate supply of cement be provide at a site that does not require significant wetland losses, the single site presented in the PN would require a major commitment by the applicant for compensatory mitigation. Given the uniqueness

of the fish and wildlife resources at the Castle Hayne site, it is likely that careful analysis will reveal that these anticipated impacts are unmitigable.

As part of the EIS, a detailed plan for mitigating wetland losses should be provided for each alternative. For the Castle Hayne alternative, several major issues must be addressed. First, the loss of mature, forested wetland would require restoration at a ratio of at least two-to-one. This ratio is necessary to compensate for the several decades required before a mature forest habitat would be available. Simple preservation as compensation would result in a net loss of valuable habitat and should only be considered as a part of an overall mitigation plan after the required restoration has been implemented.

Several other aspects of compensating for wetland losses at the Castle Hayne alternative site should be provided in the EIS. These include:

1. Restoration of the tidal cypress-gum swamp must occur in the same position of the river relative to tidal upstream flows and freshwater downstream flows. That is, the hydrology should be palustrine with regular to irregular flooding with freshwater lunar or wind tides and little or no salinity in the water as noted in Schafale and Weakley (1990, p. 253). Such positioning would maintain the high productivity associated with the inflow of seawater derived nutrients and sediment into the restored forest;
2. The soil type(s) at the restoration site should be a close match of those associated with tidal cypress-gum swamp. These soils are generally organic soils such as Dorovan and Hobonny, or occasionally mineral soils such as Masontown (Schafale and Weakly 1990, p. 253);
3. The restoration wetlands must be able to maintain the spawning and nursery habitat for diadromous fish that currently use the wetlands on the Castle Hayne alternative site; and,
4. The restoration wetlands must be large enough to support interior forest nesting migratory birds such as Swainson's and Prothonotary warblers as well as the overwintering habitat of the rusty blackbird. Since the prothonotary warbler generally nests in mature forest greater than 250 acres in size, a number of small, disjunct restoration sites would not compensate for the existing forested wetlands at the Castle Hayne alternative site.

The EIS should contain specific information on the location of compensatory mitigation. The discussion should not simply present several options that under consideration. Information should be included on the degree to which the specifically identified restoration site meets the four important criteria mentioned above.

The mitigation plan must include details on the formal preservation and stewardship of the compensatory wetlands. Considering that the mitigation area for the Castle Hayne alternative site would be large, a state or private conservation organization should be designated to protect and manage the mitigation area. If the Castle Hayne alternative is

selected, an endowment should be provided to the group that will manage the compensatory area in perpetuity.

Adequate wetland compensation for the Castle Hayne alternative is likely to be expensive. Initial restoration efforts may fail and other attempts may be necessary to restore the appropriate wetlands. The costs of land acquisition, restoration, and an endowment for perpetual stewardship should be fully considered in the cost comparison with other alternatives that may not require the restoration of almost 1,000 acres of forested wetlands in the relative narrow tidal freshwater reach of a coastal plain river.

Water Dependency of the Proposed Action - The Corps should determine whether the actions proposed by the applicant are water dependent. The EPA 404(b)(1) Guidelines state that fill material will not be placed in aquatic ecosystems if there is a practicable alternative which would have less impact on aquatic ecosystems. Those guidelines further specify that for non-water dependent activities proposed for special aquatic sites (e.g., wetlands, mud flats, and vegetated shallows), practical upland alternatives are presumed to exist unless clearly demonstrated otherwise.

The early scoping report showed the areas of eastern North Carolina where marl and fine-grained sediments may exceed 30 percent of the total limestone aquifer (Kimley-Horn 2006, p. 3, Figure 3). This area extends in a band from eastern Brunswick County inland to portions of Pender, Duplin, Onslow, and Jones Counties. This report also notes that "rail would be the primary means of product distribution" (Kimley-Horn 2006, p. 4). While moving the product by barge may be an "advantageous distribution option," the requirement for barge access may not be necessary for the economic viability of the operation. Therefore, the project may not be water dependent and more inland sites, in less environmentally sensitive areas, may provide practical upland alternative.

Cumulative Impacts - The PN states that the Corps will consider the cumulative environmental impacts of the proposed action. Cumulative impacts result from the incremental impact of the proposed action when added to past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes these actions. Geographic information system (GIS) data and mapping will be used to evaluate and quantify secondary and cumulative impacts of the proposed project with particular emphasis given to wetlands and surface/groundwater resources. For this aspect of the Corps' public interest review, the Service recommends that the Corps:

1. Consider the historic extent of tidal freshwater, forested wetland and compare this area with the area that this community occupies today. If there have been significant losses of this unique and ecologically value biological community, the Corps should consider whether additional losses should be permitted; and,
2. Consider the historic extent of regularly flooded riparian forests that served as spawning and nursery areas for anadromous fish. Using the best available data, the Corps should determine the percentage of these anadromous fish habitats (both spawning and

nursery areas) that have been permanently lost up to the present time and whether the remaining habitats can support sustainable fish stocks.

Compliance with Executive Order (EO) No. 11988 (Floodplain Management - The Corps' public interest review should determine whether the proposed action complies with Executive Order (EO) 11988 (Floodplain Management) of 1978. This EO directs the executive branch to avoid, to the extent possible, the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. The EO is directed at federal activities and program affecting land use, such as the Corps' wetland regulatory program.

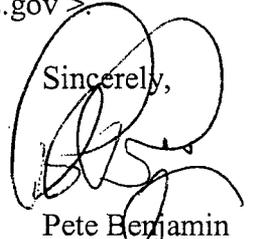
The Castle Hayne alternative site is clearly subject to flooding by the Northeast Cape Fear River. Hurricanes of the magnitude of Fran in 1996 and Floyd in 1999 are very likely to sweep over the mine site and carry wastewater and material on the site downstream. Any harmful substances on the site could be carried downstream to Wilmington, Southport, and into the Atlantic Ocean. Furthermore, the existing forested floodplain helps to attenuate downstream flooding by intercepting storm runoff and storing storm water (Mitsch and Gosselink 1993, p. 519). Wetlands can change sharp runoff peaks to slower discharges over longer periods of time and thereby effectively reduce the danger of flooding (Mitsch and Gosselink 1993, and references therein, p. 519).

Therefore, as part of the alternative analyses there should be a comparison of the degree to which each alternative achieves the goals of this EO. The statement by President Carter accompanying the EO notes that unwise use and development of riverine floodplains not only destroys many of the special qualities of these areas but pose "a severe threat to human life, health, and property." The degree to which the conversion of the forested wetlands on the site to a surface mining site creates an increased risk of flooding for Wilmington and other downstream development should be considered.

Summary

Overall, the Service is concerned about the adverse impacts on priority resources of the Service, primarily anadromous fish and migratory birds, which would occur with the use of the Castle Hayne alternative site. The elimination of approximately 500 acres of the uniquely positioned tidal freshwater wetlands along the Northeast Cape Fear River would remove important habitat for birds that migrate over many states and fish that also occur along the coast of several states. In this regard, we believe the forested wetlands that would be impacted over the course of plant operation at the Castle Hayne site may represent an aquatic resource of national importance (ARNI). Adverse impacts to these resources may be unmitigable. As such, we request that the planning process develop alternatives with less environmental impact.

We appreciate the opportunity to provide these early scoping comments on this project. If you have questions regarding these comments, please contact Howard Hall at 919-856-4520, ext. 27 or by e-mail at < howard_hall@fws.gov >

Sincerely,

 Pete Benjamin
 Field Supervisor

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North Carolina General Statutes § 143-215.22H Registration of water withdrawals and transfers required

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(a) Any person who withdraws 100,000 gallons per day or more of water from the surface or groundwaters of the State or who transfers 100,000 gallons per day or more of water from one river basin to another shall register the withdrawal or transfer with the Commission. A person registering a water withdrawal or transfer shall provide the Commission with the following information:

(1) The maximum daily amount of the water withdrawal or transfer expressed in thousands of gallons per day.

(1a) The monthly average withdrawal or transfer expressed in thousands of gallons per day.

(2) The location of the points of withdrawal and discharge and the capacity of each facility used to make the withdrawal or transfer.

(3) The monthly average discharge expressed in thousands of gallons per day.

(b) Any person initiating a new water withdrawal or transfer of 100,000 gallons per day or more shall register the withdrawal or transfer with the Commission not later than six months after the initiation of the withdrawal or transfer. The information required under subsection (a) of this section shall be submitted with respect to the new withdrawal or transfer.

(b1) Subsections (a) and (b) of this section shall not apply to a person who withdraws or transfers less than 1,000,000 gallons per day of water for activities directly related or incidental to the production of crops, fruits, vegetables, ornamental and flowering plants, dairy products, livestock, poultry, and other agricultural products.

(c) A unit of local government that has completed a local water supply plan that meets the requirements of G.S. 143-355(l) and that has periodically revised and updated its plan as required by the

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Department has satisfied the requirements of this section and is not required to separately register a water withdrawal or transfer or to update a registration under this section.

(d) Any person who is required to register a water withdrawal or transfer under this section shall update the registration by providing the Commission with a current version of the information required by subsection (a) of this section at five-year intervals following the initial registration. A person who submits information to update a registration of a water withdrawal or transfer is not required to pay an additional registration fee under G.S. 143-215.3(a)(1a) and G.S. 143-215.3(a)(1b), but is subject to the late registration fee established under this section in the event that updated information is not submitted as required by this subsection.

(e) Any person who is required to register a water transfer or withdrawal under this section and fails to do so shall pay, in addition to the registration fee required under G.S. 143-215.3(a)(1a) and G.S. 143-215.3(a)(1b), a late registration fee of five dollars (\$5.00) per day for each day the registration is late up to a maximum of five hundred dollars (\$500.00). A person who is required to update a registration under this section and fails to do so shall pay a fee of five dollars (\$5.00) per day for each day the updated information is late up to a maximum of five hundred dollars (\$500.00). A late registration fee shall not be charged to a farmer who submits a registration that pertains to farming operations. (1991, c. 712, s. 1; 1993, c. 344, s. 1; c. 553, s. 81; 1998-168, s. 3.)

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Last modified: August 6, 2008

SECTION .0300 - REGISTRATION OF WATER WITHDRAWALS AND TRANSFERS

15A NCAC 02E .0301 APPLICATION; PROCESSING FEES

(a) Any person subject to G.S. 143-215.22H, shall complete, sign, and submit an application for registration, on a form provided by the Department, to the Director of the Division of Water Resources. The registration application and registration processing fee (if applicable) shall be mailed to the Division of Water Resources, North Carolina Department of Environment, Health, and Natural Resources, Post Office Box 27687, Raleigh, North Carolina 27611-7687.

(b) Except as otherwise provided in this Rule, a non-refundable registration processing fee in the amount of fifty dollars (\$50.00) shall be paid when the registration application form is submitted.

- (1) No registration application form is complete until the registration processing fee is paid.
- (2) Each facility from which a person withdraws or transfers one million gallons per day or more must be separately registered. The registration application for each facility to be registered must include the fee in the amount set forth in this Rule.
- (3) A late registration fee in the amount of five dollars (\$5.00) per day for each day the registration of a water transfer or withdrawal is late, up to a maximum of five hundred dollars (\$500.00), shall be assessed as a penalty for failure to register the water transfer or withdrawal in a timely manner. The penalty stops accruing on the date of receipt of the completed registration application by the Division of Water Resources.
- (4) Payment of the registration processing fee may be by check or money order made payable to the "N. C. Department of Environment, Health, and Natural Resources." The check or money order shall refer to the water withdrawal or transfer registration application.

(c) Except as otherwise provided in this Rule, upon receipt of a properly completed application form and the registration processing fee, the applicant shall be issued a receipt of registration.

(d) Pursuant to G.S. 143-215.3(a)(1a), and G.S. 143-215.22H, no fees including late registration fees for failing to register or update registrations in a timely manner, are required to be paid under this Rule by a farmer who submits an application for or an update of a registration of a withdrawal or transfer that pertains to farming operations. Upon receipt of a properly completed application from a farmer, the applicant will be issued a receipt of registration.

(e) Pursuant to G.S. 143-215.22H(c), separate registration of a water withdrawal or transfer is not required of a local government that completes and periodically revises and updates its water supply plan pursuant to G.S. 143-355(l).

(f) Any person who withdraws or transfers one million gallons or more in any single day must register the withdrawal or transfer.

History Note: Filed as a Temporary Rule Eff. October 14, 1991 for a Period of 180 Days to Expire on April 11, 1992; Authority G.S. 143-215.3(a)(1a); 143-215.3(a)(1b); 143-215.22H; 143-355(l); Eff. April 1, 1992; Amended Eff. September 1, 1994.

Frequently Asked Questions

What is the law?

North Carolina General Statute G.S. 143-215.22H requires water users who meet conditions set forth by the general assembly to register their water withdrawals and surface water transfers. Registrations must be updated at least every five years.

Who is required to register?

The owner of facilities that withdraw water or transfers surface water is required to register water use for all facilities they own that withdraw or transfer water if the combined withdrawals or transfers exceed the thresholds specified in the statute.

- Any non-agricultural water user who withdraws 100,000 gallons or more of ground water or surface water in any one day.
- Any non-agricultural water user who transfers 100,000 gallons or more of surface water from one river basin as defined in GS 143-215.22G to another basin in any one day.
- Any agricultural water user who withdraws 1,000,000 gallons or more in any one day of ground water or surface water.
- Any agricultural water user who transfers 1,000,000 gallons or more from of surface water one river basin as defined in GS 143-215.22G to another basin in any one day.

Is registration of water withdrawals under GS 143-215.22H waived for any particular water users?

NO, but separate registrations are not required for some water withdrawers:

- Units of local government that are required to prepare a Local Water Supply Plan under GS 143-355(l) meet the registration requirement by submitting and updating a Local Water Supply Plan.
- Water users in the Central Coastal Plain Capacity Use Area can meet the registration requirement by registering their water use under the Capacity Use Area Rules. Users that are required to get a water use permit under these rules meet the registration requirement by applying for a permit. To learn more about Central Coastal Plain Capacity Use Area rules, please visit the following website:

http://www.ncwater.org/Permits_and_Registration/Capacity_Use/Central_Coastal_Plain/

- Owners of dams that discharge water at the toe of the dam; however, if water is diverted off-stream or discharged downstream of the dam, it is considered a water withdrawal and must be registered if the amount of water diverted exceeds the limits specified above.

If I own multiple facilities, do I need to register each one separately?

Yes, if you meet the water withdrawal and transfer criteria a separate form is required for each facility owned.

What is the due date for registering withdrawals and transfers?

New withdrawals and transfers must be registered within two months of the initiation of the withdrawal or transfer.

What is the due date for updating an existing registration?

Registrations must be updated at five-year intervals from the initial registration. Registration updates are due by April 1 of the 5th year following the initial registration for the previous calendar year. (Example: An update for a registration last updated in 2003 would be due by April 1, 2009 based on data for calendar year 2008.)

Once registered, what is the due date for submitting annual water use reports?

Water use must be reported every year by April 1 for the previous calendar year.

Is there a fee to register?

For non-agricultural users registering for the first time there is a \$50.00 fee. Agricultural water users are exempt from paying this fee. Previously registered water users updating their registrations are also exempt from this fee.

Is there a penalty for not registering a withdrawal?

Any person who is required to register a water withdrawal or surface water transfer under section G.S. 143-215.3(a)(1a) and G.S. 143-215.3(a)(1b) and fails to do so will be subject to a civil penalty of one hundred dollars (\$100.00) per day.

Is there a penalty for failing to update a registration?

A person who is required to update a registration and fails to do so will be subject to a civil penalty of fifty dollars (\$50.00) per day.

Who do I make checks payable to?

All checks are payable to: NCDENR-Division of Water Resources. Checks can be mailed to: Water Withdrawal Registration, NC Division of Water Resources, 1611 Mail Service Center, Raleigh, NC 27699-1611.

I'm not sure if I'm registered, how can I find that information?

If you have previously registered with the Division of Water Resources, your facility's registration information can be found using the Search option on the Water Withdrawal Registration webpage. If you are unable to locate your facility using the Search option, contact the Division of Water Resources at (919)733-4064 for further assistance.

Why is it important that I register my withdrawals?

- Water supply planning and management require an understanding of both the available water resources and the demands being placed on those resources. Registration information is used to develop a more complete understanding of total water use and availability in North Carolina. Data on registered water withdrawals provides vital information for the River Basin Water Supply Planning Program.
- By registering water withdrawals and updating them every five years, water users establish a record of their water needs that can be taken into consideration in future resource management planning and decision making.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF AIR QUALITY

AIR PERMIT NO. 1756R17

RECEIVED

DEC 21 2004

H.R. STRICKLER

Issue Date: December 15, 2004

Effective Date: December 15, 2004

Expiration Date: December 1, 2009

Replaces Permit: 1756R16

To construct and operate air emission source(s) and/or air cleaning device(s), and for the discharge of the associated air contaminants into the atmosphere in accordance with the provisions of Article 21B of Chapter 143, General Statutes of North Carolina (NCGS) as amended, and other applicable Laws, Rules and Regulations,

Global Nuclear Fuel – Americas, LLC
3901 Castle Hayne Road
Wilmington, New Hanover County, North Carolina
Fee Class: Synthetic Minor
Site Number: 08/65/00070

(the Permittee) is hereby authorized to construct and operate the air emissions sources and/or air cleaning devices and appurtenances described below:

Emission Source ID	Emission Source Description	Control System ID	Control System Description
ID No. ES-S13	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	ID No. CD-S0004572, ID No. CD-S0004570, ID No. CD-S0004573, and ID No. CD-S0004605	one flue gas quencher (ID No. S0004572, 58 gal/min water nominal), one venturi scrubber (ID No. S0004570, 100 gal/min water nominal), one vertical countercurrent packed bed scrubber (ID No. S0004573, 162 gal/min water nominal) & one bagfilter (ID No. S0004605, 1,696 sq. ft. of filter area, nominal) installed in series
ID No. ES-S37	one 100 ton capacity hydrated lime storage tank	ID No. CD-S0008064	one bagfilter with 178 square feet of filter area nominal
ID No. ES-S07	two steam jacketed wastewater treatment plant sludge (calcium fluoride) dryers	ID No. CD-S0002304 and ID No. CD-S0002302	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)

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Emission Source ID	Emission Source Description	Control System ID	Control System Description
ID No. ES-FM12 and ID No. ES-FM14	two natural gas and/or No. 2 fuel oil-fired 350 horsepower boilers	N/A	N/A
ID No. ES-S04	one natural gas and/or No. 2 fuel oil-fired 600 horsepower boiler	N/A	N/A
ID No. ES-S35	one 650 kW diesel fuel-fired emergency generator	N/A	N/A
ID No. ES-S39 and ID No. ES-S40	two diesel fuel-fired load shedding generators, each with a capacity of 1,250 kW	N/A	N/A
ID No. ES-FM03 and ID No. ES-FM04	one system 541X dissolver and liquid filter area and one system 546X FMOX conversion area exhaust	ID No. CD-H0007144	one impingement plate-type wet scrubber, 762 gallons of water per minute nominal
ID No. ES-FM06	one process operation in the uranium waste recovery system	ID No. CD-H0008002 (alt. ID No. S-965), ID No. CD-S0007450, ID No. CD-S0008740, and ID No. CD-H0008000	one cross flow gravity spray chamber (ID No. H0008002/S-965, 120 gallons of water per minute nominal), one condenser (De-entrainer, ID No. S0007450), one venturi scrubber (ID No. S0008740, 30 gallons of water per minute nominal), and one plate tower scrubber (ID No. H0008000, 3 gal. water per min. nominal)
ID No. ES-FM15	one powder preparation system composed of nine hammermills (ID Nos. W0008021-W0008026 and W0008028-W0008030)	ID No. CD-W0008030	one filter housing unit (7 square feet of filter area, nominal) ducted to the system 2020 exhaust
ID No. ES-H3001	three identical dry conversion process (DCP) lines	ID Nos. CD-DCP06005 and CD-DCP06006	one HF recovery system including two countercurrent absorption columns (ID Nos. DCP06005 and DCP06006)
ID No. ES-H3003	one HF Building Emergency Vent	ID No. CD-DCP09010	one emergency ventilation two stage wet scrubber system, 25 gallons of water per minute nominal
ID No. ES-S58	one drum sand blasting unit	ID No. CD-H0002030	one filter housing unit (3,616 square feet filter area nominal)
ID No. ES-FM01	one combined exhaust from the north chemical area dust collection system (system 541) and the south chemical area dust collection system (system 546)	ID No. CD-H0007143	one spray-type wet scrubber, 600 gallons of water per minute nominal
ID No. ES-FC02	one FCO etch line	ID No. CD-M0007940	one cross flow wet scrubber, 250 gallons of water per minute nominal

Emission Source ID	Emission Source Description	Control System ID	Control System Description
ID No. ES-FC06	one grit blasting operation composed of two grit blasting units	ID No. CD-M0002200 and ID No. CD-M0002208	two filter housing units, 1,410 square feet filter area each, nominal

in accordance with the completed application 6500070.04B received October 1, 2004 including any plans, specifications, previous applications, and other supporting data, all of which are filed with the Department of Environment and Natural Resources, Division of Air Quality (DAQ) and are incorporated as part of this permit.

This permit is subject to the following specified conditions and limitations including any TESTING, REPORTING, OR MONITORING REQUIREMENTS:

A. SPECIFIC CONDITIONS AND LIMITATIONS

1. Any air emission sources or control devices authorized to construct and operate above must be operated and maintained in accordance with the provisions contained herein. The Permittee shall comply with applicable Environmental Management Commission Regulations, including Title 15A North Carolina Administrative Code (NCAC), Subchapter 2D .0202, 2D .0503, 2D .0515, 2D .0516, 2D .0521, 2D .0535, 2D .0958, 2D .1100, 2D .1208, 2Q .0315, and 2Q .0711.
2. EMISSION INVENTORY REQUIREMENT - At least 90 days prior to the expiration date of this permit, the Permittee shall submit the air pollution emission inventory report in accordance with 15A NCAC 2D .0202, pursuant to N.C. General Statute 143 215.65. The report shall be submitted to the Regional Supervisor, DAQ. The report shall document air pollutants emitted for the **2008** calendar year. The Regional Office will send information on how to submit the emissions inventory, along with a reminder to renew your permit, about six months prior to your permit expiration. If you do not receive this information, please contact the Regional Supervisor, DAQ.
3. PARTICULATE CONTROL REQUIREMENT - As required by 15A NCAC 2D .0503 "Particulates from Fuel Burning Indirect Heat Exchangers," particulate matter emissions from the fuel burning indirect heat exchangers (ID Nos. ES-FM12, ES-FM14, and ES-S04) shall not exceed the allowable emission rates listed below:

$$E = 1.09 * Q^{(-0.2594)}$$

Where E = allowable emission limit for particulate matter in lb/Million Btu, and
 Q = maximum heat input in Million Btu/hr heat input.

4. PARTICULATE CONTROL REQUIREMENT - As required by 15A NCAC 2D .0515 "Particulates from Miscellaneous Industrial Processes," particulate matter emissions from the emission sources shall not exceed allowable emission rates. The allowable emission rates are, as defined in 15A NCAC 2D .0515, a function of the process weight rate and shall be

determined by the following equation(s), where P is the process throughput rate in tons per hour (tons/hr) and E is the allowable emission rate in pounds per hour (lbs/hr):

$$E = 4.10 * (P)^{0.67} \quad \text{for } P \leq 30 \text{ tons/hr, or}$$
$$E = 55 * (P)^{0.11} - 40 \quad \text{for } P > 30 \text{ tons/hr.}$$

5. SULFUR DIOXIDE CONTROL REQUIREMENT - As required by 15A NCAC 2D .0516 "Sulfur Dioxide Emissions from Combustion Sources," sulfur dioxide emissions from the combustion sources shall not exceed 2.3 pounds per million Btu heat input.
6. As required by 15A NCAC 2D .0521 "Control of Visible Emissions," visible emissions from emission sources existing after July 1, 1971, shall not be more than 20 percent opacity when averaged over a six-minute period, except that six-minute periods averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four (4) times in any 24-hour period. However, sources that must comply with 15A NCAC 2D .0524 "New Source Performance Standards" or 2D .1110 "National Emission Standards for Hazardous Air Pollutants" must comply with applicable visible emissions requirements contained therein.
7. As required by 15A NCAC 2D .0521 "Control of Visible Emissions," visible emissions from emission sources existing as of July 1, 1971, shall not be more than 40 percent opacity when averaged over a six-minute period, except that six-minute periods averaging not more than 90 percent opacity may occur not more than once in any hour nor more than four (4) times in any 24-hour period. However, sources that must comply with 15A NCAC 2D .0524 "New Source Performance Standards" or 2D .1110 "National Emission Standards for Hazardous Air Pollutants" must comply with applicable visible emissions requirements contained therein.
8. WORK PRACTICES REQUIREMENTS - As required by 15A NCAC 2D .0958(c) "Work Practices for Sources of Volatile Organic Compounds," the Permittee shall adhere to the following required work practices:
 - a. The Permittee shall store all VOC-containing material not in use (including waste material) in containers covered with a tightly fitting lid that is free of cracks, holes, or other defects.
 - b. The Permittee shall clean up spills as soon as possible following proper safety procedures.
 - c. The Permittee shall store wipe rags in closed containers.
 - d. The Permittee shall not clean sponges, fabric, wood, paper products, and other absorbent materials.
 - e. The Permittee shall drain solvents used to clean supply lines and other coating equipment into closable containers and close containers immediately after each use.

- f. The Permittee shall clean mixing, blending, and manufacturing vats and containers by adding cleaning solvent, closing the vat or container before agitating the cleaning solvent.
 - g. The Permittee shall pour spent cleaning solvent into closable containers and close containers immediately after each use.
9. NOTIFICATION REQUIREMENT - As required by 15A NCAC 2D .0535, the Permittee of a source of excess emissions that last for more than four hours and that results from a malfunction, a breakdown of process or control equipment or any other abnormal conditions, shall:
- a. Notify the Director or his designee of any such occurrence by 9:00 a.m. Eastern time of the Division's next business day of becoming aware of the occurrence and describe:
 - i. the name and location of the facility,
 - ii. the nature and cause of the malfunction or breakdown,
 - iii. the time when the malfunction or breakdown is first observed,
 - iv. the expected duration, and
 - v. an estimated rate of emissions.
 - b. Notify the Director or his designee immediately when the corrective measures have been accomplished.

This reporting requirement does not allow the operation of the facility in excess of Environmental Management Commission Regulations.

10. TOXIC AIR POLLUTANT EMISSIONS LIMITATION AND REPORTING REQUIREMENT - Pursuant to 15A NCAC 2D .1100 and .1208, and in accordance with the approved application for an air toxic compliance demonstration, the following permit limits shall not be exceeded:

<u>EMISSION SOURCE</u>	<u>TOXIC AIR POLLUTANT</u>	<u>EMISSION LIMITS</u>
Incinerator (ID No. ES-S13)	Arsenic & Compounds	0.166 lb/yr
Incinerator (ID No. ES-S13)	Cadmium Metal	1.66 lb/yr

- (a) To ensure compliance with the above limits, the charge rate into the incinerator shall not exceed 1,200 pounds per hour of Type 0 waste and used oil.
- (b) For compliance purposes, within thirty (30) days after each calendar year, 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.

11. TOXIC AIR POLLUTANT EMISSIONS LIMITATION REQUIREMENT - Pursuant to 15A NCAC 2Q .0711 "Emission Rates Requiring a Permit," for each of the below listed toxic air pollutants (TAPs), the Permittee has made a demonstration that facility-wide actual emissions do not exceed the Toxic Permit Emission Rates (TPERs) listed in 15A NCAC 2Q .0711. The facility shall be operated and maintained in such a manner that emissions of any listed TAPs from the facility, including fugitive emissions, will not exceed TPERs listed in 15A NCAC 2Q .0711.

- a. A permit to emit any of the below listed TAPs shall be required for this facility if actual emissions from all sources will become greater than the corresponding TPERs.
- b. PRIOR to exceeding any of these listed TPERs, the Permittee shall be responsible for obtaining a permit to emit TAPs and for demonstrating compliance with the requirements of 15A NCAC 2D .1100 "Control of Toxic Air Pollutants".
- c. In accordance with the approved application, the Permittee shall maintain records of operational information demonstrating that the TAP emissions do not exceed the TPERs as listed below:

<u>EMISSION SOURCE</u>	<u>TOXIC AIR POLLUTANT</u>	<u>MEERs</u>
Dry Conversion Process (ID No. ES-H3001)	Hydrogen fluoride	0.63 lb/day and 0.064 lb/hr

12. LIMITATION TO AVOID 15A NCAC 2Q .0501 "TITLE V" - Pursuant to 15A NCAC 2Q .0315 "Synthetic Minor Facilities," to avoid the applicability of 15A NCAC 2Q .0501 "Title V Permits", as requested by the Permittee, facility-wide emissions shall be less than the following:

Pollutant	Emission Limit (Tons per consecutive 12-month period)
SO2	100
NOx	100
Individual HAPs	10 (HF)
PM10	100

- (A) For SO2 and NOX emissions, to ensure enforceability of this limit, the following restrictions shall apply:
 - (i) the operating hours of the 650 kW generator (ID No. S35) shall not exceed 240 hours per consecutive twelve (12) month period.
 - (ii) the operating hours of the two 1,250 kW load shedding generators (ID Nos. S39 and S40) shall not exceed 1,320 hours per generator per consecutive twelve (12) month period.

- (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 the diesel fuel used for the diesel generators shall be limited to 0.2 percent by weight.
 - (v) 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) For HF emissions, 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.
- (C) For PM-10 emissions, to ensure enforceability of this limit, the following restrictions shall apply:
- (i) Inspection and Maintenance Requirements for 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. An annual internal inspection shall be conducted on the bagfilters by the Permittee to insure 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.

- (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.

B. GENERAL CONDITIONS AND LIMITATIONS

1. REPORTS, TEST DATA, MONITORING DATA, NOTIFICATIONS, AND REQUESTS FOR RENEWAL shall be submitted to the:

Wayne Cook
Regional Air Quality Supervisor
North Carolina Division of Air Quality
Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, NC 28405
(910) 395-3900

2. RECORDS RETENTION REQUIREMENT - Any records required by the conditions of this permit shall be kept on site and made available to DAQ personnel for inspection upon request. These records shall be maintained in a form suitable and readily available for expeditious inspection and review. These records must be kept on site for a minimum of 2 years, unless another time period is otherwise specified.
3. PERMIT RENEWAL REQUIREMENT - The Permittee, at least 90 days prior to the expiration date of this permit, shall request permit renewal by letter in accordance with 15A NCAC 2Q .0304(d) and (f). Pursuant to 15A NCAC 2Q .0203(i), no permit application fee is required for renewal of an existing air permit. The renewal request should be submitted to the Regional Supervisor, DAQ.
4. ANNUAL FEE PAYMENT - Pursuant to 15A NCAC 2Q .0203(a), the Permittee shall pay the annual permit fee within 30 days of being billed by the DAQ. Failure to pay the fee in a timely manner will cause the DAQ to initiate action to revoke the permit.
5. EQUIPMENT RELOCATION - A new air permit shall be obtained by the Permittee prior to establishing, building, erecting, using, or operating the emission sources or air cleaning equipment at a site or location not specified in this permit.
6. This permit is subject to revocation or modification by the DAQ upon a determination that information contained in the application or presented in the support thereof is incorrect, conditions under which this permit was granted have changed, or violations of conditions contained in this permit have occurred. The facility shall be properly operated and maintained at all times in a manner that will effect an overall reduction in air pollution. Unless otherwise specified by this permit, no emission source may be operated without the concurrent operation of its associated air cleaning device(s) and appurtenances.

7. REPORTING REQUIREMENT - Any of the following that would result in previously unpermitted, new, or increased emissions must be reported to the Regional Supervisor, DAQ:
- a. changes in the information submitted in the application regarding facility emissions;
 - b. changes that modify equipment or processes of existing permitted facilities; or
 - c. changes in the quantity or quality of materials processed.

If appropriate, modifications to the permit may then be made by the DAQ to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause a violation of the emission limitations specified herein.

8. This permit is nontransferable by the Permittee. Future owners and operators must obtain a new air permit from the DAQ.
9. This issuance of this permit in no way absolves the Permittee of liability for any potential civil penalties which may be assessed for violations of State law which have occurred prior to the effective date of this permit.
10. This permit does not relieve the Permittee of the responsibility of complying with all applicable requirements of any Federal, State, or Local water quality or land quality control authority.
11. Reports on the operation and maintenance of the facility shall be submitted by the Permittee to the Regional Supervisor, DAQ at such intervals and in such form and detail as may be required by the DAQ. Information required in such reports may include, but is not limited to, process weight rates, firing rates, hours of operation, and preventive maintenance schedules.
12. A violation of any term or condition of this permit shall subject the Permittee to enforcement pursuant to G.S. 143-215.114A, 143-215.114B, and 143-215.114C, including assessment of civil and/or criminal penalties.
13. Pursuant to North Carolina General Statute 143-215.3(a)(2), no person shall refuse entry or access to any authorized representative of the DAQ who requests entry or access for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such representative while in the process of carrying out his official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.
14. The Permittee must comply with any applicable Federal, State, or Local requirements governing the handling, disposal, or incineration of hazardous, solid, or medical wastes, including the Resource Conservation and Recovery Act (RCRA) administered by the Division of Waste Management.

15. PERMIT RETENTION REQUIREMENT - The Permittee shall retain a current copy of the air permit at the site. The Permittee must make available to personnel of the DAQ, upon request, the current copy of the air permit for the site.
16. CLEAN AIR ACT SECTION 112(r) REQUIREMENTS - Pursuant to 40 CFR Part 68 "Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act, Section 112(r)," if the Permittee is required to develop and register a risk management plan pursuant to Section 112(r) of the Federal Clean Air Act, then the Permittee is required to register this plan in accordance with 40 CFR Part 68.
17. PREVENTION OF ACCIDENTAL RELEASES - GENERAL DUTY - Pursuant to Title I Part A Section 112(r)(1) of the Clean Air Act "Hazardous Air Pollutants - Prevention of Accidental Releases - Purpose and General Duty," although a risk management plan may not be required, if the Permittee produces, processes, handles, or stores any amount of a listed hazardous substance, the Permittee has a general duty to take such steps as are necessary to prevent the accidental release of such substance and to minimize the consequences of any release. **This condition is federally-enforceable only.**

Permit issued this the 15th of December, 2004.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION



Wayne Cook, Regional Air Quality Supervisor
Division of Air Quality
By Authority of the Environmental Management Commission

ATTACHMENT to Permit No. 1756R17, December 15, 2004

Insignificant / Exempt Activities

Source	Date of Application	Exemption Regulation	Source of TAPs?	Source of Title V Pollutants?
I-ES-S38 - one diesel fueled emergency use generator (150 kW rating)	10/01/2004	2Q .0102 (c)(2)(B)(iv)(III)	No	Yes
I-ES-S41 - one diesel fueled emergency use generator (460 kW rating)	10/01/2004	2Q .0102 (c)(2)(E)(i)	No	Yes
I-ES-S42 - one diesel fueled emergency use generator (25 kW rating)	10/01/2004	2Q .0102 (c)(2)(B)(iv)(III)	No	Yes

1. Because an activity is exempted from being required to have a permit or permit modification does not mean that the activity is exempted from an applicable requirement or that the owner or operator of the source is exempted from demonstrating compliance with any applicable requirement.
2. When applicable, emissions from stationary source activities identified above shall be included in determining compliance with the permit requirements for toxic air pollutants under 15A NCAC 2D .1100 "Control of Toxic Air Pollutants" or 2Q .0711 "Emission Rates Requiring a Permit."

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

RECEIVED

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

DEC 07 2004

DIVISION OF AIR QUALITY

H.R. STRICKLER

AIR PERMIT NO. 1161R19

Issue Date: December 3, 2004

Effective Date: December 3, 2004

Expiration Date: December 1, 2009

Replaces Permit: 1161R18

To construct and operate air emission source(s) and/or air cleaning device(s), and for the discharge of the associated air contaminants into the atmosphere in accordance with the provisions of Article 21B of Chapter 143, General Statutes of North Carolina (NCGS) as amended, and other applicable Laws, Rules and Regulations,

General Electric Company
3901 Castle Hayne Road
P O Box 780, M/C G26
Wilmington, New Hanover County, North Carolina
Fee Class: Synthetic Minor
Site Number: 08/65/00070

(the Permittee) is hereby authorized to construct and operate the air emissions sources and/or air cleaning devices and appurtenances described below:

Emission Source ID	Emission Source Description	Control System ID	Control System Description
ES-1	one SCO metal cleaning operation (ID No. SCO4)	CD-1	one packed, cross flow-type, wet scrubber and mist eliminator (ID No. E0007916; 250 gallons per minute nominal liquid injection rate)
ES-2	one large parts cleaning system (ID No. AE1)	CD-2	one cross-flow wet scrubber (ID No. 9122; 37.8 gallons of water per minute nominal injection rate)
ES-3	one large parts cleaning system (ID No. AE2)	CD-3	one cross-flow wet scrubber (ID No. 9121; 37.8 gallons of water per minute nominal injection rate)
ES-4	one lubricant application booth (ID No. AE3) and one curing oven (ID No. AE4)	N/A	N/A
ES-7	one coolant return fume hood (ID No. AE7)	CD-4	one mist eliminator system consisting of a centrifugal mist separator, a metal mesh coalescing filter (4.0 square feet of filter area nominal), and a bagfilter (110 square feet of filter area nominal)

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Emission Source ID	Emission Source Description	Control System ID	Control System Description
ES-8	one automated parts washer (ID No. AE8)	CD-5	one packed-tower wet scrubber (ID No. 9050; 49.2 gallons of water per minute nominal injection rate) in FPI

in accordance with the completed application 6500070.04A received October 1, 2004 including any plans, specifications, previous applications, and other supporting data, all of which are filed with the Department of Environment and Natural Resources, Division of Air Quality (DAQ) and are incorporated as part of this permit.

This permit is subject to the following specified conditions and limitations including any TESTING, REPORTING, OR MONITORING REQUIREMENTS:

A. SPECIFIC CONDITIONS AND LIMITATIONS

- Any air emission sources or control devices authorized to construct and operate above must be operated and maintained in accordance with the provisions contained herein. The Permittee shall comply with applicable Environmental Management Commission Regulations, including Title 15A North Carolina Administrative Code (NCAC), Subchapter 2D .0202, 2D .0515, 2D .0521, 2D .0535, 2D .0958, and 2Q .0315.
- EMISSION INVENTORY REQUIREMENT - At least 90 days prior to the expiration date of this permit, the Permittee shall submit the air pollution emission inventory report in accordance with 15A NCAC 2D .0202, pursuant to N.C. General Statute 143 215.65. The report shall be submitted to the Regional Supervisor, DAQ. The report shall document air pollutants emitted for the **2008** calendar year. The Regional Office will send information on how to submit the emissions inventory, along with a reminder to renew your permit, about six months prior to your permit expiration. If you do not receive this information, please contact the Regional Supervisor, DAQ.
- PARTICULATE CONTROL REQUIREMENT - As required by 15A NCAC 2D .0515 "Particulates from Miscellaneous Industrial Processes," particulate matter emissions from the emission sources shall not exceed allowable emission rates. The allowable emission rates are, as defined in 15A NCAC 2D .0515, a function of the process weight rate and shall be determined by the following equation(s), where P is the process throughput rate in tons per hour (tons/hr) and E is the allowable emission rate in pounds per hour (lbs/hr).

$$E = 4.10 * (P)^{0.67} \quad \text{for } P \leq 30 \text{ tons/hr, or}$$

$$E = 55 * (P)^{0.11} - 40 \quad \text{for } P > 30 \text{ tons/hr.}$$
- VISIBLE EMISSIONS CONTROL REQUIREMENT - As required by 15A NCAC 2D .0521 "Control of Visible Emissions," visible emissions from the emission sources, manufactured after July 1, 1971, shall not be more than 20 percent opacity when averaged over a six-minute period, except that six-minute periods averaging not more than 87 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour

period. However, sources which must comply with 15A NCAC 2D .0524 "New Source Performance Standards" or .1110 "National Emission Standards for Hazardous Air Pollutants", must comply with applicable visible emissions requirements contained therein.

5. NOTIFICATION REQUIREMENT - As required by 15A NCAC 2D .0535; the Permittee of a source of excess emissions that last for more than four hours and that results from a malfunction, a breakdown of process or control equipment or any other abnormal conditions, shall:

- a. Notify the Director or his designee of any such occurrence by 9:00 a.m. Eastern time of the Division's next business day of becoming aware of the occurrence and describe:
 - i. the name and location of the facility,
 - ii. the nature and cause of the malfunction or breakdown,
 - iii. the time when the malfunction or breakdown is first observed,
 - iv. the expected duration, and
 - v. an estimated rate of emissions.
- b. Notify the Director or his designee immediately when the corrective measures have been accomplished.

This reporting requirement does not allow the operation of the facility in excess of Environmental Management Commission Regulations.

6. WORK PRACTICES REQUIREMENTS - As required by 15A NCAC 2D .0958(c) "Work Practices for Sources of Volatile Organic Compounds," the Permittee shall adhere to the following required work practices:

- a. The Permittee shall:
 1. store all VOC-containing material not in use (including waste material) in containers covered with a tightly fitting lid that is free of cracks, holes, or other defects.
 2. clean up spills as soon as possible following proper safety procedures.
 3. store wipe rags in closed containers.
 4. not clean sponges, fabric, wood, paper products, and other absorbent materials.
 5. drain solvents used to clean supply lines and other coating equipment into closable containers and close containers immediately after each use.

6. clean mixing, blending, and manufacturing vats and containers by adding cleaning solvent, closing the vat or container before agitating the cleaning solvent.
7. pour spent cleaning solvent into closable containers and close containers immediately after each use.
8. LIMITATION TO AVOID 15A NCAC 2Q .0501 - Pursuant to 15A NCAC 2Q .0315 "Synthetic Minor Facilities," to avoid the applicability of 15A NCAC 2Q .0501 "Purpose of Section and Requirement for a Title V Permit," as requested by the Permittee, facility-wide emissions shall be less than the following:

Pollutant	Emission Limit (Tons per consecutive 12-month period)
PM10	100

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 insure the structural integrity such that the maximum control efficiency is achieved. The results of this inspection, and any maintenance performed on the bagfilter(s), shall be recorded in a logbook (written or electronic format), kept onsite, and made available to the DAQ upon request.

(b) All Permitted 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 logbook (written or electronic 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.

B. GENERAL CONDITIONS AND LIMITATIONS

1. REPORTS, TEST DATA, MONITORING DATA, NOTIFICATIONS, AND REQUESTS FOR RENEWAL shall be submitted to the:

Wayne Cook
Regional Air Quality Supervisor
North Carolina Division of Air Quality
Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, NC 28405
(910) 395-3900

2. RECORDS RETENTION REQUIREMENT - Any records required by the conditions of this permit shall be kept on site and made available to DAQ personnel for inspection upon request. These records shall be maintained in a form suitable and readily available for expeditious inspection and review. These records must be kept on site for a minimum of 2 years, unless another time period is otherwise specified.
3. PERMIT RENEWAL REQUIREMENT - The Permittee, at least 90 days prior to the expiration date of this permit, shall request permit renewal by letter in accordance with 15A NCAC 2Q .0304(d) and (f). Pursuant to 15A NCAC 2Q .0203(i), no permit application fee is required for renewal of an existing air permit. The renewal request should be submitted to the Regional Supervisor, DAQ.
4. ANNUAL FEE PAYMENT - Pursuant to 15A NCAC 2Q .0203(a), the Permittee shall pay the annual permit fee within 30 days of being billed by the DAQ. Failure to pay the fee in a timely manner will cause the DAQ to initiate action to revoke the permit.
5. EQUIPMENT RELOCATION - A new air permit shall be obtained by the Permittee prior to establishing, building, erecting, using, or operating the emission sources or air cleaning equipment at a site or location not specified in this permit.
6. This permit is subject to revocation or modification by the DAQ upon a determination that information contained in the application or presented in the support thereof is incorrect, conditions under which this permit was granted have changed, or violations of conditions contained in this permit have occurred. The facility shall be properly operated and maintained at all times in a manner that will effect an overall reduction in air pollution. Unless otherwise specified by this permit, no emission source may be operated without the concurrent operation of its associated air cleaning device(s) and appurtenances.
7. REPORTING REQUIREMENT - Any of the following that would result in previously unpermitted, new, or increased emissions must be reported to the Regional Supervisor, DAQ:
 - a. changes in the information submitted in the application regarding facility emissions;
 - b. changes that modify equipment or processes of existing permitted facilities; or
 - c. changes in the quantity or quality of materials processed.

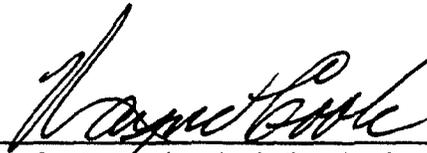
If appropriate, modifications to the permit may then be made by the DAQ to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause a violation of the emission limitations specified herein.

8. This permit is nontransferable by the Permittee. Future owners and operators must obtain a new air permit from the DAQ.
9. This issuance of this permit in no way absolves the Permittee of liability for any potential civil penalties which may be assessed for violations of State law which have occurred prior to the effective date of this permit.
10. This permit does not relieve the Permittee of the responsibility of complying with all applicable requirements of any Federal, State, or Local water quality or land quality control authority.
11. Reports on the operation and maintenance of the facility shall be submitted by the Permittee to the Regional Supervisor, DAQ at such intervals and in such form and detail as may be required by the DAQ. Information required in such reports may include, but is not limited to, process weight rates, firing rates, hours of operation, and preventive maintenance schedules.
12. A violation of any term or condition of this permit shall subject the Permittee to enforcement pursuant to G.S. 143-215.114A, 143-215.114B, and 143-215.114C, including assessment of civil and/or criminal penalties.
13. Pursuant to North Carolina General Statute 143-215.3(a)(2), no person shall refuse entry or access to any authorized representative of the DAQ who requests entry or access for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such representative while in the process of carrying out his official duties. Refusal of entry or access may constitute grounds for permit revocation and assessment of civil penalties.
14. The Permittee must comply with any applicable Federal, State, or Local requirements governing the handling, disposal, or incineration of hazardous, solid, or medical wastes, including the Resource Conservation and Recovery Act (RCRA) administered by the Division of Waste Management.

15. PERMIT RETENTION REQUIREMENT - The Permittee shall retain a current copy of the air permit at the site. The Permittee must make available to personnel of the DAQ, upon request, the current copy of the air permit for the site.
16. CLEAN AIR ACT SECTION 112(r) REQUIREMENTS - Pursuant to 40 CFR Part 68 "Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act, Section 112(r)," if the Permittee is required to develop and register a risk management plan pursuant to Section 112(r) of the Federal Clean Air Act, then the Permittee is required to register this plan in accordance with 40 CFR Part 68.
17. PREVENTION OF ACCIDENTAL RELEASES - GENERAL DUTY - Pursuant to Title I Part A Section 112(r)(1) of the Clean Air Act "Hazardous Air Pollutants - Prevention of Accidental Releases - Purpose and General Duty," although a risk management plan may not be required, if the Permittee produces, processes, handles, or stores any amount of a listed hazardous substance, the Permittee has a general duty to take such steps as are necessary to prevent the accidental release of such substance and to minimize the consequences of any release. **This condition is federally-enforceable only.**

Permit issued this the 3rd day of December, 2004.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION



Wayne Cook, Regional Air Quality Supervisor
Division of Air Quality

By Authority of the Environmental Management Commission



Global Nuclear Fuel

A Joint Venture of GE, Toshiba, & Hitachi

Scott Murray
Manager
Licensing & Liabilities COE

Global Nuclear Fuel – Americas, LLC
Mail Code K-84
3901 Castle Hayne Road, Wilmington, NC 28401
(910) 675-5950, Fax (910) 362-5950

August 28, 2007

Dr. William Travers
Regional Administrator
U.S. Nuclear Regulatory Commission
Sam Nunn Atlanta Federal Center, 23 T85
61 Forsyth Street, SW
Atlanta, GA 30303

Dear Dr. Travers:

Reference: NRC License SNM-1097, Docket 70-1113

With respect to activities authorized by NRC License SNM-1097 at the Global Nuclear Fuel-Americas, L.L.C. (GNF-A) facility and pursuant to 10 CFR 70.59, GNF-A hereby submits the Semi-Annual Effluent Report for the time period of January through June, 2007.

If you have any questions regarding this matter, please contact me at (910) 675-5950.

Sincerely,

Scott Murray, Manager
Licensing & Liabilities COE

Enclosure

cc: SPM-07-038
Mr. Michael Weber, US NRC, HQ
Ms. Beverly Hall, NCDENR
Mr. Mark Poirier, ANI
Mr. Merrit N. Baker, US NRC, HQ

ML091530554

GLOBAL NUCLEAR FUEL-AMERICAS, L.L.C.
WILMINGTON, NORTH CAROLINA

NRC License SNM 1097, Docket # 70-1113

SEMI-ANNUAL EFFLUENT REPORT

January 2007 – June 2007
Fiscal Weeks 1-26

**I. GASEOUS EFFLUENT-PARTICULATE
NUCLIDES QUANTITY-CURIES**

U234	<u>1.09E-05</u>
U235	<u>4.22E-07</u>
U236	<u>1.18E-08</u>
U238	<u>1.50E-06</u>
TOTAL U	1.28E-05

- ◆ EXHAUST VOLUME 1.70E+15 (cc)
- ◆ AVERAGE CONCENTRATION FOR ALL STACKS 7.53E-15 (μCi/cc)
- ◆ SAMPLING IS CONTINUOUS.
- ◆ LOWER LEVEL OF DETECTION: 1E-12 μCi/ml
- ◆ ABNORMAL RELEASES:
TOTAL NUMBER OF RELEASES = 0
TOTAL ACTIVITY RELEASED = 0

**II. LIQUID EFFLUENT
NUCLIDES QUANTITY-CURIES**

U234	<u>1.63E-02</u>
U235	<u>6.30E-04</u>
U236	<u>1.77E-05</u>
U238	<u>2.24E-03</u>
TOTAL U	<u>1.92E-02</u>

- ◆ SAMPLES ANALYZED ARE REPRESENTATIVE, CONTINUOUS COMPOSITE SAMPLES OF PROCESS EFFLUENT STREAM.
- ◆ TOTAL VOLUME OF LIQUID EFFLUENT 2.93E+08 (liters)
- ◆ ABNORMAL RELEASES
TOTAL NUMBER OF RELEASES = 0
TOTAL ACTIVITIES RELEASED = 0

Ridge, Christianne

From: Timothy Johnson
Sent: Thursday, March 19, 2009 10:24 AM
To: Christianne Ridge
Cc: Brian Smith
Subject: FW: GE Hitachi Letter Regarding DOE DU Estimate
Attachments: Request for Revised DOE DU Estimate 3-18-09.pdf

Categories:

See attached letter with changes to DU generation rates.

-----Original Message-----

From: Kennedy, Albert E (GE Infra, Energy) [mailto:albertE.kennedy@ge.com]
Sent: Wednesday, March 18, 2009 3:41 PM
To: Brian Smith; Timothy Johnson
Subject: FW: GE Hitachi Letter Regarding DOE DU Estimate

I'll call and discuss this with you.

Al Kennedy
EHS Facility Licensing Manager
GE Hitachi Nuclear Energy

T: 910 819 1925
M: 910 200 9805
F: 910 675 5285

>
> _____
> From: Kennedy, Albert E (GE Infra, Energy)
> Sent: Wednesday, March 18, 2009 3:34 PM
> To: DOE (Ross Bradley Tails Estimate) (ross.bradley@em.doe.gov)
> Cc: 'DOE, Bill Szymanski'
> Subject: GE Hitachi Letter Regarding DOE DU Estimate
>
> Ross,
> Thank you for taking the time to discuss our DU estimate the other
> day. Your assistance is greatly appreciated.
>
> Per our discussion I have attached my letter outlining our discussion
> and asking for a revised estimate. If you need any additional
> information, please do not hesitate to contact me.
>
> Hope you enjoy March Madness...
>
>
> <<Request for Revised DOE DU Estimate 3-18-09.pdf>>
>
> Al Kennedy
> EHS Facility Licensing Manager
> GE Hitachi Nuclear Energy
>
> T 910 819 1925

> M: 910 200 9805
> F: 910 675 5285
>

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Received: from HQCLSTR01.nrc.gov ([148.184.44.76]) by TWMS01.nrc.gov
([148.184.200.145]) with mapi; Thu, 19 Mar 2009 10:24:07 -0400
Content-Type: application/ms-tnef; name="winmail.dat"
Content-Transfer-Encoding: binary
From: Timothy Johnson <Timothy.Johnson@nrc.gov>
To: Christianne Ridge <Christianne.Ridge@nrc.gov>
CC: Brian Smith <Brian.Smith@nrc.gov>
Date: Thu, 19 Mar 2009 10:24:06 -0400
Subject: FW: GE Hitachi Letter Regarding DOE DU Estimate
Thread-Topic: GE Hitachi Letter Regarding DOE DU Estimate
Thread-Index: AcmoAlcIMTuozlcTRNapzBbNNJveFwAAOU2AACc3ygA=
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X-MS-TNEF-Correlator:
<CEEA97CC21430049B821E684512F6E5EB70AFC9873@HQCLSTR01.nrc.gov>
MIME-Version: 1.0



HITACHI

GE Hitachi Nuclear Energy

Al Kennedy
Facility Licensing Manager
Environment, Health & Safety

P.O. Box 780 M/C L-65
3901 Castle Hayne Road
Wilmington, NC 28402

T 910 819 1925
F 910 675 5285
Alberte.Kennedy@ge.com

March 18, 2009

Mr. Ross Bradley
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585-0113

Subject: DOE Cost Estimate for the Disposition of Depleted Uranium Hexafluoride

Dear Mr. Bradley:

Thank you for speaking with me on March 11, 2009. We appreciate your agreement that the items we discussed regarding the Department of Energy's ("DOE") March 17, 2008 UF₆ disposal estimate for Global Laser Enrichment (GLE) will not increase, and will likely decrease, the per kg estimated cost of UF₆ tails disposal. A summary of the items we discussed during the call is provided below:

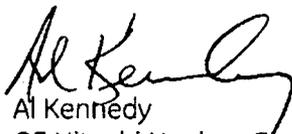
- In our November 30, 2007 letter to DOE, we inadvertently understated the amount of UF₆ tails that the GLE Commercial Facility ("CF") will generate. Specifically, the GLE CF's projected output per year of UF₆ tails is 10,500 metric tons – not 7,100.
- Additionally, the GLE CF's total projected output of UF₆ tails is 391.5K metric tons – not 284K. The incorrect 284K metric tons value is used as part of the calculation of the "Capital Cost" and "Decontamination & Decommissioning" components of the March 17, 2008 disposal estimate. However, based on the calculation method used, an increase in total GLE CF output should result in a decreased estimate per kg of UF₆ tails.
- GLE intends to submit its license application for the GLE CF in the second quarter of 2009. As a result, we expect GLE CF operations to begin several years following license approval for a total duration of forty (40) years. The March 17, 2008 disposal estimate anticipates the GLE CF beginning operations in 2010. We do not expect that amending these dates will impact the estimate in any way.

To address these issues, we request that DOE amend the March 17, 2008 disposal estimate by sending us a letter that includes a revised disposal estimate based on the corrected information (*i.e.*, output of 10,500 metric tons of UF₆ tails, a total projected output of 391.5K metric tons of UF₆ tails, and an operating period of forty years). To simplify the process of revising the estimate, we suggest that DOE not change any of the calculation methods or the base year used (*i.e.*, FY07) in the March 17, 2008 disposal estimate. Instead, we suggest that DOE simply recalculate the "Capital Cost" and "Decontamination & Decommissioning" components of the disposal estimate by using the corrected total GLE CF total output of 391.5K metric tons rather than 284K metric tons.

We are in the process of finalizing the GLE CF license application and would appreciate the amended estimate by April 3, 2009. In the event that this is not possible, we plan to file the license application with the understanding that the March 17, 2008 disposal estimate contains the maximum expected cost disposal estimate (i.e., \$5.72 per kg in FY07 dollars).

Please contact me at 910-819-1925 if you require additional information or have any questions. We greatly appreciate your assistance in this matter.

Sincerely,


Al Kennedy
GE Hitachi Nuclear Energy
Facility Licensing Manager

cc: Tammy Orr (GLE)
Lori Butler (GEH)
Harold Neems (GEH)
Bob Brown (GEH)
Don Silverman (Morgan Lewis)
Martin O'Neill (Morgan Lewis)
Brian Smith (NRC NMSS)

Ridge, Christianne

From: Timothy Johnson
Sent: Friday, March 28, 2008 9:55 AM
To: alberte.kennedy@ge.com; Julie.Olivier@ge.com; louis.quintana@ge.com
Cc: BWS1@Exchange.EXPO; MAB11@Exchange.EXPO; RGW@Exchange.EXPO; David Brown; Christianne Ridge
Subject: Guidance on Site Boundary Definitions

Categories: ..

After yesterday's phone call, we thought that some additional information on the definition of boundaries for radiation protection and ISA purposes would be helpful:

NUREG/CR-6204 "Questions and Answers Based on Revised 10 CFR Part 20."

NUREG-1736 "Consolidated Guidance: 10 CFR Part 20 - Standards for Protection Against Radiation."

In short, anyone who enters a restricted area is subject to occupational dose limits - i.e., they are all workers as that term is defined in Part 70. Both members of the public and workers may be in the controlled area. Under 10 CFR 20.1301(b), public dose limits continue to apply to members of the public in the controlled area. Members of the public may also be treated as workers for the purpose of the ISA, pursuant to 70.61(f).

NRC has guidance on the question of whether individuals are getting an occupational dose or public dose in the controlled area:

<http://www.nrc.gov/about-nrc/radiation/hppos/ga26.html>

Ridge, Christianne

From: Christianne Ridge
Sent: Thursday, April 23, 2009 4:21 PM
To: 'Henry, Nathan'
Cc: Gledhill-earley, Renee; Lawrence, Richard; Spencer, Madeline
Subject: RE: Kure Beach NRC meeting

Categories: ...

Nathan, Thanks.

At our meeting we would like to hear your assessment of GE's plan for protecting the historic places on site. We also would like your assessment of whether there are any further actions necessary to identify historic properties that may be affected by the construction, operation, and decommissioning of the proposed facility.

I look forward to meeting you on the 20th.

Christianne

-----Original Message-----

From: Henry, Nathan [mailto:nathan.henry@ncdcr.gov]
Sent: Thursday, April 23, 2009 12:25 PM
To: Christianne Ridge
Cc: Gledhill-earley, Renee; Lawrence, Richard; Spencer, Madeline
Subject: RE: Kure Beach NRC meeting

Christine--I have you on the calendar. Can we do anything to prepare for your visit?

Nathan Henry

Assistant State Archaeologist and Conservator Underwater Archaeology Branch NC Office of State Archaeology
1528 Fort Fisher Blvd. South
Kure Beach, NC 28449
Phone: 910 458 9042
<http://www.arch.dcr.state.nc.us/default.htm>

NOTICE: This communication may not reflect or represent the views of the Department of Cultural Resources. E-mail to and from me, in connection with the transaction of public business, is subject to the North Carolina Public Records Law and may be disclosed to third parties.

From: Christianne Ridge [mailto:Christianne.Ridge@nrc.gov]
Sent: Thursday, April 23, 2009 11:47 AM
To: Henry, Nathan
Cc: Gledhill-earley, Renee; Lawrence, Richard
Subject: RE: Kure Beach NRC meeting

Nathan:

Thanks for making time to meet with us. Can we set a meeting time of 9 - 11 am on Wednesday May 20?

Thank you.

A. Christianne Ridge, PhD

Sr. Environmental Project Manager
Division of Waste Management and Environmental Protection U.S. Nuclear Regulatory Commission
301.415.5673

From: Henry, Nathan [mailto:nathan.henry@ncdcr.gov]
Sent: Wednesday, April 22, 2009 2:43 PM
To: Christianne Ridge
Cc: Gledhill-earley, Renee; Lawrence, Richard
Subject: Kure Beach NRC meeting

Hi Christianne:

I'm available to meet any of those days (5/19,20,21). Let me know when and I'll put it on the calendar.
Thanks.

Nathan Henry
Assistant State Archaeologist and Conservator Underwater Archaeology Branch NC Office of State
Archaeology
1528 Fort Fisher Blvd. South
Kure Beach, NC 28449
Phone: 910 458 9042
<http://www.arch.dcr.state.nc.us/default.htm>

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E-mail to and from me, in connection with the transaction of public business, is subject to the North Carolina
Public Records Law and may be disclosed to third parties.

Ridge, Christianne

From: Timothy Johnson
Sent: Monday, May 04, 2009 8:56 AM
To: Kennedy, Albert E (GE Infra, Energy); julie.olivier@ge.com
Cc: Brian Smith; Christianne Ridge; Behram Shroff; Haimanot Yilma
Subject: Site Visit Collection Plan
Attachments: GLE EIS Site Visit Information Needs_050109.doc

Categories: ...

See attached NRC Site Visit Collection Plan for your information.

...

...

Received: from HQCLSTR01.nrc.gov ([148.184.44.79]) by TWMS01.nrc.gov
([148.184.200.145]) with mapi; Mon, 4 May 2009 08:56:16 -0400
Content-Type: application/ms-tnef; name="winmail.dat"
Content-Transfer-Encoding: binary
From: Timothy Johnson <Timothy.Johnson@nrc.gov>
To: "Kennedy, Albert E (GE Infra, Energy)" <albertE.kennedy@ge.com>,
"julie.olivier@ge.com" <julie.olivier@ge.com>
CC: Brian Smith <Brian.Smith@nrc.gov>, Christianne Ridge
<Christianne.Ridge@nrc.gov>, Behram Shroff <Behram.Shroff@nrc.gov>,
"Haimanot Yilma" <Haimanot.Yilma@nrc.gov>
Date: Mon, 4 May 2009 08:56:14 -0400
Subject: Site Visit Collection Plan
Thread-Topic: Site Visit Collection Plan
Thread-Index: AcnMt7UoCAm2+Z0KTj6Md94ZEMxgbg==
Message-ID:
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X-MS-TNEF-Correlator:
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MIME-Version: 1.0

**U.S. NUCLEAR REGULATORY COMMISSION
INFORMATION COLLECTION PLAN FOR THE
THE GENERAL ELECTRIC – HITACHI GLOBAL LASER ENRICHMENT
FACILITY (GLE) ENVIRONMENTAL SITE VISIT**

May 1, 2009

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GENERAL INFORMATION (GE)

ITEM NO.	
GE-1	<p>Provide an overall site tour that shows:</p> <ul style="list-style-type: none"> • The proposed GLE Study Area, and locations of major proposed project facilities including <ul style="list-style-type: none"> ○ GLE Facility building, electrical substation, wastewater lift stations, access roads, guard houses, water tower, stormwater detention basin, waste management buildings, and depleted uranium hexafluoride (UF₆) cylinder storage yards. ○ Proposed locations of cooling towers, cooling water system intake and discharge points, and points of environmental emissions from the proposed facility. • Major existing air emission sources and control equipment (e.g., boilers, diesel generators), and their release points on the site. • Existing and proposed locations of major indoor and outdoor noise sources (e.g., pumps, transformers) and control measures on the site. • Existing structures and facilities onsite, including the Wilmington Site final process lagoon, sanitary wastewater treatment facility, and SILEX test loop facility • Proposed interfaces between the proposed facility and existing infrastructure, and • Surrounding areas and features including major roads, and the nearest and other nearby residences.
GE-2	<p>Provide originals of all Environmental Report Rev. 0, December 2008 (the "ER") figures in .jpeg, .png or .tif format at a resolution of at least 300 dpi, and sized correctly. (Note: these are not needed at the site visit itself, but could be provided shortly thereafter.)</p>
GE-3	<p>Provide separate layers for GIS files given in the attached list as shapefiles. (Note: these are not needed at the site visit itself, but could be provided shortly thereafter.)</p>
GE-4	<p>Provide available ER references in either electronic or hard copy form. For documents that will be regularly used by the EIS team (e.g., the ER and site environmental report), provide both hard copy and electronic versions, and have at least two copies for review. For electronic copies, provide multiple computer terminals (e.g., laptops) for viewing these at the site visit.</p>
GE-5	<p>Provide or make available copies of environmentally relevant permits related to the existing facilities at the site.</p>
GE-6	<p>Provide copies of the input/output files and calculation packages for the major computer codes used in the preparation of the ER, including AERMOD, MOBILE6, NONROAD model, XOQDOQ, COMPLY, GENII, MODFLOW, and RADTRAN. Note, these are also requested in individual topical areas below.</p>

GE-7	<p>Provide a team of knowledgeable experts to discuss the assumptions made, the data and models used and the results presented in the ER in the following disciplines:</p> <ul style="list-style-type: none">• Accident Analysis• Air Quality, Meteorology, and Noise• Cultural Resources• Cumulative Impacts• Ecology• Human Health – Non Radiological• Human Health – Radiological• Hydrology and Geology• Socioeconomics and Environmental Justice• Transportation• Waste Management
-------------	---

ACCIDENT INFORMATION (AC)

ITEM NO.	
AC-1	Provide the definitions used for the likelihood categories “not unlikely,” “unlikely,” and “highly unlikely” as they apply to the GLE Facility. Provide descriptions of the accidents considered in the analysis including the likelihood category and time-dependent source terms (releases of radionuclides and chemicals to the environment) for each accident. Identify the bounding accident for each likelihood category. Provide this information for both chemical and radiological accidents.
AC-2	Provide information on how the accident sequences were developed, how the accidents were classified into individual likelihood categories and how the consequences were calculated. Provide the inputs and outputs of the computer models used to calculate the consequences. Provide the consequences and risks of the bounding accidents (both chemical and radiological) in each likelihood category. Provide the consequences to workers (in plant and other workers on site) and the general public.
AC-3	Provide information on preventive and mitigative measures that would be in place to minimize the impacts of the bounding accidents.
AC-4	Provide copies of the Integrated Safety Assessment (ISA) and the Emergency Plan (EP).

AIR QUALITY, METEOROLOGY, AND NOISE (AQ)

ITEM NO.	
AQ-1	Provide the Universal Transverse Mercator (UTM) coordinates or latitude and longitude of air emission and noise sources (existing and proposed), and neighboring sensitive receptors (e.g., nearest and nearby residences, schools, hospitals, nursing homes, daycare centers). An electronic file of a map is preferred to read off the coordinates.
AQ-2	<p>The items to be discussed with the knowledgeable air quality/meteorology expert during the site visit include:</p> <ul style="list-style-type: none"> • The basis of the air quality and meteorology in the ER (Sections 3.6 and 4.6 and related appendices) including general assumptions, emission inventories and emission control measures, air quality modeling, and their impact analysis. • General routine activities during the operational period to identify air emission sources. • Heat sources and dissipation systems on the site. • Existing and future major air emission sources around the facility. • General air quality conditions around the facility, in New Hanover County, and the region. • Emissions inventories and air dispersion modeling for hazardous air pollutants (HAPs) and toxic air pollutants (TAPs). • Local and regional meteorological patterns. • Variations of meteorological variables and air dispersion patterns resulting from proximity to the Atlantic Ocean.
AQ-3	<p>The items to be discussed with the knowledgeable noise expert at the site visit include:</p> <ul style="list-style-type: none"> • The basis of the noise analysis in the ER (Sections 3.7 and 4.7) including general assumptions, noise emission inventories and noise control measures, noise propagation modeling, and their impact analysis. • Existing and future major noise sources around the facility. • Recent noise measurements on the site. • Noise complaints and their resolution if any.
AQ-4	Provide input and output data (including raw and processed data) and calculation packages for the major computer codes used in the air quality modeling analysis, including AERMOD modeling system (AERMAP/AERMET/AERSURFACE/AERMOD), MOBILE6, NONROAD model, and XOQDOQ; electronic files are preferred.
AQ-5	Provide input and output data (including octave-band sound levels, directivity, emission point and height, and receptor grids) used in the noise propagation modeling analysis; electronic files are preferred.
AQ-6	If available, provide emissions data for greenhouse gases (e.g., CO ₂) associated with construction and operation of the GLE facility.
AQ-7	Provide available copies of air permits related to existing facilities on the Wilmington Site.
AQ-8	Provide sound levels for major interior noise sources and exterior noise sources (e.g., pumps, transformers) during operation. No noise modeling for these sources was presented in the ER.

ITEM NO.	
AQ-9	Provide air emission inventories for PM _{2.5} which were not presented in the emissions summary tables of the ER. Note that air dispersion and deposition behaviors and associated health impacts of PM _{2.5} are different from those of PM ₁₀ .

CULTURAL RESOURCES INFORMATION (CR)

ITEM NO.	
CR-1	The ER mentions 22 previously known sites but does not identify what types of sites these are (base camp, village, towns, etc.). Provide copies of the sites forms for these sites.
CR-2	Have there been any interactions with the Eastern Band of Cherokee Indians of North Carolina or other Native Americans in the region? Provide copies of any correspondence or interactions with Native Groups.
CR-3	Does the existing plant maintain Environmental Protective Measures? There is a high potential for archaeological sites to be on the plant grounds. How does the facility operator ensure that cultural resources on the property are protected? Provide a copy of the environmental review and protection procedures that are used to protect resources on the site.
CR-4	Provide a copy of the procedures used for unexpected discoveries of human or archaeological remains.

CUMULATIVE IMPACT INFORMATION (CI)

ITEM NO.	
CI-1	Provide a description of the region of influence used in bounding the cumulative impacts analysis.
CI-2	Provide a description of the methodology used to identify reasonably foreseeable future actions in the region of influence.
CI-3	Provide information on the habitats and land cover types that would be affected by developments on site.
CI-4	A fairly detailed description of the types of impacts that would result from other facility development on the Wilmington Site is provided in the ER. If available, provide comparable information for offsite developments.
CI-5	To determine the magnitude of cumulative impact on the Wilmington Site, the cumulative amount of resource use (past, present, and future) should be compared to the existing baseline (total acres of different habitat or land cover types, wastewater treatment capacities, water supply system capacity, electric system capacity). Similarly, a regional comparison to baseline is needed for all projects (offsite and onsite).
CI-6	During the site tour, show the locations of other proposed facilities on the Wilmington Site.

ECOLOGY INFORMATION (EC)

ITEM NO.	
EC-1	<p>Have environmental personnel that prepared the wetlands and ecological resources sections of the ER (and/or that conducted the wetland and ecological field surveys) available to answer questions related to impacts on ecological resources associated with the construction, operation, and mitigation of the GLE Facility. Specific aspects to be discussed include wetland impacts; stream crossings; stormwater detention basin; upland habitat loss, modification and fragmentation; and potential wildlife-human interactions.</p>
EC-2	<p>Provide a tour of key habitat areas (e.g., areas that would be directly impacted by project construction; and areas that represent the various terrestrial, wetland, and aquatic habitat types present in the project area). These areas should include:</p> <ul style="list-style-type: none"> • Location for the proposed GLE Facility; • Possible locations of new road segments and utility lines; • Access road crossing areas of Unnamed Tributary #1; • Other unnamed tributaries and Northeast Cape Fear River; • Wetlands WA, WB, WC, and WD; • Process lagoons, detention basins, woodland ponds, and other ponded waters at the Wilmington Site. • Other major wetland and terrestrial habitat types within the Wilmington Site boundary; • Areas where rare plants have been recorded; • Existing facilities at the Wilmington Site (e.g., other buildings, roads); • Areas that typify where vegetation maintenance practices are conducted; and • Major and significant habitats near the project (this could be done as a driving tour, if time permits).

HUMAN HEALTH – NON RADIOLOGICAL INFORMATION (HH/NR)

ITEM NO.	
HH/NR-1	<p>The items to be discussed with the knowledgeable human health expert for non-radiological exposures during the site visit include:</p> <ul style="list-style-type: none">• Current levels of contaminants in air, water, and soil in the vicinity of the plant, including emission rates for uranium compounds, hydrogen fluoride (HF), and criteria air pollutants from the existing Fuel Manufacturing Operation (FMO) plant and contaminant levels in the shallow and principal aquifer under the site.• The availability of any public health studies that have been conducted as a result of concerns for potential health impacts from chemical emissions from the existing FMO facility.• The expected occupational exposure levels to be present in the proposed GLE facility for uranium compounds, HF, and any other process related toxic chemicals and any monitoring, mitigation measures, control devices, and safety procedures that will be employed to control exposures to acceptable levels.• Laser safety as well as general occupational safety programs that will be used in the proposed GLE facility.

HUMAN HEALTH – RADIOLOGICAL INFORMATION (HH/R)

ITEM NO.	
HH/R-1	Provide information on the radiation protection plan for the existing FMO facility and the proposed GLE facility.
HH/R-2	Provide the liquid effluent releases for the existing FMO facility and doses from these releases to the maximally exposed individual (MEI) and the public. Section 3.11.2 (page 3.11-2) of the ER mentions gaseous effluent releases but nothing is mentioned about the liquid effluent releases and its contribution to the MEI dose. To demonstrate compliance with the dose limits in 10 CFR 20 and 40 CFR 190, dose contributions from both gaseous and liquid effluents should be included.
HH/R-3	<p>Provide background concentration in the vegetation in the region (e.g., recent reports from the North Carolina Division of Radiation Protection [NCDRP]).</p> <p>A summary of NCDRP data from analysis of vegetation samples collected from locations approximately one mile north and one mile south of GNF-A Wilmington is shown in Exhibit E-21(GNF-A ER 2007). This exhibit indicates gross alpha concentration in many vegetation samples. The GLE ER (page 3.11-2) mentions that these analyses “show very low gross alpha activity concentrations, thus indicating no radiological impact from Site operations. Based on these data, no future radiological impact from the FMO facility to cropland and agricultural areas in the vicinity of the site would be expected.”</p>
HH/R-4	Provide information on the uranium isotopic mix found in onsite and offsite soil samples collected on the Wilmington Site. Tables 3.11-6 and 3.11-7 in the GLE ER list average uranium concentrations in soil samples collected onsite and offsite in ppm. A different isotopic mix would result in different soil activities. The onsite soil concentration would be used in estimating the dose to the construction worker.
HH/R-5	<p>Provide information about the ongoing and planned radiological environmental monitoring program for FMO and GLE.</p> <p>Table 3.11-6 provides uranium concentrations at two locations (20 and 21) up to 1997. These two sample locations had the maximum uranium concentrations. The measurement at these locations was discontinued in 1998 because the use of the storage pad was minimized at that time and the soil concentration at those locations had stabilized. What is the current soil concentration at those locations? Would the construction workers be near these locations? Would these areas be disturbed in any way during GLE operation?</p>
HH/R-6	<p>Provide information about existing groundwater and surface water contamination and its impacts to the public.</p> <p>Exhibit E-19 (GNF-A ER, 2007) lists the surface water concentrations in the samples collected at two onsite and one offsite location (the data are only up to 1999) and in some of the onsite samples concentrations greater than 100 pCi/L were observed. Similarly, Exhibit E-30 in the GNF-A ER (2007) lists concentrations in supply wells. For 2003 and 2004 in supply well #9A Exhibit 30 lists gross alpha and beta concentrations > 500 pCi/L.</p>
HH/R-7	Provide input and output data and calculation packages, and a knowledgeable expert who can discuss application of the COMPLY computer code. GLE ER Section 3.11.4.1 (page 3.11-3 and 3.11-4) mentions that EPA’s COMPLY code was used to calculate the MEI and population doses.
HH/R-8	Provide justification for using 200,000 persons in calculating the population dose. The ER Section 3.11.4.1 (page 3.11-3) does not identify the region of influence.

HH/R-9	If available, provide more current data on radioactive gaseous emissions, airborne gross alpha and isotopic concentrations in different directions, uranium concentration in soil, radiation dose to nearest resident, and recordable accidents. The latest data provided in Tables 3.11-1 to 3.11-7 and 3.11-10 of the GLE ER is for 2005.
HH/R-10	Provide any available public health studies that have been conducted in the vicinity of the site for potential health impacts from radioactive effluent (gaseous and liquid) releases from the existing FMO facility. These studies would establish the baseline for the Wilmington area.
HH/R-11	Provide the calculation of doses to workers during site preparation and construction activities. Construction workers would be exposed to onsite soil contamination, direct exposure sources, liquid and gaseous emissions from existing release locations. The ER does not provide construction worker doses. To estimate these doses, one would need different media concentrations to which the workers may be exposed at the locations where the construction activities would occur, number of workers involved in those activities, and the time spent at those locations.
HH/R-12	Provide information on the distances from the proposed facility to the nearest site boundary for each radial sector, and the distances to the nearest residence, school, and other sensitive receptor locations (such as hospitals, agricultural areas, etc.).
HH/R-13	Provide estimated doses to the occupational workers from the proposed facility. The workers would be exposed to radiation during the normal operation of the proposed facility. The ER does not provide estimation of the occupational dose.
HH/R-14	ER Section 4.12.2.2.2.2 (page 4.12-10) mentions that GENII (version 2.06) code was used to calculate doses. Provide information on exposure pathways and the calculation of doses to the public and populations. Provide input and output data and calculation packages, and a knowledgeable expert who can discuss application of the GENII computer code.
HH/R-15	<p>Different sample types (continuous film badges, TLDs, pocket dosimeters, continuous air particulate filter, grab samples, sample of liquid effluent, storm water grab samples) in different media (direct radiation, air, surface water, treated process wastewater effluent, treated sanitary wastewater effluent, groundwater, storm water, soil, and sediment) are collected under the GLE environmental monitoring program.</p> <p>Provide the latest measurement results from the environmental monitoring program. ER Table 6-1 provides the summary of the GLE environmental monitoring program, but the results of these measurements are not provided. This would help in defining the baseline of the site and also the adequacy of the sampling plan for the proposed facility. The ER does have some data from previous years (for example Tables 3.4-3 and 3.4-4 show groundwater data from 2002-2006; Table 3.4-8 shows surface water data from 1997 – 2006; Table 3.4-11 provides uranium content in storm water for 2003)</p>
HH/R-16	Provide information on the public and occupational health impacts from decontamination and decommissioning activities.

HYDROLOGY AND GEOLOGY INFORMATION (HY)

ITEM NO.	
HY-1	Provide the current NPDES permit for the Wilmington Site, and information on past and proposed future pollutant discharges.
HY-2	Provide documentation on the groundwater monitoring plan (well locations, sampling frequency, well construction, drilling logs, and cross sections).
HY-3	Provide MODFLOW input files (general, non-proprietary format) used in work in Appendix P, and documentation and input files for any modeling updates, including transport of trichloroethylene (TCE).
HY-4	Provide a copy of the facility Stormwater Pollution Prevention Plan.
HY-5	Provide a tour of current site facilities, present and proposed outfalls, surface water features, wetlands, production wells, remediation systems, and the stormwater system.
HY-6	Provide information regarding outfall dimensions, elevations, receiving surface waters' velocity distributions and cross sectional areas, and bathymetry near outfalls
HY-7	Provide historical site groundwater monitoring reports (reports for the previous 10 years are of interest).
HY-8	Provide permits for surface water use and groundwater use
HY-9	<p>The items to be discussed with the knowledgeable hydrology expert during the site visit include:</p> <ul style="list-style-type: none"> • Water flow rates or use rates for cooling, service, blowdown, potable, sewage, discharges, remedial system); • Additives to water systems; • Documentation regarding any notices of violation; • Any radioactivity releases or general contaminant releases to groundwater, including TCE; • Past or potential future dredging operations; and • Groundwater quality issues

SOCIOECONOMICS/ENVIRONMENTAL JUSTICE INFORMATION (SE)

ITEM NO.	
SE-1	Provide copies of any correspondence and communications with local and regional officials and citizens confirming that there are no additional areas with minority and low-income populations within 4 miles of the GLE site, beyond those identified in the ER.
SE-2	Provide copies of any correspondence and communications with local and regional officials and citizens confirming that areas within 4 miles of the GLE site are not used for subsistence purposes by low income or minority groups.
SE-3	Provide copies of any correspondence and communications with local public officials to determine significance of impact of GLE construction and operation on the provision of local public and educational services.
SE-4	Provide any correspondence and communications with local public officials to determine significance of impact of GLE construction and operation on housing availability in the region, and any conflicts with proposed housing developments in the vicinity of the site.
SE-5	<p>For the region of influence, provide data on indirect economic impacts of facility pre-construction, construction, operation, and decommissioning, estimated using input-output multipliers, including:</p> <ul style="list-style-type: none"> • Impacts on labor income • Impacts on employment

TRANSPORTATION INFORMATION (TR)

ITEM NO.	
TR-1	Provide information about the assumptions and input parameters used for the RADTRAN calculations performed in support of the radioactive transportation risk analysis. Relevant input parameters include external dose rates for shipments, shipment dimensions, crew distance, and stops information. Provide the RADTRAN input and output files from the incident-free analysis for all material types (UF ₆ feed, UF ₆ product, UF ₆ tails, empty cylinders with heels, and LLRW).
TR-2	Provide additional information necessary to perform a RADTRAN accident risk analysis. Such information includes the radionuclide inventory (Ci content) for shipments of each material type (UF ₆ feed, UF ₆ product, UF ₆ tails, empty cylinders with heels, and low-level radioactive waste).
TR-3	<p>Provide information on the number of radioactive material shipments and types that currently take place at the Wilmington Site. The number of these types of shipments is relevant to a proper discussion of cumulative impacts in the EIS and is relevant to potential exposures to a maximally exposed individual near the site entrance.</p> <p>This information could be discussed in more detail with the transportation expert during the site visit.</p>

WASTE MANAGEMENT INFORMATION (WM)

ITEM NO.	
WM-1	Provide information on the types and quantities (e.g., mass/volume) of waste that might be expected to be generated from the construction of the GLE facility and where they may be taken for disposal.
WM-2	<p>The items to be discussed with the knowledgeable waste management expert during the site visit include:</p> <ul style="list-style-type: none"><li data-bbox="431 548 1384 638">• The basis for the estimated waste volumes provided in the ER for operations of the GLE facility. A discussion of the sources of the waste (e.g., the industrial processes used) is needed to understand the types and quantities of wastes generated.<li data-bbox="431 657 1395 716">• The radionuclide inventory of the wastes generated. Such information is required for the transportation analysis (See TR-2)



HITACHI

**GE Hitachi Nuclear Energy
Global Laser Enrichment, LLC**

Albert Kennedy
Environmental Health & Safety Manager, GLE

3901 Castle Hayne Road
P.O. Box 780
Wilmington, NC 28402
USA

T 910-819-1925
M 910-200-9805
Alberte.Kennedy@ge.com

May 5, 2009

Global Laser Enrichment

Docket Number 70-7016

ATTN: Document Control Desk
Brian Smith, Chief
Uranium Enrichment Branch
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Reference: Letter, Tammy Orr to Michael F. Weber (NRC), entitled "Enrichment Facility Project Licensing Update", dated September 30, 2008.

Subject: GE-Hitachi Global Laser Enrichment LLC Commercial Facility License Application Update

Dear Mr. Smith,

GE-Hitachi Global Laser Enrichment LLC (GLE) would like to provide an update to the referenced letter regarding the status of the GLE Commercial Enrichment Facility application requesting a material license from the U.S. Nuclear Regulatory Commission (NRC).

Upon the request of GLE, the NRC granted an exemption on January 13, 2009, allowing GLE to submit the Environmental Report (ER) in advance of the safety analysis portion of the license application. Although GLE had indicated intent to submit the remainder of the license application within three months of submitting the GLE ER, the NRC Safety Evaluation did not specifically discuss a time limit for submitting the remainder of the application.

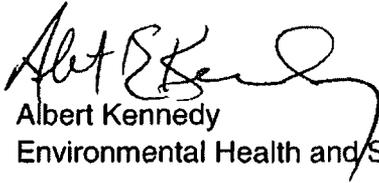
GLE submitted the ER on January 30, 2009, which was earlier than previously anticipated. However, because GLE intends to submit a complete, high quality and thorough license application, we expect that the remainder of the application will be submitted by the original expected date of June 2009. GLE considers this within a reasonable time period following submittal of the ER and it does not undermine the basis for the NRC granting the exemption. Accordingly, GLE will remain consistent with the schedule provided in our September 30, 2008, letter to the NRC.

May 4, 2009

Page 2

If you have any questions, or require additional information, please contact me at 910-819-1925 or at Alberte.Kennedy@ge.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Albert Kennedy". The signature is fluid and cursive, with a large loop at the end.

Albert Kennedy
Environmental Health and Safety Manager, GLE

cc:

T. G. Orr, GEH GLE, Wilmington, NC
L. Butler, GEH, Wilmington, NC
K. Givens, GEH GLE, Wilmington, NC
H. Neems, GEH, Wilmington, NC
J. Head, GEH, Wilmington, NC
P. Campbell, GEH, Washington, D.C.
D. Silverman, Morgan, Lewis & Bockius LLP, Washington, D.C.

Ridge, Christianne

From: McMillan, Valerie W [valerie.w.mcmillan@doa.nc.gov]
Sent: Wednesday, May 06, 2009 2:31 PM
To: Christianne Ridge
Subject: RE: Scoping Meeting for an Environmental Impact Statement for a proposed project near Wilmington, NC

Categories: ...

Thank you. We will on our Public Notices web page and send to our review agencies.

Valerie W. McMillan
Director, State Environmental Review Clearinghouse
Department of Administration
(919) 807-2324 Phone
(919) 733-9571 Fax
valerie.w.mcmillan@doa.nc.gov

E-mail correspondence to and from this address may be subject to the North Carolina Public Records Law (NCGS 132) and may be disclosed to third parties.

From: Christianne Ridge [mailto:Christianne.Ridge@nrc.gov]
Sent: Wednesday, May 06, 2009 2:23 PM
To: McMillan, Valerie W
Cc: Andrea Kock
Subject: Scoping Meeting for an Environmental Impact Statement for a proposed project near Wilmington, NC

Valerie,

As we discussed this afternoon, the U.S. Nuclear Regulatory Commission (NRC) will hold two public meetings on May 19, 2009. The purpose of the meetings is for the NRC staff to receive public comments on the scope of an Environmental Impact Statement (EIS) we are preparing as part of our review of a uranium enrichment facility that GE-Hitachi Global Laser Enrichment (GLE) has proposed to build near Wilmington, NC.

Per our phone call this afternoon, I have attached a meeting notice and a notice of intent to prepare an EIS. This documents provide information about the meeting and background information about the proposed facility. Thank you for your help in providing this information to the North Carolina Department of Environment and Natural Resources, Department of Transportation, Department of Agriculture, State Historic Preservation Office, and Flood Plain Mapping Program. Please let me know if you need any additional information.

Thank you,
Christianne

A. Christianne Ridge, Ph.D.
Sr. Environmental Project Manager
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental Management Programs
U.S. Nuclear Regulatory Commission
301.415.5673

Received: from mail1.nrc.gov (148.184.176.41) by TWMS01.nrc.gov
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-0400

From: "McMillan, Valerie W" <valerie.w.mcmillan@doa.nc.gov>

To: Christianne Ridge <Christianne.Ridge@nrc.gov>

Date: Wed, 6 May 2009 14:31:01 -0400

Subject: RE: Scoping Meeting for an Environmental Impact Statement for a
proposed project near Wilmington, NC

Thread-Topic: Scoping Meeting for an Environmental Impact Statement for a
proposed project near Wilmington, NC

Thread-Index: AcnOd7U6XRCwhmUPQ9ap+S0QxsAsGwAAQTfg

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References:

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MIME-Version: 1.0

Return-Path: valerie.w.mcmillan@doa.nc.gov

Ridge, Christianne

From: Christianne Ridge
Sent: Monday, May 18, 2009 10:25 PM
To: 'Webbon, Waylon W (GE Infra, Energy)'
Subject: RE: NRC Meeting May 19th - Wooden Shoe/ McDougald Drive Community (adjacent to proposed new GLE facility)

Categories: ...

Waylon,

Thank you for your comments. I will be available with other NRC staff members for an hour prior to each meeting to discuss your concerns. The afternoon meeting begins at 1 PM and the evening meeting begins at 7 PM. We will be available from 12-1 and again from 6-7.

We will also include your comments as scoping comments on our Environmental Impact Statement.

I look forward to meeting you tomorrow.

Christianne

A: Christianne Ridge
Environmental Project Manager
Division of Waste Management and Environmental Protection U.S. Nuclear Regulatory Commission
301.415.5673

-----Original Message-----

From: Webbon, Waylon W (GE Infra, Energy) [mailto:waylon.webbon@ge.com]
Sent: Monday, May 18, 2009 3:13 PM
To: Christianne Ridge; Kennedy, Albert E (GE Infra, Energy)
Cc: Orr, Tammy G. (GE Infra, Energy)
Subject: RE: NRC Meeting May 19th - Wooden Shoe/ McDougald Drive Community (adjacent to proposed new GLE facility)

Christianne,

I was unable to reach you or Antoinette Walker-Smith by telephone this afternoon. I left a message for you and she and also I'm sending this email to you to request some time to discuss a few issues of concern to myself and others of the Wooden Shoe Community at the NRC Public Meeting, Docket 70-7016 tomorrow, May 19, 2009 at Warwick Center, Ballroom 1, UNC Wilmington. My apologies for the lateness of this request, but I was not on the original meeting notice and only heard Friday about the details of the meeting. Hopefully, these few items (see attachment) will not take more than 15 to 30 minutes to discuss depending on comments.

If you think that the agenda will be too full in the evening, please let me know and I will attempt to get there in the afternoon tomorrow, May 19th. Below are the 9 items I would like to discuss.

1. Sledge Road on the Northern boundary should be off limits to construction and delivery vehicles and should be left as is. All traffic should be routed through the North (or South) Gate or routed with a 200-300' buffer, perhaps with sound barrier (depending on the anticipated noise level). This will assure residents, particularly those adjacent to Sledge Road, that their quality of life will be maintained. [This item was already addressed at the Fire House meeting where, as I recall, the intent is not to use Sledge Road for the construction entrance to the new site.]

2. Property values might decrease due to the presence of Uranium "Enrichment" in the plant next door. [This may be the first time an Enrichment facility has been built so close to a residential neighborhood.]

Although the past safety of the GE facility has been well demonstrated, prospective property buyers might still avoid our neighborhood because they have not personally experienced GE's excellent attention to safety or simply because they are not well informed about the enrichment process at GEH. In exchange for our proximity to the new facility, has GEH considered a guarantee of our property values compared to unaffected neighborhoods? Such a guarantee would go a long way toward assuring us that property values will not deteriorate. In effect, there might be little to no devaluation if there is a GEH commitment to guarantee them.

3. Currently, both sewer and water in the Wooden Shoe community is local for each home. Because of the proximity of the proposed enrichment plant, it would seem prudent to install sewer and water treatment in the Wooden Shoe community to prevent the possibility (or the impression) that there can be any contamination of the drinking water by either the new plant or by the current local septic tanks and drain fields. Potential contamination by either source might result in endless difficulties. Because of our proximity to the proposed new facility, has GEH considered installing or helping to fund the installation of sewer and water prior to operation of the new plant? Persons familiar with this area of the coast are aware that the ground water is mostly an underground flow to the Northeast Cape Fear River. Hence there is probably wide distribution of leached or discharged waterborne contaminants. An increase in contaminants might prove hazardous. City or GEH waste and drinking water treatment would eliminate this potential hazard and prevent possibly endless difficulties should it ever be allowed to occur.

4. A sketch of the intakes and outputs of the present plant compared to the same for the new plant would be useful for lay persons in assessing the increase in discharge of contaminants to our community. Real time or periodic assessment might be needed in the absence of sewer and water treatment in our community.

5. A prop showing the on-site construction plan and timeframe would be most helpful.

6. A prop or website showing the current and planned on-site radiation monitoring system would be useful. Will it be possible to obtain real time radiation assessments? How will residents be informed and protected in case of accidents?

7. What will be the noise level during construction in our community?

8. How long will the construction be underway?

9. Is it possible to build direct ramps onto I-140?

Thanks,

Waylon Webbon
5823 McDougald Drive
Castle Hayne, NC 28429
864-275-3667 (cell)

Also,

Senior Engineer - Reactor Services Engineering Mechanical Analysis - Structural & Fracture Mechanics GE
Hitachi Nuclear Energy T 910 819 4475 D *819 4475 waylon.webbon@ge.com www.ge-
energy.com/nuclear
3901 Castle Hayne Road
Bldg ATC-2, Rm 4433
Wilmington, NC 28402 USA

Albert,

Thanks for your meeting notice. I hope to be able to discuss the 9 items above tomorrow night, May 19, 2009, as one representative of the Wooden Shoe Community. If there is not room in tomorrow evening's agenda for

• these items, please let me know and I will try to get to the afternoon meeting instead. These items might take from 15 to 30 minutes, depending on comments. I'm sending to you so that you will have the questions to look over beforehand.

Thanks,

Waylon

-----Original Message-----

From: Kennedy, Albert E (GE Infra, Energy)
Sent: Friday, May 15, 2009 1:48 PM
To: Webbon, Waylon W (GE Infra, Energy)
Subject: NRC Meeting May 19th

Meeting notice for next week. If you or any of your neighbors are interested in observing or making statements- we wanted to make sure you had the notice.

Thank for your time,

Al Kennedy
EHS Manager
GE-Hitachi Global Laser Enrichment

T 910 819 1925
M 910 200 9805
F 910-342-5925

Ridge, Christianne

From: Andrea Kock
Sent: Wednesday, May 27, 2009 8:48 PM
To: Brian Smith; Timothy Johnson; Christianne Ridge
Subject: Proposed follow up call with GEH

Categories: ...

I received a call from Al Kennedy today asking if we could hold a telecon to discuss two issues:

- (1) GLE's plan to address cumulative effects of the control rod drive cleaning facility in the ER. It was not included in the version we have.
- (2) Discuss any feedback we have from the visit. Christianne and I have conferred and feel that we covered this during the "exit" briefing with GEH. However, we would be interested in hearing any feedback GLE has for NRC as well.

It looks like we are all available on June 9th at 9:00. please confirm that this works for you and I will get back to Al and set up a bridge.

Andrea Kock, Chief, Environmental Review Branch
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental Management Programs
USNRC
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Received: from HQCLSTR01.nrc.gov ([148.184.44.79]) by TWMS01.nrc.gov
([148.184.200.145]) with mapi; Wed, 27 May 2009 20:47:35 -0400
Content-Type: application/ms-tnef; name="winmail.dat"
Content-Transfer-Encoding: binary
From: Andrea Kock <Andrea.Kock@nrc.gov>
To: Brian Smith <Brian.Smith@nrc.gov>, Timothy Johnson
<Timothy.Johnson@nrc.gov>, Christianne Ridge <Christianne.Ridge@nrc.gov>
Date: Wed, 27 May 2009 20:47:34 -0400
Subject: Proposed follow up call with GEH
Thread-Topic: Proposed follow up call with GEH
Thread-Index: AcnfLeQF0gT0dBrrRxy2/JtlCDu2+w==
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X-MS-TNEF-Correlator:
<CEEA97CC21430049B821E684512F6E5ECA3BCF058A@HQCLSTR01.nrc.gov>
MIME-Version: 1.0

Ridge, Christianne

From: Christianne Ridge
Sent: Tuesday, April 07, 2009 10:58 AM
To: 'Avci, Halil I.'
Cc: Andrea Kock
Subject: GLE: radius for EJ analysis
Attachments: EJ_Policy_Statement_ML0722005940.pdf

Categories: ..

Halil,

At our last meeting we discussed the appropriate radius to use for EJ analyses. Your team noted that a 50-mile radius was used in the EISs for USEC and LES.

The 4 mile radius GLE used in its ER is consistent with Commission guidance for NMSS programs (see page 52048 of the attached Commission EJ policy statement). The guidance is a starting point. If, based on our review and independent analysis, we believe a larger radius should be used in this particular case, we can ask GLE for more information.

Please let me know if you have any questions.

Thanks.

From:
Sent:
To:

At:
B:

From:
Sent:
To: