GE Nuclear Energy

General Electric Company
P.O. Box 780 Wilmington, NC 28402
910 675-5000

70-1113

June 27, 1997

Mr. M. F. Weber, Licensing Branch, NMSS
U.S. Nuclear Regulatory Commission
Mail Stop T 8-D-14
Washington, DC 20555-0001

Subject: License Renewal (TAC No. L10079)

References:
(1) NRC License SNM-1097, Docket 70-1113
(2) License Renewal Application, 4/5/96
(3) Submittal, RJ Reda to ED Flack, 5/6/96
(4) Submittal, RJ Reda to RC Pierson, 5/14/96
(5) Letter, RC Pierson to RJ Reda, 7/18/96
(6) Submittal, RJ Reda to RC Pierson, 8/30/96
(7) Submittal, RJ Reda to ED Flack, 9/26/96
(8) Letter, MA Lamastra to RJ Reda, 10/2/96
(9) Submittal, RJ Reda to MA Lamastra, 11/22/96
(10) Application, RJ Reda to MF Weber, 12/16/96
(11) Letter, MA Lamastra to RJ Reda, 12/17/96
(12) Submittal, RJ Reda to MF Weber, 2/5/97
(13) Letter, MA Lamastra to RJ Reda, 2/10/97
(14) Submittal, RJ Reda to MF Weber, 2/19/97
(15) Submittal, RJ Reda to MF Weber, 2/25/97
(16) Letter, MA Lamastra to RJ Reda, 3/5/97
(17) Submittal, RJ Reda to MF Weber, 3/27/97
(18) Submittal, RJ Reda to MF Weber, 3/28/97
(19) Letter, MA Lamastra to RJ Reda, 5/6/97
(20) Letter, MA Lamastra to RJ Reda, 5/14/97
(21) Letter, RJ Reda, to MA Lamastra, 5/21/97
(22) Submittal, RJ Reda to MF Weber, 5/27/97
(23) Submittal, RJ Reda to MF Weber, 6/2/97
(24) Consolidated Application, RJ Reda to MF Weber, 6/5/97
(25) E-Mail of Approval Dates for Section 1.3, CM Vaughan to MA Lamastra, 6/10/97
(26) Fax, RH Foleck to MA Lamastra, 6/11/97
(27) Revision, RJ Reda to MF Weber, 6/11/97

Dear Mr. Weber:

GE's Nuclear Energy Production (NEP) facility in Wilmington, N.C., hereby transmits revisions to Chapter 1.0 as discussed by Mr. M. Lamastra of your staff with Mr. C. Vaughan, GE-NE, on June 26, 1997.

Attachment 1 is a Description of Revisions made to the license renewal by page and section.

Attachment 2 contains the page changes to our license renewal application for pages contained in Revisions By Chapter and Chapter 1.0.

NF04

All pages of this submittal have been dated 6/27/97 and identified as Revision 2. A vertical (|) line appears in the right column by the line where changes have been made.

Ten copies of this submittal are being provided for your use.

Please contact Charlie Vaughan on (910) 675-5656 or me on (910) 675-5889, if you have any questions or would like to discuss this matter further.

Sincerely,

GE NUCLEAR ENERGY

Ralph J. Reda, Manager
Fuels & Facility Licensing

/zb
Enclosure

cc: RJR-97-087
G. L. Troup, NRC-Atlanta
M. Fry, State of NC

ATTACHMENT 1

Description of Revisions to the License Renewal Application by Page and Section

Description of Revisions

Page	Section	Description
1	Revisions by Chapter	Changed the date on Chapter 1.0 to 06/27/97.
1.14	1.3.8.1	Added the following wording to the third paragraph: "Storage of the fuel is under the direct supervision of a member of the GE staff. This person shall comply with applicable reactor license and procedural requirements as directed by the reactor site representative."
1.15	1.3.8.2	Added the following wording to the fourth paragraph: "Storage of the fuel is under the direct supervision of a member of the GE staff. This person shall comply with applicable reactor license and procedural requirements as directed by the reactor site representative."

ATTACHMENT 2

License Renewal Page Changes

REVISIONS BY CHAPTER

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CHAPTER 1.0
GENERAL INFORMATION

1.1 FACILITY AND PROCESS DESCRIPTION

The primary purpose of the GE-Nuclear Energy Production facility in Wilmington, North Carolina (identified in this document as GE-Wilmington) is the manufacture of fuel assemblies for commercial nuclear reactors. Nuclear materials enriched to less than or equal to 5 weight percent U-235 are utilized in the product manufacturing operations authorized by this license. The safety, environmental, quality assurance and emergency preparedness aspects of the manufacturing operations are managed and controlled as described in this license.

1.1.1 SITE DESCRIPTION AND LOCATION

GE-Wilmington is situated on a 1,664-acre tract of land, located on U.S. Highway 117 and approximately six miles north of the City of Wilmington, North Carolina in New Hanover County (refer to Figures 1.1 and 1.2). New Hanover County is situated in the southern coastal plains section of southeastern North Carolina, with the Atlantic Ocean on the east and the Cape Fear River on the west. The Atlantic Ocean lies approximately 10 miles east and 26.4 miles south of GE-Wilmington. The surrounding terrain is low-lying, with an average elevation of less than 40 feet above mean sea level.

Castle Hayne, the nearest community, is approximately three miles north of GE-Wilmington. The region around the site is lightly settled with large areas of heavily timbered tracts of land. Farms, single-family dwellings and light commercial activities are located along U.S. 117. The Wilmington airport is located approximately 3.5 miles southeast of the site.

1.1.2 FACILITY DESCRIPTION

The location and arrangement of buildings at the GE-Wilmington site, and their relative distance from the site boundary are shown in Figure 1.3. Located on the GE-Wilmington site are the following major facilities: (1) the GE Aircraft Engine (AE)

FIGURE 1.1
PLANT SITE - STATE AND COUNTY LOCATIONS

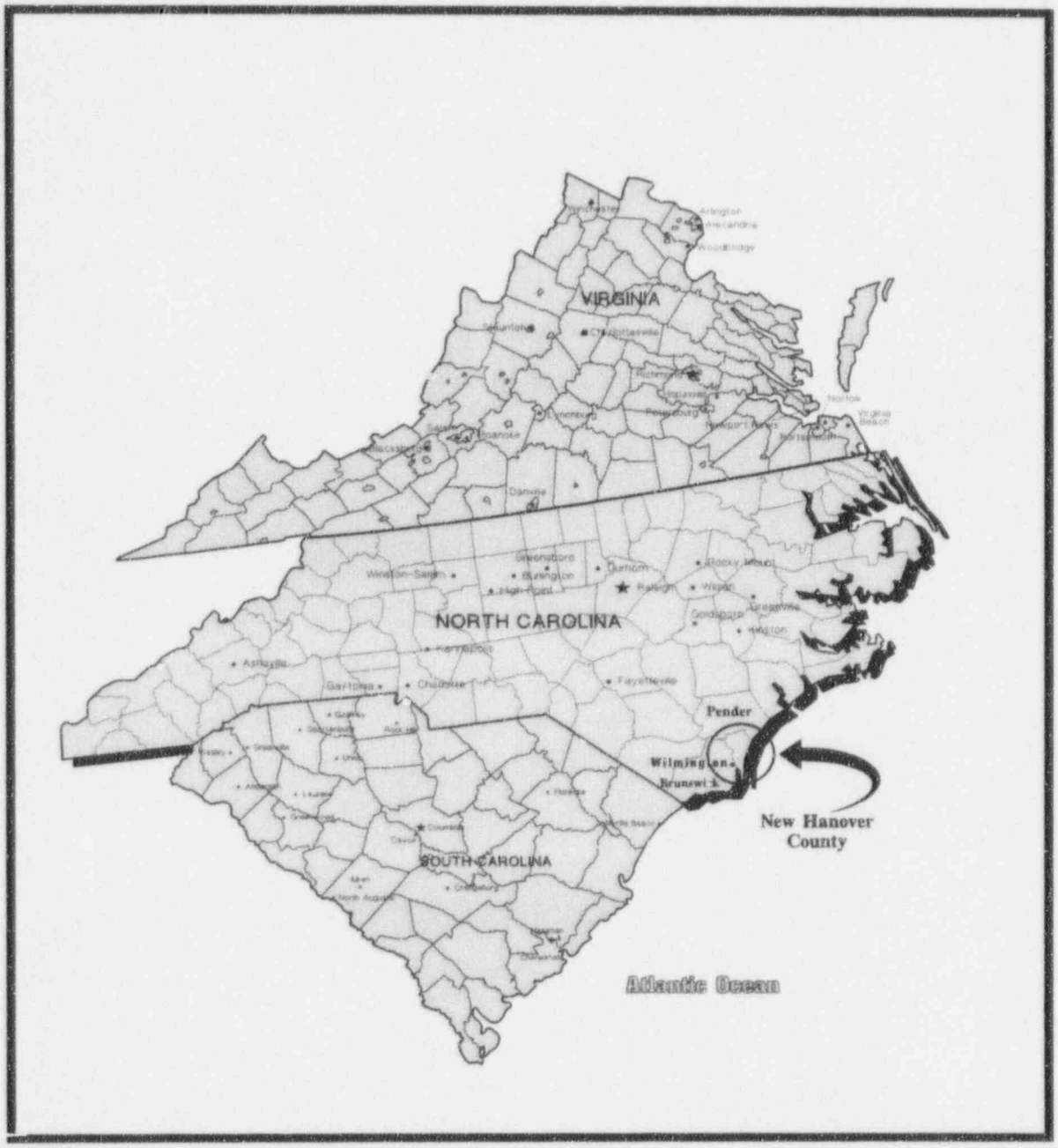


FIGURE 1.2
NEW HANOVER COUNTY AND ADJACENT COUNTIES

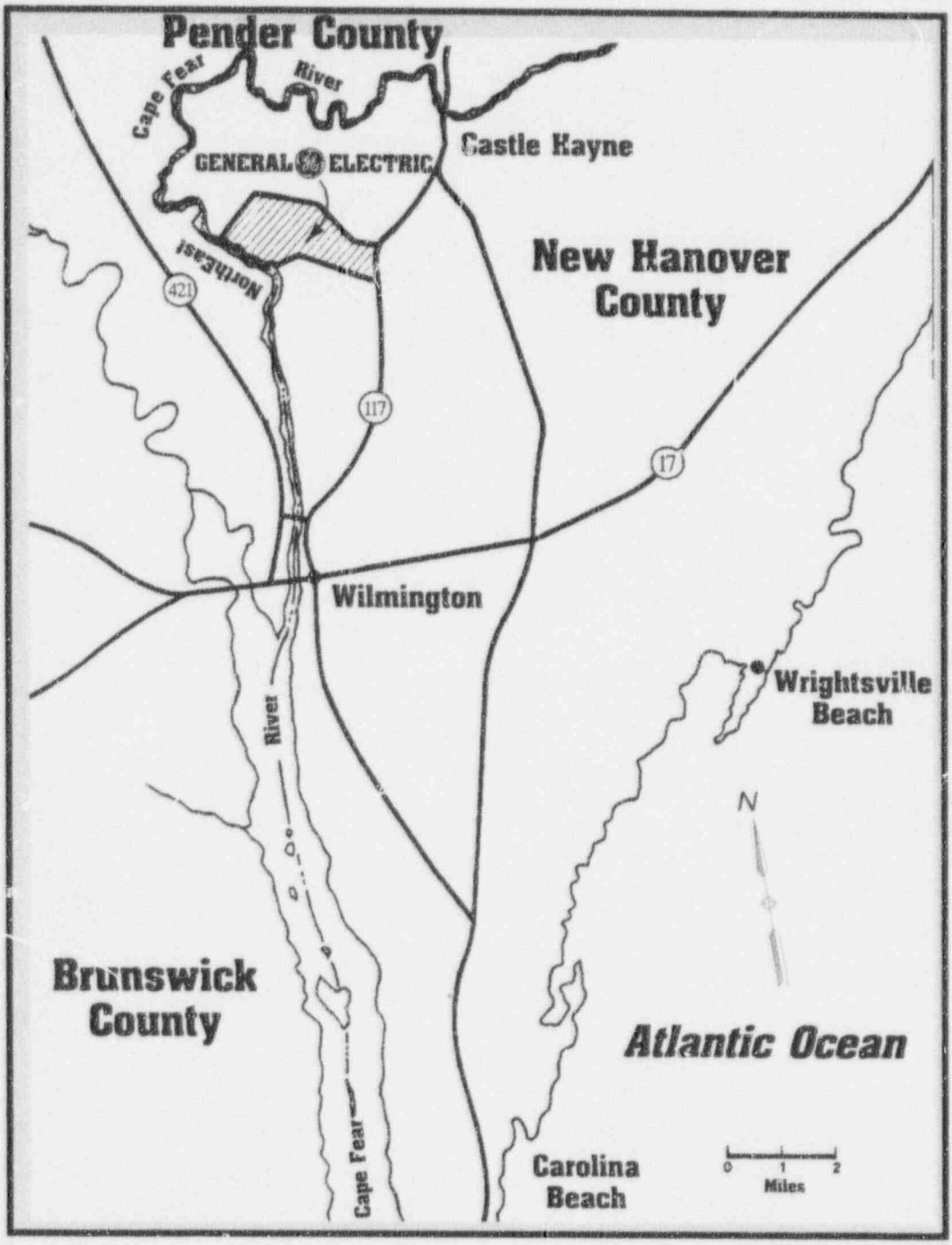
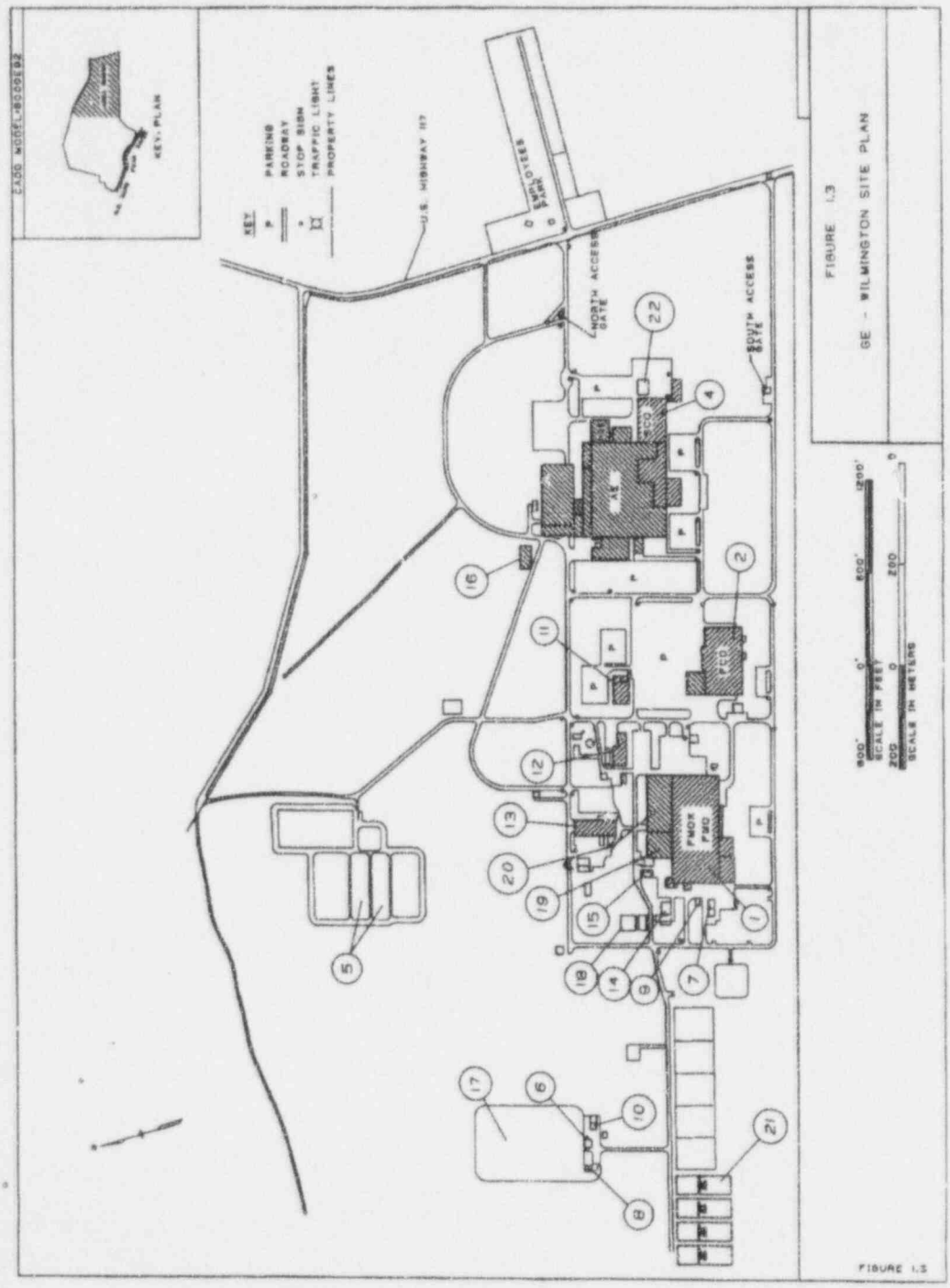


FIGURE 1.3
GE-WILMINGTON SITE PLAN



LICENSE	**SNM-1097**	DATE	**06/27/97**		Page
DOCKET	**70-1113**	REVISION	**2**		1.4

FIGURE 1.3 (Continued)
GE-WILMINGTON SITE PLAN LEGEND

1	:	Fuel Manufacturing Operation (FMO)
2	:	Fuel Components Operation (FCO)
3	:	Aircraft Engine Operation (AE)
4	:	Services Components Operation (SCO)
5	:	Final Process Basins
6	:	Waste Treatment Facility
7	:	Incinerator Building
8	:	Filter Facility
9	:	DA Building
10	:	Boiler / URLS
11	:	Office Building
12	:	Site Maintenance
13	:	Site Warehouse
14	:	FMO Storage Building
15	:	FMO Maintenance Building
16	:	AE Maintenance Building
17	:	Waste Treatment Basins
18	:	Fuel Examination Technology
19	:	Dry Conversion Process Building (DCP)
20	:	Warehouse
21	:	CaF_2 Storage Warehouse

facility which is not involved in the nuclear fuel manufacturing operation, (2) The Services Components Operation (SCO) facility where non-radioactive reactor components are manufactured, (3) the Fuel Components Operation (FCO) facility where non-radioactive components for reactor fuel assemblies are manufactured, and (4) the fuels complex containing the fuel manufacturing facility. The fuels complex, which includes the Fuel Manufacturing Operation and Dry Conversion Process (FMO/FMOX & DCP) buildings and supporting facilities, is enclosed by a fence with restricted access. This complex is called the Controlled Access Area (CAA).

1.1.3 FACILITY RESISTANCE TO ENVIRONMENTAL EVENTS

In the coastal area of North Carolina, where GE-Wilmington is located, severe weather conditions may result from hurricanes, tornadoes, ice storms, and snow storms. The greatest severe weather threat in this area is due to high winds from hurricanes and possible tornadoes. Facility construction meets or exceeds local codes for strength and in the case of hurricanes, advance notice provides an opportunity for further mitigating actions. Since high winds could impact electrical power, key safety systems are protected with adequate back-up power supplies or fail safe features. Earthquakes are not considered a major threat because this section of the southern Atlantic Seaboard is an area of relatively low seismic activity.

The Fuel Manufacturing Operation building in which radioactive materials are processed and stored, is designed to provide for containment of material under adverse environmental conditions such as fire, wind, flooding or earthquake to the limits of the building code. The roof construction meets Factory Mutual requirements for fire hazard and wind resistance.

Detailed information regarding the facility resistance to the effects of potential credible accident events is contained in Chapters 2 and 5 of the Radiological Contingency and Emergency Plan for GE-Wilmington, which is described in Chapter 9.0 of this license, and in Chapters 2 and 6 of the Environmental Report for GE-Wilmington which is described in Chapter 10.0 of this license.

1.1.4 PROCESS DESCRIPTION

The product manufacturing operations authorized by this license consist of receiving low-enriched, less than or equal to 5.0 weight percent U-235, uranium hexafluoride; converting the uranium hexafluoride to uranium dioxide powder; and processing the

uranium dioxide through pelletizing steps, fuel rod loading and sealing, and fuel assembly fabrication.

Two types of processes are used to convert uranium hexafluoride to uranium dioxide powder -- the Ammonium Diuranate (ADU) process, and Dry Conversion Process (DCP). The manufacturing operations are served by support systems such as scrap recovery, waste disposal, laboratory, and manufacturing technology development which are also described in this license.

1.2 INSTITUTIONAL INFORMATION

The GE-Wilmington NRC license number is SNM-1097 (Docket #70-1113).

1.2.1 IDENTITY AND ADDRESS

This application for license renewal is filed by the GE-Nuclear Energy Production facility of the General Electric Company, a major corporation with corporate headquarters in Fairfield, Connecticut. General Electric's nuclear energy business, known as GE Nuclear Energy, is headquartered in San Jose, California, with the principal manufacturing facility located in Wilmington, North Carolina.

The full address is as follows: GE Nuclear Energy Production, (name of person and mail code), P.O. Box 780, Wilmington, NC 28402.

1.2.2 TYPE, QUANTITY, AND FORM OF LICENSED MATERIAL

Uranium normally will be used at GE-Wilmington in the Controlled Access Area (CAA) only. Conversion and fabrication is conducted within the fuel manufacturing building (FMO/FMOX & DCP). Small quantities (i.e., less than one safe batch of uranium in a non-dispersible form) may be temporarily moved to other buildings or site locations outside of the CAA for special tests under special authorizations and controls.

The following types, maximum quantities, and forms of special nuclear materials are authorized:

1) 50,000 kilograms of U-235 contained in uranium enriched to a maximum enrichment of less than or equal to 5%, in any chemical or physical form,

2) 350 grams of U-235 at nominal enrichments >5% to <10% in any form for use in laboratory and process development operations,

3) 350 grams of U-235 in any form and at any enrichment for use in measurement and detection instruments, check sources and instrument response standards,

4) Plutonium - 1 milligram in samples for analytical purposes, 1 milligram as standards for checking the alpha radiation response of radiation detection instrumentation, 20 grams as sealed neutron sources, and in nuclear fuel rods at a level of less than 1×10^{-6} gram of plutonium per gram of U^{235}, and

5) 50 milligrams U-233 for analytical purposes.

1.2.3 ACTIVITY

GE-Wilmington complies with applicable parts of Title 10, Code of Federal Regulations, unless specifically amended or exempted by NRC staff.

Authorized activities at GE-Wilmington include:

1.2.3.1 Product Processing Operations

- UF_6 Conversion - Conversion of uranium hexafluoride to uranium oxides by the ADU process, and the Dry Conversion Process.
- Fuel Manufacture - Fabrication of nuclear reactor fuel (powder, pellets, or assemblies) containing uranium.
- Scrap Recovery - Reprocessing of unirradiated material from GE-Wilmington and from other sources with nuclear safety characteristics not significantly different from GE-Wilmington in-process materials.
- Waste Recovery - Recovery of uranium from wet and dry material stored in on-site pits and basins. The recovered uranium will be returned to the fuel processing facility.

1.2.3.2 Process Technology Operations

- Development and fabrication of reactor fuel, fuel elements and fuel assemblies of advanced design in small amounts.
- Development of scrap recovery processes.
- Determination of interaction between fuel additives and fuel materials.
- Chemical analysis and material testing, including physical and chemical testing and analysis, metallurgical examination and radiography of uranium compounds, alloys and mixtures.
- Instrument research and calibration, including development, calibration and functional testing of nuclear instrumentation and measuring devices.
- A conversion of UF_6 to UO_2 and other intermediate compounds using chemical and dry processes.
- Other process technology development activities related to, but not limited by, the above.

1.2.3.3 Laboratory Operations

Chemical, physical or metallurgical analysis and testing of uranium compounds and mixtures, including but not limited to, preparation of laboratory standards.

1.2.3.4 General Services Operations

- Storage of unirradiated fuel assemblies, uranium compounds and mixtures in areas arranged specifically for maintenance of criticality and radiological safety.
- Design, fabrication and testing of uranium prototype processing equipment.
- Maintenance and repair of uranium processing equipment and auxiliary systems.
- Storage and nondestructive testing of fuel rods containing trace amounts of plutonium as authorized in the license.

1.2.3.5 Waste Treatment and Disposal

- Treatment, storage and disposal and/or shipment of liquid and solid wastes whose discharges are regulated.
- Decontamination of non-combustible contaminated wastes to reduce uranium contamination levels, and subsequent shipment of such low-level radioactive wastes to licensed burial sites for disposal or as authorized by the NRC.
- Treatment or disposal of combustible waste and scrap material by incineration pursuant to 10 CFR 20.2002 and 10 CFR 20.2004.

1.2.3.6 Off-site Activities

Testing, demonstration, non-destructive modification and storage of materials and devices containing unirradiated uranium, provided that such materials and devices shall be under GE control at all times.

1.3 SPECIAL AUTHORIZATIONS AND EXEMPTIONS

1.3.1 AUTHORIZATIONS TO MAKE CHANGES TO LICENSE COMMITMENTS

1.3.1.1 Changes Requiring Prior NRC Approval

GE will not make changes to the licensed safety program that decrease the effectiveness of commitments without prior NRC approval. For these changes GE will submit to the NRC for review and approval an application to amend the license. The change will not be implemented until approval is granted. This includes changes to single parameter controlled processes or equipment as specified in Section 6.2.3 and Table 6 of the license.

1.3.1.2 Changes Not Requiring Prior NRC Approval

GE is authorized to make changes to the commitments in the licensed safety program without prior approval, provided that the changes do not decrease the effectiveness of the approved commitments. This authorization will allow GE to make changes, conduct tests or modify activities in a facility or process upon documented

completion of an ISA (Integrated Safety Analysis, Chapter 4) for that facility or process subject to the following conditions:

- There is no degradation in the safety commitment in the license
- The change, test or activity does not impair the licensee's ability to meet all Federal regulations
- The change, test or activity does not conflict with any requirements specifically stated in the license
- The change relates to Section 6.2.3 and Table 6 of the license where changes from one parameter to another parameter for process subareas or equipment in which multiple (at least two) parameters are controlled are made in accordance with established change control measures.

Records of such changes, tests or activities will be maintained, including technical justification and management approval, and available on site for inspection. A report containing a description of each change, test or activity and, where necessary, revised pages to the License Application will be submitted to the NRC within 3 months of implementing the change.

1.3.2 AUTHORIZED GUIDELINES FOR CONTAMINATION-FREE ARTICLES

Authorization to use the guidelines, contamination and exposure rate limits specified at the end of this Section, "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," US NRC, April 1993 for decontamination and survey of surfaces or premises and equipment prior to abandonment or release for unrestricted use.

1.3.3 AUTHORIZED TRANSFER OF CONTAMINATION-FREE LIQUIDS

1.3.3.1 Transfer of Hydrofluoric Acid (HF) for Testing

Authorization to transfer test quantities of HF to potential buyers/customers or laboratories for the purpose of analyzing, examination or evaluation, without continuing NRC controls as described in GE-Wilmington's letter to the NRC dated February 27, 1996.

Test quantities may not contain more than 3 PPM uranium with an enrichment not to exceed 5% U-235.

The recipients will be advised that this material is not a nuclear hazard, but will be advised that the material should be handled carefully and in such a manner so as not to be consumed by humans nor used in products used on or in the body or in the food chain.

1.3.3.2 Transfer of Hydrogen Fluoride Solutions as Product

Authorization, pursuant to 10 CFR 70.42(b)(3), to transfer liquid hydrofluoric acid to any commercial chemical company/supplier without either company possessing an NRC or Agreement State license for special nuclear material, provided that the concentration of uranium does not exceed three parts per million by weight of the liquid and the enrichment is less than or equal to 5 weight percent U-235 .

The hydrofluoric acid is transferred and used in such a manner that the minute quantity of uranium does not enter into any food, beverage, cosmetic, drug or other commodity designated for ingestion or inhalation by, or application to, a human being such that the uranium concentration in these items would exceed that which naturally exists. Additionally, the acid is used in a process which will not release the low levels of radioactivity to the atmosphere as airborne material and whose residues will remain in a wastewater or other treatment system.

Prior to shipment, each transfer is sampled and measured to assure that the concentration does not exceed three parts per million of uranium.

GE-Wilmington shall maintain records under this condition of license including, as a minimum, the date, uranium concentration and quantity of hydrofluoric acid transferred.

1.3.3.3 Transfer of Nitrate-Bearing Liquids

Authorization to transfer nitrate-bearing liquids, provided that the uranium concentration does not exceed a 30-day average of 5 parts per million by weight of the liquids and the enrichment is less than or equal to 5 weight percent U-235 by transport to an off-site liquid treatment system located at International Paper, Riegelwood, North Carolina (or similar commercial paper operation), in which decomposition of the nitrates will occur and from which the denitrified liquids will be discharged in the effluent from the system.

Environmental samples will be taken periodically to monitor effluent releases.

1.3.4 AUTHORIZATION TO TRANSFER TEST QUANTITIES OF CALCIUM FLUORIDE

Authorization to transfer test quantities of calcium fluoride (CaF_2) to potential buyers for the purpose of their examination and evaluation as described in GE-Wilmington's letter to the NRC dated September 24, 1992.

Test quantities may not contain more than 30 pCi per gram on a dry weight basis and are limited to 1 gram U-235 at each off-site location.

Test activities and end uses of the material will be limited to those that do not allow chemical separation of the uranium or entry of the product into the food chain.

1.3.5 AUTHORIZATION TO TRANSFER CALCIUM FLUORIDE (CAF_2) TO VENDORS FOR BENEFICIAL REUSE

Authorization to transfer quantities of industrial waste treatment products (primarily CaF_2) to commercial firms, for the purpose of briquette manufacturing and use as a steel flux forming material in the production of steel as described in GE-Wilmington's letter to the NRC dated December 20, 1989.

Measurements are made using a sample plan to provide at a 95% confidence level that the population mean for each shipment is less than 30pCi of uranium per gram of material on a dry weight basis.

Activities and end use of the material will be limited to those that do not allow chemical separation of the uranium or entry of the product into the food chain.

1.3.6 AUTHORIZATION TO DISPOSE OF INDUSTRIAL WASTE TREATMENT PRODUCTS

Notwithstanding any requirements for state or local government agency disposal permits, GE-Wilmington is authorized to dispose of industrial waste treatment products without continuing NRC controls provided that either of the two following conditions are met:

1.3.6.1 Free-standing liquid shall be removed prior to shipment.

The uranium concentration in the material shipped for disposal shall not exceed 30 pCi per gram after free-standing liquid has been removed.

The licensee shall possess authorization from appropriate state officials prior to disposing of the waste material. The authorization shall be available for inspection at the GE-Wilmington facility.

1.3.6.2 The uranium concentration in the material shipped for disposal only at approved facilities such as Pinewood, South Carolina (licensed by the State of South Carolina), shall not exceed 250 pCi per gram of uranium activity, of which no more than 100 pCi per gram shall be soluble.

1.3.7 AUTHORIZATION TO STORE SANITARY SLUDGE PENDING FINAL DISPOSAL

Dried sanitary sludge is collected and disposed of at approved offsite facilities in accordance with Section 1.3.6. Authorization to store treated sanitary sludge containing trace amounts of uranium in the sanitary sludge land application area pending final disposal.

1.3.8 AUTHORIZATION FOR THE USE OF MATERIALS AT OFF-SITE LOCATIONS

1.3.8.1 Authorization to store at nuclear reactor sites, uranium fully packaged for transport in any NRC approved package, in accordance with the conditions of a license authorizing delivery of such containers to a carrier for NRC approved transport, at locations in the United States providing such locations minimize the severity of potential accident conditions to be no greater than those in the design bases for the containers during transportation.

Provisions for compliance with applicable 10 CFR 73 requirements are described in the NRC-approved GE-Wilmington Physical Security Plan as currently revised in accordance with regulatory provisions.

Storage at nuclear reactor sites is subject to the financial protection and indemnity provision of 10 CFR 140. Storage of the fuel is under the direct supervision of a

member of the GE staff. This person shall comply with applicable reactor license and procedural requirements as directed by the reactor site representative.

1.3.8.2 Authorization to store at nuclear reactor sites, arrays of finished reactor fuel rods and/or assemblies in any of the inner metal containers of the RA-series shipping package described in NRC Certificate of Compliance Number 4986 at locations in the United States providing such locations minimize the severity of potential accident conditions to be no greater than those in the design bases for the containers during transportation.

Arrays may be constructed without limit to the number of containers so stored, except that each array shall be stacked to the smaller of 4 containers high or the height demonstrated to comply with the criticality safety requirements of this license. Each container must be separated by nominal 2-inch wooden studs, with the width and length for each array and separation between arrays determined only by container handling requirements.

Provisions for compliance with applicable 10 CFR 73 requirements are described in the NRC-approved GE Wilmington Physical Security Plan as currently revised in accordance with regulatory provisions.

Storage at nuclear reactor sites is subject to the financial protection and indemnity provision of 10 CFR 140. Storage of the fuel is under the direct supervision of a member of the GE staff. This person shall comply with applicable reactor license and procedural requirements as directed by the reactor site representative.

1.3.8.3 Authorization to transfer, possess, use and store unirradiated reactor fuel of GE-Wilmington manufacture or procured to GE specification at nuclear reactor sites, for purposes of inspection, fuel bundle disassembly and assembly, including fuel rod replacement, provided that the following conditions are met:

- A valid NRC license has been issued to the reactor licensee, which authorizes receipt, possession and storage of the fuel at the reactor site. GE Wilmington possesses the fuel only within the indemnified location.
- For dry fuel reconstitution, not more than 99 (9x9 lattices or greater) or 88 (8x8 lattices) unassembled fuel rods may be possessed by GE-Wilmington at any one reactor site at any one time, except when the fuel has been packaged

for transport or as described in Section 1.3.8.3. The fuel rods must be of the types described in NRC Certificate of Compliance Number 4986.

- For underwater fuel reconstitution, not more than one fuel assembly plus unassembled fuel rods so that the total number of rods, including the assembly, possessed by GE-Wilmington at any one reactor site at any one time does not exceed 99 (9x9 lattices or greater) or 88 (8x8 lattices), except when the fuel has been packaged for transport or as described in Section 1.3.8.3. The fuel rods must be of the types described in NRC Certificate of Compliance Number 4986.
- Operations involving the fuel are conducted by or under the direct supervision of a member of the GE-Wilmington staff who shall be responsible for work on the fuel element assembly. The person shall comply with applicable reactor license and procedure requirements as directed by reactor site representatives, including appropriate actions that are to be taken in the event of emergencies at the site.
- Loose rods are stored in RA-series inner metal containers.
- Fuel is handled in accordance with pertinent provisions of the reactor license, and also in accordance with applicable GE-Wilmington procedures which are jointly verified for completion by GE-Wilmington and the reactor licensee.
- Records of the operation, including the GE-Wilmington procedures used, are maintained at the GE-Wilmington facility.

1.3.9 AUTHORIZATION TO USE A DILUTION FACTOR FOR AIRBORNE EFFLUENTS

Pursuant to 10CFR20.1302, GE is authorized to utilize a dilution factor of 100 to the measured stack discharges for the purpose of evaluating the airborne radioactivity at the closest site boundary.

This conservative dilution factor is derived using standard diffusion models and conservative assumptions regarding physical and atmospheric characteristics of the site. Records of the derivation of this factor are maintained on site for inspection.

1.3.10 AUTHORIZATION FOR WORKPLACE AIR SAMPLING ADJUSTMENTS

Authorization to adjust Derived Air Concentration (DAC) limits and Annual Limit of Intake (ALI) values in process areas to reflect chemical and physical characteristics of the airborne uranium .

1.3.11 EXEMPTION TO CRITICALITY MONITORING SYSTEM REQUIREMENTS

Authorization that it is not necessary to maintain the criticality accident monitoring system requirements of 10 CFR 70.24 when it is demonstrated that a credible criticality risk does not exist for each area in which there is not more than:

1.3.11.1 A quantity of finished reactor fuel rods equal to or less than 45% of a minimum critical number under conditions in which double batching is credible, or equal to or less than 75% of a minimum critical number under conditions in which double batching is not credible, or

1.3.11.2 The quantity of uranium authorized for delivery to a carrier when fully packaged as for transport according to a valid NRC authorization for such packages without limit on the number of such packages, provided storage locations preclude mechanical damage and flooding, or

1.3.11.3 Arrays of finished reactor fuel rods and/or assemblies in any of the inner metal containers of the RA-series shipping package described in NRC Certificate of Compliance Number 4986, under storage conditions described in Section 1.3.8.3, or

1.3.11.4 Unassembled fuel rods under the restrictions and transfer, possession, use and storage conditions in Section 1.3.8.4.

1.3.12 EXEMPTION TO POSTING REQUIREMENTS

Authorization to post areas within the Controlled Access Area in which radioactive materials are processed, used, or stored, with a sign stating "Every container in this

area may contain radioactive materi... in lieu of the labeling requirements of 10 CFR 20.1904.

1.3.13 EXEMPTION TO EXTREMITY DOSE DETERMINATION REQUIREMENTS

Authorization to use a skin thickness of 38 milligrams/cm^2 in the assessment of worker fingertip doses from uranium and for determining compliance to NRC extremity dose limits.

GUIDELINES FOR DECONTAMINATION OF FACILITIES AND EQUIPMENT PRIOR TO RELEASE FOR UNRESTRICTED USE OR TERMINATION OF LICENSES FOR BYPRODUCT, SOURCE, OR SPECIAL NUCLEAR MATERIAL

U.S. Nuclear Regulatory Commission
Division of Fuel Cycle Safety
and Safeguards
Washington, DC 20555

April 1993

The instructions in this guide, in conjunction with Table 1, specify the radionuclides and radiation exposure rate limits which should be used in decontamination and survey of surfaces or premises and equipment prior to abandonment or release for unrestricted use. The limits in Table 1 do not apply to premises, equipment, or scrap containing induced radioactivity for which the radiological considerations pertinent to their use may be different. The release of such facilities or items from regulatory control is considered on a case-by-case basis.

1. The licensee shall make a reasonable effort to eliminate residual contamination.

2. Radioactivity on equipment or surfaces shall not be covered by paint, plating, or other covering material unless contamination levels, as determined by a survey and documented, are below the limits specified in Table 1 prior to the application of the covering. A reasonable effort must be made to minimize the contamination prior to use of any covering.

3. The radioactivity on the interior surfaces of pipes, drain lines, or ductwork shall be determined by making measurements at all traps, and other appropriate access points, provided that contamination at these locations is likely to be representative of contamination on the interior of the pipes, drain lines, or ductwork. Surfaces of premises, equipment, or scrap which are likely to be contaminated but are of such size, construction, or location as to make the surface inaccessible for purposes of measurement shall be presumed to be contaminated in excess of the limits.

4. Upon request, the Commission may authorize a licensee to relinquish possession or control of premises, equipment, or scrap having surfaces contaminated with materials in excess of the limits specified. This may include, but would not be limited to, special circumstances such as razing of buildings, transfer of premises to another organization continuing work with radioactive materials, or conversion of facilities to a long-term storage or standby status. Such requests must:

   a. Provide detailed, specific information describing the premises, equipment or scrap, radioactive contaminants, and the nature, extent, and degree of residual surface contamination.

   b. Provide a detailed health and safety analysis which reflects that the residual amounts of materials on surface areas, together with other considerations such as prospective use of the premises, equipment, or scrap, are unlikely to result in an unreasonable risk to the health and safety of the public.

5. Prior to release of premises for unrestricted use, the licensee shall make a comprehensive radiation survey which establishes that contamination is within the limits specified in Table 1. A copy of the survey report shall be filed with the Division of Fuel Cycle Safety and Safeguards, U. S. Nuclear Regulatory Commission, Washington, DC 20555, and also the Administrator of the NRC Regional Office having jurisdiction. The report should be filed at least 30 days prior to the planned date of abandonment. The survey report shall:

   a. Identify the premises.

   b. Show that reasonable effort has been made to eliminate residual contamination.

   c. Describe the scope of the survey and general procedures followed.

   d. State the findings of the survey in units specified in the instruction.

   Following review of the report, the NRC will consider visiting the facilities to confirm the survey.

TABLE 1

ACCEPTABLE SURFACE CONTAMINATION LEVELS

NUCLIDES[a]	AVERAGE[bcf]	MAXIMUM[bdf]	REMOVABLE[bef]
U-nat, U-235, U-238, and associated decay products	5,000 dpm α/100 cm^2	15,000 dpm α/100 cm^2	1,000 dpm α/100 cm^2
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100 dpm/100 cm^2	300 dpm/100 cm^2	20 dpm/100 cm^2
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1000 dpm/100 cm^2	3000 dpm/100 cm^2	200 dpm/100 cm^2
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and other noted above.	5,000 dpm $\beta\gamma$/100 cm^2	15,000 dpm $\beta\gamma$/ 100 cm^2	1,000 dpm $\beta\gamma$/100 cm^2

[a]Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides should apply independently.

[b]As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

[c]Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each such object.

[d]The maximum contamination level applies to an area of not more than 100 cm^2.

[e]The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

[f]The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber..