70-1113

GE Nuclear Energy

Nuclear Fuel & Components Manufacturing
General Electric Company
P.O. Box 780, Wilmington, NC 28402
919 675-5000

February 4, 1994

Director
Office of Nuclear Materials Safety & Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Mr. R. C. Pierson
Chief, Licensing Branch
Division of Fuel Cycle Safety and Safeguards
OWFN, Room 6H6, Mail 6H3

Dear Sir:

Subject: License Amendment Request (Revision #46)

Reference: SNM Material License SNM-1097, Docket # 70-1113

With reference to activities authorized by NRC License SNM-1097 at the General Electric Nuclear Energy Production (NEP) facility at Wilmington, NC, GE hereby requests approval, for the enclosed page changes to Part I of our current application.

On 12/09/93 and 12/10/93, Amendment Revision numbers 43 and 45, respectively, were submitted to the NRC. This submittal, Revision 46, consolidates the previous revisions and replaces them in their entirety.

The proposed changes to the application are necessary to conform to the requirements of the revised 10 CFR 20. The changes reflect the new numbering scheme of 10 CFR 20, the new methodology for dose limitation, the new exposure and action limits and the new definitions. Additionally, the respiratory protection program has been modified to include a protection factor of 10 for half mask respirators.

We are also providing notification that our facility name has changed from Nuclear Fuel and Components Manufacturing (NF&CM) to Nuclear Energy Production (NEP).

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Attachment 1 contains an explanation of the requested changes by page and section. Attachment 2 contains a list of the license pages by date of revision. Attachment 3 contains the revised page changes to conditions of Part I of our current license application.

Changes to the amended pages are indicated with an asterisk (*) in the right-hand column of each page.

In accordance with 10 CFR 70.21(a)(2), six copies of this application are being provided.

If you require additional information or would like to discuss this matter further, please contact me at (910) 675-5461.

Sincerely,

GE NUCLEAR ENERGY

T. Preston Winslow, Manager
EPS and MC&A

/sbm

cc: TPW-94-020

ATTACHMENT 1

EXPLANATION OF THE REQUESTED CHANGES

Existing Page(s)	Section	Explanation
8		Changed "Revision by Page" section to reflect changes made in this submittal.
I-1.1	1.1 & 1.2	Changed the facility name from Nuclear Fuel and Components Manufacturing (NF&CM) to Nuclear Energy Production (NEP).
I-1.9 I-1.12 I-1.19	1.7.5.3 1.8.3.2 1.8.8 & 1.8.9	Changed references to be consistent with the new numbering scheme in 10 CFR 20.
I-2.23 I-2.24 I-2.25	2.9.1 2.9.2 Table 2.1	Revised wording in Sections 2.9.1 and 2.9.2 to delete references to Table 2.1. Renamed and revised these sections to be consistent with Reg. Guide 3.52 and renumbered remaining section pages accordingly.
I-3.5	3.2.1	Changed references to be consistent with the new numbering scheme in 10 CFR 20.
I-3.17	3.2.4.3.1	The 40 mpc-hr/week control measure was deleted to be consistent with 10 CFR 20 revisions.
I-3.19	3.2.4.3.3	The lower ALI in the revised 10 CFR 20 reduces the usefulness of lung counting as a monitoring technique. The lung counting frequency matrix was removed because the criteria in the matrix was based on the old system of weekly and quarterly exposure limits which were deleted from the revised 10 CFR 20.
I-3.20	3.2.4.3.3	The maximum permissible lung burden, and the lung burden restriction of 250 µg U^{235} were replaced by an intake based criteria consistent with the 10 CFR 20 revisions.

Existing Page(s)	Section	Explanation
I-3.20	3.2.4.4	"Controlled area" was replaced by "airborne controlled area" because the clothing requirements in this paragraph do not apply to all controlled areas.
I-3.21	3.2.4.5.1	Changed to include wording describing that the respiratory protection program has been modified to include a protection factor of 10 for half mask respirators.
I-3.26	3.2.4.9	The external exposure quarterly action levels were changed to reflect the changes to 10 CFR 20 dose limits. The levels for skin and extremities are equal to one fourth of the annual limits.
I-5.5 I-5.6 I-5.8 I-5.9 I-5.10 I-5.12 I-5.14 I-5.22	5.1.1.2 5.1.1.4 5.1.2.3 5.1.2.5.1 5.1.2.5.2 5.1.4 5.1.5 5.2.2.2	Changes made to implement meaningful action limits and wording pursuant to the new 10 CFR 20. In addition, text changes were made to correct terminology references.
I-5.16	Table 5.1	The action level for ambient air weekly composite samples was simplified to one value which is less than the 10 CFR 20 Appendix B Table 2 limit for airborne effluents. The action level for N.E. Cape Fear River monthly grab samples was changed to comply with the lowered 10 CFR 20 Appendix B Table 2 limit for waterborne effluents.
I-5.19 & 5.21	5.2.1.2	This section changed because our program for controlling ambient airborne levels of radioactivity relies on control at the source, i.e. stack emissions monitoring and associated action levels in Table 5.1, rather than ambient air sampling.

Existing Page(s)	Section	Explanation
I-5.[illegible]	Figure 5.5	An inconsistency between Table 5.1 and Figure 5.5 was corrected by changing the sample frequency on Figure 5.5 to monthly.
I-5.26	5.2.3.1	The action level was lowered to reflect 10 CFR 20 revision (see Table 5.1).

ATTACHMENT 2

PAGE REVISIONS BY DATE

REVISIONS BY PAGE

Page	Application Date	
TABLE OF CONTENTS		
1	10/23/87	
2	10/23/87	
3	10/23/87	
4	10/23/87	
5	10/23/87	
6	10/23/87	
7	10/23/87	
8	02/04/94	*
9	02/04/94	*
10	09/07/93	
11	10/29/93	
12	10/13/92	
PART I		
CHAPTER 1		
I-1.1	02/04/94	*
I-1.2	05/16/88	
I-1.3	05/16/88	
I-1.4	10/22/91	
I-1.5	05/16/88	
I-1.6	05/16/88	
I-1.7	12/03/90	
I-1.8	05/16/88	
I-1.9	02/04/94	*
I-1.10	05/16/88	
I-1.11	05/16/88	
I-1.12	02/04/94	*
I-1.13	05/16/88	
I-1.14	05/16/88	
I-1.15	05/16/88	
I-1.16	05/16/88	
I-1.17	05/16/88	
I-1.18	05/16/88	
I-1.19	02/04/94	*
I-1.20	04/20/92	
I-1.20(a)	05/10/93	
I-1.20(b)	05/10/93	
I-1.20(c)	05/10/93	
I-1.20(d)	05/10/93	
I-1.21	05/16/88	
I-1.22	05/16/88	
I-1.23	05/16/88	
I-1.24	05/16/88	
CHAPTER 2		
I-2.1	02/06/89	
I-2.2	02/06/89	
I-2.3	02/06/89	
I-2.4	02/06/89	
I-2.5	02/06/89	
I-2.6	02/06/89	
I-2.7	02/06/89	
I-2.8	02/06/89	
I-2.9	02/06/89	
I-2.10	02/06/89	
I-2.11	02/06/89	
I-2.12	02/06/89	
I-2.13	09/07/93	
I-2.14	02/06/89	
I-2.15	02/06/89	
I-2.16	09/07/93	
I-2.17	09/07/93	
I-2.18	02/06/89	
I-2.19	02/06/89	
I-2.20	02/06/89	
I-2.21	02/06/89	
I-2.22	02/06/89	
I-2.23	02/04/94	*
I-2.24	02/04/94	*
I-2.25	02/04/94	*
I-2.26	02/06/89	
CHAPTER 3		
I-3.1	10/23/87	
I-3.2	10/23/87	
I-3.3	10/23/87	
I-3.4	10/23/87	
I-3.5	02/04/94	*
I-3.6	10/23/87	
I-3.7	03/18/93	
I-3.8	10/23/87	
I-3.9	10/23/87	
I-3.10	10/23/87	
I-3.11	10/23/87	
I-3.12	10/23/87	
I-3.13	10/23/87	
I-3.14	10/23/87	
I-3.15	10/23/87	
I-3.16	10/23/87	
I-3.17	02/04/94	*
I-3.18	05/06/92	
I-3.19	02/04/94	*
I-3.20	02/04/94	*
I-3.21	02/04/94	*
I-3.22	05/06/92	
I-3.23	10/34/87	
I-3.24	10/23/87	
I-3.25	10/23/87	
I-3.26	02/04/94	*
I-3.27	05/06/92	
I-3.28	05/06/92	

REVISIONS BY PAGE

Page	Application Date		Page	Application Date		Page	Application Date
CHAPTER 4			CHAPTER 5			CHAPTER 6	
I-4.1	10/23/87		I-5.1	10/23/87		I-6.1	10/13/92
I-4.2	10/23/87		I-5.2	10/23/87		I-6.2	10/13/92
I-4.3	10/23/87		I-5.3	10/23/87		I-6.3	10/10/91
I-4.4	10/23/87		I-5.4	10/23/87		I-6.4	10/10/91
I-4.5	10/23/87		I-5.5	02/04/94	*	I-6.5	10/10/91
I-4.6	10/23/87		I-5.6	02/04/94	*	I-6.6	10/10/91
I-4.7	10/23/87		I-5.7	10/23/87		I-6.7	10/10/91
I-4.8	10/23/87		I-5.8	02/04/94	*	I-6.8	10/10/91
I-4.9	10/23/87		I-5.9	02/04/94	*	I-6.9	10/10/91
I-4.10	10/23/87		I-5.10	02/04/94	*		
I-4.11	10/23/87		I-5.11	10/23/87		CHAPTER 7	
I-4.12	02/14/92		I-5.12	02/04/94	*		
I-4.13	02/14/92		I-5.13	10/23/87		I-7.1	10/23/87
I-4.14	02/14/92		I-5.14	02/04/94	*		
I-4.15	02/14/92		I-5.15	10/23/87			
I-4.16	02/14/92		I-5.16	02/04/94	*		
I-4.17	02/14/92		I-5.17	10/23/87		CHAPTER 8	
I-4.18	02/14/92		I-5.18	10/23/87			
I-4.19	02/14/92		I-5.19	02/04/94	*	I-8.1	05/03/93
I-4.20	02/14/92		I-5.20	10/23/87			
I-4.21	02/14/92		I-5.21	02/04/94	*		
I-4.22	02/14/92		I-5.22	02/04/94	*		
I-4.23	02/14/92		I-5.23	10/23/87			
I-4.24	02/14/92		I-5.24	10/23/87			
I-4.25	02/14/92		I-5.25	02/04/94	*		
			I-5.26	02/04/94	*		
			I-5.27	10/23/87			
			I-5.28	10/23/87			
			I-5.29	10/23/87			
			I-5.30	10/23/87			
			I-5.31	10/23/87			

ATTACHMENT 3

REVISED PAGE CHANGES TO CONDITIONS
OF PART I OF OUR CURRENT LICENSE APPLICATION

CHAPTER 1

STANDARD CONDITIONS AND SPECIAL AUTHORIZATIONS

1.1 CORPORATE & FINANCIAL INFORMATION

This licensing information document is filed by the Nuclear Energy Production (NEP) facility (identified in this document as GE-Wilmington) of the General Electric Company, a New York corporation with the principal place of business at Schenectady, New York. *

1.2 LOCATION & GENERAL DESCRIPTION OF WILMINGTON PLANT

GE Nuclear Energy Production operates a nuclear fuel fabrication plant in Wilmington, North Carolina. At this site, GE occupies buildings for administrative, laboratory and manufacturing activities. A site plan is included as Figure 1.1. Fuel manufacturing activities are conducted within the fuel manufacturing area. *

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

1.7.5.2 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.

1.7.5.3 Treatment or disposal of combustible waste and scrap material by incineration pursuant to 10 CFR 20.2002 and 10 CFR 20.2004. *

1.7.6 Offsite Activities

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

1.8 EXEMPTIONS & SPECIAL AUTHORIZATIONS

1.8.1 Requirements for Prior Authorization of Activities by License Amendment

Prior authorization by license amendment shall be required for the following activities:

1.8.1.1 Major changes or additions to existing processes which may involve a significant increase in potential or actual environmental impact resulting from utilizing such changes or additions.

1.8.3.2 Nitrate-Bearing Liquids

Authorization, pursuant to 10 CFR 20.2002, to dispose of * 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 nominal enrichment does not exceed 6 weight percent U^{235}, by transport to an offsite liquid treatment system located at Federal Paper Board Corporation, Riegelwood, North Carolina, in which decomposition of the nitrates will occur and from which the denitrified liquids will be discharged in the effluent from the system.

The environmental monitoring program as described in Section 5.1.4.2 is used to control these activities.

1.8.4 Use of Materials at Off-Site Locations

1.8.4.1 Authorization to use up to 15 grams of U^{235} at other sites within the limits of the United States and at temporary job sites of the licensee anywhere in the United States where the Nuclear Regulatory Commission maintains jurisdiction for regulating the use of licensed material.

The manager of the radiation safety function shall establish the safety criteria for material being used at offsite locations. It is also his responsibility to designate the individual who will be responsible to carry out these criteria.

1.8.8 Incinerator Operation

Authorization, pursuant to 10 CFR 20.2002 and 10 CFR * 20.2004, to treat or dispose of waste and scrap material * containing special nuclear material by incineration.

1.8.9 Posting

For those areas within the Controlled Access Area in which radioactive materials are processed, used, or stored, where it is deemed impractical to label individual containers pursuant to 10 CFR 20.1904, a sign * stating "Every container in this area may contain radioactive material" shall be posted.

1.8.10 Uranium Recycle Enrichment Control

Maximum enrichment in the Uranium Recycle (UPMP) operation shall not exceed the minimum U^{235} enrichment approved by the nuclear safety function for any Uranium Recycle process.

1.8.11 Sanitary Sl[illegible]ge Accumulation

Authorization to accumulate treated sanitary sludge containing trace amounts of uranium, in the sanitary sludge land application area pending final disposal.

2.9 INVESTIGATION & REPORTING OF UNUSUAL OCCURRENCES

2.9.1 Investigation of Unusual Incidents *

Each reported unusual incident is evaluated to determine * the level of investigation required. These evaluations * and investigations are conducted in accordance with * approved procedures. The depth of the investigation * depends upon the severity of the incident in terms of * the levels of uranium released and/or the degree of * potential for exposure of workers or the public as * determined by the regulatory compliance function. *

2.9.2 Incident Reporting *

All unusual events which potentially threaten or lessen * the effectiveness of health, safety or environmental * protection are identified by the Area Manager and * reported to the regulatory compliance function. * Internal procedures provide guidelines for timely * communication and required notification by the * regulatory compliance function to regulatory agencies. * General guidelines for classification of emergencies are * shown in the GE Radiological Contingency and Emergency * Plan (RCEP). *

2.10 RECORDS

Records appropriate to criticality and radiation safety activities, occupational exposure of personnel to radiation, releases of radioactive materials to the environment, and other pertinent activities, are maintained in such a manner as to demonstrate compliance with license conditions and regulations.

Records of criticality safety analyses are maintained in sufficient detail and form to permit independent review and audit of the method of calculation and results. Such records are retained during the conduct of the activity and for six months following cessation of such activities to which they apply. (Two years minimum.)

Records associated with personnel radiation exposures are generated and retained in such a manner as to comply with the relevant requirements of 10 CFR 20. The following additional radiation protection records will be maintained for at least two years:

- Records of safety review committee meetings,
- Survey of equipment for release to unrestricted areas,
- Instrument calibration,
- Safety audits,
- Training and retraining,
- Radiation work permits,
- Surface contamination surveys,
- Concentrations of airborne radioactive material in the facility,
- Radiological safety analyses.

All records associated with the environmental protection activities described in Chapter 5 are generated and retained in such a manner as to comply with the relevant requirements of 10 CFR 20 and this license.

Each change room includes a "hot" side and a "cold" side, with a step-off area provided between the hot and cold sides.

The personal clothing and other worker belongings are stored on the cold side in the change rooms. Clean protective clothing (described in Section 3.2.4.4) is made available on the cold side to personnel entering a controlled area. Used protective clothing is stored on the hot side and collected there for processing through the laundry facility. Disposable protective clothing is used, where applicable.

Entry points to controlled areas are posted in accordance with 10 CFR 20.1902. Instructions * controlling entry and exit from controlled areas are posted at the entry points. Special instructions regarding reporting time in the controlled areas, personnel dosimetry badges, protective clothing, personnel surveys and emergency evacuation, etc., may also be posted as necessary.

Personnel survey meters are provided in the step-off area of each change room for use by personnel leaving the controlled areas. Posted instructions address the use of the survey meters and appropriate decontamination methods. Notification instructions regarding contamination detected during the exit survey are also included. Personnel are instructed to notify the radiation protection function before performing decontamination activities if they detect any contamination on their face, or if the prescribed

these special operations are burning, welding, and cutting operations which may result in increased airborne concentrations.

3.2.4.3 Internal Exposure Measurements

3.2.4.3.1 Airborne Exposure Assignment & Control

Individual airborne exposure assignments are made based on airborne concentrations in the areas in which the individual worked and the time the individual spent in each area. Control actions are provided to prevent an individual from exceeding the occupational exposure limits specified in 10 CFR 20. Control actions include restricting the individual from working in an area containing airborne radioactivity, and actions are taken as necessary to assure against recurrence. *

3.2.4.3.2 Bioassay Program

Urine sampling action levels are established based on the appropriate biokinetic models for individuals assigned to work in areas where highly soluble and soluble uranium compounds are processed. These areas include portions of the chemical conversion, uranium recovery unit (URU), uranium recovery from lagoon sludges (URLS) and Chemet lab areas. The bioassay program is conducted to reflect the applicable guidelines outlined in 10 CFR 20, "Standards for Protection Against Radiation", ICRP Publication No. 30, "Limits for Intakes of Radionuclides by Workers", July,

For non-routine operations, perturbations, or an incident where it is suspected that soluble materials may have been inhaled or ingested, the radiation safety or radiation protection functions may request additional bioassay sampling.

3.2.4.3.3 In Vivo Lung Counting

In vivo lung counting is provided for the timely detection and assessment of individual intakes of radioactivity and as a method to verify the adequacy of the air sample program.

Routine in vivo lung counting frequencies are established for individuals who normally work in areas where non-transportable uranium compounds are processed. Lung counting frequencies are based upon individual airborne exposure assignments and previous counting results. The minimum count frequency is annual for individuals with an assigned intake greater than 10% of the Annual Limit on Intake (ALI). *

*

Appropriate actions are taken based upon in vivo lung counting results to ensure the Annual Limit on Intake (ALI) will not be exceeded. If an individual's lung burden indicates an intake greater than 90% of an ALI, the individual is temporarily restricted from working in areas containing airborne uranium. *

3.2.4.4 Protective Clothing

Protective clothing is provided to all persons who are required to enter controlled areas where personnel contamination potential exists as determined by the radiation safety function. The amount and type of protective clothing required for a specific area or operation is determined by operational experience and the contamination potential. Available clothing includes caps, hoods, laboratory coats, coveralls safety glasses, boots, overshoes, shoe covers, rubber and cloth gloves, safety shoes, and respiratory protection equipment.

The minimum clothing requirement for airborne controlled area entry is as follows: *

Area Workers	Managers, Supervisors, Inspectors and Visitors Only Observing Operations
Shoe covers or work area shoes	Shoe covers
Coveralls	Laboratory coats
Head covers	Head covers
Rubber gloves	Rubber gloves (as appropriate)
Safety glasses	Safety glasses

The protective clothing is removed upon exit in the controlled area change rooms.

In a few areas such as the Chemet Laboratory, personnel contamination is controlled by exit monitoring. The minimum clothing requirement for entry into these areas is a laboratory coat and safety glasses.

3.2.4.5 Respiratory Protection Program

The respiratory protection program shall be conducted in accordance with the applicable portions of 10 CFR 20.

3.2.4.5.1 Respiratory Protection Equipment

Respiratory protection equipment specifically approved by the National Institute for Occupational Safety and Health (NIOSH) is utilized. Two types of respirators are commonly available - half masks and full face masks.

Half mask respirators equipped with particulate filters are utilized as a precautionary measure and to further reduce exposures during routine operations which may generate uranium dusts. A protection factor of 10 is taken for this type of respirator usage. *

Full face mask respirators, equipped with an applicable canister, are utilized as a precautionary measure and to further reduce exposures for routine and emergency actions which may require additional protection capabilities when there exists a *

Emergency evacuation drills demonstrate that the evacuation plan is effective.

3.2.4.9 Personnel Monitoring - External Radiation

Whole body or partial whole body exposure from external sources of radiation are determined by individually assigned dosimeters. These personnel monitors are scheduled for reading at least quarterly or sooner if there is an indication of an exposure in excess of established action guides. Action guides for external exposures received on site are as follows:

		Action	
Wholebody	≥ 1 rem/quarter	Restrict for remainder of quarter	
Skin	≥ 12.5 rems/quarter	Restrict for remainder of quarter	*
Extremities	≥12.5 rems/quarter	Restrict for remainder of quarter	*

In event of accidents or evaluation of unusual exposure conditions, whole body or partial whole body exposures may be calculated by the radiation protection function on the basis of data obtained by investigation.

Extremity exposures may be determined and assigned on the basis of engineering evaluations when TLD measurements are not practical.

5.1.1.2 Action Level for Airborne Effluents

Data from the air sampling measurements are analyzed for comparison with the concentrations established as an internal action guide. The occurrence of an individual stack value exceeding the internal action guide initiates review action.

Personnel responsible for operating the exhaust-system are notified if any weekly stack result exceeds 3 x 10^{-12} µCi/ml. In the event one of these values exceeds 1 x 10^{-11} µCi/ml nuclear safety and environmental protection personnel are also notified. An investigation may be undertaken, depending on the severity of the event, in accordance with administrative routines described in Section 2.9. *

5.1.1.3 Reporting Method

Uranium activity releases in the airborne effluents are summarized in a weekly stack program report. This report includes pertinent information for each stack and for the total site. Year-to-date summaries and data for the current week are included in the report.

In the event an action guide is exceeded, additional notification as described in Section 5.1.1.2 is initiated.

The activity release data are also accumulated and reported on a semi-annual basis to the Nuclear Regulatory Commission.

5.1.1.4 Lower Limits of Detection, Calibration and Standardization of Measurements

An alpha sensitive detector is used to determine the activity on the stack sample filters. The system is calibrated for gross alpha using a standard traceable to the National Bureau of Standards. This system provides a lower limit of detection of activity at the site boundary within the requirements of Appendix B of 10 CFR 20. Background and efficiency checks are performed each operating shift.

The minimum detection limit for airborne effluent concentrations is 1×10^{-12} µCi/ml at the stack which equates to approximately 1×10^{-14} µCi/ml at the site boundary using a dilution factor of 100. This lower limit of detection is 20% of the value 5×10^{-14} µCi/ml, from Table II of Appendix B to 10 CFR 20. *

5.1.2 Liquid Effluents

The liquid waste streams containing uranium from the fuel manufacturing operations are segregated as nitrate waste, fluoride waste and rad waste. This separation

weir box above a 90-degree vee notch weir. The volume flow is recorded, and an integrated value is generated by the recording instrument.

The composite samples are collected daily (except weekends and holidays) and chemically analyzed for uranium concentration. A weekly composite of the daily samples is analyzed for gross alpha and gross beta activity.

5.1.2.2 Discharge Volume & Destination

The daily discharge of treated process waste water to the Northeast Cape Fear River is approximately 500,000 gallons.

5.1.2.3 Action Levels for Liquid Effluents

The action levels for the discharge of treated process wastes from the final process lagoons are specified in chemical uranium concentration (i.e., two-tenths (.2) parts per million (ppm) daily average for the month and 5 ppm for any one day) and in activity concentration >3 x 10^{-5} µCi/ml on a weekly composite sample. For reference, 0.15 ppm at a typical enrichment would equate to approximately 3 x 10^{-7} µCi/ml, the allowable annual average for release to an unrestricted area per 10 CFR 20. The actual annual releases, prior to dilution, have averaged 0.04 ppm over the last 6 years (1988-1993). *

5.1.2.4 Reporting Method

Uranium chemical analyses are available daily (except weekends and holidays) via the generation of a laboratory chemical analysis report on the discharge sample data. These data are summarized on a monthly basis. Daily and monthly values are reviewed against the internal action guides.

The NRC Regional Administrator is notified within 10 days of any violation of the facility's NPDES permit.

The activity release data are reported on a semiannual basis to the Nuclear Regulatory Commission.

5.1.2.5 Analysis, Lower Limits of Detection, Calibration and Standardization of Measurements

5.1.2.5.1 Chemical Analysis of Uranium

The lower limit of detection for chemical uranium analysis on environmental samples is approximately 0.02 parts per million.

The test method is calibrated using standard solutions made from National Institute of Standards and Technology (NIST) 950b U_3O_8 or equivalent. The method is verified with each group of samples run by use of a verification standard. *

5.1.2.5.2 Activity Analysis for Liquid Environmental Samples

Gross alpha and gross beta are currently determined by standardized laboratory counting techniques. Lower limits of detection (for samples with low absorption) is typically 3×10^{-8} µCi/ml for gross alpha and 5×10^{-8} µCi/ml for gross beta. The alpha calibration is accomplished using a standard calibrated by the National Institute of Standards and Technology (NIST). *

5.1.3 Solid Wastes

Solid wastes generated in the fuel manufacturing operation are packaged in boxes. These boxes are assigned to controlled access queuing areas where they await processing through a decontamination facility. The decontamination operation provides a number of functions including recovery of uranium for recycle, separation of wastes into combustible and noncombustible categories, as well as decontamination of material for reuse where feasible.

After separation in the decontamination facility, the combustible wastes are designated for burning in an incinerator designed for processing uranium contaminated wastes. Wastes which cannot be incinerated or reused are shipped to a licensed recipient for disposal.

5.1.4 Contamination Free Liquid

Two liquid streams (hydrofluoric acid and nitrate solutions) generated as a result of the conversion operation are transferred to unlicensed recipients and are not regarded as radioactive waste because of their low activity level, pursuant to Section 1.8.3. *

*

5.1.4.1 Hydrofluoric Acid

In the dry process for converting UF_6 to UO_2, a product stream of hydrogen fluoride dissolved in water is generated. This acid contains less than 3 parts per million of uranium by weight of the liquid.

This product is transferred to persons whose uses of the material are such that incorporation of uranium from the liquid is not likely to occur in any food, beverage, cosmetic, drug or other commodity designed for ingestion or inhalation by, or application to, a human being such that the uranium concentration in such items would exceed that which naturally exists.

The acid is collected in a bulk storage tank to await shipment. Material containing 3 or more parts per million uranium is not released for shipment. The total

One Truck sample	> 25 ppm U - investigate cause > 50 ppm U - stop shipment
Composite of trucks	
- Daily	> 3 ppm U
- 30 Day average	> 3 ppm U

The lower limit of detection (LLD) utilized for uranium concentration in the one truck sample taken before a truck is released, is 10 ppm. The LLD for uranium concentration in the daily composite sample is 0.02 ppm.

The lower limit of detection for the gross alpha analysis is 5 pCi/l (5×10^{-9} µCi/ml).

5.1.5 Effluent Control Responsibilities

Effluent Stream	Responsible Function	
	Effluent Control	Monitoring
Airborne & Solid Effluents	Applicable Area Manager	Regulatory Compliance
Liquid Effluents		
o Final Process Lagoons	Fuel Production	Regulatory Compliance *
o Nitrate Wastes	Fuel Production	Regulatory Compliance
o Hydrofluoric Acid	Fuel Production	Regulatory Compliance

5.2 ENVIRONMENTAL MONITORING PROGRAM

The environmental monitoring program incorporates the point of release measurements described in Section 5.1

TABLE 5.1
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM

Sample Point	Figure Ref.	Sample Type	Collection Frequency	Parameter	Action Level	Detection Limit	
AIR MONITORING							
Airborne discharges - stacks	5.1, 5.2	Composite	Daily	Gross alpha, gross beta	1×10^{-11} µCi/ml, gross α	1×10^{-12} µCi/ml gross α	*
			Weekly	Gross alpha, gross beta	$>3 \times 10^{-12}$ µCi/ml, gross α	1×10^{-12} µCi/cc gross α	
Ambient air stations	5.3	Composite	Weekly	Gross alpha (Isotopics on monthly basis)	1×10^{-14} µCi/ml	0.5×10^{-15} µCi/ml gross α	*
SURFACE WATER							
Discharge from final process lagoons	--	Composite	Daily	U content	>5 ppm one day, >.2 ppm daily average for month	0.02 parts per million (ppm)	*
		Composite	Weekly	Gross Alpha Gross Beta	$>3 \times 10^{-5}$ µCi/ml gross α	3×10^{-8} µCi/ml gross α, 5×10^{-8} µCi/ml gross β	
		Composite	Semi-annually	Technicium 99	None		
Northeast Cape Fear River - Upstream & Downstream	5.5	Grab	Monthly	U content	2 successive values >0.06 ppm	0.02 ppm	* *
Hydrofluoric acid tank or truck	---	Grab	Before shipment	U content	3 ppm	0.02 ppm	

In the event that the calculated dose to any member of the public in any consecutive 12-month period is about to exceed the limits specified in 40 CFR 190.10, immediate steps shall be taken to reduce emissions so as to comply with 40 CFR 190.10. As provided in 40 CFR 190.11, a petition may be submitted to the NRC for a variance from the requirements of 40 CFR 190.10. If a petition for a variance is anticipated, the request will be submitted at least 90 days prior to exceeding the limits specified in 40 CFR 190.10.

These reports or petitions will be submitted to the Director, Office of Nuclear Material Safety & Safeguards, with a copy to the Region II Administrator.

5.2.1.2 Sampling & Measurement

Stack emission levels of radioactivity are controlled and monitored on a rigorous continuing basis as indicated in 5.1.1.2. The control is at the source (i.e., stacks) and the ambient air stations represent a compliance assurance backup and verification for the monitoring program. *

Air sampling stations are installed and operated in the prevailing wind directions, i.e., SE, S, SW and NE, as shown in Figure 5.3. Air samples are collected continuously and, in addition to analysis for gross alpha, the samples at each location are composited and analyzed on a monthly basis for uranium isotopes with an analytical sensitivity of at least 10^{-16} µCi/ml.

Should an environmental air sampling station result exceed the action level of 1×10^{-14} µCi/ml, the result will be reanalyzed for verification. If the result is determined to be valid, an evaluation of year-to-date stack releases of uranium will be performed to demonstrate conformance and compliance with 40CFR190. *

5.2.2 Soil & Vegetation Sampling

5.2.2.1 Soil Sampling

Program Objective: Determine if there is ascertainable deposition from stack discharges

Soil samples are collected and analyzed for uranium concentration to monitor for long term buildup of uranium concentrations attributable to plant operations. The locations of these stations are concentrated along the predominant wind directions. Figure 5.4 details the sample locations.

The samples are collected on a quarterly basis and analyzed for uranium concentration. The results are recorded and evaluated against an internal action guide of 0.7 parts per million.

5.2.2.2 Drainage Ditch Soil Sampling

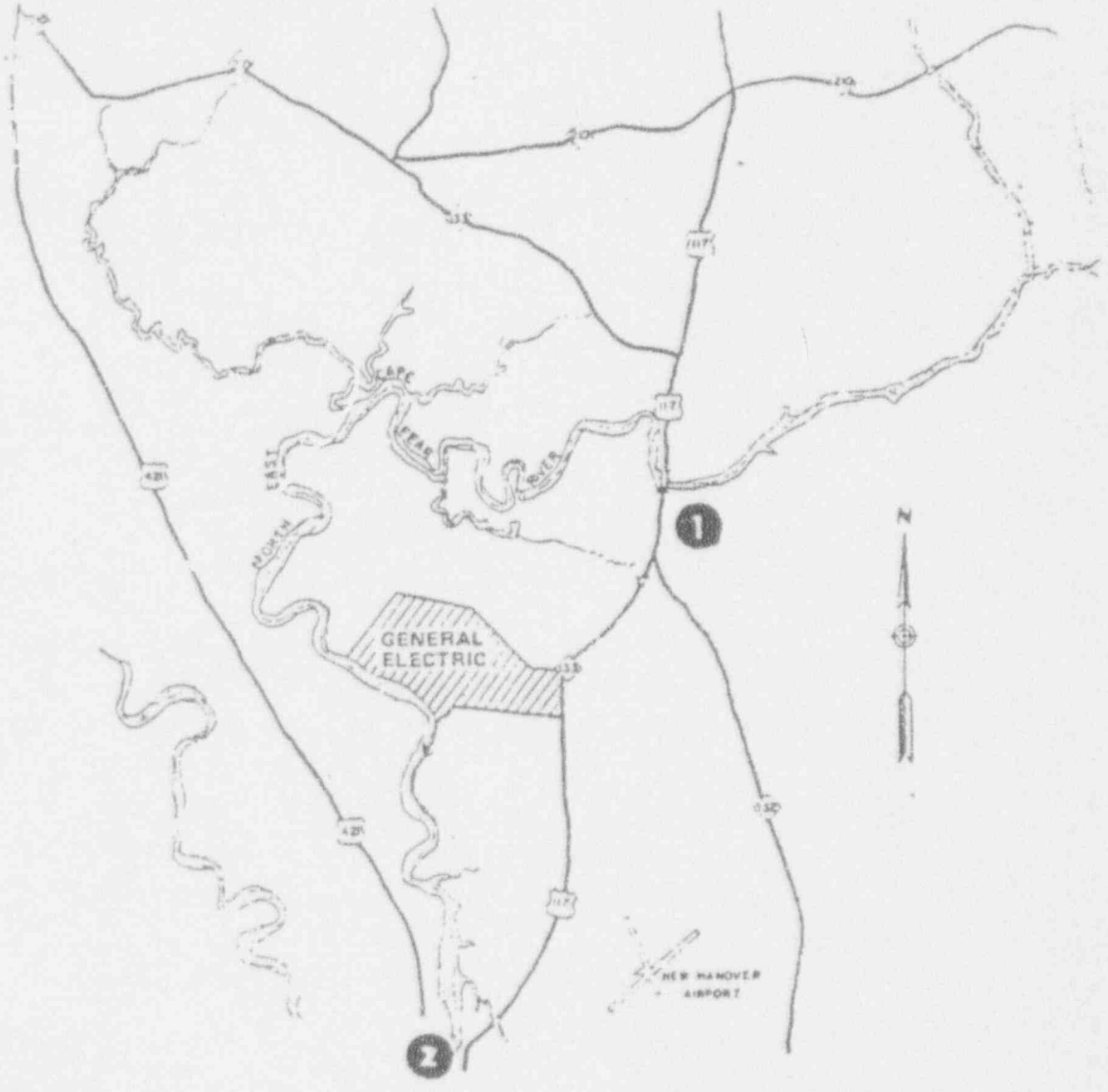
Program Objective: Obtain environmental monitoring information regarding the uranium concentration of the soil in the drainage ditch

Process liquids which meet the NPDES discharge limits are released from the final process lagoons to the N. E. * Cape Fear River. Soil grab samples are collected from three locations within the ditches twice per year. Samples are withdrawn in accordance with information in Figure 5.3 and Table 5.1. Samples are generally taken during the periods of November through December and January through April of each year.

The samples are analyzed for uranium concentration and the information is retained as a part of the environmental monitoring program records.

FIGURE 5.5

TYPICAL UPSTREAM/DOWNSTREAM SAMPLING LOCATIONS



Location	Sample Type	Frequency	
#1 - Upstream Public Boat Dock	Grab	Monthly	*
#2 - Downstream Seaboard Coastline Railroad Bridge	Grab	Monthly	*

The data from the monitoring program are evaluated against an internal action level. The uranium concentrations are typically less than 0.02 parts per million. The action level utilized in this program is two successive values greater than 0.06 parts per million. *

The upstream and downstream results are reported monthly to the State of North Carolina.

5.2.3.2 Treated Nitrate Waste Shipments Sampling

Program Objective: Confirm source point data

One segment of the monitoring program is designed to address shipments of nitrate solutions to Federal Paper Board Company Inc., Riegelwood, N. C., for use in their waste treatment system.

Samples of water and sediment are collected from selected locations in the Federal Paper Board waste treatment system (see Figure 5.6 for locations) as well as locations in the Cape Fear River that are upstream and downstream from the outfall of the Federal Paper waste treatment system. These samples are analyzed for gross alpha and gross beta activity and uranium as detailed in Table 5.1. These results are compared against the action guides also listed in Table 5.1.