Dr. Ralph J. Reda
Manager, Fuels and Facility Licensing
General Electric Company
P.O. Box 780, MC J26
Wilmington, NC 28402

MAY 06 1997

SUBJECT: LICENSE RENEWAL - REQUEST FOR ADDITIONAL INFORMATION
(TAC NO. L10079)

Dear Dr. Reda:

This refers to your application dated April 5, 1996, requesting renewal of Material License SNM-1097, our requests for additional information dated July 18, December 17, 1996, and March 5, 1997, and your replies dated December 16, 1996, March 27, and February 5, 1997. Our review of your responses has identified additional information and clarifications that are needed before further action can be taken on your renewal.

The additional information should be provided in the form of responses to the individual comments, as appropriate, and as revised pages to the application, by May 27, 1997. As we have agreed, we look forward to meeting with you on May 20 to discuss GE's intended response to this Request for Additional Information. Satisfactory resolution of this request is essential to timely renewal of your license and authorization of the new Dry Conversion Process. Please reference the above TAC No. in future correspondence related to the renewal request.

If you have any questions regarding this matter, please contact me at (301) 415-8139.

Sincerely,

/S/

Michael Lamastra
Licensing Section 2
Licensing Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

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Docket 70-1113
License SNM-1097

Enclosures: 1. Additional Information
2. ISA Summary

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OFC	FCLB	FCLB	FCLB
NAME	MLamastra	PShea	GPangburn
DATE	5/6 /97	5/6 /97	5/6 /97

Faxed + emailed to GE (Vaughn/Reda) on 5/6/97

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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Docket 70-1113
License SNM-1097

Enclosures: 1. Additional Information
2. ISA Summary

MAY 0 6 1997

Request for Additional Information
General Electric - Wilmington
Renewal Application

Please provide the following information:

1. In an NRC letter dated December 17, 1996, the Fuel Cycle Licensing Branch (FCLB) commented that the qualifications of most positions have decreased compared to the existing license. GE was requested to demonstrate or explain why such a decrease in the overall experience of the staff would not adversely affect the safety of plant operations. GE's response dated February 5, 1997, stated in part that GE management was responsible and accountable for the safe operation of the plant, GE had in place a management system for identifying job function and selecting qualified individuals, and that the minimum requirements are generally consistent with other like facilities. Accordingly, GE made no changes in Section 2.2.1 of the application.

   FCLB agrees that GE is ultimately responsible for the safe operation of the plant. However, 10 CFR 70.23, "Requirements for the Approval of Applications" states, in part, that an application for a license will be approved, if the Commission determines that the applicant is qualified by reason of training and experience. GE's proposed minimum qualification is basically a B.S. degree and two years experience or a high school diploma with 5 years experience for both staff and supervisor positions. FCLB has also reviewed the current minimum levels of training and experience at other fuel fabrication facilities and determined that GE's minimum requirements would be the least and significantly less than those of the average facility. Accordingly, we see no basis for the reduction in qualifications for staff and supervisory personal and request that for each safety-significant position (radiation protection, criticality safety, chemical safety, fire protection, environmental safety etc.) that the minimum qualifications be upgraded to at least the requirements of the current license or a position by position justification.

2. The RAI dated March 5, 1997, questioned the definition of "practices" as used in Chapter 3.0 of the license application. As described in the license application, these practices should be maintained, controlled and/or approved in the same manner as procedures.

ENCLOSURE 1

GE provided an acceptable response. However, in order to convey the information provided in the response of March 27, 1997, GE should add a statement to the license application that approved policies, practices and procedures will be followed. An acceptable statement would include wording similar to the following:

> Licensed material processing or activities will be conducted in accordance with properly issued and approved practices and procedures (P&P), plant practices, or operating procedures.

3. Section 4 of your application, should be modified to include a schedule for completing the ISA for the balance of plant and a schedule for submitting a revised ISA summary for the DCP. The schedule should include milestones for a final completion date and intermediate dates for those systems most important for safety. In addition, a clear commitment to complete the proposed ISA summary for each system should be provided. Further, and most importantly, GE should commit to maintaining available and reliable systems equipment and controls that are most important to safety based on the ISA results. Enclosure 2 and Comment 4 identifies the types of information that a summary should include.

4. CRITICALITY CONTROLS AND THE ISA

In the renewal application, when committing to perform an Integrated Safety Analysis (ISA) and to provide a summary description of it, GE should provide a commitment to provide the following information in the summary:

For each accident scenario (identified in the ISA) that, without preventative controls or mitigation could result in a nuclear criticality, information should be provided identifying the criticality controls established to prevent that scenario and evaluating their adequacy. Specifically for each scenario state:

1. The controls formally established to prevent it;

2. The set of controls for the process, for the scenario identified, meet established acceptance criteria for adequacy (There may be a single generic statement, e.g., "Unless otherwise indicated all controls have been determined to meet acceptance criterion xx of Practices and Procedures document PP-yy, i.e., double contingency."); and

3. The measures, such as configuration control, maintenance, and training needed to assure the reliability of these controls.

The renewal should also contain a commitment to establish and maintain the controls identified in the ISA and to provide the measures to assure their reliability and conformance to the acceptance criteria. There should also be a commitment for maintaining the ISA current as changes to the processes are made.

5. VALIDATION OF CRITICALITY EVALUATIONS AT ENRICHMENTS EXCEEDING FIVE PERCENT

Benchmarks do not exist for the conduct of criticality evaluations of commitments in the range of 5-10 percent. Accordingly, for each specific process where uranium enriched to greater than five percent is to be used, provide a validation study including a criticality safety analysis and evaluation. This validation study should establish for the specific cases calculated, (1) the case and data used are valid, and (2) that the specific quantitative method for setting margins of K_{eff} to account for uncertainties and biases. This quantitative method for margins should address both normal and accident conditions. The current additional margins of K_{eff} less than .97 for normal and .95 for accident conditions, in the absence of additional experiments or information, are inadequate to account for the uncertainties in extrapolation much beyond 5 percent enrichment.

6. TABLE OF PLANT SYSTEMS AND PARAMETER CONTROLS

Table 6.0, page 6.9 does not appear to be complete. Accordingly, please provide information on missing areas and systems. Specifically, add to this table the Dry Conversion Process Integration Facility, including transfer corridors.

7. CRITICALITY CONTROLS FOR TRANSFER CORRIDOR ADJACENT TO LAUNDRY

Please provide information describing potential criticality scenarios identified for the Dry Conversion Process Integration Facility Transfer Corridor adjacent to the laundry. Have all scenarios that could introduce water unexpectedly into the corridor such as washing machine overflows, pipe breaks, drains plugged, etc., been identified, controls established, and the likelihood of causing a failure of moderation control evaluated to be acceptably low?

8. The RAI dated March 5, 1997, questioned whether use of chemicals followed the OSHA Process Safety Management Standard (29 CFR 1910.119) in Section 7.1 (page 7.1). NRC also stated that elements of the Chemical Safety Program for UF_6 and hydrofluoric acid should be included in the license application.

GE provided a general response, noting that the regulations are implemented through internal procedures as typified by GE's internal safety procedure 303 Safety Considerations in Design. However, elements of the Chemical Safety Program for UF_6 and hydrofluoric acid were not included or referenced in the license application.

Because UF_6 is licensed material and is used daily at the facility and hydrofluoric acid is an offgas produced by the processing of this licensed material, these chemicals should be specifically discussed in the Chemical Safety Program. Release of these materials could affect the availability and reliability of safety controls relied on for plant safety. An acceptable approach to resolve the staff's concerns would be

to include the following language in Chapter 7.0, Section 7.1:

> This chemical safety program is applicable to the chemicals associated with the authorized activities in Chapter 1 and include UF_6 and hydrofluoric acid as well as any other chemicals which may directly or indirectly affect the nuclear safety of these activities.

The management control elements of the chemical safety program of UF_6 and hydrofluoric acid should also be included in the license application. This means that management control elements of the GE-Wilmington Chemical Safety Program (as described in Section 7.2 of License Application) that apply to UF_6 and hydrofluoric acid should be included in the application. An accepatble commitment would be as follows:

> The Chemical Safety Program for UF_6 and hydrofluoric acid utilize the following elements: Integrated Safety Analysis and Conduct of Operations.

Exact placement in the license application is left to the discretion of the licensee but Chapter 7.0 - Chemical Safety appears to be the best chapter.

9. In Section 6.2.5.1, page 6.23 of the renewal application it is stated that "Structure and/or neutron absorbers that are not removable constitute a form of geometry control...". Since the use of the term "geometry control" for fixed absorbers has the potential for confusion, what measures will be taken to assure the proper assessment and maintenance of fixed neutron absorbers? Do plant procedures mandate compliance with the measures of ANSI/ANS 8.21 and with ANSI/ANS 8.1 section 4.2.3?

10. What is the technical basis for the safe batch rule of section 6.2.4 embodied in the equation:

    kgs UO_2 x 0.88 = kg X · f, where f = wt. % U in compound X and kgs UO_2 is the safe batch size for UO_2?

11. With respect to Table 6.1, "Safe Geometry Values", what is the significance of the missing values for cylinder diameters for Homogeneous Aqueous Solutions? What methods are to be used in this case, if not this table? In particular, what method was used to determine the diameter of UF_6 hydrolysis columns? For cases where the enrichment exceeds 5%, provide additional information showing how these values have been validated and that they incorporate sufficient margins to account for uncertainties. Are they validated by comparison experiments?

    For values in Table 6.1 at enrichments less than 5%, a comparison to the most recently peer reviewed guidance, Norman L. Pruvost and Hugh C. Paxton, LA-12808 Nuclear Safety Guide. Sept 1996 (formerly TID-7016),

shows several values that differ in the non-conservative direction. These are noted below. Please provide additional justification for these values or adopt those from LA-12808.

Differences between LA-12808 and Table 6.1:

	Enrich.	Table 6.1	LA-12808
Homogeneous UO2 H2O cylinder diam.	2%	16.70 in.	16.50 in.
Homogeneous UO2 H2O slabs	2%	8.90 in.	8.82 in.
"	3%	6.25 in.	6.10 in.
"	4%	5.10 in.	4.96 in.
"	5%	4.45 in.	4.37 in.
Homogeneous aqueous solutions, slabs	4%	6.00 in.	5.94 in.
Homogeneous UO2 & water, Kgs UO2	4%	25.7 Kg.	25.5 Kg.
"	5%	18.1 Kg.	16.0 Kg.
Heterogeneous UO2 pellets & water, Kgs UO2	3%	38.1 Kg.	36.1 Kg.
"	4%	24.7 Kg.	20.3 Kg.
"	5%	18.1 Kg.	13.9 Kg.

12. Concerning Section 6.4.1 page 6.36, is the location and spacing of criticality monitoring alarms such that the system meets the requirements of either 10 CFR 70.24 (a)(1) or (a)(2)? Specifically, is coverage of all areas by two detectors provided? Are there any areas of the facility that will not be covered by detectors meeting the requirements? Is SNM ever handled, used, or stored in these areas?

Outline for the ISA Summary for GE Balance of Plant

I. The areas of review for each system should be listed e.g., radiological safety, criticality safety, chemical safety, fire protection, and industrial safety, etc.

II. For each system, a description of how the ISA teams are formed, type of membership, minimum qualification of members, how areas of review were integrated, and management and QA oversight.

III. A list of specific written plant procedures, techniques, and computer based tools used by the ISA teams to perform the ISA for each system.

IV. A list of the segments that the system was broken into to perform the ISA and why.

V. A description of how the sequences of the work was performed by the ISA team e.g., identify the hazards, determine the consequences and likely frequency, identify the controls which prohibit or mitigate the consequences, establish a risk ranking (frequency x consequence) unmitigated and mitigated.

VI. A description of how the ISA team determined the consequences of the event or condition.

VII. Based on the ISA process, provide a list of the most important process segments and the controls relied upon to prevent and/or mitigate an incident. The incident description should include a list of the initiating event (internal or external), the unmitigated consequences of the resulting accident, and the necessary level of quality and reliability established for each control.

VIII. Summary matrix of accident sequences plotted by consequence versus probability (qualititative).