GE Nuclear Energy

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

June 16, 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) Submittal, RJ Reda to MF Weber, 6/11/97

Dear Mr. Weber:

GE's Nuclear Energy Production (NEP) facility in Wilmington, N.C., hereby transmits our response to requests from your office on June 11 and 12, for additional information in support of our license renewal application.

Attachment 1 is a description of the storage of sanitary sludge.

Attachment 2 is a description of the status of our scrap and waste material.

NF04

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
Attachments

cc: RJR-97-080
G. L. Troup, NRC-Atlanta
M. Fry, State of NC

ATTACHMENT 1

Historic Summary of Sanitary Sludge Storage

When the GE site first started commercial operations in the late 1960's, the sanitary waste was treated in a basin system using natural aerobic treatment. The basins used for this work are located immediately on the north side of the Final Process Basins (See Figure 1.3, page 1.4, Location 5, of the license application). In the early 1970's, the EPA rules changed and GE installed an extended aeration-activated sludge treatment system and changed the use of the original basin to perform the function of land application of the sanitary waste sludge. This continued until February 1995.

In 1987, the NRC alerted licensees that there had been a number of cases where licensees had found concentrations of uranium in sanitary waste treatment facilities and advised GE to check our operations and make a similar determination. GE made those checks and in fact, did find concentrations on the order of less than detectable up to several ppm U. While these levels were of no significant safety concern, the NRC advised that we should modify our license to recognize that condition through an authorization in the license. This was done in our submittal of 10/23/87 and approved by the NRC 11/12/87.

In February 1995, GE began collecting the sanitary waste sludge, drying it and shipping it to Pinewood, SC for disposal. At this point the land application stopped and the basin has been in essence in a temporarily idle state since.

GE is evaluating the efficiency of the operations of the current sanitary waste treatment plant and have been looking at options to improve its efficiency. In December 1996, a study was initiated. The current planning is to add a tertiary treatment step to the sanitary waste treatment system and the final details are being worked out. This will utilize the same basin area as was originally used for treatment and later land application. This operation will begin after the technical work is completed, the State authorizations are granted, and the new step is integrated into the waste treatment operation.

During the interim, GE believes that the special authorization for the storage of the sanitary waste sludge is a necessary and appropriate authorization for our license.

ATTACHMENT 2

Status of Scrap and Waste Material

On June 12, 1997, the NRC contacted GE via telephone in regard to information related to our scrap and waste management activity and its relationship to licensed operations. This was in the course of license renewal and was prompted by the fact that some facilities are shut out of burials in Barnwell, SC, and other waste disposal operations are limited. The NRC was interested in understanding inventory levels of these materials, generation rates, recovery/disposal plans and rates and an assessment of the safe performance associated with the outdoor storage of these materials.

For the purpose of this discussion, these materials are broken down into the following groups:

1. Recoverable Scrap - These materials are generally the higher uranium concentration scraps which are easily recovered. The principle method of recovery is in the Uranium Recycle Unit (Solvent Extraction Recovery).
2. Ash - Ash originates from the incineration of combustible waste materials, oils and solvent. Volume reduction is typically a factor of 100.
3. Residues - These are materials that contain very low concentrations of uranium and in most cases recovery has been attempted, and it has been determined that further recovery with current techniques is not feasible.
4. Combustibles - These materials represent the accumulation of combustible materials, oils and solvents associated with the uranium processing. These are burned in our incinerator.
5. Non-Combustibles - These materials represent rubbish, metal, worn equipment, etc. which are not candidates for recovery or incineration and must be decontaminated and buried.

These basic categories are now discussed in relation to the questions raised via telephone.

Recoverable Scrap

The current inventory of these materials is approximately 90 MTU resident in approximately 9,400 three and five-gallon cans. Recovery of these materials through the Uranium Recycle Unit (URU) on-site. The recovery capacity of URU is between 125 and 150 MTU/year (the rate varies based on the characteristics of the feed materials). Our current generation rate for these materials is approximately 65 MTU/year. Based on these values, it will take approximately one year to recover the current inventory. However, when the Dry Conversion Process (DCP) comes on line and the ADU lines are shut down, the generation rate will decrease to approximately ~20 MTU/year.

The inventory of this material has trended up slightly in the past year because of some downtime to make modifications to URU for efficiency and by the influx of approximately 18 MTU of de-fabricated, un-irradiated Wurgassen fuel that is in the process of recovery for reintroduction to the fuel cycle.

Clearly, the inventory trend for these materials will be downward and should be at very low levels within a year after DCP achieves full production rate. In addition, GE is looking at other options for these materials to augment/supplement/replace the ongoing need to manage these materials and keep inventories low. Reducing the inventory of these materials is consistent with business financial drivers focused on inventory turns and inventory level management and measurements.

Ash

Ash materials are the product of a very significant volume reduction of combustible waste. Much of the ash material represents a challenge in the recovery of the uranium. GE had not been able to effectively recover uranium from the ash. Recently we have reached conclusions that the current recovery in our URU operations are not effective and that other options must be utilized.

The current inventory is approximately 16,500 kg U contained in approximately 5,100 five-gallon cans. The generation rate varies between 5-10 cans/week. We are projecting at least a 50% reduction in the generation rate of these cans when the DCP comes on line and the ADU process goes down.

At the present time, GE has ceased processing these materials because the impact it had on URU did not maximize the amount of material returned to the manufacturing process in the shortest time. We are currently negotiating with other vendors on contracts which would remove the ash from our inventory and have it recovered at other locations.

Residues

Currently, the inventory is approximately 10,500 five-gallon cans (7,000 cubic feet) containing approximately 11 MTU. These materials are not economically recoverable.

In 1996, 660 (450 cubic feet) cans of this material was buried at Envirocare. GE has a contract with them to bury an additional 10,000 cubic feet in 1997. Plans and contract conditions for 1998 are not complete; however, GE is working to remove this material from inventory.

One of the largest impedences to completing this work is a new interpretation of the shipping rules which will in essence limit conveyances to only 400 grams U-235. In many instances, the transport would be limited to only one package per truck. This in turn significantly increases the number of shipments of these materials on public highways and drives the costs of transport to the point that is not consistent with quick and efficient disposal. GE is working to help with solutions which are safe and cost supportive in this area, too. Assuming that the packaging and transportation requirements can be adjusted, this work should be able to be completed in approximately three to five years.

Combustibles

The current inventory is approximately 370 boxes which is down from over 700 in 1996. Boxes must be kept in inventory to age for about 9 weeks before accurate measurements can be made to assure safe material control during processing (criticality safety - mass control). The current generation rate is approximately 10 boxes/week, but this rate is somewhat variable based on the nature of the work going on at a given time. The burn rate is approximately 20 boxes per week. Therefore based on the inventory level, generation rate and burn rate, GE is currently managing these materials within normal and reasonable bounds. This situation should improve further when DCP comes on line and ADU goes down because the DCP process should generate less combustible waste based on the simplicity of the operation.

In addition, we have some 65 fifty-five gallon drums of oil and solvent maintained on outdoor storage pads which is also staged for incineration. The feed rate for these materials is fairly low; however, the inventory on pad storage is also maintained very low.

Non-Combustibles

The inventory of these materials was approximately 300 boxes at the end of 1996. Currently, we have in inventory a little over 400 boxes containing approximately 22,500 cubic feet of material. The current generation rate for these materials is around 16,000 cubic feet per year; however, this rate is highly variable and dependent on process modifications and facility upgrade work at the facility. For example, the current rate of generation is high because of work we were doing in the FMO-FMOX facilities to improve waste handling and to integrate the DCP into current operations. While these both currently tend to drive generation rates up, their longer term impact will be to significantly drive generation of these materials down.

In 1996, we buried 219 boxes containing approximately 11,000 cubic feet of these materials at Envirocare. Funding and contract provisions for 1997 and beyond have not been established at this time. We have brought on-line the new state-of-the-art Decontamination and Volume Reduction Facility (DVRF) that includes equipment and process to clean to free release limits much of the materials that we previously have had to bury. The effect of this operation is being evaluated as a part of planning for future disposal of the materials as it has a direct bearing on the volume. Additionally, the operation of the DCP process by virtue that it is simple and new, will reduce the source of these materials. Shut down of the ADU process equipment will eliminate its routine contribution of a significant portion of these types of materials but may result in a short term higher generation rate.

The recent interpretation on the exempt transportation regulations limiting consignments to 400 grams U-235 per conveyance has a significant negative impact on the transportation and cost effectiveness in dealing with these materials. GE is working to identify solutions that are safe and provide cost supportive transportation options.

Safety Performance

The techniques and management of these materials have been fairly consistent over approximately 30 years of plant operations.

These activities come under the direct requirements of our license, and the nuclear safety program has been applied in accord with these requirements. This includes full review and approval of the operations and operating procedures, oversight audits of the operations and routine survey and environmental monitoring.

Throughout this long history, there have been no situations where regulatory limits have been exceeded, and the safety program has been effective in dealing with this situation.

These materials remain under a high degree of oversight and there are active programs in place to manage the materials. Clearly, many of the current projects just being completed will have a positive impact on reducing these inventories further. This is underscored by management driven incentives related to increasing inventory turns and reducing inventory levels.