

70-1113

GENERAL ELECTRIC

NUCLEAR FUEL MANUFACTURING DEPARTMENT

GENERAL ELECTRIC COMPANY • P.O. BOX 780 • WILMINGTON, NORTH CAROLINA 28402

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July 10, 1985

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

Attention: Mr. W. T. Crow, Section Leader
Uranium Process Licensing Section
M/S 396-SS

Dear Sir:

- References: (1) NRC License SNM-1097, Docket 70-1113
(2) Letter, CM Vaughan to WT Crow, 9/22/83
(3) Letter, RG Page to CM Vaughan, 12/21/83
(4) Letter, CM Vaughan to WT Crow, 7/1/85

With reference to activities authorized by NRC License SNM-1097 at the General Electric Company Nuclear Fuel Manufacturing Department, GE hereby requests permission to utilize the Uranium Recovery from Lagoon Sludge (URLS) project facility for the purpose of conducting sludge/liquid separation tests and operations as described in the attachment to this letter.

Pursuant to 10 CFR 170.31, a GE check for \$150 for processing this amendment request will be forwarded to you under a separate cover.

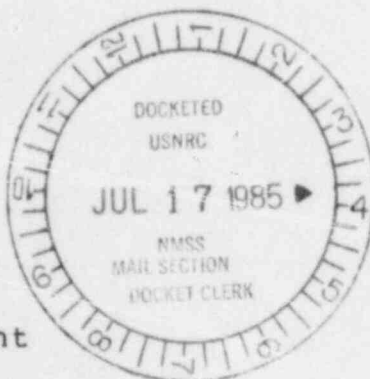
General Electric personnel would be pleased to discuss this matter further with you and your staff as you may deem necessary.

Sincerely,

GENERAL ELECTRIC COMPANY

Charles M. Vaughan

Charles M. Vaughan, Manager
Regulatory Compliance



/sbm

Attachment

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PDR ADDCK 07001113
C PDR

Applicant.....
Check No. 47028 (PDR)
Amount/Fee Category \$150.00
Type of Fee Am.D.
Date Check Rec'd. 8/1/85
Received By [Signature]

25519

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BACKGROUND

On 9/22/83 General Electric requested permission to allow construction of a facility that would be used to recover uranium from the calcium fluoride on-site lagoon sludges.

Permission to construct was granted by the NRC on 12/21/83, and construction of the facility has progressed to the point that the structure is essentially complete and the equipment is partially installed. However, it has become necessary to defer the original project until a later date.

We are currently evaluating a technique for recovering uranium from the nitrate lagoon sludges and would like to utilize the URLS facility for further testing purposes, and subsequent operation.

CURRENT SITUATION

The extraction and recovery of uranium from our nitrate lagoon sludge is scheduled for 1986. A key unit of the recovery process will be the removal of the uranium in the liquid from the uranium depleted (reduced uranium concentration) sludge. One method to accomplish this separation is to filter-wash. During the remainder of 1985 we plan to conduct tests in the URLS facility of uranium depleted nitrate sludge and determine its filterability through three different types of filter media. Once these tests have been completed, the uranium extraction and recovery operation from our nitrate sludge lagoons will begin.

DESCRIPTION OF OPERATION

Sludge will be obtained from the nitrate lagoon. After separating, the leach uranium liquid will be transferred to our uranium recovery facility (UPMP). The remaining sludge will be used in the filter tests, then returned to the nitrate lagoons.

There will be approximately twenty independent tests of this type each involving about 1,000 gallons of liquid per batch. The maximum enrichment will be 3% and each batch will contain no more than 33.3 kgs of uranium.

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The duration of these tests is expected to take five months, starting on September 3, 1985. These activities will be conducted five days a week, twenty-four hours a day, on a three shift basis.

Once the testing and filter selection has been completed, operations will begin to extract uranium by standard ion exchange methods where the leachate will be purified and concentrated prior to final recovery in UPMP. Residual sludges from these operations will be disposed of by approved methods. All of these activities will be conducted under safe batch control.

RADIOLOGICAL SAFETY

The facility will be operated according to the radiological control plan which exists for the current fuel manufacturing building. This includes exposure controls, personnel monitoring techniques, bioassay programs, area posting and radiation surveys.

CONTAMINATION CONTROLS

Process areas of the facility are designated as controlled areas similar to the controlled process areas of the existing fuel manufacturing building.

Radiation workers will access the controlled areas through a change room, where they will don standard controlled area protective clothing (i.e., coveralls, head covering, shoe covers, rubber gloves). Persons exiting the controlled area will monitor for contamination following removal of protective clothing in the change room.

The existing fuel manufacturing building contamination control plan and action guides will be used for the facility. If contamination in excess of the guideline limits occurs, the necessary decontamination action will be taken per existing procedures, based upon knowledge of the particular circumstances and the behavior of the material involved.

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CRITICALITY SAFETY

Sampling and analyses of the NFMD liquid waste streams indicate that nitrate lagoon sludges contain an average enrichment of no greater than 3.00 percent U^{235} . The proposed filter tests and operations have been designed to be critically safe based on this enrichment.

Sludge containing no more than 33.3 kgs of uranium (the safe batch value for homogeneous 3.00% enriched UO_2 is 39.2 kgs of uranium) will be placed in the sludge tank. This sludge will be processed through the system and the resulting uranium-bearing liquid will be removed to another tank and processed through the UPMP facility. A verified cleanout of all tanks will be performed between batch processing.

ENVIRONMENTAL

From an environmental standpoint, there are positive effects resulting from this activity. We will be reclaiming uranium from the sludge in our nitrate lagoon, and the uranium depleted sludge remaining after processing will be returned to the lagoons or disposed of by approved methods.

REQUEST

General Electric Company requests permission to utilize the URLS project facility (authorized to be constructed by the NRC on 12/21/83) for the purpose of conducting a series of engineering tests and associated ongoing operations based on the results of these tests as described in this submittal. The tests are scheduled to begin September 3, 1985 and continued operation will commence in 1986.

We appreciate your help in expediting this request in order to help us meet this schedule.

DOCKET NO. 70-1113
CONTROL NO. 25533
DATE OF DOC. 07/10/85
DATE RCVD. 07/15/85
FCUF ☒ PDR ☒
FCAF _____ LPDR _____
WM _____ I&E REF. ☒
WMUR _____ SAFEGUARDS ☒
TC _____ OTHER _____

DESCRIPTION:

Request for
Amendment

07/18/85 INITIAL Cec