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GENERAL ELECTRIC

NUCLEAR ENERGY
PRODUCTS DIVISION

WILMINGTON MANUFACTURING
DEPARTMENT

CASTLE HAYNE ROAD • P. O. BOX [illegible] WILMINGTON, N. C. 28402 • (919) 343-5000

June 7, 1982

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

Applicant.....
Check No. 00216
Amount, Fee Category 1100.16
Type of Fee Mater. Safety
Date Check Rec'd. 7/1/82
Received By

Dear Sir:

References: (1) NRC License SNM-1097, Docket #70-1113
(2) Letter, CM Vaughan to WT Crow, 8/13/81
(3) Letter, WT Crow to CM Vaughan, 1/27/82

Subject: DISPOSAL OF ZIRCONIUM SLUDGE

With regard to activities authorized under NRC License SNM-1097 for the General Electric Company fuel manufacturing plant in Wilmington, N. C., GE is considering the disposal of zirconium sludge at the SCA Services Inc. hazardous waste burial facility in Pinewood, S. C.

The SCA facility at Pinewood operates as a hazardous waste disposal site under an interim RCRA permit (#SCD070375985) and South Carolina permit IWP-145. Both SCA and the State of South Carolina have indicated a willingnesss to handle the material at Pinewood provided the NRC has no interest in the matter and/or that the proposed actions accommodate NRC interests.

The zirconium sludge contains approximately 0.8 picoCurie per gram (dry) uranium activity from uranium slightly enriched to 1.28% in U_{235}. The zirconium sludge will be replacing naturally occurring clay which has been shown to contain calculated activity of approximately 3.9 picoCurie per gram. The program outline and a complete characterization of the material are included in the attachment to this letter.

General Electric has concluded that the disposal of this material will not impact public safety and further that these actions are not contrary to the regulation or current license conditions.

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Assuming that the NRC concurs, please so advise GE in writing such that final arrangements can be completed with SCA and the State of South Carolina. We would like to have concurrence no later than the end of June 1982 so that transfers can begin no later than September 1982. However, we could be in a position to begin work earlier if permission is granted earlier.

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

Very truly yours,

GENERAL ELECTRIC COMPANY

Charles M. Vaughan

Charles M. Vaughan, Manager
Licensing & Nuclear Materials Management
M/C J26

CMV:bsd

Attachment

NSD/SGD-L

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Director - ONMSS
June 7, 1982

PROPOSED DISPOSAL METHOD

FOR ZIRCONIUM SLUDGE

Chemical etching is one of the manufacturing steps used in the production of zirconium alloy components at the Wilmington, North Carolina facility of the General Electric Company.

It has been the practice to treat the waste chemical etch solution with lime to precipitate impurities and to neutralize the acid. The resulting precipitate, referred to as zirconium sludge, is accumulated in a lined lagoon. The sludge composition and quantity are detailed on the following page.

It is proposed that this material be removed from the existing storage lagoon and transported to the SCA Services Inc. facility in Pinewood, South Carolina, for burial. The SCA facility at Pinewood is operated as a hazardous waste burial facility under an interim RCRA permit number SCD 070375985 and South Carolina Permit IWP-145.

One of the three following methods will be used to transport the sludge to the South Carolina facility:

1) Removal of the sludge from the lagoon in a wet or slurry form and transporting it to the burial site in trucks capable of handling the material in bulk form in accordance with DOT regulations. The material would be mixed with sufficient fullers earth at the SCA site to absorb the free liquid prior to burial.

2) Processing of the sludge at the General Electric site to remove free standing water prior to transportation to the burial facility. Dewatering would be sufficient to permit transportation in a bulk form in accordance with DOT regulations.

3) Addition of sufficient fullers earth to the sludge to absorb free standing water prior to transportation to the burial facility. Transportation to the burial facility would be in bulk form and in accordance with DOT regulations.

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ZIRCONIUM SLUDGE COMPOSITION

Percentage Solids	30%
Density	9.7 pounds/gallon
pH	11.7
Calcium hydroxide	2-10%
Zirconium compounds	2- 8%
Calcium fluoride	10-20%
Calcium nitrate	4-10%
Water	70-80%
Uranium	0.24 parts per million (i.e., 1.28% U_{235})
Calculated alpha activity based on uranium content	265 pCi/l

QUANTITY OF HAND

800,000 gallons

CM Vaughan/WBS
:bsd

Date 6/16

Typed 6/16

"LICENSE AMENDMENTS"

Docket No. 70-1113 6/16 Dw

William O. Miller, License Fee Management Branch, ADM

MATERIALS LICENSE AMENDMENT CLASSIFICATION

Applicant: GE

License No: SNM-1097 Fee Category: 1B

Application Dated: 6-7-82 Received: 6-16-82

Applicant's Classification: —

The above application for amendment has been reviewed by NMSS in accordance with §170.31 of Part 170, and is classified as follows:

1. Safety and Environmental Amendments to Licenses in Fee Categories 1A through 1H, 2A, 2B, 2C, and 4A

   (a) ____ Major safety and environmental

   (b) ✓ Minor safety and environmental

   (c) ____ Safety and environmental (Categories 1D through 1G only)

   (d) ____ Administrative

2. Justification for reclassification: This amendment requires no safety & env. analysis.

3. The application was filed (a) ____ pursuant to written NRC request and the amendment is being issued for the convenience of the Commission, or (b) ____ Other (State reason): _____

Signature W. T. Crow

Division of Fuel Cycle & Material Safety

Date 6/28/82