



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

SEP 11 1980

DOCKET NO.: 70-1151
APPLICANT: Westinghouse Electric Corporation
FACILITY: Commercial Nuclear Fuel Fabrication Plant
Columbia, South Carolina
SUBJECT: REVIEW OF APPLICATION TO AUTHORIZE OPERATION OF ADVANCED
WASTE TREATMENT PROCESS, APPLICATIONS DATED APRIL 7 AND
JUNE 24, 1980, 07001151A03S

Background

Westinghouse's plan to construct the Advanced Waste Treatment Building (in which the subject operation is to be conducted) was announced in a letter to the NRC dated October 9, 1979. The environmental effects of the building construction and provision of utility services to the building were deemed covered by the Environmental Evaluation for the Columbia site and hence NRC acceptance of the installation was noted in Amendment 3 to license SNM-1107, dated October 23, 1979. In that amendment, which concerned the Waste Storage Building, it was also noted that NRC acceptance of the Advanced Waste Treatment Building construction did not authorize processing of special nuclear material (SNM). The subject application requests approval for SNM processing in the Advanced Waste Treatment Building and provides information to demonstrate the safety of the proposed operation. The April 7, 1980, application inadvertently omitted some of the safety demonstration for the existing license and the June 24 application completely supersedes that of April 7.

The proposed operation of the Advanced Waste Treatment Process was discussed on July 14, 1980, in a telecon with Mr. G. P. Coryell, IE Region II principal inspector of the Westinghouse plant. Mr. Coryell saw no objection to issuance of an authorizing amendment to the license.

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Discussion

The aqueous process wastes from the ammonium diurate process for the conversion of uranium hexafluoride contain uranium in the concentration range of milligrams per liter. Westinghouse has installed a building and process equipment to permit recovery of much of the uranium now being lost in the waste.

Radiation Safety

In the Advanced Waste Treatment Building, uranium-bearing materials will be in either liquid or solid/slurry form and contained within the process equipment. There should, therefore, be no significant airborne radioactivity.

The building will be maintained as a contamination-controlled area with surveillance and control level guides according with the requirements of the existing license. Furthermore, the ventilation control and air sampling will be conducted in accordance with subparagraph 3.2.2 of the license and personnel with access to the building will be subject to the bioassay program defined in subparagraph 3.2.3.

Nuclear Criticality Safety

The maximum concentrations and masses of uranium predicted under either normal or accident conditions in the recovery process fall within the range of safe values for uranium of maximum 4.15% enrichment. All vessels in the building are bottom drained to minimize possible uranium build-ups and periodic inspections will be conducted where uranium accumulations are possible.

Environmental Effects

Airborne radioactivity discharges from the building are expected to be minimal since uranium-bearing materials will be handled in aqueous forms.

The recovery process will not cause additional aqueous discharges to the environment. The uranium recovered in the operation will be returned to the manufacturing plant.

The chemicals used in the recovery process will constitute a very small fraction (less than 5% by weight) of the process solids that are retained in the lagoons. The radioactivity content of the added solids will be very low compared to those previously deposited in the lagoons.

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Conclusion

Based on the safety and environmental review of the amendment application, it is concluded that uranium recovery operations may be conducted in the Advanced Waste Treatment Building without undue risk to the health and safety of the operating staff or the public. Further, the issuance of this license amendment is not deemed to be a major federal action significantly affecting the quality of the human environment; and thus, pursuant to Section 10 CFR 51, Section 51.5(d)(4), an environmental impact statement, negative declaration, or an environmental appraisal need not be prepared.

Approval of the amendment application is recommended.

Robert L. Stevenson

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Approved by:

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W. T. Crow, Section Leader