

U.S. NUCLEAR REGULATORY COMMISSIONFINDING OF NO SIGNIFICANT IMPACTISSUANCE OF SPECIAL NUCLEAR MATERIALSLICENSE NO. SNM-1963PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, ET. AL.ROCKINGHAM COUNTY, NEW HAMPSHIREDOCKET NO. 70-3027

The U.S. Nuclear Regulatory Commission (the Commission) is considering the issuance of Special Nuclear Materials License No. SNM-1963 to the Public Service Company of New Hampshire, The United Illuminating Company, Massachusetts Municipal Wholesale Electric Company, New England Power Company, Central Maine Power Company, The Connecticut Light and Power Company, Canal Electric Company, Montaup Electric Company, Bangor Hydro-Electric Company, New Hampshire Electric Cooperative, Inc., Central Vermont Public Service Corporation, Maine Public Service Company, Fitchburg Gas and Electric Light Company, Vermont Electric Generation and Transmission Cooperative, Taunton Municipal Lighting Plant, and Hudson Light and Power Department (the applicants) for the Seabrook Station, Unit 1, located in Rockingham County, New Hampshire.

ENVIRONMENTAL ASSESSMENT

Identification of Proposed Action: The proposed action would authorize the applicants to receive, possess, inspect, and store special nuclear materials in the form of unirradiated fuel assemblies. In addition, the license would also authorize the applicants to receive, possess, inspect, and use other radioactive materials in the form of irradiation test capsules containing U-238 and Np-237,

in-core fission chambers and ex-core detectors containing uranium enriched in U-235, and sources containing Pu-238, Pu-239, U-235 and U-238. Because the neutron sources, detectors, and fission chambers are sealed and contain only small amounts (gram quantities) of nuclear material, storage and use of these materials will pose no threat to the environment. Therefore, the discussion below will be limited to assessing the potential for environmental impacts resulting from the handling and the storage of new fuel at Seabrook, Unit 1.

The Need for the Proposed Action: The proposed license will allow the applicants to receive and store fresh fuel prior to issuance of the Part 50 operating license in order to inspect the fuel and to finalize fuel preparation needed to load the fuel into the reactor vessel. Actual core loading, however, will not be authorized by the proposed license.

Environmental Impacts of the Proposed Action

A. Nuclear Criticality and Radiation Safety

Once at Seabrook, Unit 1, the new fuel may be temporarily stored in shipping containers in the rail bay and the new fuel shipping container area prior to the placement in their designated storage locations: new fuel storage area and the spent fuel pool. The shipping container array to be utilized at Seabrook, Unit 1, has been analyzed under all degrees of water moderation and/or reflection and found to be critically safe.

Upon removal of the fuel assemblies from the shipping containers, they are inspected and surveyed for any external contamination. Assuming no contamination is found, the assemblies are transferred to their designated storage location. Criticality safety of the storage locations (new fuel and spent fuel racks) is maintained by limiting the interaction between adjacent fuel assemblies. This is accomplished in the new fuel storage area such that a maximum of 12 fuel assemblies are stored in new fuel racks in a checkerboard pattern; the four storage locations adjacent to each new fuel assembly are vacant. Interaction between fuel assemblies stored in the spent fuel racks is limited by the presence of sheets of neutron poison securely fastened to all four sides of each storage location. Therefore, nuclear criticality safety of the storage racks is assured.

Since the fresh fuel assemblies are sealed sources, the principal exposure pathway to an individual is via external radiation. For low-enriched uranium fuel (≤ 4 percent U-235 enrichment), the exposure level to an individual standing 1 foot from the surface of the fuel would be less than 25 percent of the maximum permissible exposure specified in 10 CFR 20. In addition, the applicants are committed to establishing a program for maintaining general public exposure as low as reasonably achievable. Therefore, the staff has concluded that the applicants' requested operations can be carried out with adequate radiation protection of the public and environment.

Only a small amount, if any, of radioactive waste (e.g., smear papers and/or contaminated packaged material) is expected to be generated as a

result of fuel handling and storage operations. Any waste that is produced will be properly stored onsite until it can be shipped to a licensed disposal facility.

B. Transportation

In the event the applicants must return the fuel to the fuel fabricator, all packaging and transport of fuel will be in accordance with 10 CFR 71. No significant external radiation hazards are associated with the unirradiated fuel because the radiation level from the clad fuel pellets is low and because the shipping packages must meet the external radiation standards in 10 CFR 71. Therefore, shipment of unirradiated fuel by the applicants is expected to have an insignificant impact upon the environment.

C. Accident Analysis

In the unlikely event that an assembly (either within or outside its shipping container) is dropped during transfer, fuel cladding is not expected to rupture. Even if the fuel rod cladding were breached and the pellets were released, an insignificant environmental impact would result. The fuel pellets are composed of a ceramic UO_2 that has been pelletized and sintered to a very high density. In this form, release of UO_2 aerosol is unlikely except under conditions of deliberate grinding. Additionally, UO_2 is soluble only in acid solution so dissolution and release to the environment are extremely unlikely.

D. Conclusion

The environmental impacts associated with the handling and storage of new fuel at Seabrook, Unit 1, are expected to be insignificant. Essentially no effluents, liquid or airborne, will be released and acceptable controls will be implemented to prevent a radiological accident. Therefore, the staff concludes that there will be no significant impacts associated with the proposed action.

Alternative to the Proposed Action: The principal alternative would be to deny the requested license. Assuming the operating license will eventually be issued, denial of the storage only license would merely postpone new fuel receipt at Seabrook, Unit 1. Although denial of the Special Nuclear Materials License for Seabrook, Unit 1, is an alternative available to the Commission, it would be considered only if significant issues of public health and safety could not be resolved to the satisfaction of regulatory authorities involved.

Alternative Use of Resources: This action does not involve the use of resources not previously considered in connection with the Commission's Final Environmental Statement (NUREG-0895) dated December 1982 related to this facility.

Agencies and Persons Consulted: The Commission's staff reviewed the applicants' request of August 1, 1985, and its supplement dated October 24, 1985, and did not consult other agencies or persons.

Finding of No Significant Impact: The Commission has prepared an Environmental Assessment related to the issuance of Special Nuclear Materials License No. SNM-1963. On the basis of this assessment, the Commission has concluded that environmental impacts created by the proposed licensing action would not be significant and does not warrant the preparation of an Environmental Impact Assessment. Accordingly, it has been determined that a Finding of No Significant Impact is appropriate.

The Environmental Assessment and the above documents related to this proposed action are available for public inspection and copying at the Commission's Public Document Room, 1717 H Street, NW., Washington, DC. Copies of the Environmental Assessment may be obtained by calling (301) 427-4510 or by writing to the Uranium Fuel Licensing Branch, Division of Fuel Cycle and Material Safety, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

Dated at Silver Spring, Maryland this 8th day of November 1985.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed By:

W. T. Crow

W. T. Crow, Acting Chief
Uranium Fuel Licensing Branch
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