

June 15, 2000

Mr. Samuel L. Newton
Vice President, Operations
Vermont Yankee Nuclear Power Corporation
185 Old Ferry Road
Brattleboro, VT 05301

SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION, REQUEST TO AMEND
PREVIOUS APPROVALS GRANTED UNDER 10 CFR 20.302(a) TO ALLOW
FOR DISPOSAL OF CONTAMINATED SOIL (TAC NO. MA5950)

Dear Mr. Newton:

By letter dated June 23, 1999, as supplemented on January 4, 2000, you submitted a request to amend a previously approved application granted by the Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 20.2002 (previously 10 CFR 20.302) to allow the addition of slightly contaminated soil and soil/sand material to the list of already approved materials (i.e., septic waste and cooling tower silt) for on-site disposal via land spreading on designated fields.

We have completed our review of your proposal and find it to be acceptable because the previously approved bounding conditions will continue to be met.

Pursuant to the provisions of 10 CFR Part 51, the NRC has published an Environmental Assessment and Finding of No Significant Impact in the *Federal Register* on June 15, 2000 (65 FR 37583).

Sincerely,

/RA/

John A. Zwolinski, Director
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE
OFFICE OF NUCLEAR REACTOR REGULATION
VERMONT YANKEE NUCLEAR POWER STATION
DOCKET NO. 50-271

1.0 INTRODUCTION

By letter dated June 23, 1999, as supplemented on January 4, 2000, Vermont Yankee Nuclear Power Corporation (the licensee), submitted a request to amend a previously approved application granted by the Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 20.2002 (previously 10 CFR 20.302) to allow the addition of slightly contaminated soil and soil/sand material to the list of already approved materials (i.e., septic waste and cooling tower silt) for on-site disposal via land spreading on designated fields.

In 1989, pursuant to 10 CFR 20.302 (current 10 CFR 20.2002), the licensee received approval from the NRC to routinely dispose of contaminated septic waste in designated on-site areas. In 1997, the NRC amended the approved on-site disposal application to also include contaminated cooling tower silt material.

In this 10 CFR 20.2002 amendment application, the licensee identified 25.5 cubic meters of soil to be disposed of on-site immediately, and approximately 28.3 cubic meters of soil/sand material to be disposed of on an annual basis until the expiration of the plant's operating license in 2013. The 25.5 cubic meters of contaminated soil were generated as a result of on-site construction activities. The anticipated 28.3 cubic meters of soil/sand material will be generated from the annual winter spreading of sand on roads and walkways at the plant site. The licensee has performed a comprehensive radiological evaluation that includes all of the anticipated materials (i.e., the current 25.5 cubic meters and the 28.3 cubic meters generated annually thereafter). The licensee's evaluation shows that the soil/sand can be managed on-site in the same manner as the septic waste and cooling tower silt (i.e., by land spreading on designated fields).

2.0 EVALUATION

The licensee will dispose of the soil and future soil/sand material using a land spreading technique consistent with its current commitments for on-site disposal of septic waste and cooling tower silts previously approved by the NRC. The licensee will continue to use the designated and approved areas of their property (approximately 1.9 acres in size) which currently receives the septic waste and cooling tower silts. Determination of the radiological dose impact of the new material has been made based on the same dose assessment models and pathway assumptions used in the previously approved submittals.

The licensee will procedurally control and maintain records of all disposals. The following information will be recorded:

1. The radionuclide concentrations detected in the material (measured to radiation levels consistent with the licensee's radiological environmental monitoring program).
2. The total volume of material disposed.
3. The total radioactivity in the disposal operation as well as the total radioactivity accumulated on each disposal plot at the time of spreading.
4. The plot on which the material was applied.
5. Dose calculations or maximum allowable accumulated activity determinations required to demonstrate that the dose condition values imposed (i.e., imposed by this 10 CFR 20.2002 application) on the land spreading operation have not been exceeded.

The bounding dose conditions for the on-site disposals are as follows:

1. The annual dose to the whole body or any organ of a hypothetical maximally exposed individual must be less than 1.0 mrem.
2. Annual doses to the whole body and any organ of an inadvertent intruder from the probable pathways of exposure must be less than 5 mrem.
3. Disposal operations must be at one of the approved on-site locations.

To ensure that the addition of new material containing low levels of radioactivity will not exceed the bounding dose conditions, for each new spreading operation the licensee will calculate an estimate of the total radioactivity applied to the designated disposal plots. These calculated estimates will include all past disposals of septic waste, cooling tower silt, soil and soil/sand material on the designated disposal plots. This will be compared with the bounding dose condition value or equivalent radioactivity value on a per acre basis. In addition, concentration limits will be applied to the disposed material to restrict the placement of small volumes of material that may have relatively high radioactivity concentrations.

The licensee assessed the dose that may be received by the maximally exposed individual during the period of plant control over the property, and to an inadvertent intruder after plant access control ends using the same pathway modeling, assumptions, and dose calculation methods that were previously approved by the NRC for the septic waste and cooling tower silt disposals. The dose models are based on the guidance in NRC Regulatory Guide 1.109, Revision 1 (1977).

The licensee's dose assessment is as follows:

1. Total annual doses to the whole body and critical organ of the hypothetically maximally exposed individual were estimated to be 0.115 mrem and 0.403 mrem, respectively. These values are less than the prescribed annual dose condition value of 1.0 mrem for the time period of active site control.

2. Total annual doses to the whole body and critical organ of an inadvertent intruder from the probable pathways of exposure were estimated to be 0.757 mrem and 1.17 mrem. These values are less than the prescribed annual dose condition value of 5.0 mrem for the time period after active site control.
3. The dose calculations are based on projecting the maximum potential impact of all disposals (past and future) on the designated disposal plot of land.

3.0 CONCLUSION

The staff finds the licensee's proposal to dispose of the low-level radioactive soil and soil/sand material, pursuant to 10 CFR 20.2002, in the same manner, location, and within the bounding dose conditions as the materials (i.e., septic waste and cooling tower silt) previously approved by the NRC to be acceptable because the bounding conditions will continue to be met.

Principal Contributor: S. Klementowicz

Date: June 15, 2000

Vermont Yankee Nuclear Power Station

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