



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO ONSITE DISPOSAL OF SLIGHTLY CONTAMINATED COOLING TOWER SILT  
VERMONT YANKEE NUCLEAR POWER CORPORATION  
VERMONT YANKEE NUCLEAR POWER STATION  
DOCKET NO. 50-271

1.0 INTRODUCTION

By letter dated August 30, 1995, Vermont Yankee Nuclear Power Corporation (VYNPC) requested approval for the onsite disposal of slightly contaminated silt material removed from Vermont Yankee Nuclear Power Station's (Vermont Yankee's) cooling towers. In a safety evaluation (SE) dated March 4, 1996, the NRC staff approved the proposed silt disposal. However, because of discrepancies between the SE and VYNPC's letter of August 30, 1995, VYNPC postponed implementation of the silt disposal until resolution of the discrepancies. By letter dated August 2, 1996, VYNPC informed the NRC staff of the discrepancies and requested that the SE be revised accordingly. Recognizing the discrepancies, the NRC staff has prepared this SE to resolve the discrepancies and to replace the SE of March 4, 1996.

2.0 BACKGROUND

VYNPC has previously obtained NRC staff approval of the onsite disposal of very-low-level radioactive material similar to the proposed silt disposal. By letter dated June 28, 1989, VYNPC proposed the onsite disposal of slightly contaminated septic waste material by land application at Vermont Yankee. By letter dated August 30, 1989, the NRC staff approved this request pursuant to 10 CFR 20.302 (now 10 CFR 20.2002). The NRC staff considered this site-specific application for Vermont Yankee to have insignificant radiological impact because the proposed septic waste material disposal involved licensed material containing less than 0.1 percent of the radioactive material, primarily cobalt-60 and cesium-137, already considered acceptable in the Final Environmental Statement (FES) of July 1972, and involved exposure pathways much less significant than those in the FES. In addition, the proposed septic waste material disposal satisfied the following applicable boundary conditions for the disposal of licensed material:

- a. The whole body dose to the hypothetical maximally exposed individual must be less than 1.0 mrem/year.

- b. Doses to the whole body and any organ of an inadvertent intruder from the probable pathways of exposure are less than 5 mrem/year.
- c. The disposal must be at the same site.

Following the NRC staff's approval on August 30, 1989, VYNPC implemented the disposal of the contaminated septic waste material as proposed.

By letter dated August 30, 1995, VYNPC requested that the previous authorization for the onsite disposal of very-low-level radioactive material be amended to permit the onsite disposal of slightly contaminated silt material, within the boundary conditions of the previously approved septic waste material disposal.

### 3.0 EVALUATION

In its letter of August 30, 1995, VYNPC stated that the proposed silt disposal method is the same as the previously approved septic waste disposal method, and utilizes land spreading in the same onsite areas approved for septic waste disposal. The volume of silt proposed for onsite disposal consists of 14,000 cubic feet (396 cubic meters) accumulated through August 1995 plus approximately 4,000 cubic feet (113 cubic meters) to be removed from the cooling towers during each 18-month operating cycle. The activity contained in the currently accumulated silt, based on samples taken by VYNPC in June 1995, is 0.193 millicuries, principally from 0.034 millicuries of cobalt-60 and 0.159 millicuries of cesium-137. The activity contained in the additional silt to be removed from the cooling towers each 18-month operating cycle is anticipated to be 0.059 millicuries, principally from 0.012 millicuries of cobalt-60 and 0.047 millicuries of cesium-137.

VYNPC's radiological assessment enclosed with its August 30, 1995, letter demonstrates that the combined radiological impact for all onsite disposal operations, the proposed disposal of silt and the previously approved disposal of septic waste material, will continue to meet the applicable boundary conditions (given above) for the disposal of licensed material. Therefore, the proposed onsite disposal of slightly contaminated silt is acceptable.

As discussed in VYNPC's letter of August 2, 1996, if the onsite disposal of cooling tower silt or septic waste material would result in exceeding the applicable boundary conditions (given above), then VYNPC must obtain prior NRC staff approval of the disposal. In addition, VYNPC made the following commitments:

- a. VYNPC will report in the Annual Radiological Effluent Release Report a list of the radionuclides present and the total radioactivity associated with the onsite disposal activities at Vermont Yankee.

- b. VYNPC will maintain records of radionuclide concentrations and total activity associated with onsite disposal activities at Vermont Yankee in accordance with 10 CFR 50.75(g).

#### 4.0 CONCLUSION

The NRC staff finds that the radiological conditions at the Vermont Yankee site (see attachment) that would result from the onsite disposal of slightly contaminated silt material, as proposed by VYNPC pursuant to 10 CFR 20.2002, and the previously approved onsite disposal of slightly contaminated septic waste material, are within the applicable boundary conditions (given above) for the disposal of licensed material. Therefore, the proposed onsite disposal of slightly contaminated silt removed from Vermont Yankee's cooling towers is acceptable.

VYNPC is required to permanently incorporate this SE into the Vermont Yankee Offsite Dose Calculation Manual as an Appendix to document the the radioactive material onsite disposal activities approved for Vermont Yankee, and VYNPC's related commitments regarding reporting and record keeping. Any additional modification of VYNPC's disposal activities which go beyond those proposed in the August 30, 1995, submittal, and are not addressed above must have prior NRC staff approval. In addition, any onsite disposal of cooling tower silt or septic waste material that would result in exceeding the applicable boundary conditions (given above), must also have prior NRC staff approval.

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Date: June 18, 1997

Attachment: Vermont Yankee Site Area Map

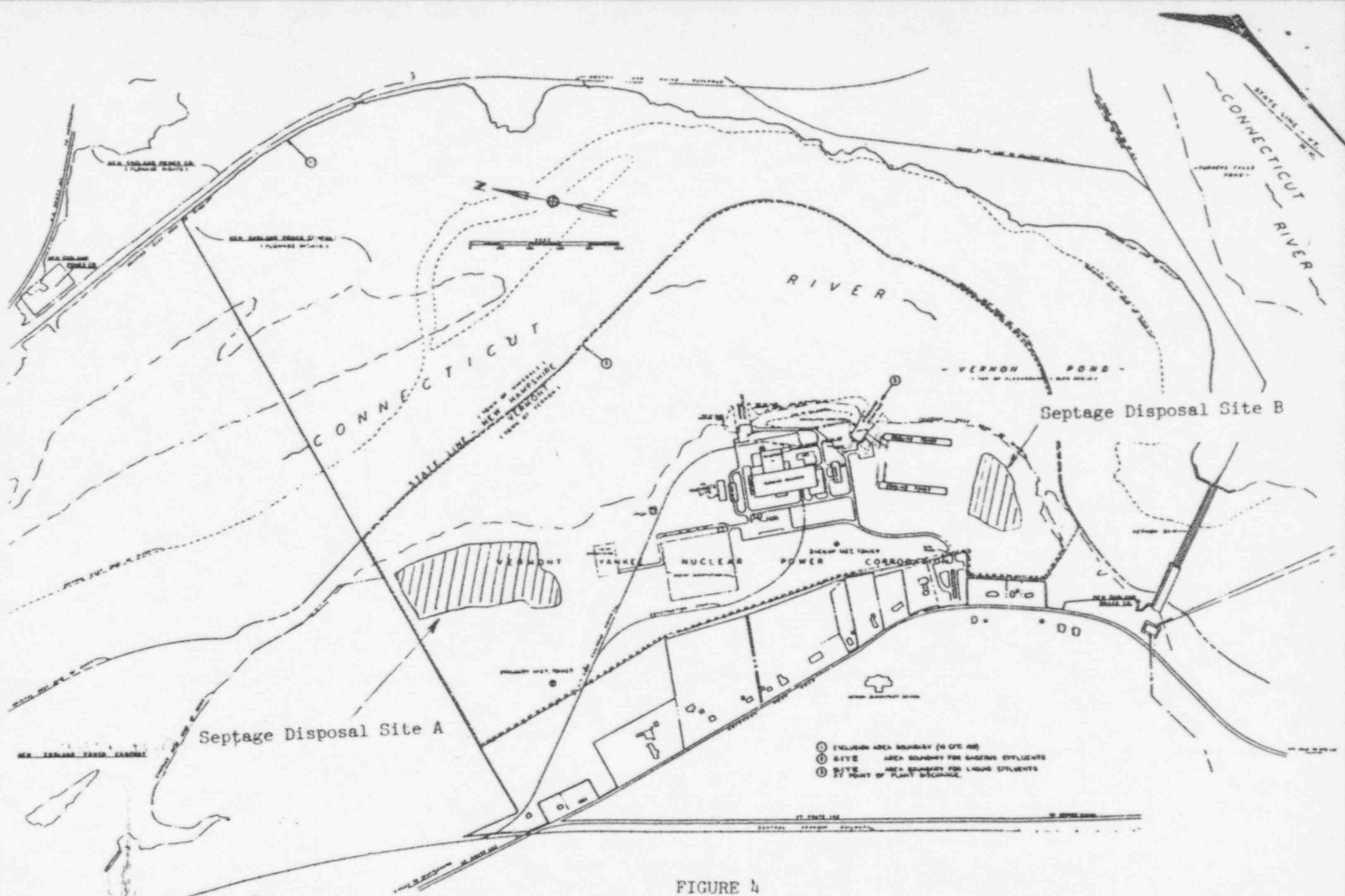


FIGURE 4

SEPTIC WASTE DISPOSAL AREAS

ATTACHMENT