	March 14, 2001
MEMORANDUM FOR:	James W. Clifford, Chief
	Section 2
	Project Directorate I
	Division of Licensing Project Management
	Office of Nuclear Reactor Regulation
FROM:	Kathy Halvey Gibson, Chief /RA /
	Emergency Preparedness and
	Health Physics Section
	Operator Licensing, Human Performance,
	and Plant Support Branch
	Division of Inspection Program Management
	Office of Nuclear Reactor Regulation
SUBJECT:	SAFETY EVALUATION FOR AN AMENDMENT TO AN APPROVED

NUCLEAR POWER STATION The Emergency Preparedness and Health Physics Section has completed its review of the Vermont Yankee Nuclear Power Corporation request dated September 11, 2001, to amend an approved 10 CFR 20.2002 (previously 10 CFR 20.302) application dated June 23, 1999, as supplemented on January 4, 2000. The licensee requested NRC approval to allow the addition of slightly contaminated soil resulting from on-site construction related activities, including but not limited to design change implementation and land maintenance, to the list of already approved materials (i.e., septic waste, cooling tower silt and soil/sand from roads and walkways) for on-site disposal. Based on our review, we find the proposed changes to be

10 CFR 20.2002 APPLICATION FOR THE VERMONT YANKEE

walkways) for on-site disposal. Based on our review, we find the proposed changes to be acceptable. The attachment to this memorandum provides our evaluation of the licensee's application.

This completes our review under TAC No. MA9972.

Docket No. 50-271

Attachment: Safety Evaluation

CONTACT: Audrey Hayes, NRR/DIPM/IOLB/EP&HP (301) 415-3121

SAFETY EVALUATION BY THE EMERGENCY PREPAREDNESS

AND HEALTH PHYSICS SECTION

OFFICE OF NUCLEAR REACTOR REGULATION

VERMONT YANKEE NUCLEAR STATION

DOCKET NO. 50-271

1.0 Introduction

By letter dated September 11, 2000, Vermont Yankee Nuclear Power Corporation (the licensee), submitted a request to amend a 10 CFR 20.2002 (former 10 CFR 20.302) application, dated June 23,1999, as supplemented on January 4, 2000, which was approved by the NRC. This amendment will allow the addition of slightly contaminated soil resulting from onsite construction related activities, including but not limited to design change implementation and land maintenance, to the list of already approved materials (i.e., septic waste, cooling tower silt and soil/sand from roads and walkways) for on-site disposal via land spreading on designated disposal 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 2000, the NRC amended the approved on-site disposal application to also include a one-time disposal of slightly contaminated soil and an annual disposal of 28.3 cubic meters of slightly contaminated soil/sand material.

In this 10 CFR 20.2002 application amendment, the licensee requested that slightly contaminated soil resulting from on-site construction related activities be disposed of on-site on an annual basis until the end of the plant's operating license in 2013. The anticipated annual volume of soil generated by on-site construction, as identified by the licensee, combined with the soil/sand generated from the annual winter spreading of sand on roads and walkways at the plant site will not exceed 28.3 cubic meters. This volume is the same volume that was approved in the January 4, 2000, request. The licensee performed a comprehensive radiological evaluation which included the annual disposal of 28.3 cubic meters of soil and soil/sand materials, and shows that these materials can be managed on-site in the same manner as the septic waste and cooling tower silt (i.e., land spreading on designated fields).

2.0 Evaluation

The licensee will dispose of the future soil material using a land spreading technique consistent with the current commitments for on-site disposal of septic waste, cooling tower silts and sand/soil material previously approved by the NRC. The licensee will continue to use the designated and approved areas of their property which include approximately 1.9 acres, which currently receives the septic waste, cooling tower silts and soil/sand material, and approximately 10 acres which has not been previously used for disposal. 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 the approved 10 CFR 20.2002 application dated June 23,1999) 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.
- 4. Total annual combined volume of soil and soil/sand materials must not exceed 28.3 cubic meters.

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 that includes all past disposals of septic waste, cooling tower silt, soil/sand and soil 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. The licensee assessed the dose from soil and soil/sand material 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 U.S. 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 approved disposal site.

3.0 Conclusion

The staff finds the licensee's proposal to dispose of the low-level radioactive soil 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, cooling tower silt and soil/sand from roads and walkways) previously approved by the NRC to be acceptable.

The licensee has committed to permanently incorporate this modification into their Offsite Dose Calculation Manual.

MEMORANDUM TO	James W. Clifford, Chief Section 2 Project Directorate I Division of Licensing Project Management Office of Nuclear Reactor Regulation	
FROM	Kathy Halvey Gibson, Chief	

- FROM: Kathy Halvey Gibson, Chief Emergency Preparedness and Health Physics Section Operator Licensing, Human Performance, and Plant Support Branch Division of Inspection Program Management Office of Nuclear Reactor Regulation
- SUBJECT: SAFETY EVALUATION FOR AN AMENDMENT TO AN APPROVED 10 CFR 20.2002 APPLICATION FOR THE VERMONT YANKEE NUCLEAR POWER STATION (TAC NO. MA5950)

The Emergency Preparedness and Health Physics Section has completed its review of the Vermont Yankee Nuclear Power Corporation application dated September 11, 2001, to amend an approved 10 CFR 20.2002 (previously 10 CFR 20.302) application dated June 23, 1999, as supplemented on January 4, 2000. The licensee requested NRC approval to allow the addition of slightly contaminated soil resulting from on-site construction related activities including but not limited to design change implementation and land maintenance to the list of already approved materials (i.e., septic waste, cooling tower silt and soil/sand from roads and walkways) for on-site disposal. Based on our review, we find the proposed changes to be acceptable. The attachment to this memorandum provides our evaluation of the licensee's application.

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