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January 11, 2017

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Vermont State Nuclear Engineer Comments Regarding Entergy Nuclear Vermont Yankee  
10 CFR 20.2002 Request for Alternate Waste Disposal at US Ecology Idaho

**REFERENCES:**

1. Entergy Letter BKY 16-001 to USNRC, "10 CFR 20.2002 Request for Alternate Disposal at US Ecology Idaho," dated January 14, 2016 (ML16029A071)
2. Entergy Letter BKY 16-021 to USNRC, "Response to Request for Additional Information Related to 10 CFR 20.2002 Alternate Waste Disposal Request (CAC No. L53116) Vermont Yankee Nuclear Power Station," dated June 28, 2016 (ML16182A035)
3. Entergy E-Mail to USNRC, "Response to NRC Questions Dated 7-28-16," dated August 11, 2016 (ML16231A028)

Dear Jack:

In response to your electronic mailing sent December 12, 2016 requesting comments regarding NRC's draft Environmental Assessment (EA) and draft Safety Evaluation Report (SER) for Vermont Yankee's 10 CFR 20.2002 Request for Alternate Disposal of up to 200,000 gallons of radioactively contaminated water at US Ecology Idaho facilities, I am enclosing several comments and questions on behalf of the State of Vermont. These comments are primarily the result from my review of the draft EA, the draft SER and the several additional documents noted in your mailing. While these comments focus on the supporting documents identified as References 1 through 3 herein, note that all additional documents identified in your mailing (namely the documents with ADAMS Accession Numbers ML16077A345 and ML16021A173, respectively) have been examined as part of this review.

Feel free to contact me should you require any clarification to the questions or comments contained in the Enclosure. Please note that Enclosure Comment #4 was provided to me by the Vermont Agency of Natural Resources (ANR), Department of Environmental Conservation (who were on copy for VT Yankee's original request included in Reference 1). Questions on this



Comment should still be sent to me first, since the recent change in Vermont's Gubernatorial Administration has resulted in a reorganization of ANR Staff.

On behalf of the State of Vermont, I thank you and the rest of the NRC Staff for this opportunity to comment on Vermont Yankee's 10 CFR 20.2002 Request.

Best regards,

/s/ Anthony R. Leshinskie

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**ENCLOSURE**

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10 CFR 20.2002 Request for Alternate Waste Disposal at US Ecology Idaho**

1. The description of waste contained in Section 3 of Enclosure 1 of Letter BVY 16-001 (Reference 1) indicates that up to 200,000 gallons of contaminated water currently stored in VT Yankee's former Emergency Core Cooling System Suppression Chamber, commonly known as the Torus, will be sent to US Ecology Idaho (USEI) facilities for disposal. The Torus is described as being filled to 96% of its 1,100,000 gallon capacity, i.e., to approximately 1,056,000 gallons. In subsequent reports to the State of Vermont, VT Yankee has indicated that, due to evaporation as Torus water is circulated through to the Spent Fuel Pool, the total Torus water volume (as of January 5, 2017) is now roughly 950,000 gallons (~87% of capacity). Since much of the radiological contamination will likely remain with the liquid water, will evaporating Torus water via the Spent Fuel Pool result in a significant increase in the concentrations of individual radiological contaminants, which would eventually result in higher TEDE doses than determined in either Letter BVY 16-001 or Letter BVY 16-021 (Reference 2)? If this is a reasonable possibility, will the NRC require Vermont Yankee to revise Letter BVY 16-021 radiological dose assessments on a regular basis? Would such a revised assessment be subject to the same degree of NRC review as the License Change request initially submitted in Letter BVY 16-001?
2. While the discussion in Letter BVY 16-001 notes that the process water contained in the Torus is circulated to the Spent Fuel Pool and that it would be pumped through the former High Pressure Coolant Injection (HPCI) suction strainers prior to shipment, it is likely that there are residual particulates from drained, former VT Yankee support systems that have settled at the bottom of the Torus. While these particulates will most likely not be pumped into shipping tanker while the Torus is filled near capacity, pumping some of these particulates into the shipping tanker could become more likely after the volume of stored process water has been reduced significantly. How will VT Yankee assure that much of what is shipped to USEI is contaminated water rather than contaminated water with some amount of highly contaminated particulates that could potentially remain in the tanker after it is emptied of water at the USEI site? Are the former HPCI suction strainers sufficient to assure that a significant quantity of particulate residing in the Torus is not inadvertently shipped to USEI?
3. The response to Request for Additional Information (RAI) #4 included in Letter BVY 16-021 (Reference 2) reports an additional "realistic" radiological dose rate value for the Long Haul Truck Drivers assuming that a sleeper cabin is available on the truck that provides added shielding and increases the distance between a driver and the radiation source from 0.6 meters to "at least 3.3 meters." This distance discussion needs clarification. 3.3 meters appears to be a reasonable distance to the radiation source when the long haul driver is actually driving the shipment truck. However, for the 24 hours (3 sleep periods of 8 hours each) that the driver is in the sleeper cabin, wouldn't the distance between the driver and the radiation source be significantly less, and probably closer to the 0.6 meters initially described? In other words, shouldn't this alternate dose rate be calculated by adding the dose rate at 24 hours, or more conservatively, 32 hours (adding 8 hours to account for all other breaks and activities) at 0.6 meters to the dose rate for 46.36 hours at 3.3 meters?

4. Vermont has not received any data from VT Yankee with respect to the non-radiological constituents of the process water proposed for disposal. The evaluation of such data could affect the characterization of the wastewater. Specifically our concern is that the hazardous constituents could affect the management requirements for the wastes if it were determined to be a mixed waste, containing both hazardous and radiological constituents. This data should be provided in order to properly evaluate the transfer, transportation and disposal of the wastes.
5. The Entergy VT Yankee email reply to NRC questions dated August 11, 2016 (Reference 3) contains a commitment to “perform a representative sample prior to each shipment of water and will confirm that the radionuclide concentrations result in doses that are equal to or less than, the doses delineated within the Summary of Project Alternative Disposal Dose Results,” in the “June 28, 2016 letter (BVY 16-021; ADAMS Accession No. ML16182A035)” requires several clarifications:
  - i. Will the NRC require VT Yankee to test the representative sample as described prior to each shipment? (The commitment is noted in the Safety Evaluation Report draft, but it is unclear whether the NRC is actually requiring that this be done.)
  - ii. Will the NRC regard the calculated radiological dose values reported in letter BVY 16-021 as limits for shipments? (If yes, this needs to be clearly stated in the Safety Evaluation Report.)
  - iii. Would a shipment be held at the VT Yankee site until the representative sample results are known? (The concern here is that a sample will be taken as the tanker is leaving the VT Yankee site, but that the representative sample results may not be known until after the shipment arrives at the USEI site.) What happens if it is determined that the BVY 16-021 limits were violated after the shipment has been made?
  - iv. What would happen to the intended shipment if the test results exceed those reported in BVY 16-021? Would VT Yankee hold the tanker onsite and wait for some of the radioactivity to decay? Would VT Yankee attempt some type of onsite decontamination, possibly using the “batch tank” that was installed near the former Condenser systems last year? If onsite decontamination is allowed, should the likely methods be described as part of this Licensing Change request?