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US Nuclear Regulatory Commission
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Vermont Public Service Department Comments Regarding NorthStar Vermont Yankee
10 CFR 20.2002 Request for Alternate Waste Disposal at US Ecology Idaho

REFERENCES:

1. E-Mail from Jack Parrott (USNRC) to June Tierney (VT Public Service) and Natalie Creed (ID Department of Environmental Quality), "Vermont Yankee Request to NRC for Alternate Disposal of Wastewater," dated December 22, 2020
2. NorthStar Letter Bvy 20-007 to USNRC, "10 CFR 20.2002 Request for Alternate Disposal at US Ecology Idaho," dated May 20, 2020 (ML20157A123)
3. NorthStar Letter Bvy 20-025 to USNRC, "Response to Request for Information Re: 10 CFR 20.2002 Request for Alternate Waste Disposal at US Ecology, Idaho (EPID No. L-2020-D20-0000)," dated September 21, 2020 (ML20290A492)
4. Entergy Letter Bvy 16-001 to USNRC, "10 CFR 20.2002 Request for Alternate Disposal at US Ecology Idaho," dated January 14, 2016 (ML16029A071)

Dear Mr. Parrott:

In response to your electronic mailing sent December 22, 2020 (Reference 1) requesting comments on the NRC's draft Safety Evaluation Report (SER) and draft Environmental Assessment (EA) for Vermont Yankee's 10 CFR 20.2002 Request for Alternate Disposal of up to 2 million gallons of radioactively contaminated water at US Ecology Idaho (USEI) facilities, I directed Vermont Public Service Department (VT PSD) Staff to evaluate the draft SER and EA enclosed with Reference 1, as well as Vermont Yankee's original request included in Reference 2 and its related documentation in Reference 3. The purpose of this letter is to provide you with the comments resulting from this evaluation.

VT PSD's evaluation found no technical reason to oppose Vermont Yankee's (VY's) use of USEI facilities for contaminated water disposal. The NRC granted a prior VY request (Reference 4) for disposal of 200,000 gallons of similarly contaminated water at the same USEI facility in 2017. VT PSD had no significant comments regarding this earlier request. Comparison of information in Reference 4 and its related documentation to the request described in References 2 and 3 determined only two notable differences between these requests: 1) the requested disposal volume in the current request is 10 times that of Reference 4; 2) the isotopes comprising the radiation source term in the current request are slightly different than in the Reference 4 request. Neither of these differences are unusual given the decommissioning activities currently underway at VY that will continue for the next two to three years. (A third difference exists in the documentation: Reference 4 assumed transportation by cross-county trucking. The current request assumes transportation by railcar. This difference is moot because VY subsequently demonstrated that using railcar transportation did not increase the radiological dose consequences for these shipments. Railcar transportation was eventually used for the Reference 4 shipments.) Hence, the using USEI as an alternate disposal facility for VY's contaminated water remains acceptable.

However, while reviewing the draft SER and References 2 and 3, VT PSD Staff identified several items that require clarification. I request that these clarifications be incorporated into the SER and EA drafts, as appropriate.

- 1) Tables 3 and 4 of the draft SER identify Tanker Truck Drivers and Treatment Truck Drivers as USEI workers potentially receiving radiological doses while processing VY contaminated water shipments. From the SER Table 3 exposure duration data (as well as Reference 3, Attachment 3), it is clear that the radiological dose estimates do not cover driving a water shipment from the VY site to USEI facilities via tanker truck. Nonetheless, VT PSD requests that SER Table 4 reiterate this by specifically noting that its reported radiological doses do not cover an interstate truck shipment. Truck shipments from VY to USEI will require additional NRC-approval.
- 2) Since VY's Cessation of Power Operations in December 2014, nearly 1.26 million gallons of contaminated water have shipped from VY. The current proposal would allow VY to ship up to 1 million gallons per year to USEI, a not unreasonable quantity based on the volume of contaminated water that will need to be drained from VY's Reactor Cavity, Torus Structure, Spent Fuel Pool and Dryer / Separator pit once Reactor Vessel segmentation has completed. Assuming that VY continues to use railcars with ~23,100 gallon capacity, shipping 1 million gallons in one year requires 43.5 railcar shipments, or nearly one railcar shipment per week. Rail carriers sometimes hold individual railcars in railyards when more railcars will be sent by the same shipper to the same destination within a known time-period. It is possible that several VY water shipments could remain in the same railyard for several weeks and then

subsequently arrive at USEI as part of the same train. Does holding several shipments in the same railyard for an extended time-period present any radiological issues that may not have been considered in the References 2 and 3 evaluations? Similarly, would receipt of multiple VY railcar shipments concurrently at USEI present an additional radiological dose issue that is not currently addressed by the References 2 and 3 evaluations?

- 3) Tables 3 and 4 of the draft SER provide radiological dose-related information for Railcar Surveyors. From this description, VT PSD assumes that these are workers who measure the radiological dose rates for individual railcars arriving at USEI. The radiological dose received by these Surveyors is reported as 1.23 millirem per year. From Table 3 of the draft SER, this dose rate is based on 33.5 repetitions of the task per year, or 67 surveys in total for the entire (2 million gallon) contaminated water shipment campaign.

As noted in Comment #2, VY has previously used 23,100 gallon capacity railcars for contaminated water shipments. At this capacity, 43.5 shipments will be required for transporting 1 million gallons of water per year, or 87 shipments for the entire water shipment campaign. Assuming that every VY railcar arriving at USEI is surveyed, why are only 67 surveys required rather than 87? 67 surveys would be required if each VY railcar had a capacity of at least 29,900 gallons.

87 railcars each requiring a radiological survey will increase the Railcar Surveyors estimated Annual Dose due to the increased number of survey repetitions. With the current Annual Dose estimate (with 33.5 repetitions per year) at 1.23 millirem per year, the impact to the Railcar Surveyors' Annual Dose estimate is not overly significant (likely increasing to 1.63 millirem per year in total). However, processing more railcars will increase the Annual Dose estimates for the other USEI Job Functions noted in SER Tables 3 and 4. With 3 of these functions near the NRC's requested radiological dose limit of 5 millirem per year, additional evaluation may be necessary to remain below this limit for all job functions.

- 4) While VT PSD anticipates that a 2 million gallon disposal request will be adequate to ship almost all of the water currently contained in VY's Reactor Cavity, Torus Structure, Spent Fuel Pool and Dryer / Separator pit, nonetheless VT PSD asks whether any additional alternate water disposal requests from VY are expected. An additional request may be required for residual water in the previously noted VY structures as they undergo a final decontamination once Reactor Vessel segmentation is completed. Would any such additional request include a significantly larger radiological source term due to sediments accumulating at the bottom of these structures from other decommissioning activities?

Questions or requests for additional information regarding VT PSD's comments may be directed to my office or to the Vermont State Nuclear Engineer, Mr. Anthony R. Leshinskie at 802-272-1714 or anthony.leshinskie@vermont.gov.

On behalf of the State of Vermont, I thank you for this opportunity to comment on this Vermont Yankee License reactor license-related request. I look forward to similar comment opportunities in the future.

Best regards,

/s/ June E. Tierney

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