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.

   The water that VY will be shipping to USEI under this proposed alternate disposal request will be via rail exclusively.

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?

   The potential holding of several shipments in the same railyard for an extended time-period does not present any radiological issues that may not have been considered in the References 2 and 3 evaluations as the dose considerations are for USEI personnel processing the waste. Any potential dose to members of the public due to in-transit shipments are discussed under the Environmental Impacts of the Proposed Action section of the Environmental Assessment and Finding of No Significant Impact review.

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.

   The State of Vermont identified a typographical error during their review. The calculation for the number of rail tankers needed mistakenly had a value of "30,000" gallons per tanker entered instead of our standard rail tanker volume value of 20,000 gallons/tanker. This typo resulted in the wrong number of tankers required to ship 2M gallons (or 267,380 ft3) of water. The correct number of tankers is 101 (not 67 as previously shown).

   When this typographical error is corrected within the SSDA, the railcar surveyor dose is 1.83 mrem/yr vs the previous value of 1.23mrem/yr. This revised calculated dose remains bounded by the MEI dose for the project (1.83 mrem/yr vs MEI dose of 4.81 mrem/yr). Furthermore, the circled cell below (or Cell G16 in the SSDA) is the only other one that contains the rail volume calculation, so there are no concerns of this typographical error potentially affecting other calculations or conclusions in the subject Vermont Yankee alternate disposal request.

b) USEI Worker Total Dose per Project Year (if applicable)										
Function	Minimum Number of Workers	Waste Contact Time (hr)	External Exposure Rate (mR/hr)	Internal Dose Rate (mrem/hr)	Distance (m)	Total No. of Repetitions	Annual External Dose per Worker (mrem)	Annual Internal Dose per Worker (mrem)	Total Annual Dose per Worker (mrem)	% of Max Annual MEI Dose[1]
Front-End Dray Truck Drivers	4	0.00	0.00E+00	0.00E+00	0.6	0	0.00E+00	0.00E+00	0.00E+00	0.0%
Long-Haul Direct Truck Drivers - Drive Time	8	0.00	0.00E+00	0.00E+00	0.0	0	0.00E+00	0.00E+00	0.00E+00	0.0%
Long-Haul Direct Truck Drivers - Sleep Time	*8*	*0.00*	*0.00E+00*	*0.00E+00*	*0.0*	*0*	0.00E+00	0.00E+00	---	---
Tanker Truck Drivers - Drive Time	8	0.75	2.56E-01	0.00E+00	3.3	400	9.62E+00	0.00E+00	4.81E+00	96.2%
Tanker Truck Drivers - Sleep Time	*8*	*0.00*	*2.56E-01*	*0.00E+00*	*3.3*	*0*	*0.00E+00*	*0.00E+00*	---	---
Railcar Surveyors	4	0.33	4.39E-01	0.00E+00	1.0	101	3.66E+00	0.00E+00	1.83E+00	36.6%
Bulk/IMC Truck Surveyors	8	0.08	3.54E-01	0.00E+00	1.0	0	0.00E+00	0.00E+00	0.00E+00	0.0%
Container Pad Operators	6	0.50	0.00E+00	6.37E-05	1.0	0	0.00E+00	0.00E+00	0.00E+00	0.0%
RTF Excavator Operator	2	0.75	2.58E-01	6.37E-05	2.0	0	0.00E+00	0.00E+00	0.00E+00	0.0%
Gondola Railcar Cleanout	4	0.16	8.78E-02	6.37E-05	0.3	0	0.00E+00	0.00E+00	0.00E+00	0.0%
Rail Transfer Equipment Operator	4	0.25	4.22E-02	0.00E+00	4.9	0	0.00E+00	0.00E+00	0.00E+00	0.0%
Back-End Dray Truck Drivers	8	0.75	5.05E-01	0.00E+00	0.6	0	0.00E+00	0.00E+00	0.00E+00	0.0%
Treatment Workers	6	0.92	1.53E-01	6.37E-05	2.0	401	9.40E+00	3.92E-03	4.70E+00	94.0%
Treatment Plant Truck Driver	2	0.16	3.95E-02	6.37E-05	0.6	991	3.13E+00	5.05E-03	1.57E+00	31.4%
Container Pad Truck Driver	2	0.16	0.00E+00	0.00E+00	2.0	0	0.00E+00	0.00E+00	0.00E+00	0.0%
Landfill Cell Operators	2	0.25	1.70E-01	6.37E-05	1.0	418	8.89E+00	3.33E-03	4.45E+00	88.9%

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?

   The NRC is reviewing the request of VY for technical and regulatory adequacy. The NRC is not in the position to address if any additional requests may occur in the future. If any subsequent requests are made, the request would be reviewed as per the technical and regulatory requirements in effect at the time of the review.