

ClinchRiverESPEISCEm Resource

From: Stout, Daniel Paul <dpstout@tva.gov>
Sent: Friday, June 29, 2018 3:39 PM
To: ClinchRiverESPEIS
Cc: Schiele, Raymond Joseph; Shea, Joseph W
Subject: [External_Sender] TVA Response to NRC request for comments on CRN ESP DEIS
Attachments: CRN SMR ESPA DEIS Comments 06_29_2018.docx

Attention Tamsen Dozier

TVA would like to thank the NRC for the opportunity to provide comments on the Clinch River Small Modular Reactor Early Site Permit Application Draft Environmental Impact Statement (DEIS). The TVA comments are provided in the attached file and include the DEIS Section, Page and Line number for each comment.

Kind Regards,

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Federal Register Notice: 83FR18554
Comment Number: 7

Mail Envelope Properties (1b2a31ed7bb24a7ca1be5e5345069321)

Subject: [External_Sender] TVA Response to NRC request for comments on CRN ESP DEIS
Sent Date: 6/29/2018 3:38:56 PM
Received Date: 6/29/2018 3:39:06 PM
From: Stout, Daniel Paul

Created By: dpstout@tva.gov

Recipients:

Post Office: tva.gov

Files	Size	Date & Time
MESSAGE	507	6/29/2018 3:39:06 PM
CRN SMR ESPA DEIS Comments 06_29_2018.docx		89588

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Section: 2.2

Page: 2.13

Line: 1

Comment:

Figure 2-8 and 2.10 of the DEIS shows transmission line segments that would be modified as a result of the construction of SMRs at the CRN Site. The following discrepancies exist on DEIS Figure 2-8 and Figure 2-10 in comparison to ER Revision 1 Figure 2.2-7 and 3.7-7:

Transmission segment L5882 should be shown as "Uprate and Reconductor"

Transmission segment L5957 should be shown as "Uprate and Reconductor"

TVA requests that NRC revise Figures 2-8 and 2.10 to reflect the correct disposition of these two transmission lines.

Section: 2.2.2.1

Page: 2-12

Line: 20

Comment:

Table 2-2 of the DEIS lists "Mileage and Acreage of Affected Transmission Line Corridors" and summarizes the total mileage and acreage for each of the "rebuild, reconductor, and uprate" activities as follows:

Rebuild: Total Line Mileage 13, Total Corridor Acres 152

Reconductor: Total Line Mileage 212, Total Corridor Acres 2,566

Uprate: Total Line Mileage 215, Total Corridor Acres 2,608

Total, all activities: Total Line Mileage 439, Total Corridor Acres 5,327

These values differ from the information presented in ER Revision 1 Table 3.7-1 as follows:

Rebuild: Total Line Mileage 12.7, Total Corridor Acres 154

Reconductor: Total Line Mileage 122.01, Total Corridor Acres 1,476

Uprate: Total Line Mileage 191.02, Total Corridor Acres 2,317

TVA requests that NRC revise Table 2-2 to reflect the mileage and acreage as presented in ER Rev 1.

Section: 2.5.2.3

Page: 2-120 to 2-121

Line: 16-17 and 1-6

Comment:

The DEIS states, "Of the 48.5 percent of total payments, 30 percent (14.55 percent of total payments) is distributed to counties based on county shares of the total State population, 30 percent to counties based on county acreage shares of the State total, and 30 percent to incorporated municipalities based on each municipality's share of the total population of all incorporated municipalities in the State. The remaining 10 percent (4.85 percent of total payments) is allocated to counties based on each county's share of TVA owned land in the State, including 3 percent that is paid to local governing areas that are experiencing TVA construction activity on facilities built to produce power, as designated by TVA."

However ER Revision 1 Section 2.5.2.3 states the following: "Of the 48.5 percent distributed to local governments, 70 percent is distributed to counties and 30 percent to municipalities. For the county distributions, 30 percent of the total is distributed based on the percent of state population, 30 percent is distributed based on the percent of state land, and 10 percent is distributed based on the county's percent of TVA acreage in Tennessee. The distribution to municipalities is determined solely based on the percent of state population."

Therefore, TVA requests that NRC revise this statement as follows: "Of the 48.5 percent of total payments, 70 percent is distributed to counties. Of that 70 percent, 30 percent is distributed to counties based on county shares of the total State population, 30 percent to counties based on county acreage shares of the State total, and 10 percent is allocated to counties based on each county's share of TVA owned land in the State. Thirty percent of the 48.5 percent of total payments is distributed to municipalities based on each municipality's share of the total population of all incorporated municipalities in the State. The remaining 3 percent is paid to impacted local governing areas that are experiencing TVA construction activity on facilities made to produce power".

Section: 2.5.2.4.1

Page: 2-123

Line: 1 (Table 2-34)

Comment:

The source document for traffic information in ER Rev 1 is AECOM 2015 Traffic Study. DEIS Table 2-34 has the following discrepancies with the 2015 Traffic Study :

Row 1 - SR 58 at Bear Creek Road Ramp (Unsignalized): AM Peak Hour Peak Traffic should be 780 rather than 146. PM Peak Hour Peak Traffic should be 1,198 rather than 97.

Row 3 - SR 58 at Bear Creek Road Ramp (Unsignalized) Northbound Approach: AM Peak Hour Peak Traffic should be 591 rather than 82. PM Peak Hour Peak Traffic should be 211 rather than 5.

Row 4 - SR 58 at Bear Creek Road Ramp (Unsignalized) Southbound Approach: AM Peak Hour Peak Traffic should be 179 rather than 54. PM Peak Hour Peak Traffic should be 897 rather than 2.

Row 10 - Bear Creek Road at Bear Creek Road Ramp (Unsignalized): PM Peak Hour Peak Traffic should be 113 rather than 219.

Row 12 - Bear Creek Road at Bear Creek Road Ramp (Unsignalized) Westbound Approach: PM Peak Hour Peak Traffic should be 94 instead of 200.

TVA requests that NRC consider revising Table 2-34.

Section: 2.5.2.7.2

Page: 2-126

Line: 29

Comment:

The DEIS states, "There are 133 law enforcement personnel in Loudon County, including 88 officers and 35 civilian employees (FBI 2017-TN4958)." DEIS Table 2-38 on page 2-129 indicates this value is 123 (88+35=123).

Please consider revising.

Section: 2.5.2.7.2

Page: 2-129

Line: 9-14

Comment:

The DEIS states, "The 11 medical centers in the economic region have a total of 2,664 hospital beds. Methodist Medical Center of Oak Ridge is the closest hospital to the CRN Site; it has 301 beds, 2 trauma suites, 38 treatment rooms, and a chest pain center. The University of Tennessee Medical Center (583 beds) is the closest level-1 trauma center to the site. The review team estimates that more than 500 beds have been added in the economic region since 2015 (TVA 2017-14 TN4921)." ER Revision 1 is listed as the reference for this information.

The cited data does not match the information provided in ER Revision 1 which includes the following:

Page 2.5.2-24 Hospital Beds = 275 in Anderson County, 1839 in Knox County, 40 in Loudon County, 36 in Roane County = 2190 total beds

Page 2.5.2-65 table 2.5.2-18 Methodist Medical Center of Oak Ridge = 255 beds, the ER does not include information on the number of trauma suites or treatment rooms in this facility

Page 2.5.2-65 table 2.5.2-18 The University of Tennessee Medical Center = 536 beds

ER Revision 1 does not estimate how many beds have been added to the region in recent years.

TVA suggests that a different reference for this information be listed rather than ER Revision 1, or that the data be updated to match the information presented in ER Revision 1 if that is the correct reference.

Section: 2.7.2.1

Page: 2-144

Line: 14 (last row in table on this page)

Comment:

The DEIS states, "No Further Work" in the "Recommendations" column for 40RE123. In later examples in this same table (such as 40RE135) the "Recommendations" column also indicates when a site has been destroyed. The ER Revision 1 Table 2.5.3-2 indicates that 40RE123 was destroyed in 1973 as described in ER Reference 2.5.3-6 Schroedl, G. F., "Historic Sites Reconnaissance in the Clinch River Breeder Reactor Plant Area," University of Tennessee, Department of Anthropology, Knoxville, Tennessee, Prepared for the Tennessee Valley Authority and the Project Management Corporation, 1974. Consider revising the DEIS to add "Site destroyed" to the "Recommendations" column for 40RE123 in DEIS Table 2-42.

Section: 2.7.2.1

Page: 2-146

Line: 2nd row in Table 2-42

Comment:

Table 2-42 of the DEIS lists site number 40RE165 as "Pre-contact" in the "Site Type" column. As indicated in the "Time Period" column of the same table and as described in ER Revision 1, site 40RE165 is a multi-component site.

TVA suggest "and Historic" be added to the "Site Type" column for 40RE165.

Section: 2.7.2.1

Page: 2-147

Line: Last two rows of Table 2-42

Comment:

The last two rows of DEIS Table 2-42 describe the Access Road and River Road on the CRN site as historic resources that are undocumented and unevaluated. The "Recommendations" column states each "Site should be avoided if possible; if site disturbance is necessary, further investigation is recommended to determine NRHP eligibility."

In Section 2.5.3.5, ER Revision 1 states, "Both the Access Road and River Road are currently dirt/gravel roads that have been modified with the addition of culverts and grading (both during the CRBRP and at other times) since their original construction. The NRHP-eligibility for these roads has not been determined, but they most likely would not be eligible. Although the River Road, if constructed by the Atomic Energy Commission as part of the Manhattan Project, would be associated with events of historic significance, it no longer retains its integrity of association due to changes in land use that have taken place in the past six decades, nor its integrity of materials or workmanship due to the modifications."

For clarity, please consider adding the information about the condition of River Road to the DEIS.

Section: 2.7.2.2

Page: 2-155

Line: 21-28

Comment:

The DEIS states, "The NRHP-eligible Melton Hill District consists of a total of 14 contributing resources, including 8 buildings (Powerhouse, Lock Control Building 1, Lock Control Building 2, Lock Operation Building, Visitor Building, Main Office Building, Bathhouse 1, and Bathhouse 2), two sites (Visitor Building Picnic Area and Recreation Area), and 5 structures (Melton Hill Dam, Navigational Lock, Switchyard and Transmission Lines, Flammable Materials Storage Shed, and Hazardous Materials Storage Shed) (Martens and Thomason 2015-TN5260). Thirteen of the 14 NRHP-eligible contributing resources are located within the 0.5-mi indirect-effects APE." As this description shows (and as stated in the National Register of Historic Places Nomination form for the Melton Hill Hydroelectric Project), there are actually 15 NRHP-eligible/contributing structures (8+2+5=15).

TVA suggests making this revision to the DEIS.

Section: 2.8

Page: 2-158

Line: 38-39

Comment:

The DEIS states, "Haw/Hood Ridge was formed by the Copper Creek Thrust Fault."

Neither ER Rev. 1 nor the SSAR make this statement. As presented in SSAR Section 2.5.3.2.1, the Copper Creek fault is a late Paleozoic thrust fault, and does not exhibit movement during the Quaternary period: "The CRN Site is located between two major late Paleozoic thrust faults: the White Oak Mountain fault approximately 2 mi to the northwest and the Copper Creek fault approximately 0.25 mi to the South (Figure 2.5.1-35) (see Section 2.5.1.2.4)."

TVA suggests that either a different reference for this information be listed or that this statement be updated to match the information presented in SSAR Rev 1.

Section: 2.9

Page: 2.9.1.3

Line: 1

Comment:

In DEIS Section 2.9.1.3, second paragraph, the mean dew point temperature for Knoxville should be 49.9 deg F (reference from ER Table 2.7.1-4), not 51.9 deg F. The value of 51.9 deg F is the mean wet bulb temperature at Knoxville.

TVA request NRC consider revising the DEIS.

Section: 2.9.1.5.3

Page: 2-165

Line: 34

Comment:

In the first paragraph of Section 2.9.1.5.3 on Extreme Winds, the DEIS indicates the maximum observed hourly wind speed at the CRN site's met tower was 15.1 mph. The DEIS should indicate the level of the measurement. Based on data in the ER, this speed is for the 10 m level of the tower.

TVA request NRC consider revising the DEIS.

Section: 2.9.3.3.2

Page: 2-170

Line: 11

Comment:

Table 2-46 of the DEIS indicates that maximum X/Q and D/Q values occur to the WNW. The ER agrees with this except for the D/Q values for the site boundary, residence and vegetable garden. The ER indicates maximum values are to the ESE for these cases.

TVA request NRC consider revising the DEIS.

Section: 2.9.4.1

Page: 2-173

Line: 1

Comment:

Table 2-47 of the DEIS indicates the precipitation range of the CRN site rain gauge is 0 to 1.0 inch. The ER indicates the range is 0 to 10.0 inches.

TVA request NRC consider revising the DEIS.

Section: 2.11

Page: 2-181

Line: 22

Comment:

The DEIS (page 2-181, line 22) list technitium-99 (Tc-99) as being detected in groundwater at the CRN site and references Revision 1 of the ER. However, in reference to groundwater contaminants at the CRN site, ER Section 2.3.3.2.2.1, Local Groundwater Quality, states, "The primary classes of contaminants present include VOCs and radionuclides (primarily uranium, tritium, and strontium-90)." Tc-99 is only mentioned later in Section 2.3.3.2.2.2 as being present in plumes at ETP, not as a site contaminant. Therefore, it is a regional contaminant.

TVA requests that the DEIS be revised accordingly.

Section: 2.11

Page: 2-181

Line: 30

Comment:

The DEIS lists chromium-6 as Cr-6 in a series of radioactive isotopes: "H-3, Cr-6, Co-60, Sr-90, Tc-99, and Cs-137". Chromium-6 (Cr-6) is a chemical contaminant, not a radioactive isotope.

TVA suggests revising the DEIS accordingly.

Section: 3.1

Page: 3-3

Line: 1

Comment:

Figure 3-1 of the DEIS differs from ER Figure 3.1-2 as follows:

There is an additional 161 kV line shown just north of Bear Creek Road in the DEIS figure that is not represented in ER Figure 3.1-2;

The DEIS figure shows the 161 kV line running through the site, whereas the ER Figure 3.1-2 does not show this routing;

The DEIS figure uses the term "Power Block" whereas the ER revised the term to "Power Block Area".

TVA requests NRC revise Figure 3-1 accordingly.

Section: 3.1

Page: 3-1

Line: 31-33

Comment:

The statement on line 31-33, "The four SMR technologies used to develop the PPE all represent pressurized water reactors with below-grade containment, passive containment cooling for the ultimate heat sink, and closed-cycle wet cooling for the circulating water system (CWS)." is not made in the ER. Not all of the designs use entirely below-grade containments and not all of the design have passive containment cooling for UHS. Additionally, the closed-cycle distinction for the circ. water system is more of a site specific issue than a vendor issue.

TVA suggest revising or deleting this statement.

Section: 3.2.2.2

Page: 3-5

Line: 23-26

Comment:

Statements in Section 3.2.2.2, page 3-5, lines 23-26 imply that all of the makeup water is either being discharged back to the river or to the atmosphere. This is not accurate. Although those discharge paths

exist, some of the water will also re-enter as circulating water as some of the existing circulating water is discharged via the aforementioned path.

TVA suggests clarifying the statements to more accurately reflect the design of the circulating water system as described in ER Section 3.4.1.3.

Section: 4.2.1

Page: 4-12

Line: 5

Comment:

DEIS Section 4.2.1, Page 4-12, Line 5 states that one of the activities that could produce hydrologic alterations includes "installation of a flow bypass system at the Melton Hill Dam". Hydrologic alteration associated with the bypass at Melton Hill Dam is not specifically addressed in the ER. ER Section 4.3.2.3, Page 4.3-16, Paragraph 3 states that since the bypass would be constructed within the existing dam, it would not substantially disturb sediment or affect aquatic life and therefore, would not likely result in hydrologic alterations.

TVA suggest NRC consider revising the statement in the DEIS.

Section: 4.4.2

Page: 4-48

Line: 15

Comment:

The DEIS states, "TVA assumed that at peak construction, 1,114 of the 3,300 workers, or about 34 percent, would relocate into the economic region in proportion to the existing DOE Oak Ridge-related workforce residency pattern (TVA 2017-TN4921)." ER Revision 1 Subsection 3.10.2 states that 1,115 construction workers would be expected to move into the region (page 3.10-3). At the peak construction workforce, TVA estimates there would be 1,365 in-migrating workers.

TVA requests that NRC consider revising the DEIS.

Section: 4.4.2

Page: 4-48

Line: 14 (Table 4-5)

Comment:

DEIS Table 4-5 appears to be based on the assumption of a peak workforce of 3,300. However, the peak workforce as described in ER Revision 1 is anticipated to be 3,666. Therefore, Table 4-5 would need to be updated.

TVA requests that NRC consider revising the DEIS.

Section: 4.4.2

Page: 4-49

Line: 10

Comment:

The DEIS states, "The review team calculates an in-migrating workforce of 1,114 workers and their families would cause a 0.4 percent increase in population because of worker relocation." However per ER Revision 1, this number is 1,115 for construction workforce and actually 1,365 for peak workforce.

TVA requests that NRC consider revising the DEIS.

Section: 4.4.2

Page: 4-49

Line: 2 (Table 4-6)

Comment:

DEIS Table 4-6 is based on the assessment of 1,114 in-migrating construction workers. Per ER Revision 1, there would be 1,115 in-migrating construction workers. At the peak workforce there would be 1365 in-migrating workers per ER Revision 1 Subsection 4.4.2.1 page 4.4-8.

TVA requests that NRC consider revising the DEIS.

Section: 4.4.2

Page: 4-46

Line: 10

Comment:

The DEIS states, "TVA has not selected a reactor technology, but estimates that 3,300 workers would be required during peak employment period—a 6-month period (months 42–47) (TVA 2017-TN4921)." However, ER Revision 1 estimates 3,666 workers would be required during the peak employment period (ER Revision 1 Section 3.10-4, page 3.10-4).

TVA requests that NRC consider revising the DEIS.

Section: 4.4.3.1

Page: 4-50

Line: 45-47

Comment:

The DEIS states, "A total of 1,114 workers are expected to move into the economic region at peak construction. These 1,114 workers would receive an estimated annual total of \$45.6 million in compensation." As specified in other comments, ER Revision 1 states that 1,115 construction workers would be expected to move into the region. At the peak workforce, TVA estimates there would be 1,365 in-migrating workers.

TVA requests that NRC consider revising the DEIS.

Section: 4.4.3.1

Page: 4-51

Line: 4-6

Comment:

The DEIS states, "Using the RIMS II economic multipliers TVA obtained, the aggregate impact supported by the proposed project includes approximately 5,750 direct, indirect, and induced jobs and \$229 million annually in direct, indirect, and induced labor income during peak construction activities." However, ER Revision 1 estimates 3,666 peak workforce and 2970 indirect jobs with a total of 6,386.

TVA requests that NRC consider revising the DEIS.

Section: 4.4.3.1

Page: 4-50

Line: 32-33

Comment:

The DEIS states, "That means that an estimated 2,450 indirect and induced jobs in the 33 economic region would be expected during the peak construction period (months 42–47)." However, ER Revision 1 Subsection 4.4.2.2 estimates 2720 indirect jobs (page 4.4-10).

TVA requests that NRC consider revising the DEIS.

Section: 4.4.4.1

Page: 4-53

Line: 18-26

Comment:

The DEIS states, "The TIA indicated that by 2024, six intersections in Roane County would have traffic levels that deteriorated below Tennessee acceptable standards (LOS B or better) (AECOM 2015-TN5000). The intersections are:

SR 58 at Bear Creek Road Ramp

SR 58 at SR 327

SR 95 at Bear Creek Road

Bear Creek Road at U.S. Government Property Road

Bear Creek Road at Site Driveway

Bear Creek Road at Bear Creek Road North Bound Ramp (Proposed)."

Per AECOM 2015-TN5000 it is actually four of five existing intersections that would deteriorate below LOS B. SR58 at SR 327 is estimated to be LOS B under the scenarios evaluated. As the intersection at Bear Creek Road and Bear Creek Road North Bound Ramp (Proposed) does not exist, it cannot have deteriorated below Tennessee acceptable standards (LOS B or better). AECOM 2015-TN5000 estimates that in the future, this intersection would be at LOS B under all scenarios evaluated. TVA suggest NRC consider revising this statement.

TVA requests that NRC consider revising the DEIS.

Section: 4.4.4.1

Page: 4-53

Line: 4-6

Comment:

The DEIS states, "The size of the workforce would vary over an estimated 72-month building period from a minimum of 100 workers to a maximum of 3,300 workers at peak employment." As described in the ER, the peak workforce is 3,300 construction workers plus 366 operations workers for a total of 3,666 workers.

TVA requests that NRC consider revising the DEIS.

Section: 4.4.4.2

Page: 4-56

Line: 15

Comment:

The DEIS states that 34 percent of the construction workforce would be expected to relocate either permanently or temporarily to the economic region. This is calculated from the earlier analysis in Subsection 4.4.2 using the estimate that 1,114 of the 3,300 construction workers would relocate into the area. This number does not take into account the construction workers families nor does it account for the operational workforce which would be present at the time of the peak workforce.

TVA requests that NRC consider revising the DEIS.

Section: 4.4.4.3

Page: 4-56

Line: 29-31

Comment:

The DEIS states, "As discussed in EIS Section 4.4.2, 1,114 workers and their families would move into the economic region from outside the economic region." ER Revision 1 Subsection 4.4.2.1, page 4.4-8 states, 1,115 construction workers would migrate into the region and additional 250 operational workers would also migrate into the region. This results in a total in-migrating workforce of 1,365. Additionally, in a later paragraph on the same page, ER Revision 1 indicates that with families, this would result in an influx of 3,385 people total. Therefore, the value of 1,114 workers and their families as listed in the DEIS is inconsistent with ER Revision 1. If this sentence in the DEIS is meant to refer to the influx of construction workers only, this value should be 1,115. If it is meant to represent the peak in-migrating workforce it should be 1,365. If this sentence is meant to reflect all workers and their families the value should be 3,385.

TVA requests that NRC consider revising the DEIS.

Section: 4.4.4.3

Page: 4-57

Line: 1 (Table 4-8)

Comment:

The DEIS Table 4-8 discusses total in-migrating families. This is a different approach from ER Revision 1. The DEIS Table 4-8 does not include in-migrating families or operations workers which would be expected to be present at the period of the peak workforce as described in ER Revision 1. Therefore, DEIS Table 4-8 underestimates the potential peak workforce and number of in-migrating families.

TVA requests that NRC consider revising the DEIS.

Section: 4.4.4.4.1

Page: 4-59

Line: 10-15

Comment:

The DEIS states, "TVA also indicated that CRN Site sanitary wastewater would be discharged to the City of Oak Ridge Rarety Ridge Wastewater-Treatment Plant (WWTP). TVA estimated a peak wastewater treatment demand of 165,000 gpd (0.165 Mgd) based on a per capita demand of 50 gpd for the peak workforce of 3,300 workers." As stated previously, ER Revision 1 estimates a peak workforce of 3,666. Based on a demand of 50 gallons per day, ER Revision 1 estimates a demand of 183,300 gallons per day for peak wastewater treatment.

TVA requests that NRC consider revising the DEIS.

Section: 4.4.4.4.1

Page: 4-57

Line: 20-23

Comment:

The DEIS states, "At peak employment, the review team expects 1,114 workers and their families to move into the economic region. This would constitute a total of 2,819 people moving into the economic region at peak construction. These relocating workers would increase the demand on the water supply and wastewater-treatment services within the communities where they would reside." As noted elsewhere, ER Revision 1 states that 1,115 construction workers would be expected to move into the

economic region, plus an additional 250 operations workers at the period of peak employment which makes 1,365. With the inclusion of families, this would result in an immigration of 3385 people.

TVA requests that NRC consider revising the DEIS.

Section: 4.4.4.4.2

Page: 4-59

Line: 31-32

Comment

The DEIS states, "At peak employment, the review team expects 1,114 workers and their families to move into the economic region for a total of 2,819 people (workers plus their families)." As stated previously, the ER calculated a peak of 1,115 immigrating construction workers plus 250 operations workers during the period of peak construction which would make 1,365. With families the ER estimated a total of 3385 persons into the area.

TVA requests that NRC consider revising the DEIS.

Section: 4.8-2

Page: 4-74

Line: 6

Comment:

As discussed in EIS Section 2.10.2, TVA measured baseline noise levels in 2014. This is incorrect. As reported in AECOM 2014, Final Clinch River Site Ambient Noise Assessment Technical Report, Revision 1 (Accession No. ML17334A057. TN5004), TVA measured baseline noise in 2013.

TVA suggest NRC consider making this correction.

Section: 4.9.2

Page: 4-79

Line: 2-4

Comment:

The DEIS states, "As discussed in ER Section 2.7.6, routine diffusion and dispersion estimates were modeled using the XOQDOQ computer program (Sagendorf et al. 1982-TN280) using 1 year's worth

of site-specific validated meteorological data." ER Revision 1 states, "The results of the modeling analysis, based on two years of onsite meteorological data, are presented in Table 2.7.6-6 through Table 2.7.6-10" (ER Section 2.7.6). Furthermore, ER Revision 1 states, "Site-specific, validated meteorological data from June 1, 2011 through May 31, 2013 were used to quantitatively evaluate routine releases at the CRN Site" (ER Section 4.5.3.2).

TVA requests NRC consider revising the DEIS to reflect that two years of data were used.

Section: 4.10.1

Page: 4-80

Line: 20-27

Comment:

The DEIS text states "Spoils (dredge material) generated as a result of dredging the Clinch River for building activities associated with the intake and discharge structures for the new units, would be placed in an upland dredged-material dewatering pond (see EIS Sections 3.2.2.1 and 3.2.2.2) (TVA 2017-30-TN4921). Spoils would remain in the dewatering pond until they were dry enough to be used as clean fill on the CRN Site, disposed of in the onsite landfill, or transported offsite to an approved landfill (TVA 2017-TN4921). Once all dredge material is dried and moved out of the dewatering pond, the dewatering pond site would be re-graded if necessary and vegetation would be re-seeded for stabilization (TVA 2017-TN4921).

Although this text references the ER (TN 4921), these activities are not described in the ER. They are also not described in Sections 3.2.2.1 or 3.2.2.2 of the EIS, or in the Supplemental Information document (TN4922). There is discussion in the ER of placing water from the dewatering of onsite excavations into ponds, but there is no mention in either the ER or the Supplemental Information document (TN4922) of placing excavation spoils, whether from onsite or shoreline excavations, into ponds for dewatering. The ER states that dredging would not occur, and this is reaffirmed in the EIS Section 4.2.1.2.2, Page 4-13, Paragraph 3. The ER also discusses that contaminated sediment would be managed in accordance with the interagency agreement, but it does not provide any details about that management. The Supplemental Information document (TN4922) states what the USACE and TDEC requirements would be if dredged material were to be generated, but that description does not match this text.

TVA requests that NRC either revise or update this section to reflect the information presented in the ER section cited above.

Section: 5.2.2.1

Page: 5-6

Line: 19-20

Comment:

The DEIS text states “Average withdrawal and consumptive use would be less than 1 percent of the mean annual discharge from Melton Hill Reservoir . . .”.

However, the 4670 cfs value is average annual flow, not mean annual flow.

TVA requests the text on Page 5-6, Lines 19-20, and also in Table 5-1 be corrected accordingly.

Section: 5.2.3.1.3

Page: 5-9

Line: 2-3

Comment:

The DEIS text states “The winter case was found to be bounding.” However, this statement is not found in the ER. As discussed in ER Section 5.3.2.1, Page 5.3-8, Paragraph 4, the winter case would be bounding for compliance with some requirements (maximum change in temperature and maximum rate of temperature change), but the summer case would be the bounding case for maximum river temperature zone of influence. This information is also found in Section 5.2.3.1, Page 5.3-7, Paragraph 4.

TVA requests that NRC consider revising this and any related sections to explain that bounding cases are found in both the summer and winter.

Section: 5.2.3.1.5

Page: 5-11

Line: 9-13

Comment:

The DEIS text states “The blowdown is not anticipated to contribute any of the constituents that are presently causing water-quality impairment in the Clinch River arm of Watts Bar Reservoir (atmospheric mercury, sediment-associated polychlorinated biphenyl and chlordane), but any of those constituents already occurring in the water could become concentrated in the CRN cooling-water system.” This is true of any constituents in the water, not just those related to the water quality impairment. Also, while it is true that these would become concentrated in the blowdown, they would immediately be re-diluted

again when discharged. Therefore, it is TVA's assessment that there would be no net increase in concentration of these contaminants in the reservoir.

TVA suggests NRC consider revising this statement.

Section: 5.2.3.1.5

Page: 5-11

Line: 7-9

Comment:

The text states "Few of the constituents in Table 3-4 have established numerical water-quality criteria; for those that do (copper, zinc, and manganese), the reported concentrations do not exceed the criteria." Actually, the concentrations of both copper and zinc in the blowdown itself do exceed the criteria. But the TDEC criteria do not directly apply to the blowdown. Instead, they are used by TDEC to establish NPDES discharge limits that will allow the water in the reservoir to meet the water quality standards.

TVA suggests that NRC revise the characterization of this water-quality criteria.

Section: 5.7.1.1

Page: 5-44

Line: 25

Comment:

DEIS Table 5-3 states that total annual PM10 emissions are 14,400 lb/yr (7.2 ton/yr). The Diesel Generator emissions were omitted. Thus the total PM10 annual emissions should be 14,700 lb/yr (7.4 ton/yr).

TVA requests that NRC revise Table 5-3 to reflect the total PM10 annual emissions.

Section: 5.9.2

Page: 5-59

Line: 5

Comment:

DEIS Table 5-6 shows non-zero skin doses at the meat animal location from gaseous effluents. The source of the data is cited as ER Revision 1, Table 5.4-11, but the ER table shows the skin doses as zero. The DEIS table is consistent with the ER in showing skin doses for inhalation and vegetable pathways as zero. TVA provided the GASPARG II input and output files associated with ER Table 5.4-11 via a letter on June 23, 2016 (ML16180A307). Although the GASPARG II output shows skin doses for internal exposure pathways, the ER assumes there is no skin dose from internal pathways such as inhalation and meat and vegetable consumption because Federal Guidance Report 12 shows no dose conversion factors for the skin for inhalation and ingestion pathways. Furthermore, the skin doses for the meat pathway in DEIS Table 5-6 do not match the GASPARG II output. Consider revising DEIS Table 5-6.

Section: 5.9.2

Page: 5-58

Line: 1

Comment:

DEIS Table 5-5 shows the direct radiation dose from liquid effluents as $6.8E-4$ mem/yr for "All" age groups. The source of the data is cited as ER Revision 1, Table 5.4-9, but the ER table does not show this dose. TVA provided the LADTAP II input and output files associated with ER Table 5.4-9 via a letter on June 23, 2016 (ML16180A307). In the LADTAP II output, the sum of doses for swimming, boating, and shoreline activities is $6.8E-4$ mrem/yr for the teen age group, but lower for other age groups. Consider revising DEIS Table 5-5.

Section: 5.9.6

Page: 5-64

Line: 18 and 25

DEIS Section 5.9.6 states that the REMP includes monitoring "in a 5-mi radius of the station, with indicator locations near the site perimeter and control locations at distances greater than 10 mi" (page 5-64, line 18). Section 6.2.2 of the ER is more general and states, "A REMP also includes sampling indicator and control locations within a 20-mi radius of the nuclear power facility." The potential monitoring locations provided in Table 6.2-2 include TLD locations 6.0 mi from the center of the site while food product samples would generally be collected within 1 mi and other indicator samples are

well beyond the “site perimeter.” Table 6.2-2 also states that an airborne control location could be 15 to 30 km (9.3 to 18.6 mi) from the site boundary. TVA suggests NRC consider revising Section 5.9.6 to reflect the range of monitoring distances presented in the ER.

TVA suggests that NRC clarify that this information applies to all exposure pathways, not only to ingestion exposure.

The second paragraph of DEIS Section 5.9.6 (line 25) lists media that would be collected and analyze as part of the preoperational monitoring program. The DEIS’s list includes precipitation. The monitoring described in the ER does not include precipitation.

TVA requests precipitation be removed from the REMP.

Section: 5.11.2.5

Page: 5-86

Line: 22 and 33

Comment:

DEIS Section 5.11.2.5, page 5-86, Lines 22 and 33 mention a 6 year cooling time for the spent nuclear fuel. ER Section 5.7.2.1.6 does not specify a cooling time; it only provides a minimum spent fuel pool storage capacity of 6 years.

Section: 5.11.2.5

Page: 5-86

Line: 23

Comment:

DEIS Section 5.11.2.5, page 5-86, Line 23 states that the spent fuel pool holds 288 assemblies. It would actually hold more than 288 assemblies, because enough space is provided for a full core off load and the new fuel to be loaded.

TVA suggest NRC consider revising this description.

Section: 6.1.5

Page: 6-11

Line: 20

Comment:

DEIS Section 6.1.5, pg. 6-11, paragraph 2, lines 18-20 of the DEIS state: "The estimated 100-year environmental dose commitment [from radon-222] from mining, milling, and tailings before stabilization for each site year (assuming the 1,000-MW(e) LWR-scaled model) would be approximately 930 person-rem to the whole body." The reference is NUREG-1437. However, NUREG-1437, Table 6.2, and ER Revision 1 Table 5.7-4 provide the approximate radon-222 dose from mining, milling, and tailings as 140 person-rem to the whole body.

TVA suggests that the reference for this value might actually be Table 6.3 of NUREG-1437, "Population-dose commitments from unreclaimed open-pit mines for each year of operation of the model 1000-MW(e) light-water reactor" which uses the value of 960 person-rem.

Additionally, on pg. 6-12, Line 3, the DEIS states that the total 100-year estimated population dose as 1650 person-rem for the reference reactor. The ER presented the value as 840 person-rem from. TVA suggests this the root of this discrepancy might also be the use of Table 6.3 instead of Table 6.2

Section: 6.1.8

Page: 6-16

Line: 33

Comment:

DEIS Section 6.1.8, pg. 6-16, Line 33 states that the projected population within 50 mi of the CRN Site in 2067 will be 1,658,157. The 2067 population value in ER Table 5.4-5 is 2,658,157.

TVA suggests NRC consider fixing this apparent typo.

Further, DEIS Section 6.1.8, pg. 6-16, Line 33 states that the background dose to the 50-mi radius population in 2067 will be about 826,700 person-rem/year and DEIS Table 6-2 states that the average background dose is 624 mrem/year. Using the DEIS value would result in a population dose of 1,034,690 person-rem/year for a population of 1,658,157 ($1,034,690 \text{ person-rem/year} = 1,658,157 \text{ people} \times 0.624 \text{ rem/year}$). The ER value, however, would result in a population dose of 1,658,690 person-rem/year for a population of 2,658,157 ($1,658,690 \text{ person-rem/year} = 2,658,157 \text{ people} \times 0.624 \text{ rem/year}$).

Section: 6.2.1.1.3 & 6.2.1

Page: 6-22 & 6-30

Line: 1-3 & 1-4

Comment:

DEIS Tables 6-6 and 6-10 provide that the NRC's dose analysis results in the public onlooker as receiving the highest dose from unirradiated fuel (Table 6-6) and irradiated fuel (Table 6-10). The NRC's onlooker doses are significantly greater than the doses to the worker. This is unlikely given the exposure time the drivers have. AECOM used Table 6-5 inputs using RADTRAN 6.5 and the Table 6-6 doses for unirradiated fuel could not be replicated. AECOM's results for unirradiated fuel were: Worker - 1.14E-03; Public-Onlookers - 2.27E-05; Public-Along Route - 4.55E-04.

TVA suggest NRC consider revising the DEIS.

Section: 6.2.1.1.3 & 6.2.1.1

Page: 6-21 & 6-30

Line: 16-20 & 14-17

Comment:

The DEIS compares the dose from unirradiated fuel and irradiated fuel individually to the Table S-4 values in 10 CFR 51.52. The dose values provided in Table S-4 include doses from unirradiated fuel, irradiated fuel, and radioactive waste. The sum the doses from unirradiated fuel, irradiated fuel, and radioactive waste should be used when using Table S-4.

TVA suggest NRC consider revising the DEIS.

Section: 6.2.3

Page: 6-35

Line: 1

Comment:

The analysis on the transportation of radioactive waste other than irradiated fuel does not include an estimate of the dose impacts for incident-free and accident scenarios. It only references Section 6.2.1.1 for the MEI assessment.

TVA suggest NRC consider revising the DEIS.

Section: 7.6.2

Page: 7-36

Line: 12-13

Comment:

The DEIS states, "The applicant also provided an analysis that produced an estimated GHG emission (including fuel cycle) of 210,000 MT CO₂e." The ER Revision 1 indicates that the number is 256,500 MT of CO₂e (Section 5.11.5.1.1 Air Quality: see the last sentence of the second to last paragraph in this Section).

TVA suggest that the NRC consider revising the DEIS.

Section: Appendix G 1.2.3

Page: G-10

Line: 1

Comment:

DEIS Table G-3 shows the 8-day decayed/depleted X/Q at the nearest site boundary as $1.0E-4$ sec/m³. In ER Table 2.7.6-10, the corresponding value is $1.9E-4$ sec/m³.

TVA requests that NRC consider revising DEIS Table G-3.

Section: Appendix I

Page: 3.1-4

Line: 1-2

Comment:

The ER Section footnote superscripts were not properly carried over to the DEIS Appendix I, Table I.1. Specifically, the values in ER section column of items 9.3.1 and 9.3.2 should be 5.42, 7.22. Additionally, the corresponding footnote for Table I.1 was not carried over to the DEIS from the ER. "2. Information utilized in the development of the impacts described in the section, but not referenced specifically in the text."

TVA requests NRC revise the DEIS accordingly.

Section: Appendix I

Page: I-4

Line:

Comment:

In Appendix I, page I-4, the units for item 3.3.14 should be gpm instead of gallons.

Section: Appendix J, Table J-2

Comment:

The following representations/assumptions presented in Appendix J, Table J-2 of the DEIS do not match the information presented in the EIS and/or ER. The differences are noted in the source column in the following excerpt from Table J-2. TVA suggests NRC consider making these changes in the DEIS.

Technical Area	Representations/Assumptions	Source (differences noted)
Land Use	An estimated 494 ac of the existing 935-ac CRN Site would be affected by the construction of a new nuclear power plant.	The DEIS references ER Figure 3.1-2. ER Figure 3.1-1 includes acreages of discreet areas of the site that would be disturbed, but no total acreage is provided. This information is more easily accessible ER Table 4.3-1.
	Salt drift from any cooling-tower design would be localized with some areas of drift during summer exceeding NRC guidance thresholds (EIS Figure 5-2). Exceedance areas would be located in early successional habitat within the CRBRP footprint that mostly would be occupied by facilities and to a lesser extent in forested habitat that would be cleared during preconstruction. No fogging or icing impacts are expected on transportation areas around the CRN Site.	The reference to ER Section 5.3.3.3.1 is incorrect as the ER does not include a Section 5.3.3.3.1. The reference should be ER Section 5.3.3.2.1.
	The extent of land required for borrow pits would not exceed designated capacities.	The DEIS references ER Section 4.1.1. The reference should be ER Section 4.1.2.
	Hypothesized transmission line upgrades would affect currently unspecified areas within existing right-of-ways of a total of 439 mi or 5,327 ac of offsite transmission line corridors.	The DEIS references TVA 2017-TN4922 which is land use supplemental information. Enclosure 5, Section 2.2.3 of the supplemental information states a total of 3947 ac would be affected by the transmission line upgrades.
Water Use and Quality	Potable and sanitary water services during operations would be obtained from the City of Oak Ridge.	The DEIS references ER Section 5.2. The reference should be ER Section 5.8.2.7.
Terrestrial Ecology	An estimated 494 ac of the existing 935-ac CRN Site and an estimated 45 ac of the existing 203-ac BTA would be affected by the construction of two or more SMRs.	The DEIS references ER Figures 3.1-2 and 4.3.1. ER Figure 3.1-2 does not include acreages. ER Figure 3.1-1 includes acreages of discreet areas of the site that would be disturbed, but no total acreage

		is provided. This information is more easily accessible in ER Tables 4.1-1 and 4.3-1.
Socioeconomics	Site preparation and construction activities would continue for approximately 6 years and would employ as many as 3,300 construction workers. TVA would employ up to 500 operations and 1,000 outage workers.	The DEIS references 3.10.1.2 and 3.10.3. For completeness, ER Section 3.10.4 should be included to account for all the data stated in the Representations/Assumptions.
	Construction worker annual income would be \$42,300 and operations worker income would be \$65,520.	The DEIS references Sections 4.4.3.2 and 5.4.3.2. TVA could not find the construction worker annual income number \$42,300 in Section 4.4. Similarly, TVA could not find the annual income number \$42,300 in Section 5.4.3.2. Section 5.4.3.1 states the construction worker annual income would be \$40,920. The operations worker income number is also found in Section 5.4.3.1.
	Aesthetic impacts would include 160-ft-tall mechanical draft cooling towers and associated plumes.	ER Table 3.1-2 (Sheet 2 of 5) lists the vertical height above finished grade of the cooling towers as 65 ft. DEIS Section 5.4.1.6 states, "The principal visual features added by a new plant would be SMR buildings (up to 160 ft tall), mechanical draft cooling towers and their associated plumes, and the switchyard and associated powerlines." TVA suggests NRC consider revising the DEIS.
Meteorology and Air Quality	Auxiliary boilers and diesel generators and/or gas turbines are assumed to be required for a new nuclear power plant, and these devices would release permitted pollutants to the air. The ER describes the annual estimated emissions, and these emissions have been considered in EIS Table 5-14.	The DEIS references Table 5-14 for estimated emissions. However, this information is provided in DEIS Table 3-4, <i>Projected Maximum Annual Emissions from Auxiliary Boilers, Standby Diesel 6 Generators, and Gas Turbines</i> .
	The normal heat sink that would be used to dissipate heat from the turbine cycle for a new nuclear power plant would use cooling towers to reject that heat directly into the atmosphere.	The DEIS references ER Section 3.4.1.1 which is a system description of the circulating water system. A more apt reference for the normal heat sink would be ER Section 3.2.3.
Nonradioactive Waste	Water and wastewater services would be 100 gpd and 75 gpd, respectively.	The water services value of 100 in DEIS Appendix J is stated in terms of gpd.

		However, DEIS 5.4.4.4 correctly states this value in terms of gpm. The wastewater services value and units of 75 gpd are correct.
	The new nuclear power plant would release liquid effluents to the Clinch River arm of the Watts Bar Reservoir via the cooling-water discharge stream.	The DEIS references Appendix G.2.1 which does not exist.
Transportation	It was assumed that no shipments of unirradiated fuel, irradiated fuel, or radioactive waste would be made by barge or rail.	DEIS Section 6.2 (p. 6-18) states, "Unirradiated fuel is shipped to the reactor by truck; irradiated (spent) fuel is shipped from the reactor by truck, railcar, or barge; and radioactive waste, other than irradiated fuel, is shipped from the reactor by truck or railcar." ER Table 5.7-8 lists the transportation mode for unirradiated fuel as truck; irradiated fuel as truck, rail, or barge; and radioactive waste as truck or rail.
Accidents	The exclusion area boundary (EAB) is greater than 0.21 mi (1,100 ft or 335 m) in all directions from the footprint of the new nuclear power plant. No major roads, public buildings, or residences are located within the exclusion area.	The DEIS describes the EAB distance from the footprint of the new nuclear power plant. ER Section 2.7.5.2 describes the EAB distance from the effluent release boundary (ERB) that encloses potential release points from the nuclear island (not the footprint of the entire power plant).
Accidents	An appropriately sized ISFSI would be constructed and operational within 6 years from the commencement of operations. After a sufficient decay period of at least 5 years, the fuel would be removed from the pool and packaged in spent fuel shipping/storage casks either for storage onsite at an (ISFSI or for transportation offsite.	The DEIS states that an ISFSI would be constructed and operational within 6 years from the commencement of operations. This explicit commitment is not made in the ER.

Section: Appendix J, Table J-2

Page: J-6

Line:

Comment:

In Appendix J, page J-6, TVA requests that NRC delete the first representation/assumption regarding the state of CRBRP wells because ER analysis assumes instantaneous transport of contaminants to the groundwater.
