

## ClinchRiverESPHFNPEm Resource

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**From:** Schiele, Raymond Joseph <rjschiele@tva.gov>  
**Sent:** Tuesday, April 24, 2018 1:21 PM  
**To:** Fetter, Allen  
**Cc:** Stout, Daniel Paul  
**Subject:** [External\_Sender] FW: SER 2.1, 3.5, 15.0 Comments  
**Attachments:** Comments on Draft SER 2.2, 3.5.1.6, and 15.1.docx

Allen, as we discussed, please find attached comments, cataloged in tabular form, on the three draft SER sections. TVA will additionally provide these comments, in both tabular and associated marked up pages, under cover letter within the next week.

Please call me if you have any questions or comments.

Thanks!

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**From:** Scott, Roger Dwane  
**Sent:** Tuesday, April 24, 2018 12:20 PM  
**To:** Schiele, Raymond Joseph  
**Subject:** SER 2.1, 3.5, 15.0 Comments

Comments on SER 2.1-2.2, 3.5 and 15.0 attached.

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**From:** Schiele, Raymond Joseph

**Created By:** rjschiele@tva.gov

**Recipients:**  
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## TVA Comments on Draft ACRS Presentations

| Draft Section                                                                  | Draft Text                                                                                                                                                                                                                                                                                                                                                          | Comment                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>2.1 Geography and Demography</b>                                            |                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                       |
| 2.1.1.4<br>fourth paragraph<br>(2 places) and<br>fifth paragraph<br>(2 places) | These two paragraphs refer to the “CRN Site property” in four places total.                                                                                                                                                                                                                                                                                         | The SSAR does not use the term “CRN Site Property.” The SSAR defines the “CRN Site” and the “CRN Property.” In the four cases described identified, all instances should be “CRN Property.”                                                                                                                                                                                                           |
| 2.1.2.4<br>first paragraph<br>(1 place)                                        | This paragraph refers to the “CRN Site property” in the fifth sentence.                                                                                                                                                                                                                                                                                             | The SSAR does not use the term “CRN Site Property.” The SSAR defines the “CRN Site” and the “CRN Property.” In the case identified, it should be “CRN Property.”                                                                                                                                                                                                                                      |
| 2.1.3.4<br>fourth paragraph                                                    | “Based on the 2010 U.S. census data, an estimated 1,090,823 residents are located within 80 km (50 mi) of the CRN Site.”                                                                                                                                                                                                                                            | The 1,090,823 value represents 2010 residents living between 10 and 50 miles from the CRN Site. The total number of 2010 residents living within 0 to 50 miles of CRN is (1,090,823 + 67,203) or 1,158,026 persons. Alternatively, the sentence can be rewritten to indicate that the 2010 U. S. census data estimated a population of 1,090,083 residents between 10 and 50 miles from the CRN Site. |
| <b>2.2 Nearby Industrial, Transportation, and Military Facilities</b>          |                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                       |
| 2.2.1.1<br>first paragraph                                                     | “The purpose of the staff’s review of this section is to determine the adequacy of information in meeting regulatory requirements concerning the presence and magnitude of potential external hazards so that the staff can perform its technical review and evaluation consistent with the guidance provided in NUREG–0800, Sections 2.2.3, 3.5.1.5, and 3.5.1.6.” | The list of standard review plans should include 2.2.1-2.2.2 as the statement relates to 2.2.1 and 2.2.2 with regard to the presence of external hazards.                                                                                                                                                                                                                                             |
| 2.2.1.2<br>first paragraph                                                     | “There are five industrial facilities, one major highway, four major roads, two natural gas pipelines, one waterway, five small airports, and two airways.”                                                                                                                                                                                                         | This section of the SER does not mention the Heritage Railroad Corporation Railway. However, the rail line is included on page 2-13.                                                                                                                                                                                                                                                                  |
| 2.2.1.4<br>third paragraph<br>under the Industrial<br>facilities heading       | “Hillsdale Powell Utility District Melton Hill WTP”                                                                                                                                                                                                                                                                                                                 | The correct name of the facility is <i>Hallsdale</i> Powell Utility District Melton Hill WTP.                                                                                                                                                                                                                                                                                                         |

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| Draft Section                | Draft Text                                                                                                                                                                                                                                                                                                                                                                                         | Comment                                                                                                                                                                                            |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.2.2.2<br>first paragraph   | "The chemicals stored at the offsite facilities identified in Subsection 2.2.2.1 above are provided in detail in Tables 2.2-2 and 2.2-5."                                                                                                                                                                                                                                                          | The SER appears to be referring to the SSAR. Therefore, it should read, "...SSAR Tables 2.2-2 and 2.2-5."                                                                                          |
| 2.2.2.2<br>second paragraph  | "ORNL conducts research and development relating to national energy and security issues and employs approximately 400 employees."                                                                                                                                                                                                                                                                  | The SSAR states ORNL employs approximately 4400 employees.                                                                                                                                         |
| 2.2.2.2<br>second paragraph  | "The chemicals stored at ORNL identified for possible analysis are addressed in Subsection 2.2.3."                                                                                                                                                                                                                                                                                                 | The SER appears to be referring to the SSAR. Therefore, it should read, "...are addressed in SSAR Subsection 2.2.3."                                                                               |
| 2.2.2.2<br>third paragraph   | "TVA Kingston Fossil Plant is located in Kingston, TN, approximately 1.2 km (7.6 mi) west of the CRN Site power block area."                                                                                                                                                                                                                                                                       | The conversion from 7.6 mi should be 12.2 km, not 1.2 km.                                                                                                                                          |
| 2.2.3.4.2<br>first paragraph | "Therefore, the potential chemical concentration at the center of CRN Site (power block boundary) is estimated for the purposes of this evaluation. The chemicals that lead to concentration above the respective chemical Immediately Dangerous to Life and Health (IDLH) concentration at the center of CRN site (power block boundary) are further evaluated at the COL stage as part of COLA." | The evaluation in the SSAR provided the potential chemical concentration with respect to the <i>closest point on the power block area</i> , not the center of the CRN Site (power block boundary). |
| 2.2.3.4.2<br>third paragraph | "The chemicals that are transported on I-40, which are identified having a toxicity potential include anhydrous ammonia (11,500 lb), butane (11,500 lb), chlorine (22 T or 44,000 lb), gasoline (8,500 gal), nitric acid (6,000 gal), and sulfur hexafluoride (50,000 lb)."                                                                                                                        | The analyzed quantity for anhydrous ammonia and butane should be 11,500 <i>gal</i> , not lb.                                                                                                       |

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|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.2.3.4.2<br>third paragraph           | "A release of anhydrous ammonia resulted in a distance of 4,184 m (13,728 ft) to the toxicity limit and a release of chlorine resulted in a distance of 7,242 m (23,760 ft). The staff's analysis for a release of nitric acid resulted in a distance of 2,575 m (8,448 ft)." | The analysis presented in the SSAR for nitric acid resulted in a distance of 5,280 ft versus the staff's analysis of 8,448 ft.<br><br>TVA did not receive a request from the staff regarding the difference for nitric acid (8,448 ft vs 5,280 ft).                                                                           |
| 2.2.3.4.6<br>Permit Condition<br>2.2-2 | The permit condition includes the evaluation of whether the transport of nitric acid on highway I-40 could exceed the IDLH limit at the CRN Site power block area.                                                                                                            | The analysis presented in the SSAR for nitric acid determined a distance of 5,280 ft to the toxic endpoint, which is less than the distance of 5,800 ft to the CRN Site power block area. Therefore, the evaluation of nitric acid should not be included in the permit condition.                                            |
| <b>3.5.1.6 Aircraft Hazards</b>        |                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                               |
| 3.5.1.6.2<br>second paragraph          | "Airports located beyond 24.1 km (15 miles) are also considered and are listed in the SSAR Table 2.2.7."                                                                                                                                                                      | The correct table number is SSAR Table 2.2-7.                                                                                                                                                                                                                                                                                 |
| <b>15.1 Accident Analysis</b>          |                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                               |
| 15.1.4.1<br>third paragraph            | "In accordance with 10 CFR 52.79(b)(1), the COLA will verify that the accident doses provided in the ESPA are bounded or will provide an evaluation of accident radiological consequences."                                                                                   | 10 CFR 52.79(b)(1) indicates that COLA FSAR may IBR the ESPA SSAR and "demonstrate that the design of the facility falls within the site characteristics and design parameters specified in the early site permit." The SER implies the ESPA falls within COLA; it should say "...doses provided in the ESPA are bounding..." |
| 15.1.4.1<br>seventh paragraph          | "Although it is recognized that core power and burnup would result in one-to-one ratios to activity releases, it is anticipated the larger core power and burnup would result in larger activity releases than those associated with the remaining designs."                  | This statement is nearly identical to the last sentence of SSAR Section 15.2, except that it changes the intent of the "although" clause. The SSAR says, "Although it is recognized that core power and burnup <i>do not necessarily</i> result in one-to-one ratios to activity releases..."                                 |

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| Draft Section          | Draft Text                                                                                                                                                                                                                                                                                                            | Comment                                                                                                                         |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 15.1.4.3<br>Table 15-1 | The text following Table 15-1 states, "The radiological consequence results of a LOCA at the CRN Site, using the PPE and site characteristic accident $\chi/Q$ values are 21.6 rem TEDE at the EAB and 2.97 rem TEDE at the LPZ. " However, Table 15-1 does not include the total LPZ row indicating "2.97 rem TEDE." | SER Table 15-1 is missing the last row of SSAR Table 15-1 that adds together the four time ranges for dose at the LPZ boundary. |