

April 09, 2009

V.C. Summer Evacuation Time Estimate Open Items and Confirmatory Action NRC Items

Upon evaluation of the applicant's response to RAIs, the staff has identified the following issues as still needing to be resolved:

- In response to **RAI 13.03-5 (C)** the applicant provided a discussion of the variables for the intersection algorithm in Section 4, Estimation of Highway Capacity, which states that the model was executed iteratively to provide assurance that the allocation of effective green time appropriately represents the operating conditions. The response to **13.03-5(C)**, discusses that this iterative procedures represents a reasonably efficient operation under evacuation conditions. This approach is appropriate, if the traffic control is in place to support a reasonably efficient operation under evacuation conditions. However, in the ETE Section 13, Recommendations states that the traffic management plan "should be" reviewed by state and county emergency planners with local and state police to reconcile resources with current assets. This indicates that the plan is not currently approved. In **Open Item 13.03-01** the staff requests the applicant clarify if the traffic management plan has been approved by state and county emergency planners. In **Open Item 13.03-2** the staff requests that the applicant discuss the appropriateness of this modeling approach and whether actual signal cycle timing should be used if the traffic management plan is not implemented.
- In response to **RAI 13.03-02 (B)** the applicant stated that the ETE report assumes no major transient attractions or major employers would be introduced between 2007 and 2014, so these population estimates were not extrapolated. The applicant also provided the estimates for these population groups. In **Open Item 13.03-03** the staff requests that the applicant include these assumptions and population estimates in the ETE report.
- In **RAI 13.03-11(B)** the staff asked for clarification of road characteristics. A detailed discussion is provided on the application of field data into the calculation and states that bridges are treated for as Links in the network. The inclusion of the large scale nodal map supports review of the integration of highway characteristics and some bridges are clearly defined as links in the roadway network. However, there is a bridge located between nodes 185 and 186 and there are two bridges between nodes 171 and 172. The discussion in the response to **RAI 13.03-11 (B)**, indicates that these bridges should be identified as separate links in the system to account for their unique characteristics. In **Open Item 13.03-04** the staff requests that the applicant discuss the criteria by which links are established at bridges or other narrow roadway segments.
- In **RAI 13.03-7(C)** the staff requested that the applicant provide additional information regarding evacuating Monticello Reservoir. In response the applicant states that it is reasonable to expect boaters will be able to return to boat launch sites, trailer their boats, and begin to evacuate the area within the 4 hour mobilization time. In **Open Item 13.03-05** the staff requests that the applicant discuss the capacity of the marinas and boat ramps and assumptions on trip mobilization times assumed for loading of boats considering that ramps may have limited capacity to load more than a few boats at a time. In **Open Item 13.03-06** the staff also requests that the applicant discuss whether the trip generation time includes residents returning home to drop off the boat, pack, and evacuate. In **RAI 13.03-9(C)** the

staff requested clarification regarding truncation of data. The response provides a detailed discussion and basis for truncating data developed from the telephone survey. The ETE document currently does not include any discussion on truncating data. In **Open Item 13.03-07** the staff requests that the discussion provided in response to **13.03-9(C)** regarding the basis and use of truncated data be included in the ETE Report.

- In **RAI 13.03-13(D)** the staff requested that the applicant explain the values used in the shadow population and discuss the timing of traffic loading onto the network for the shadow population identified in Table 6-4. In response the applicant provided a detailed discussion the development and calculation of shadow population vehicles. However, the applicant did not provide a discussion regarding the timing of the traffic loading onto the evacuation network. In **Open Item 13.03-08** the staff requests that the applicant discuss the timing of the traffic loading onto the evacuation network.

V.C. Summer Evacuation Time Estimate Confirmatory Action NRC Items

In response to **RAIs 13.03-01** through **RAI 13.03-16**, the applicant has provided the following proposed revisions which they have committed to include in a future revision of their ETE Report. The NRC will confirm that the applicant has made the following changes:

- In response to **RAI 13.03-03**, revised Figures 1-1, 3-1 and 6-1 will replace the existing figures in the ETE Report. **Confirmatory Action NRC Items 13.03-01, 13.03-02, and 13.03-03** have been created to track the proposed revisions.
- In response to **RAI 13.03-04(A)**, Assumption #3 will be removed from Section 2.3 and the text will be revised to reflect this deletion. **Confirmatory Action NRC Item 13.03-04** has been created to track this proposed revision.
- In response to **RAI 13.03-04 (D)**, final column in the table on page 2-5 will be renamed "Mobilization Time of the General Population" for clarification. **Confirmatory Action NRC Item 13.03-05** was created to track this proposed revision.
- In response to **RAI 13.03-05 (B)**, saturation flow rates in Appendix K will be changed from 1895 to 1714. **Confirmatory Action NRC Item 13.03-06** was created to track this proposed revision.
- In response to **RAI 13.03-11(C)**, a reference to the Zhang and Levinson study will be added to page 4-4. **Confirmatory Action NRC Item 13.03-07** was created to track this revision.
- In response to **RAI 13.03-07(A)** the applicant provided a revision to Appendix I to include an analysis of the effect of transient influx due to the Chapin Festival. The applicant also provided a new Figure I-1 and Table I-3. **Confirmatory Action NRC Items 13.03-08, 13.03-09, and 13.03-10** were created to track these proposed revisions.
- In response to **RAI 13.03-07(B)**, omitted Figure 3-6 will be added to the ETE Report. **Confirmatory Action NRC Item 13.03-11** was created to track this proposed revision.
- In response to **RAI 13.03-08(A)**, new text will be added to Section 8.3 to discuss the evacuation of daycare centers. **Confirmatory Action NRC Item 13.03-12** was created to track this proposed revision.
- In response to **RAI 13.03-08(C)**, a new Section 8.4 - "Special Needs Population" will be added to page 8-8 to discuss the evacuation of special needs individuals. **Confirmatory Action NRC Item 13.03-13** was created to track this proposed revision.
- In response to **RAI 13.03-08(B)**, revised Figure E-1 and new Figures E-2 and E-3 will be added to the ETE to identify special facilities in the EPZ. **Confirmatory Action NRC Items 13.03-14, 13.03-15, and 13.03-16** were created to track these proposed revisions.
- In response to **RAI 13.03-06**, text in Section 2.3 will be revised to address the number of households that have commuters. **Confirmatory Action NRC Items 13.03-17** was created to track this proposed revision.

- In response to **RAI 13.03-08(D)**, the first paragraph in Section 8 will be revised to omit the statement about the use of transit resources by transients and employees. **Confirmatory Action NRC Items 13.03-18** was created to track this proposed revision.
- In response to **RAI 13.03-08 (D)**, the text and equation on page 8-3 will be modified to correctly identify a value of 38.5% instead of 58%. **Confirmatory Action NRC Items 13.03-19** was created to track this proposed revision.
- In response to **RAI 13.03-09 (B)**, a new table H-1 will be added to the ETE Report which identifies the voluntary evacuation percentages for each Protective Action Zone (PAZ) for each Regional configuration. **Confirmatory Action NRC Items 13.03-20** was created to track this proposed revision.
- In response to **RAI 13.03-10(C)**, Assumptions #6 on page 2-4 and the footnote on page 6-5 will be revised to eliminate the estimate of 1 to 2 hours following notification and it will be replaced with the correct estimate of 90 minutes. Assumption #7 on page 2-4 will also be revised. **Confirmatory Action NRC Items 13.03-21, 13.03-22, and 13.03-23**, have been created to track these proposed revisions.
- In response to **RAI 13.03-09(E)(1)**, the second paragraph on page 7-3 will be revised to discuss congestion in Scenario 12. **Confirmatory Action NRC Item 13.03-24** was created to track this proposed revision.
- In response to **RAI 13.03-09(E)(3)**, revised Tables 7-1 D and J-1 D will be added to the ETE Report to reflect a correction of the 95th percentile ETE for Scenario 12, Region R03. The value should be 3:20. **Confirmatory Action NRC Items 13.03-25 and 13.03-26** were created to track these proposed revisions.
- In response to **RAI 13.03-15**, revised Figures 7-3 and 7-4 that include congestion point labels to match Table 7-3 and identify major roads will replace existing figures. A new Table 7-3 will also be added to page 7-16. **Confirmatory Action NRC Items 13.03-27, 13.03-28, and 13.03-29** were created to track these proposed revisions.
- In response to **RAI 13.03-07(D)**, revised Figure 5-1 which includes households with employees who work during the evening or on weekends will replace the existing figure. The final paragraph on page 5-3 will also be revised to read to reflect this change. **Confirmatory Action NRC Items 13.03-30 and 13.03-31** were created to track these proposed revisions.
- In response to **RAI 13.03-14(A)** the applicant revised the discussion of distribution 1 on page 5-4 to indicate that the distribution is assumed. **Confirmatory Action NRC Item 13.03-32** was created to track this proposed revision.
- In response to **13.03-14(C), and 13.03-14(D)**, revised Figures 5-2, 5-3 and distribution 4 on page 5-8 will replace existing figures and distribution 4 to reflect the truncation procedure discussed in response to **RAI 13.03-9(C)**. **Confirmatory Action NRC Items 13.03-33, 13.03-34, and 13.03-35** were created to track these proposed revisions.
- In response to **RAIs 13.03-12(A)(B)**, a new Scenario 11 will be added to the ETE. Other scenarios will be renumbered accordingly. The Table on page 2-2, Table 6-2, Tables 7-1 A through D, and the table on page 2-5 will be replaced with revised tables to reflect this

change. All references to "I 2 scenarios" will also be changed to "I 3 scenarios".

Confirmatory Action NRC Items 13.03-36, 13.03-37 , 13.03-38 , 13.03-39 , 13.03-40 , 13.03-41, 13.03-42, 13.03-43, were created to track these proposed revisions.

- In response to **13.03-08(J)(2)**, the column labeled, "Distance" in Table 8-2 will be changed to "Distance from VCSNS (miles)." **Confirmatory Action NRC Items 13.03-44** was created to track this proposed revision.
- In response to **13.03-08(K)**, revised Table 8-2 will replace the existing table to identify the correct number of buses required to evacuate Chapin Middle School. **Confirmatory Action NRC Item 13.03-45** was created to track this proposed revision.
- In response to **13.03-08(G)(1)**, a new Table 8-6C "Transit Dependent Evacuation Time Estimates – Ice," will be added to the ETE Report. **Confirmatory Action NRC Item 13.03-46** was created to track this proposed revision.
- In response to **13.03-08(G)(2)**, a new sentence will be added to the end of Section 9 to support the statement that evacuation are assumed to be unhindered by personnel manning TCP. **Confirmatory Action NRC Item 13.03-47** was created to track this proposed revision.
- In response to **13.03-08(L)**, a revised Table 8-2 will replace the existing table to clarify that transportation resources are adequate. **Confirmatory Action NRC Item 13.03-48** was created to track this proposed revision.
- In response to **RAI 13.03-13(D)**, the applicant provided a detailed response on the development and calculation of the shadow population vehicles and will included a revision to Page I-2 of the ETE report. **Confirmatory Action NRC Items 13.03-49 and 13.03-50** were created to track these proposed revisions.