



Designated Original
System Energy Resources, Inc.
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CNRO-2005-00050

September 3, 2005

U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001
Attention: Document Control Desk

DOCKET: 52-009

SUBJECT: Response to Request for Comments on USGS Deaggregation Approach

REFERENCE:

1. System Energy Resources, Inc. (SERI) letter to USNRC – Early Site Permit Application (CNRO-2003-00054), dated October 16, 2003.
2. USNRC letter to SERI – Potential Open Items for the Draft Safety Evaluation Report for the Grand Gulf Early Site Permit Application (CNRI-2005-00003), dated March 24, 2005.
3. USNRC letter to SERI – Draft Safety Evaluation Report for the Grand Gulf Early Site Permit Application (CNRI-2005-00004), dated April 7, 2005.
4. SERI letter to USNRC – Response to Request for Additional Information to Resolve the Grand Gulf Early Site Permit Draft Safety Evaluation Report Open Items (Additional Seismic Questions) (TAC No. MC1378) (CNRO-2005-00034), dated June 23, 2005.
5. Case Study of Alternate Treatments of PA=0.5 Source Hazard by Steve Harmsen, USGS, for NRC; NRC ADAMS Accession Number ML052070247, dated July 26, 2005
6. SERI letter to USNRC – Response to Request for Additional Information to Resolve the Grand Gulf Early Site Permit draft Safety Evaluation Report Open Item 2.5-3 (CNRO-2005-00046), dated August 19, 2005.

CONTACT:

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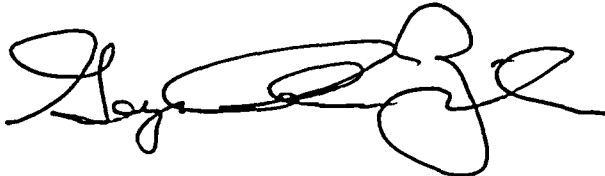
On July 26, 2005, the NRC provided SERI the summary of the independent evaluation done by the USGS to assess the possible contribution to the hazard at the Grand Gulf ESP site from the Saline River Source Zone (SRSZ) if an alternative deaggregation approach were used (Reference 5). This letter transmits comments as outlined in Attachment 1 to this letter. SERI

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expects discussion of the alternative USGS approach should not impact the NRC review of the GGNS ESP Application (Reference 1) or closure of DSER Open Item 2.5-3 (Reference 3) as indicated in our letter dated August 19 (Reference 6).

Should you have any questions, please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'George A. Zinke', with a stylized, flowing script.

George A. Zinke
Project Manager
System Energy Resources, Inc.

Attachment: Attachment 1

cc: Mr. R. K. Anand, USNRC/NRR/DRIP/RNRP
Mr. W. A. Eaton (ECH)
Mr. B. S. Mallett, Administrator, USNRC/RIV
Mr. J. H. Wilson, USNRC/NRR/DRIP/RLEP

Resident Inspector's Office: GGNS

ATTACHMENT 1

Comments on Case Study of Alternate Treatments of PA=0.5 Source Hazard by Steve Harmsen, USGS, for NRC; NRC ADAMS Accession Number ML052070247, dated July 26, 2005

Regarding NRC Open Item 2.5-3:

At the request of the NRC, a conference call was held on Monday July 25, 2005 to discuss the GGNS ESP DSER NRC Open Item 2.5-3. Participants included staff from the NRC, U.S. Geological Survey (USGS), SERI, Inc. (the Applicant), and the Applicant's consultants William Lettis & Associates, Inc. and Jack Benjamin & Associates, Inc.

The purpose of the teleconference call was to address outstanding issues related to the de-aggregation of the Probabilistic Seismic Hazard Analysis (PSHA) results to determine the controlling earthquakes for development of the median 10^{-5} annual probability of exceedence rock ground motion for the Grand Gulf ESP site. The discussions focused on the relative contribution of the Saline River seismic source (SRSZ) to the de-aggregated PSHA results.

The NRC and their consultant, the USGS, suggested that their alternative computational approach for de-aggregating the PSHA results might lead to differences in the relative contribution of the SRSZ to median 10^{-5} ground motion.

In their evaluation the USGS estimated the contribution of the Saline River source to the 10^{-5} median ground motion for the average spectral acceleration for 5 and 10 Hz could be between 5 and 10 percent. The Applicant agreed to evaluate the sensitivity of this contribution to the 5 – 10 Hz controlling earthquake and resultant spectral shape for postulated SRSZ contributions of 5% and 10%. The applicant showed that for this case there was only a slight decrease (<1%) in the computed controlling earthquake ground motions and submitted these results to the NRC staff on August 17, 2005 (Cover Letter Reference 6).

In the August 17, 2005 letter to the NRC the Applicant also agreed to comment on the report prepared by the USGS documenting their alternative approach to hazard deaggregation. This attachment provides our comments on their approach.

Comments on USGS Deaggregation Approach

The USGS conducted an evaluation of the deaggregation of the Grand Gulf seismic hazard for the 5 and 10 Hz controlling earthquake. A summary of this evaluation is provided in the USGS report titled: *Case Study of Alternate treatments of PA=0.5 Source Hazard*.

In its ESP application, the Applicant used the methodology recommended in US NRC Regulatory Guide 1.165 to determine the controlling earthquakes for the Grand Gulf ESP site. As described in the Regulatory Guide methodology, we have considered the full epistemic uncertainty related to characterization of earthquake sources to compute the median 10^{-5} rock ground motion hazard at the GGNS ESP site. The hazard results were then deaggregated following the Regulatory Guide 1.165 procedure to determine the controlling earthquakes. The PSHA conducted for the Grand Gulf ESP used the Electric Power Research Institute (EPRI) methodology, data and software, which has been reviewed and recommended for use by the NRC (Reg. Guide 1.165) and is consistent with the industry standard of practice for conducting PSHA's. It is our understanding that the Grand Gulf PSHA was conducted using the same methodology used by other ESP applicants.

Our review of the methodology used by the USGS to evaluate the Applicants approach for computing the controlling earthquakes concluded that it is not consistent with the recommended Regulatory Guide 1.165 approach. As noted in their report, we agree the USGS has attempted 'new-style deaggregations.' These 'new-style deaggregations' and the use of a 'renormalization factor' is not consistent with the very clear and explicit methodology provided by the NRC staff in Regulatory Guide 1.165. In addition, the USGS approach violates the Senior Seismic Hazard Advisory Committee (SSHAC) process for characterization of epistemic uncertainty as a result of its re-normalization process, which alters the probability distribution (developed by the earth science and ground motion experts) that models the epistemic uncertainty in the seismic hazard.

In consideration of the Applicant's use of the NRC staff's regulatory guidance for performing a PSHA and estimating controlling earthquakes, the Applicant concludes the USGS approach is not consistent with the staff's Regulatory Guide and, therefore, should not be used as a basis for evaluating the GGNS ESP ground motion results.

As agreed in our July 25, 2005 conference call, we evaluated the sensitivity of the controlling earthquakes and estimated ground motion response spectra and show that a 5 to 10% contribution to hazard from the SRSZ, results in less than a 1 percent change (decrease) in the ground motions. From this assessment we conclude the postulated change in the deaggregation for the Grand Gulf site proposed by the USGS does not make a significant difference to the results.

In summary, the Applicant used the methodology for conducting a PSHA and for determining the controlling earthquakes for the Grand Gulf site that follows the very clear and explicit approach provided in US NRC Regulatory Guide 1.165. As such, the median 10^{-5} annual probability of exceedence rock ground motion results, following Regulatory Guide 1.165, reflect the full epistemic distribution of seismic source parameters for the Grand Gulf ESP site.