



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

October 23, 2014

To the Power Reactor Licensees  
on the Enclosed List

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ASSOCIATED WITH  
NEAR-TERM TASK FORCE RECOMMENDATION 2.1, SEISMIC  
RE-EVALUATIONS RELATED TO SOUTHEASTERN CATALOG CHANGES  
(TAC NOS. MF3724, MF3736, MF3737, MF3738, AND MF3831)

By letters dated March 31, 2014, and by letter dated March 26, 2014, to the U. S. Nuclear Regulatory Commission (NRC), Duke Energy Progress, Inc. and Duke Energy Carolinas, LLC, the licensees for H.B. Robinson Steam Electric Plant<sup>1</sup>, Unit No. 2 (Robinson) and Oconee Nuclear Station<sup>2</sup>, Units 1, 2, and 3 (Oconee); and South Carolina Electric and Gas Company, the licensee for Virgil C. Summer Nuclear Station<sup>3</sup>, Unit 1 (VC Summer), submitted for NRC review the Seismic Hazard and Screening Report, Pursuant to Title 10 of the *Code of Federal Regulations* Part 50, Section 50.54(f), Response for Information Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident. Included in the seismic hazard reevaluation reports are changes to the Central and Eastern United States - Seismic Source Characterization earthquake catalog endorsed by the NRC staff.

The NRC staff has reviewed the information provided for Robinson, Oconee, and VC Summer, and has determined that additional information is required to complete its review. Enclosed is a request for additional information (RAI) related to the earthquake catalog changes in the southeastern region. As discussed with your staff on October 9, 2014, it was agreed that a response to the RAI would be provided no later than November 14, 2014.

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<sup>1</sup> The Robinson Seismic Hazard Evaluation Report dated March 31, 2014, can be found under Agencywide Documents Access and Management Systems (ADAMS) Accession No. ML14099A204.

<sup>2</sup> The Oconee Seismic Hazard Evaluation Report dated March 31, 2014, can be found under ADAMS Accession No. ML14092A024.

<sup>3</sup> The VC Summer Seismic Hazard Evaluation Report dated March 26, 2014, can be found under ADAMS Accession No. ML14092A250.

If you have any questions related to the enclosed RAIs or the requested submission date, please contact me at 301-415-1115 or via e-mail at [Nicholas.DiFrancesco@nrc.gov](mailto:Nicholas.DiFrancesco@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Nicholas J. DiFrancesco", with a long horizontal flourish extending to the right.

Nicholas J. DiFrancesco, Senior Project Manager  
Hazards Management Branch  
Japan Lessons-Learned Division  
Office of Nuclear Reactor Regulation

Enclosures:

1. Request for Additional Information
2. Addressee List

cc w/encls: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION  
NEAR-TERM TASK FORCE RECOMMENDATION 2.1  
SEISMIC HAZARD AND SCREENING REPORT  
FACILITIES PER ENCLOSURE 2

Review of Deviation from CEUS Seismic Source Characterization Catalog Version 7.0

By letter dated March 12, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12053A340), the NRC staff requested that licensees whose plants are located in the central and eastern United States (CEUS) use the recently published Central and Eastern United States Seismic Source Characterization for Nuclear Facilities (CEUS-SSC) to conduct the seismic hazard reevaluations. Specifically, Attachment 1 to "Seismic" Enclosure 1 of the March 12, 2012, letter stated that "regional and local refinements of the CEUS-SSC are not necessary for this evaluation." The staff's endorsement of the CEUS-SSC without refinement was intended to expedite the Near-Term Task Force (NTTF) 2.1 seismic hazard reevaluations and to ensure efficient use of NRC and licensee resources.

By letter dated February 15, 2013 (ADAMS Accession No. ML12319A074), "Endorsement of Electric Power Research Institute [EPRI] Final Draft Report 1025287, 'Seismic Evaluation Guidance: Screening, Prioritization and Implementation Details (SPID),' the NRC staff endorsed using the SPID guidance.

Regarding the use of the CEUS-SSC for the NTTF Recommendation 2.1 seismic hazard reevaluations, Section 2 of the SPID states:

For site-specific licensing applications or site-specific safety decisions, these seismic sources would be reviewed on a site-specific basis to determine if they need to be updated. Such evaluations would be appropriate in a licensing application, where focus could be made on site-specific applications. However, for a screening-level study of multiple plants for the purpose of setting priorities, the use of these seismic sources as published is appropriate.

The CEUS-SSC was published as NUREG-2115, DOE/NE-0140, EPRI 1021097, "Central and Eastern United States Seismic Source Characterization for Nuclear Facilities," January 2012 (ADAMS Accession No. ML12048A776) and conducted using a Senior Seismic Hazard Analysis Committee (SSHAC) Level 3 study, consistent with NUREG/CR-6372, "Recommendations for Probabilistic Seismic Hazard Analysis: Guidance on Uncertainty and Use of Experts," April 1997 (ADAMS Accession Nos. ML080090003 and ML080090004, respectively). The CEUS-SSC expert panel review considered the present state of knowledge of the Charleston seismic zone and known nontectonic events including reservoir-induced events in developing the seismic catalog for the CEUS-SSC. Section 6 of NUREG-2117, "Practical Implementation Guidelines for SSHAC Level 3 and 4 Hazard Studies: Rev. 1," Office of Nuclear Regulatory Research, 2012, (ADAMS Accession No. ML12118A445) recommends that viable regional probabilistic hazard studies, such as the

Enclosure1

CEUS-SSC, should be updated with at least a SSHAC Level 2 study.

By letters dated March 31, 2014, and by letter dated March 26, 2014, to the NRC, Duke Energy Progress, Inc. and Duke Energy Carolinas, LLC, the licensees for H.B. Robinson Steam Electric Plant, Unit No. 2 (Robinson) and Oconee Nuclear Station, Units 1, 2, and 3 (Oconee); and South Carolina Electric and Gas Company, the licensee for Virgil C. Summer Nuclear Station, Unit 1 (VC Summer), submitted a revision to the CEUS-SSC catalog as part of the reevaluated seismic hazard submittal. Subsequently, by letter dated August 28, 2014 (ADAMS Accession No. ML14260A200), EPRI provided a report containing CEUS-SSC Catalog Version 8.0 following, "Review of NUREG-2115 Earthquake catalog with regard to identification of additional Reservoir Induced Seismicity (RIS) earthquakes in the southeastern United States and locations of earthquakes in South Carolina near the time of the 1886 Charleston, SC earthquake sequence," dated March 5, 2014. Note the staff does not consider the proposed catalog update to be a new version of the CEUS-SSC Catalog but rather a regional update specifically made for the Recommendation 2.1 seismic hazard reevaluations of H.B. Robinson, Oconee, and VC Summer plant sites.

#### Request for Additional Information

Consistent with the request for information issued pursuant to Title 10 of the *Code of Federal regulations, Part 50, Section 50.54(f)* and the SPID guidance, please provide a revised March 2014 seismic hazard reevaluation submittal reflecting the staff endorsed CEUS-SSC Catalog Version 7.0. Alternatively, to ensure that the regional catalog update made for the Recommendation 2.1 seismic hazard reevaluations of H.B. Robinson, Oconee, and VC Summer plant sites represents the center, body, and range of the technically defensible interpretations, please provide a SSHAC Level 2 study. In addition to providing a detailed description of the catalog update, please describe the scope of the update and whether you also considered the impact of earthquakes in the region since the time period covered by the CEUS-SSC Catalog.

Please include in the response, in table form, control point seismic hazard curves developed using both the currently-endorsed CEUS-SSC catalog as well as the proposed updated regional catalog used for the Recommendation 2.1 seismic hazard reevaluations of H.B. Robinson, Oconee, and VC Summer plant sites.

**List of Addressees**

**H. B. Robinson Steam Electric Plant**

Duke Energy Progress, Inc.  
Docket No. 50-261  
License No. DPR-23

Mr. William R. Gideon, Vice President  
H.B. Robinson Steam Electric Plant  
3581 West Entrance Road  
Hartsville, SC 29550

**Oconee Nuclear Station**

Duke Energy Carolinas, LLC  
Docket Nos. 50-269, 50-270 and 50-287  
License Nos. DPR-38, DPR-47 and DPR-55

Mr. Scott Batson  
Vice President, Oconee Nuclear Station  
Duke Energy Carolinas, LLC  
7800 Rochester Highway  
Seneca, SC 29672-0752

**Virgil C. Summer Nuclear Station**

South Carolina Electric and Gas Company  
Docket No. 50-395  
License No. NPF-12

Mr. Thomas D. Gatlin, Vice President  
Nuclear Operations  
South Carolina Electric and Gas Company  
Virgil C. Summer Nuclear Station  
Post Office Box 88, Mail Code 800  
Jenkinsville, SC 29065

If you have any questions related to the enclosed RAIs or the requested submission date, please contact me at 301-415-1115 or via e-mail at Nicholas.Difrancesco@nrc.gov.

Sincerely,

*/RA/*

Nicholas J. DiFrancesco, Senior Project Manager  
Hazards Management Branch  
Japan Lessons-Learned Division  
Office of Nuclear Reactor Regulation

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