

**UNITED STATES OF AMERICA  
U.S. NUCLEAR REGULATORY COMMISSION**

**BEFORE THE ATOMIC SAFETY AND LICENSING BOARD**

In the Matter of:  
SOUTHERN NUCLEAR OPERATING CO.  
License Amendment Application for  
Combined Licenses NPF-91  
Vogtle Electric Generating Plant Unit 3  
Docket No. 52-025-LA-3  
NRC-2008-0252

June 12, 2020

**REPLY OF THE BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE AND  
ITS CHAPTER CONCERNED CITIZENS OF SHELL BLUFF TO ANSWERS OF  
NUCLEAR REGULATORY COMMISSION AND SOUTHERN NUCLEAR  
OPERATING COMPANY, LAR-20-001**

In accord with 10 C.F.R. § 2.309(i)(2), Blue Ridge Environmental Defense League and its chapter Concerned Citizens of Shell Bluff (“BREDL” or “Petitioner”) hereby submit a reply to the answers filed on June 5, 2020 by both Southern Nuclear Operating Company (“SNC” or “Company”) and the Nuclear Regulatory Commission Staff (“NRC Staff”) in the License Amendment Request, LAR-20-001.

First, Petitioner has filed and received acknowledgment of its request to NRC under the Freedom Of Information Act<sup>1</sup> which is necessary for a full assessment of the

---

<sup>1</sup> Your request, which seeks access to documents, data and calculations necessary for review of the License Amendment for Vogtle Unit 3 regarding seismic gap, and any documents, data and calculations regarding the analysis performed by the NRC Audit Team members in this matter, has been assigned the following reference number that you should use in any future communications with us about your request: NRC-2020-000234. To ensure the most equitable treatment possible of all requesters, the NRC processes requests on a first-in, first-out basis, using a multiple track system based upon the estimated time it will take to process a request. Based on your description of the records you are seeking, we estimate completion of your request will be on or before June 9, 2020. Please know that this date is a rough estimate of how long it will take us to close requests ahead of yours in the respective track and complete work on your request. The actual date of completion might be before or after this estimate, based on the complexity of all the requests in the simple track. We will advise you of any change in the estimated time to complete your

extant license amendment, LAR-20-001. The required fees have been paid. The FOIA request is outstanding as of the filing of this reply.

Second, Petitioner has received a communication from the NRC Agency 2.206 Petition Coordinator which states, "...your Vogtle hearing request was brought to my attention because a portion of the hearing request could be considered under the 10 CFR 2.206 Petition Process."<sup>2</sup> The referral was made by the Vogtle Project Manager Cayetano Santos. Petitioner has contacted the Petition Coordinator to discuss the matter.

Third, Petitioner has received a letter from the NRC Headquarters Allegation Team which concluded that there was "no specific indication of wrongdoing" with regard to timeliness of SNC's reporting to NRC on the stability of the Nuclear Island basemat.<sup>3</sup>

Fourth, the Audit Report for LAR-20-001, filed on 26 May 2020, indicated that NRC has used "non-docketed information" in its assessment of the LAR.

The staff from the Structural, Civil, Geotech, Engineering Branch (ESEA) conducted an audit from March 10 to April 30, 2020, via the Westinghouse Electric Company electric reading room. The purpose of the audit was to gain a better understanding of the proposed changes and to review related documentation and non-docketed information in order to evaluate the acceptability of the proposed changes to the license.<sup>4</sup>

Despite requests, Petitioners have not been provided with access to this information.

---

*request.* NRC-2020-000234, Acknowledgment letter from FOIA Officer Stephanie A. Blaney to BREDL, May 11, 2020.

<sup>2</sup> Email correspondence of May 27, 2020 from Petition Coordinator Perry Buckberg to Louis A. Zeller, RE: "NRC Enforcement Petition Process and your May 11, 2020 Hearing Request."

<sup>3</sup> The Allegations Team letter stated, "Your concerns were related to Southern Nuclear Operating Company (SNC) and its contractor, Westinghouse Electric Company (Westinghouse), deliberately not informing the NRC in a timely manner that the Vogtle Unit 3 Nuclear Island basemat is not stable, causing the walls of the nuclear island structures to move uncontrollably. Because your concerns contained a possible wrongdoing issue associated with NRC-regulated activity, your petition was forwarded to my office for review. Based upon our evaluation of the information that you provided, NRC staff determined that your concern did not show a specific indication of wrongdoing because the NRC staff is aware of the settlement of the nuclear island." Letter from Dori Willis, Team Leader Headquarters Allegation Team, RE: Hearing Petition Dated May 11, 2020 Regarding Vogtle Unit 3, June 4, 2020.

<sup>4</sup> Memorandum from Cayetano Santos Jr., Project Manager to Victor Hall, Chief, Vogtle Project Office, SUBJECT: Audit Report for VEGP Unit 3, May 26, 2020, ML20141L698

Fifth, Petitioners place before this Board the Commission's *Safety Culture Policy Statement* which applies to all licensees, permit holders and applicants subject to NRC authority. The policy states *inter alia*: a) Problem Identification and Resolution—Issues potentially impacting safety are promptly identified, fully evaluated, and promptly addressed and corrected commensurate with their significance, and b) Questioning Attitude—Individuals avoid complacency and continuously challenge existing conditions and activities in order to identify discrepancies that might result in error or inappropriate action. See Federal Register Vol. 76, No. 114, June 14, 2011 at 34773. Though not considered regulatory in nature, the “Commission defines Nuclear Safety Culture as the core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment.” Further, the policy holds that “The performance of individuals and organizations can be monitored and trended and, therefore, may be used to determine compliance with requirements and commitments and may serve as an indicator of possible problem areas in an organization’s safety culture.” 76 FRN at 34777.

Petitioners accept opportunities to diligently pursue the letter and intent of these core values by any and all means available.

### **Standing**

SNC disputes Petitioners standing. SNC Answer at 30–32. The NRC Staff do not. BREDL presented declarations from residents—Concerned Citizens of Shell Bluff—living in proximity to Plant Vogtle, three of whom provided their own replies in support of standing in this matter.

Rev. Charles Utley: “I want to voice my opinion on the project in Waynesboro, Georgia. I am a concerned citizen what has taken place in the construction of Plant Vogtle and I want my voice to be heard.” For over twenty years, Rev. Utley has been pastor of a church in Shell Bluff, just 10.2 miles from Plant Vogtle.

Richard Colclough: “I want my voice to be heard concerning the safety of Plant Vogtle.” Mr. Colclough is a well-known environmentalist and former county commissioner who lives in Hephzibah, about twenty miles from plant Vogtle.

Claude Howard: “I live less than five miles from Plant Vogtle and my concern is that the foundation moved. This is more than technical because the surrounding neighborhood that it’s built in includes me and many other concerned residents.”

### **Contentions**

ONE: License Revocation for Materially False Statements

TWO: Construction Factors Create Unacceptable Operational Risk to Health and Safety

BREDL has reviewed the answers to its Petition proffered by both the Nuclear Regulatory Commission Staff (“NRC Answer”) and Southern Nuclear Operating Company (“SNC Answer”). The review concludes that these briefs have fundamentally mischaracterized BREDL’s Contentions and obscure the gravity of the material structural engineering problems which plague the LAR and construction at Vogtle Unit 3.

SNC has admitted to a major defect of the Vogtle construction project with its License Amendment Request for a one-inch change in the seismic gap between two walls on the Vogtle 3 basemat, that the Vogtle Units 3 foundation is “dishing.” What is dishing and why does it matter? According to BREDL expert Arnold Gundersen, the basemat is

the foundation for the entire Nuclear Island that supports the nuclear containment and other buildings important to safely shutting down the reactor. Dishing is caused by the enormous weight of the structure creating a depression in the earth caused by sinking. In the event of an earthquake, the foundation of the entire Nuclear Island and all the critical buildings upon it would no longer be stable. Therefore, Vogtle Unit 3 is at risk of meltdown or major radioactive releases resulting from an unstable basemat foundation.

In his declaration, Gundersen provided critical details:<sup>5</sup>

The structural engineering term for the differential downward deflection forming at the center of the Vogtle foundation, due to additional weight in the middle of the structure, is called “dishing” or “cupping” and is known to present serious structural and seismic problems beyond the leaning walls encountered at Vogtle Unit 3....

According to the National Institute of Standards and Technology, dishing “may have a more significant effect on bending moments in the mat [basemat] foundation.”...

Dishing will change the Modulus of Subgrade Interaction because it redistributes the bearing pressure between the soil and the basemat. Assuming a flat foundation during design creates a “vast simplification of the true subgrade response” compared to the existing condition dishing of the foundation of Vogtle Unit 3’s Nuclear Island.

Gundersen Declaration at 9 and 10, paragraphs 21 and 22 [citations omitted].

Both the NRC and SNC argue that foundation settlement issues are beyond the scope of the License Amendment Request. However, neither NRC nor SNC provide supporting references that dishing was analyzed in the original COL license application. BREDL provided independent references showing that dishing can create significant structural failures in the event of a seismic event. In his expert report Mr. Gundersen

---

<sup>5</sup> Declaration of Arnold Gundersen to Support the Petition for Leave to Intervene and Request for Hearing by the Blue Ridge Environmental Defense League Regarding Southern Nuclear Operating Company’s Request for License Amendment Vogtle Unit 3 Auxiliary Building Wall 11 Seismic Gap Requirements (LAR-20-001) May 11, 2020

cites three independent experts who identify concerns with dishing in a basement foundation structure. Gundersen Declaration at 10, paragraphs 21, 22 and 23. None of these professional journal findings have been previously addressed in any Vogtle license submittals, nor have either SNC or the NRC responded in their answers to BREDL's petition.

### **Expertise Improperly Questioned**

SNC states, "...Petitioner fails to establish how Mr. Arnold Gundersen is qualified to provide expert testimony related to the interaction between the structures and the foundation." SNC Answer at 11. "And, not surprisingly, Mr. Gundersen's expertise has been called into question in other NRC proceedings." SNC Answer at 12 [emphasis added]. Petitioner supplied ample "credentials showing the author is an expert."<sup>6</sup> Nevertheless, Petitioner provides reply *infra*.

During his 50-year career in nuclear power, Mr. Gundersen's experience in structural/seismic engineering is extensive. For example, along with two structural engineers who worked for him, Mr. Gundersen patented an Energy Absorbing Turbine Missile Shield using proprietary dynamic stress/strain data for stainless steel that his organization developed. The design reduced foundation loads on nuclear turbine buildings by using the unique ductile characteristics of Stainless Steel.

Further, on an emergency basis, Mr. Gundersen was approached by executives at Northeast Utilities (NU) for assistance with structural engineering analysis at Millstone Unit 3. NU requested that Mr. Gundersen relocate his entire team of structural engineers

---

<sup>6</sup> See Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station), LBP-11-23, 74 N.R.C. 287, 306 (2011).

to Millstone Unit 3 and add more members to that team in order to do a full-blown structural analysis of a lengthy backlog of piping interaction components. In one month, Mr. Gundersen was able to mobilize a team of 60 structural engineers who directly reported to him and those engineers successfully reduced the overdue and significant backlog of piping interaction components in only one year, which was the length of the 60-person project.

Moreover, as the Engineering Vice President for a nuclear engineering firm that both designed and manufactured spent fuel racks for the expansion of spent fuel capacity in atomic reactor spent fuel cooling pools, Mr. Gundersen personally oversaw the design and construction of nuclear fuel racks at approximately two-dozen nuclear power plants. Each spent fuel rack design was a one-of-a-kind design by necessity due to the unique seismic and structural characteristics of each reactor's localized seismic conditions and building amplified response spectra.

And, as Vice President of Engineering, the Structural Engineering division reporting to Mr. Gundersen was also responsible for maintaining the seismic and structural design basis of the La Crosse Boiling Water Reactor (LACBWR) located near La Crosse, Wisconsin. More importantly and very pertinent in the Vogtle Unit 3 case, is that the La Crosse Atomic Reactor containment was similar to the Vogtle design in that it had an elevated water storage suspended from the containment roof. Therefore, Mr. Gundersen is quite familiar with the unique seismic and structural analysis problems at Vogtle Unit 3 in that he already oversaw a structural engineering team analyzing such unique structural and seismic risks as were presented to his La Crosse team.

Finally, SNC's use of the phrase "not surprisingly" is a pejorative construction which is dismissive and unwarranted in this forum. Petitioner may disagree on many levels with parties to this proceeding, but there is no citation we can find in the rules of procedure which permit *ad hominem* remarks.

### **Conclusion**

BREDL contends that, under the guise of a one-inch change in the seismic gap between two critical walls in the Vogtle reactor, Southern Nuclear Company has admitted to a much more serious problem.

The License Amendment Request does not comply with the current licensing basis, the applicable statutes and regulations. As required under the process for modifying the combined license as set forth in 10 CFR 52.98(f), the Nuclear Regulatory Commission cannot approve this license amendment request. Our principal interests are the health and safety of our members living near the plant and the general public.

Respectfully submitted

A handwritten signature in black ink that reads "Louis A. Zeller". The signature is written in a cursive style and is positioned above a horizontal line that serves as a separator between the signature and the typed name below.

Louis A. Zeller, Executive Director  
Blue Ridge Environmental Defense League  
PO Box 88 Glendale Springs, NC 28629  
Phone: (336) 982-2691  
Email: BREDL@skybest.com



**UNITED STATES OF AMERICA  
U.S. NUCLEAR REGULATORY COMMISSION**

**BEFORE THE ATOMIC SAFETY AND LICENSING BOARD**

In the Matter of:  
SOUTHERN NUCLEAR OPERATING CO.  
License Amendment Application for  
Combined Licenses NPF-91  
Vogtle Electric Generating Plant Unit 3  
Docket No. 52-025-LA-3  
NRC-2008-0252

**CERTIFICATE OF SERVICE**

I hereby certify that the  
**REPLY OF THE BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE AND  
ITS CHAPTER CONCERNED CITIZENS OF SHELL BLUFF TO ANSWERS OF  
NUCLEAR REGULATORY COMMISSION AND SOUTHERN NUCLEAR  
OPERATING COMPANY, LAR-20-001**  
has been filed through the Electronic Information Exchange system  
this 12<sup>th</sup> day of June, 2020.



---

Louis A. Zeller  
Blue Ridge Environmental Defense League  
PO Box 88  
Glendale Springs, NC 28629  
(336) 982-2691  
[BREDL@skybest.com](mailto:BREDL@skybest.com)