UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of Southern Nuclear Operating Company License Amendment Application for Combined License NPF-91 Vogtle Electric Generating Plant Unit 3 Docket No. 52-025-LA-3

May 11, 2020

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)

I, Arnold Gundersen, declare as follows:

1. My name is Arnold Gundersen. I am sui juris. I am over the age of 18-years-old.

2. The Blue Ridge Environmental Defense League (BREDL) and its chapter Concerned Citizens of Shell Bluff have retained Fairewinds Associates, Inc to issue an expert report in support of the Parties' Petition For Leave To Intervene And Request For Hearing. I have specifically been retained to examine the Southern Nuclear Operating Company Vogtle Electric Generating Plant Units 3 for License Amendment and Exemption: Unit 3 Auxiliary Building Wall 11 Seismic Gap Requirements (LAR-20-001).

3. I earned my Bachelor Degree in Nuclear Engineering from Rensselaer Polytechnic Institute (RPI) cum laude. I earned my Master Degree in Nuclear Engineering from

RPI via an Atomic Energy Commission Fellowship. Cooling tower operation and cooling tower plume theory were my area of study for my Master's Degree.

4. I began my career as a reactor operator and instructor in 1971 and progressed to the position of Senior Vice President for a nuclear licensee prior to becoming a nuclear engineering consultant and expert witness. My Curriculum Vitae is Attachment 1.

5. I have testified as an expert witness to the Nuclear Regulatory Commission (NRC) Atomic Safety and Licensing Board (ASLB) and Advisory Committee on Reactor Safeguards (ACRS), in Federal Court, the State of Vermont Public Service Board, the State of Vermont Environmental Court, and the Florida Public Service Commission.

6. I am an author of the first edition of the Department of Energy (DOE) Decommissioning Handbook.

7. I have more than 49-years of professional nuclear experience *including and not limited to*: Cooling Tower Operation, Cooling Tower Plumes, Consumptive Water Loss, Nuclear Plant Operation, Nuclear Management, Nuclear Safety Assessments, Reliability Engineering, In-service Inspection, Criticality Analysis, Licensing, Engineering Management, Thermohydraulics, Radioactive Waste Processes, Decommissioning, Waste Disposal, Structural Engineering Assessments, Nuclear Fuel Rack Design and Manufacturing, Nuclear Equipment Design and Manufacturing, Prudency Defense, Employee Awareness Programs, Public Relations, Contract Administration, Technical Patents, Archival Storage and Document Control, Source Term Reconstruction, Dose Assessment, Whistleblower Protection, and NRC Regulations and Enforcement.

8. I am employed as the chief engineer for Fairewinds Associates, Inc, an expert witness and paralegal services firm specializing in nuclear engineering, nuclear operations, and nuclear power plant safety analysis and assessment. My declaration is intended to examine and analyze the technical issues regarding the Southern Nuclear Operating Company Vogtle Electric Generating Plant Units 3 for License Amendment and

Exemption: Unit 3 Auxiliary Building Wall 11 Seismic Gap Requirements (LAR-20-001).

9. My declaration is intended to examine and analyze the technical issues regarding the License Amendment Application by Southern Nuclear Operating Company, [herein called SNC] to receive an exemption allowing it to modify the Vogtle Unit 3 Auxiliary Building Wall 11 Seismic Gap Requirements (LAR-20-001).

The Condition and Construction History of the Vogtle Unit 3 Nuclear Power Plant

10. The condition of the Vogtle Unit 3 foundation is critical to the safe operation of this nuclear power plant because all systems, structures, walls and components are attached and depend upon its integrity to assure public health and safety as well as reliable operation. The interaction between the Vogtle Unit 3 foundation and the soil underneath it, is the first and most important design parameter that assures public safety during the entire operating life of this atomic power reactor. According to the 2012 license amendment by Southern Nuclear Operating Company (SNC) for changes to be made to the foundation basemat[1] concrete and rebar, the foundation is of critical safety importance.

> The nuclear island structures, consisting of the containment, shield building, and auxiliary building are founded on the 6-foot-thick, cast-in-place, reinforced concrete basemat foundation. The basemat provides the interface between the nuclear island structures and the supporting soil. The basemat transfers the load of nuclear island structures to the supporting soil. The basemat transmits seismic motions from the supporting soil to the nuclear island. Resistance to sliding of the concrete basemat foundation is provided by soil friction.… Soil-structure interaction (SSI) sensitivity analyses … were performed using the Vogtle **best estimate soil profile** and seismic input.[2] **[Emphasis Added]**

[1] For those not familiar with the term basemat: According to the American Society of Mechanical Engineers, the "Nuclear Island (NI) basemat is a very thick reinforced concrete mat sitting on sub-grade soil to function as one-piece-foundation to support all super-structures anchored above the basemat." https://asmedigitalcollection.asme.org/ICONE/proceedings-abstract/ICONE25/57808/V002T03A038/251926

[2] https://www.nrc.gov/docs/ML1221/ML12215A084.pdf, page 3

11. The initial construction activities by the Southern Nuclear Operating Company (SNC) for Vogtle Unit 3 were begun in 2012 under a *Limited Work Authorization issued by the Nuclear Regulatory Commission on February 10, 2012*[3]. At that time, work was limited to construction activities related to the foundation of the Seismic Category 1 Nuclear Island (NI). Between March 2013 and February 2014 most of the concrete for the NI foundation was poured.[4] Foundation problems have plagued the construction of both Vogtle 3 and 4 reactors since the very beginning of construction project. For example, in 2012, construction was halted due to improperly installed rebar. And, then in 2013, the first concrete pour at Vogtle led to an NRC finding of "significant breakdown in the Quality Assurance of [then contractor] CB&I." [5]

12. The construction of the foundation for the Auxiliary and Annex Buildings, portions of which are considered part of the NI, was poured sometime in 2014 with walls constructed and poured shortly afterward, certainly by sometime in 2015. SNC has determined that the Vogtle construction schedule is "Proprietary" and the NRC has concurred so it is impossible for experts representing Non-Governmental Organizations such as BREDL to determine the exact construction dates from NRC documentation.

> The construction schedule information contained within the Enclosures is considered proprietary to both Westinghouse Electric Company, LLC (Westinghouse) and Chicago Bridge & Iron (CB&I) Company, and was determined to be treated as such by the NRC in its letter to Westinghouse dated August 12, 2009 (ADAMS ML092240522). Accordingly, it is respectfully requested that the enclosed VEGP Units 3 and 4 construction schedule information be withheld from public disclosure in accordance with 10 CFR 2.390. The project schedule information provided with this letter is proprietary in its entirety; thus, a non- proprietary version is not provided. [6]

13. Five years later, after the foundation and walls were already completed, Southern Nuclear Operating Company (SNC) notified the NRC on February 7, 2020 that it was

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[3] https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML113350133
[4] https://www.southerncompany.com/innovation/nuclear-energy/plant-vogtle-3-and-4.html
[5] https://www.nrc.gov/docs/ML1221/ML12215A084.pdf
[6] https://www.nrc.gov/docs/ML1403/ML14038A172.pdf

seeking a License Amendment due to the discovery that walls and the entire foundation of the Auxiliary Building have inexplicably moved, sunk and become distorted. Now, Southern Nuclear Operating Company (SNC) is proposing to modify what it calls the "seismic gap" between the walls of the NI and the Annex building: "In order to **facilitate the construction** of the nuclear island and adjacent buildings"[7], according to its *Request for License Amendment and Exemption: Unit 3 Auxiliary Building Wall 11 Seismic Gap Requirements (LAR-20-001).* **[Emphasis Added]**

13.1. The construction of the walls and foundations in question were completed at least a half-decade ago, therefore, it is technically impossible to "facilitate construction" on structures that were completed at least five years earlier and that fall under strict seismic regulatory guides. Therefore, I believe that the above statement by SNC is materially false.

13.2. Moreover, by proposing a licensing amendment related to this so-called and allegedly newly discovered "seismic gap" change, Southern Nuclear Operating Company is once again attempting to ignore the critical underlying safety conditions that caused the gap to change, *which is that the foundation of the Annex Building is sinking into the ground*. In the same document, *Request for License Amendment and Exemption: Unit 3 Auxiliary Building Wall 11 Seismic Gap Requirements (LAR-20-001),* SNC stated,

> The VEGP Unit 3 settlement survey data of the past few years indicates that the nuclear island basemat has deflected more in the center and less at the perimeter which would tend to **cause the perimeter walls to lean** towards the center of the nuclear island. Theoretically, this suggests that the **nuclear island tends to tilt away from the annex building**.[8] **[Emphasis Added]**

13.3. Furthermore, the VEGP Unit 3 settlement survey data shows that SNC has known that the foundation under Vogtle Unit 3 was sinking and portions were

[7] Page 4, Southern Nuclear Operating Company, Vogtle Electric Generating Plant Unit 3, 2/7/2020, Request for License Amendment and Exemption: Unit 3 Auxiliary Building Wall 11 Seismic Gap Requirements (LAR-20-001)
[8] IBID, page 8

tilting in different directions during several years of the construction process. The necessary requirement for a licensing amendment is not new, but has been evident to on the Vogtle site and SNC management for at least five years.

13.4. My review of the submitted data and evidence in the Southern Nuclear Operating Company (SNC) file shows that:

13.4.1. Either Westinghouse knew and did not inform SNC or

13.4.2. Westinghouse and SNC knew and chose not to inform the NRC in a timely fashion or

13.4.3. Westinghouse, SNC and the NRC knew and chose to wait until the last minute to amend the Vogtle 3 license in hopes that the application would slide right through the statutorily required formal hearings and NRC oversight.

13.5. Additionally, I remain significantly concerned that either SNC and its contractors lack the technical competence to ascertain that the walls within Vogtle Unit 3 were moving uncontrollably because the basemat of the nuclear island is not stable, or SNC deliberately chose not to inform the NRC of these safety violations until this late hour in hopes that the serious ramifications would be overlooked.

13.6. As the licensee (SNC) is ultimately responsible for the accuracy and truthfulness of all of its correspondence with the NRC and since SNC has admitted that it was measuring the deflection of the basemat for a period of years, it seems that SNC has chosen to seek quick forgiveness from the NRC rather than correct a problem at a much earlier date. The nuclear industry knows that it is easier to seek forgiveness from the NRC after the fact than it is to see the NRC's approval when a problem is initially identified.

13.7. SNC now has the audacity to ask the NRC for an expedited review of a problem that requires license amendment hearings in addition to being a significant unreported safety risk that has existed for more than five years.

13.8. Now, in the midst of an international pandemic, SNC is attempting to slide this request in front of NRC staff for a quick internal review and approval of its License Amendment Request (LAR) no later than August 7, 2020[9] even though the problem has been known to SNC for more than five years.

License Amendment Technical Description

14. The critical importance of a well-designed and well-constructed foundation should have been known to SNC when it originally applied for its license for Vogtle Unit 3. According to the American Society of Mechanical Engineers (ASME),

> Since passive-safety-plant NI basemat is a deep foundation, basemat is deeply buried below the grade, the complete foundation model not only shall consider the basemat and immediate soil under the basemat, but also need to consider the backfill soil, the surrounding soil in vicinity, fill concrete under the basemat and deeper soil condition under the basemat. Since seismic loads pose great effects on basemat and its foundation design, how to evaluation [sic] seismic loadings and simplified their application for basemat static analysis is critical for such type of foundation.[10]

15. In seeking to minimize the underlying structural requirements approved as a baseline safety design feature for Vogtle Unit 3 for the approval of its initial construction license, Southern Nuclear Corp (SNC) is attempting to obfuscate the true facts. Merely amending its license and modifying requirements for the seismic gap between a portion of a wall in the Annex Building and the NI (Nuclear Island), SNC appears to be using this alleged emergency license amendment request to ignore the significant seismic and structural concerns. In this License Amendment process, SNC has chosen to ignore these key factors relating to the degraded condition of the nuclear island:

[9] IBID, Cover letter, page 2
[10] https://asmedigitalcollection.asme.org/ICONE/proceedings-abstract/ICONE25/57808/V002T03A038/251926

15.1. The foundation of the Seismic Category 1 Nuclear Island has settled "more at the center and less at the perimeter"

15.2. A wall has moved closer to the NI

15.3. That same wall now is not level, and is leaning

15.4. If the foundation of the NI has settled, "more at the center and less at the perimeter", other systems and structures must also have become deformed yet have not been evaluated.

16. SNC seeks to portray the "as-built condition" of the wall as a minor issue, less than an inch deflection from the designed value. SNC states in its License Amendment request that it seeks:

> "to modify the north-south seismic gap requirement above grade between the nuclear island and the annex building west of Column Line I from El. 141′ through El. 154′ in the licensing basis **to accommodate construction as-built localized nonconformances** at VEGP Unit 3. Elevation 141′ is mid-span with respect to the auxiliary building and annex building." **[Emphasis Added]**

17. This statement by SNC is incorrect. The "as-built" condition of the wall in question was correct at the time it was built. Its most recent location is not an "as-built localized nonconformance". Without human intervention, the wall moved after it was constructed because the NI is sinking.

Technical Analysis: Broad Seismic Overview

18. SNC's February 7, 2020 Request for a License Amendment for Vogtle Unit 3 presents issues of great significance yet lacks adequate engineering analysis to support both the start-up and operation of Vogtle Unit 3. Page 8 of the SNC LAR request states:

> The VEGP Unit 3 settlement survey data of the past few years indicates that the nuclear island basemat has deflected more in the center and less at the perimeter which would tend to cause the perimeter walls to lean

> towards the center of the nuclear island. Theoretically, this suggests that the nuclear island tends to tilt away from the annex building.

19. The NRC seems to have become aware of this structural defect in the Vogtle Unit 3 foundation on January 23, 2020 in a meeting with SNC. Notes from that meeting state that the NRC requested that SNC:

> Provide additional information on the settlement monitoring at the site for the NRC staff to evaluate the actual settlement trends and future projected total settlement. [11]

Based on information in the NRC ADAMS database, this NRC request for additional information either was never honored by SNC or has not yet been filed in the NRC ADAMS database as require by statute.

20. The allegedly newly discovered sinking of the Nuclear Island at Vogtle 3 is reminiscent of the significant foundation problem faced at the Midland Nuclear Plant located in Michigan, where construction had to be completely terminated due to similar foundation issues related to poor soil compaction. According to the New York Times, "the buildings had begun to sink into the soft earth along the Tittabawassee River here, and the difficult tunneling needed to shore up the foundation had helped drive up costs.[12]

21. 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. The *dishing* being exhibited at Vogtle was never anticipated and therefore was not considered in Vogtle's original design. Currently the serious structural and seismic risk issue at Vogtle has been ignored in the 2020-02-07 License Amendment Request (LAR). According to the National Institute of Standards and Technology, dishing

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[11] https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML20027A231

[12] https://www.nytimes.com/1984/07/19/us/decision-to-halt-nuclear-project-in-michigan-brings-hardships.html

"may have a more significant effect on bending moments in the mat [basemat] foundation"

> Dishing or cupping of a foundation can be visualized by considering the difference in pressure at the center of a uniformly loaded mat as compared to the very edge of the mat. The pressure at the edge of the mat dissipates quickly into the soil continuum because of lack of pressure on the adjacent soil, but the pressure at the center of the mat dissipates more slowly because of the adjacent loaded soil. To accurately model this effect, a variable subgrade modulus may need to be used in the analysis model. To select the appropriate modulus, iterations must be performed between the structural engineer and geotechnical engineer. **Depending on the subgrade behavior**, dishing may have a relatively small effect on soil pressure distribution but **may have a more significant effect on bending moments in the mat foundation (Horvilleur and Patel 1995).** [13]

22. *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"[14] compared to the existing condition dishing of the foundation of Vogtle Unit 3's Nuclear Island. SNC only identified this deterioration for the first time in the 2020-02-07 License Amendment Request (LAR).

23. According to the American Institute of Steel Construction, "It is well known that dishing creates three dimensional bending with nonlinear yield lines".[15]

24. Yet while acknowledging that dishing has occurred and will continue to occur, SNC attempts to obfuscate the dishing in the guise of the LAR concerning seismic gap modifications.

25. SNC admits that it has known and indeed spent years measuring the disproportional settling of the Nuclear Island. Yet, Southern Nuclear Operating Company seems to believe that by waiting until the last minute to acknowledge these severe foundation

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[13] Seismic Design of Reinforced Concrete Mat Foundations, NIST GCR 12-917-22, https://www.nehrp.gov/pdf/nistgcr12-917-22.pdf

[14] slide 24, "Frequently Misunderstood Foundation Design , Ian McFarlane, Provisions https://seanm.org/images/meeting/041719/frequentlymisunderstoodfoundationdesignprovisions.pdf

[15] Slide 63, American Institute of Steel Construction, AISC Live Webinar, Dr Amit Kanvinde, June 14, 2012, Column Base Connections, https://www.aisc.org/globalassets/continuing-education/quiz-handouts/column-base-connections.pdf

issues. By cloaking these series issues as deflection of a single wall, and by seeking an expedited review schedule, it may be able to avoid serious oversight by the NRC of the broader fundamental issue that the Nuclear Island itself – the bedrock of the entire Vogtle AP1000 Unit 3 is ominously sinking and dishing.

26. Such a dire situation makes it clear that the construction of Vogtle Unit 3 should be stopped until Southern Nuclear Operating Company:

    26.1. actually reevaluates the structural integrity of the entire Nuclear Island,

    26.2. performs a complete root cause analysis of the new stresses on basemat Nuclear Island on Vogtle Unit 3 is being constructed,

    26.3. presents the complete analyses and root cause analysis information in public licensing hearings,

    26.4. and an entire new licensing review and full analysis of the new stress conditions placed on other components on the site that are no longer level as a result of the disproportionate sinking have been concluded and subjected to satisfactory independent engineering review.

27. Quite simply, walls inside nuclear power plants do not move of their own accord. While SNC admits that the Nuclear Island (NI) foundation is sinking disproportionately causing at least one wall to move, SNC does not discuss or address the root cause of the sinking of the foundation, nor does it discuss how the public will be protected from the increased safety risks that now exist from the movement of the wall. That movement will not only continue during the 80-years of projected operation for Vogtle Unit 3, and likely will accelerate.

28. No evidence was found in the ADAMS database that SNC has even researched, discussed, or proposed how the ongoing disproportionate lack of structural integrity on the nuclear island will impact safe operations for the next 80 years of planned operation. Finally, SNC has not analyzed or presented solutions regarding the impact of foundation settlement on other systems and structures. Every single one of these issues by itself is critical, and taken together show the overwhelming requirement that the design and engineering integrity of this Westinghouse designed reactor must be

fully evaluated and firm solutions must be put in place prior to any operation of the Vogtle Unit 3 atomic power reactor.

Leaning Wall Technical Analysis

29. In its proposed License Amendment, *Southern Nuclear Operating Company (SNC) has alleged that a single concrete wall that is a critical part of the structural integrity of the entire reactor unit has moved of its own accord*. SNC's analysis is also severely lacking for the following reasons:

29.1. SNC claims this solid concrete wall is leaning because the foundation under it is sinking. This major safety and operational flaw places one side of the concrete wall in compression and one side in tension. While concrete can be shaped and molded, it is not an effective structural member when it is placed under tension. Now, the wall in question may be weaker and able to bear less weight than it was designed for, and because this wall is a significant component of the entire building, the impact of its loss of structural integrity must be fully analyzed. In addition to the one wall SNC has identified in this 2020-02-07 LAR, there must be other structures within the Nuclear Island (NI) that are similarly distorted and unanalyzed.

29.2. SNC admits that it did not do a seismic analysis of the wall, but rather conducted a much less expensive "*estimation*" using a "*bounding analysis*" and "*linear interpolation*" to determine the wall's alleged adequacy and structural integrity. In this particular location, a simple *estimation* is nothing less than a guess that risks public safety.

29.3. "Since the AP1000 Generic SASSI analysis does not explicitly model the north-south displacements between the [basemat] nuclear island and the annex building, an assessment of the bounding nature of the north-south displacements between the nuclear island and the turbine building was performed. … Linear

interpolation is used to estimate the relative displacements between the walls at elevations between 100′ and the roof."[16]

30. Southern Nuclear Operating Company knows that the Nuclear Island has departed from its design conditions and is no longer level. Using the Generic SASSI bounding analysis and linear interpolation are completely inappropriate and places public health at risk, because both the Generic SASSI bounding analysis and linear interpolation are based upon the mathematical assumption of a level foundation. The Generic SASSI does not include provisions for the '*dishing'* exhibited by the Vogtle Unit 3 Nuclear Island foundation. Given the alarming condition of the sinking nuclear island (NI) foundation, it is obvious that none of the current engineering design, schematics, and actual build on site fits the original licensing permit, so that a new SASSI analysis is undoubtedly required.

31. SNC also admits that it only analyzed the area *near the wall* using a two dimensional stick model minimalist structural analysis. The latest AP1000 generic 2D SASSI analyses that shows that the SASSI models also include the annex building east-west and the turbine building first bay as stick models.[17] Given the *dishing of the basemat,* this minimalist analytical approach serves to ignore the specific operational consequences of this nonconformance.

32. SNC knows that the Nuclear Island has departed from its design conditions Generic AP1000 license and the NI foundation is no longer level. Using stick models and a two-dimensional analysis that assumes a level foundation is wholly inappropriate and places public health and community infrastructure at a severely increased risk level. Therefore, a complete three-dimensional seismic analysis of the Vogtle Unit 3 Nuclear Island is required given the condition of at least one leaning wall and the sinking foundation prior to any operation of the reactor.

[16] IBID Page 7
[17] IBID Pages 6 and 7

Analysis Hindered by Lack of Available Data

33. My review and analysis have been seriously hampered due to the lack of any complete engineering analyses or accurate information provided for review by SNC. In an email from Santos, Cayetano to Lou Zeller, Executive Director of the Blue Ridge Environmental Defense League, dated May 8, 2020, *it is clear that the NRC has no intention of providing the public and BREDL with any additional information about the dangerous dishing that is occurring in the Vogtle Unit 3 foundation*.

> As I indicated in my e-mailed response this morning, May 8, 2020, at 9:05 a.m., the licensee made the documents and calculations you request available to the staff in an electronic reading room as part of an audit. The staff does not have possession of the documents and calculations that were identified in the audit plan. The NRC staff's safety review of License Amendment Request 20-001 will rely on information placed on the docket by the licensee. You also request "documents, notes or calculations" the NRC staff audit team made in carrying out the audit. As stated in the audit plan, the staff will prepare an audit summary report that will be entered as an official agency record in ADAMS.

34. Furthermore, in its recognition of the lack of information received from SNC, the NRC issued an Audit Plan on March 20, 2020 for LAR 20-001 that clearly states:

> The audit team will view the documentation and calculations that provide the technical support for LAR 20-001… On completion of the audit, the staff will prepare an audit summary report that will be declared and entered as an official agency record in ADAMS. The audit outcome may be used to identify any additional information to be submitted for making regulatory decisions and will assist the staff in the issuance of requests for additional information (if necessary) in completing its review of LAR 20-001.[18]

35. Lastly, as I write this report in late April and early May 2020, the detailed NRC Audit Summary has yet to be placed in the ADAMS system, and none of the information reviewed by the NRC Audit Team been placed in ADAMS either. Therefore, due to a lack of timeliness by the NRC in filing these necessary reports, I reserve the right to

[18] NRC Memorandum, Santos to Hall, Audit Plan, 3/20/2020, ML20063H206

modify this report when the appropriate information is finally placed in ADAMS for public review as required by federal statute.

Conclusions

36. The "seismic gap" problem identified in this Southern Nuclear Operating Company's proposed License Amendment for Vogtle Unit 3 is the tip of the iceberg for a much more significant safety issue. SNC has known the following issues for half a decade:

36.1. First, that the Seismic Category 1 Nuclear Island at Vogtle Unit 3 is sinking into the ground.

36.2. The Nuclear Island is not sinking uniformly but rather bowing downward at the center in a structural defect called "dishing".

36.3. Other surrounding structures are not sinking at the same rate.

36.4. This sinking was not anticipated in the original Vogtle License and has never been analyzed.

36.5. Ever since the earliest stages of ongoing construction, 12-foot high walls have moved sideways by more than one inch as a result of this descent of the entire nuclear island into the Georgia soil.

36.6. No analysis has been initiated by SNC to determine if Vogtle can withstand an earthquake given that its foundation is plunging underground in the shape of a dish.

36.7. Therefore, until such time as a new complete evaluation of the integrity of the Vogtle 3 Nuclear Island is complete, construction on Unit 3 should stop.

36.8. The specific Seismic Gap License Amendment Request should be put in abeyance until a much broader, complete structural/seismic reanalysis is completed and approved, including with the required license amendment public hearings.

37. The absolute lack of accurate technical information and engineering oversight shows that SNC either lacks the technical competence to accurately measure that the walls

inside Vogtle Unit 3 are moving uncontrollably or SNC deliberately chose not to inform the NRC of this technical breakdown until this late hour in the midst of a pandemic.

38. As the licensee is ultimately responsible for the accuracy and truthfulness of its correspondence with the NRC and since SNC has admitted that it has been measuring the deflection of the basemat nuclear island for a period of years, it seems that SNC has chosen to seek quick forgiveness from the NRC for the sin of not reporting rather than to take the necessary engineering steps required to correct this horrendous problem at a much earlier date, which might have made it possible to correct and repair as a much less costly venture. Such behavior proves that Southern Nuclear Operating Company should be investigated by the NRC's Office of Investigation to determine "what did it know and when did it know it" in relation to its deliberate coverup of the sinking basemat of the nuclear island and the walls that moving uncontrollably.

39. The leaning 12-foot high wall that began this License Amendment request lacks adequate structural/seismic analysis and the License Amendment request should be rejected until a complete, detailed, and independently reviewed technical analysis is presented to the NRC and to the Blue Ridge Environmental Defense League.

40. The broad seismic basemat foundation degradation that underlie the LAR-001 submitted 2020-02-07 by SNC prove that the acceptance criteria of the ITAAC in the combined license are not capable of being met by SNC at Vogtle Unit 3. The seismic structural engineering flaws that exist in the basemat foundation create operational consequences from the nonconformance that would be contrary to providing reasonable assurance of adequate protection of the public health and safety. Furthermore, these flaws increase the likelihood of seismic failure, including and not limited to meltdown of the reactor core and the ensuing radiation releases into the environment that would severely comprise public health and safety.

End

Attachments:
Attachment 1 – Curriculum Vitae

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 11th day, May 2020 in Charleston, South Carolina
_____/s/_____

Arnold Gundersen, MSNE, RO
Chief Engineer, Fairewinds Associates, Inc

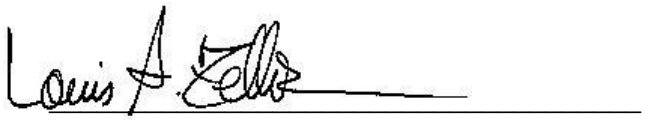
UNITED STATES OF AMERICA
U.S. NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

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
DECLARATION OF ARNOLD GUNDERSEN TO SUPPORT THE PETITION FOR LEAVE TO INTERVENE AND REQUEST FOR HEARING BY THE BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE AND ITS CHAPTER CONCERNED CITIZENS OF SHELL BLUFF REGARDING SOUTHERN NUCLEAR OPERATING COMPANY'S REQUEST FOR A LICENSE AMENDMENT AND EXEMPTION FOR UNIT 3 AUXILIARY BUILDING WALL 11 SEISMIC GAP REQUIREMENTS, LAR-20-001
has been filed through the Electronic Information Exchange system
this 11th day of May, 2020.



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