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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Re: Pre-decisional Reply to EA-19-112, NRC Inspection Report 05000424/2019090 and 05000425/2019090 and Preliminary White Finding and Apparent Violation

Reference 1: NRC letter to Southern Nuclear Operating Company, EA-19-112, "Vogtle Electric Generating Plant – NRC Inspection Report 05000424/2019090 and 05000425/ 2019090 and Preliminary White Finding and Apparent Violation," dated December 26, 2019

Dear Sir or Madam:

In Reference 1 the NRC identified an Apparent Violation (AV) of Technical Specification 3.3.3, related to calibration of the Vogtle Electric Generating Plant Unit 1 and Unit 2 containment high-range area radiation monitors (CHRMS) 1RE-0005, 1RE-0006, 2RE-0005, and 2RE-0006. The NRC concluded that the "performance deficiency would result in an over-classification that would lead to protective action recommendations (PARs) being provided to off-site response organizations who would then take unnecessary actions to protect the public." The NRC's preliminary significance determination for the AV is that it is of low safety significance and related to the Emergency Preparedness Cornerstone.

SNC agrees that a performance deficiency related to the calibration of the CHRMS occurred. This letter submits additional information for NRC's consideration in its final determination of the significance of the finding.

SNC agrees that the performance deficiency may result in a declaration of a General Emergency (GE) and initial PAR before the actual Emergency Action Level (EAL) setpoints are reached. SNC also recognizes the risk inherent with Offsite Response Organizations (ORO) taking recommended protective actions with the public when such actions are not required. However, the performance deficiency would not result in unnecessary PARs and the health and safety of the public would not be impacted because the scenarios associated with the events that reach this EAL threshold all ultimately result in the declaration of a GE and issuance of a PAR. Therefore, the performance deficiency should be considered to be of very low safety significance.

As explained below, SNC reviewed the EALs (NEI 99-01, Rev. 6), and identified four (4) scenarios for which decision-making is dependent on these monitors and where a GE could be declared, and initial PAR provided. SNC concluded that the GE declaration and initial PAR would not be unnecessary in any of the four (4) scenarios. Either the relevant PARs would be

inevitable (i.e., there are no actions that would stop the progression towards the actual monitor setpoint), or a GE and initial PAR would be declared using some other basis. These PARs to evacuate and/or shelter would be the same regardless of the high-bias CHRMS.

- **Scenario 1** is based on the Fission Product Barrier Matrix where the EAL setpoints for these monitors are used to determine loss of reactor coolant system (RCS) barrier, loss of the fuel clad barrier, and potential loss of the containment barrier. Under this scenario, fuel damage would be due to mechanical failure and would not improve. Based on SNC's analysis, the worst-case is that the biased-high monitors would result in a declaration of a GE and initial PAR approximately 6.0 hours before the actual EAL setpoint would otherwise be reached.

- **Scenario 2** is based on the Fission Product Barrier Matrix where RCS is breached and there is a potential loss of containment. In this scenario, these monitors are not used to determine a potential loss of containment. This is followed by rising radiation levels indicative of fuel clad damage. Under this scenario, fuel damage would be due to mechanical failure and would not improve. Based on SNC's analysis, the worst-case is that the biased-high monitors would result in a declaration of a GE and initial PAR before reaching the actual EAL setpoints; however, these would occur within the range of values used to develop this EAL from NEI 99-01, Rev. 6.[1]

- **Scenario 3** is based on the Fission Product Barrier Matrix where there is an actual containment breach (these monitors are not used to determine actual containment breach) and an RCS and fuel clad barrier breach indicated by these monitors. However, in this scenario, the PAR is developed using radiation levels determined by either field team measurements or dose assessment software. The monitors would not be used to declare the GE and initial PAR.

- **Scenario 4** is based on the Cold Matrix where it is assumed that during mid-loop operation an unexpected drain down occurs to the point where radiation levels would reach the setpoints for the monitors. Under this scenario, the leakage is more likely to be identified by operating crews well in advance of the monitors reaching a setpoint. Required procedural actions would be taken to either stop the leak or add additional water. However, if the leak could not be stopped, SNC's analysis indicates the worst-case is a declaration of a GE and initial PAR approximately 4.6 hours before the actual EAL setpoint would otherwise be reached.

In addition to the information provided above, SNC respectfully requests the NRC consider that the current licensing basis for Vogtle 1 & 2 (Regulatory Guide (RG) 1.97, Revision 2) allows an overall accuracy of a factor of two (2). The worst-case bias for the CHRMS was a factor of 2.45. The difference in time between declaring the GE and initial PAR with an overall system accuracy being within a factor of 2 and a factor of 2.45 would be approximately one (1) hour. Thus, the additional bias (0.45) is of very low safety significance, versus low safety significance.

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[1] The NEI guidelines in NEI 99-01, Rev. 6 base the calculation of this setpoint on an RCS activity of 300 µCi/gm, corresponding to an approximate range of 2-5% fuel damage. SNC Calculation X6CNA15 assumes that RCS activity for 20% fuel clad damage is 1200 µCi /gm; therefore, the calculation attributes 5% fuel clad damage to an RCS activity of 300 µCi /gm.

Finally, SNC notes that NRC's preliminary significance determination of low safety significance is driven by consideration under the EP SDP. Based on SNC's review of the SDP and Inspection Program, specifically Appendix G to IMC 0612, it is unclear whether the EP SDP should be applied to this performance deficiency. For example, Appendix G states:

> Because a typical emergency program relies on equipment and resources maintained by other station groups, and by the actions of personnel in other station groups, what appears as an issue of concern under the [EP] Cornerstone, may in fact, be an issue of concern under a different cornerstone (e.g., instrumentation and control personnel miscalibrate a radiation monitor rendering ineffective an otherwise compliant [EAL]).

In the EP SDP, EAL performance deficiency safety significance is based on the impact on the health and safety of the public due to not making necessary recommendations to protect the public; or due to recommending actions that would be unnecessary to protect the public during the emergency event. An issue with equipment on which EALs rely may not result in this kind of public health and safety impact and therefore may be of very low safety significance. There are no EP program concerns or corrective actions required in the EP program due to this performance deficiency. Review of the performance deficiency under a different SDP, as contemplated in the above section of Appendix G, may more appropriately determine that the actual safety impact of the finding is of very low safety significance.

In this case, even if a PAR were deemed unnecessary because it was made early, there would be no additional impact to the health and safety of the public because the PAR will be the same, with the difference of a few hours, not nearly enough to create any different risk or effects. A final determination of very low safety significance would be consistent with the NRC's stated goal of risk-informing the EP SDP process.

In closing, SNC appreciates the opportunity to provide this information. We welcome the opportunity to have further dialogue on these matters prior to your final significance determination and can provide addition information upon request.

This letter contains no new NRC commitments. If you have any questions, please contact Matt Horn at 706-848-1544.

Respectfully submitted,

FOR B.K. TABER

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cc: Regional Administrator, Region II
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