J. Barnie Beasley, Jr., P.E.
Vice President
Vogtle Project

Southern Nuclear
Operating Company, Inc.
40 Inverness Center Parkway
P.O. Box 1295
Birmingham, Alabama 35201

Tel 205.992.7110
Fax 205.992.0403

SOUTHERN COMPANY
Energy to Serve Your World℠

September 3, 1998

LCV-1242

Docket Nos.: 50-424
50-425

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

Ladies and Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT
REQUEST TO REVISE TECHNICAL SPECIFICATIONS
REPLACEMENT OF NUCLEAR INSTRUMENTATION SYSTEM SOURCE AND INTERMEDIATE RANGE CHANNELS AND POST-ACCIDENT NEUTRON FLUX MONITORING SYSTEM

In accordance with the provisions of 10 CFR 50.90 and 10 CFR 50.92, Southern Nuclear Operating Company (SNC) hereby proposes to amend the Vogtle Electric Generating Plant (VEGP) Unit 1 and Unit 2 Technical Specifications, Appendix A to Operating Licenses NPF-68 and NPF-81, respectively. The proposed changes to the Technical Specifications are to support the replacement of the Nuclear Instrumentation System Source Range and Intermediate Range Channels and the Post-Accident Neutron Flux Monitoring System. In addition to these changes, it is proposed to delete the requirements for performing response time testing of the source range channels and power range detector plateau voltage determinations.

The existing Westinghouse-supplied Source Range (SR) and Intermediate Range (IR) excore detector system is being replaced with an equivalent neutron monitoring system in order to increase system reliability. The new system, supplied by Gamma-Metrics, is qualified to Regulatory Guide 1.97 requirements. The Westinghouse-supplied post-accident Neutron Flux Monitoring System (NFMS), which currently provides Regulatory Guide 1.97 indication, will also be replaced by the new system. The Westinghouse Source Range detector is a boron trifluoride (BF_3) detector, the Intermediate Range detector is a compensated ion chamber, and the post-accident detector is a fission chamber. The new system is the Gamma-Metrics Series 300 Neutron Flux Monitoring System. The Gamma-Metrics detector system consists of fission chambers that will perform the Source Range,

A001

Intermediate Range, and post-accident monitoring functions. The Gamma-Metrics system will also replace the current High Flux at Shutdown Alarm (HFASA) function used to alert the operators in case of an inadvertent boron dilution event.

Southern Nuclear plans to implement the above-described changes during the Unit 1 refueling outage in the Spring of 1999 and during the Unit 2 refueling outage in the Fall of 1999. Therefore, Southern Nuclear requests that the NRC approve the requested changes to the Technical Specifications and Bases by January 29, 1999.

Enclosure 1 provides a description of the proposed changes to the Technical Specifications and Bases. Enclosure 2 provides the basis for a determination that the proposed change does not involve significant hazards considerations. Enclosure 3 contains an Environmental Impact determination demonstrating that there will be no impact on the environment resulting from this amendment. Enclosures 4 and 5 contain marked-up and typed copies, respectively, of the revised Technical Specification and Bases pages.

Mr. J. B. Beasley, Jr. states that he is a Vice President of Southern Nuclear Operating Company (Southern Nuclear) and is authorized to execute this oath on behalf of Southern Nuclear and that, to the best of his knowledge and belief, the facts set forth in this letter and enclosures are true.

SOUTHERN NUCLEAR OPERATING COMPANY

By: J. B. Beasley, Jr.

Sworn to and subscribed before me this 3 day of Sept., 1998.

Barbara K. Fuller
Notary Public

My Commission Expires: 12/2/01

Enclosures:

1. Basis for Proposed Change
2. 10 CFR 50.92 Evaluation
3. Environmental Impact Determination
4. Marked-Up Revisions to Technical Specification and Bases Pages
5. Typed Revised Technical Specification and Bases Pages

xc: Southern Nuclear Operating Company
Mr. J. T. Gasser
Mr. M. Sheibani
SNC Document Management

U. S. Nuclear Regulatory Commission
Mr. L. A. Reyes, Regional Administrator
Mr. D. H. Jaffe, Senior Project Manager, NRR
Mr. J. Zeiler, Senior Resident Inspector, Vogtle

State of Georgia
Mr. L. C. Barrett, Commissioner, Department of Natural Resources

ENCLOSURE 1

VOGTLE ELECTRIC GENERATING PLANT
REQUEST TO REVISE TECHNICAL SPECIFICATIONS
REPLACEMENT OF NUCLEAR INSTRUMENTATION SYSTEM SOURCE AND INTERMEDIATE RANGE CHANNELS AND POST-ACCIDENT NEUTRON FLUX MONITORING SYSTEM

BASIS FOR PROPOSED CHANGE

Proposed Change

The existing Source Range (SR) and Intermediate Range (IR) excore detector system has experienced numerous failures resulting in excessive maintenance on the system. This system is being replaced in order to increase system reliability and reduce the maintenance burden associated with the existing SR and IR detector systems. Also, since the new system is qualified to Regulatory Guide 1.97 requirements, the post-accident Neutron Flux Monitoring System (NFMS), which currently provides RG 1.97 indication, will be replaced by the new system. In addition to these changes, it is proposed to delete the requirements for performing response time testing of the source range channels and power range detector plateau voltage determinations.

Revisions to the Technical Specifications

SR 3.3.1.11 Note 2 - Delete

Table 3.3.1-1

- Function 4 - Increase Allowable Value of intermediate range neutron flux trip
- Function 5 - Increase Allowable Value of source range neutron flux trip and delete response time surveillance requirement
- Function 16a - Convert P-6 Allowable Value and Setpoint from "amp" to "% RTP"

Bases B 3.3.1 Applicable Safety Analyses

- Function 4 - Change reference to intermediate range scale
- Function 5 - Remove reference to de-energizing source range detectors above P-6
- Function 16a - Remove reference to de-energizing/energizing source range detectors
- Function 16e - Remove reference to de-energizing source range detectors
- SR 3.3.1.11 - Remove reference to detector plateaus and correct a typographical error

ENCLOSURE 1

VOGTLE ELECTRIC GENERATING PLANT
REQUEST TO REVISE TECHNICAL SPECIFICATIONS
REPLACEMENT OF NUCLEAR INSTRUMENTATION SYSTEM SOURCE AND INTERMEDIATE RANGE CHANNELS AND POST-ACCIDENT NEUTRON FLUX MONITORING SYSTEM

Bases B 3.3.8 - Change high flux at shutdown alarm setpoint from "2.3" to "$\leq$ 2.3"

Bases B 3.9.3

- Replace reference to BF_3 detectors with fission chambers and revise instrument range and accuracy to be consistent with new instrumentation

- SR 3.9.3.2 - Remove reference to source range detector plateau

Basis

This design change replaces the Class 1E Westinghouse excore Source Range (SR), Intermediate Range (IR), and Neutron Flux Monitoring Systems (NFMS) with an equivalent neutron monitoring system using the Gamma-Metrics Series 300 design. This is a total replacement including the detectors and the associated processing electronics. The new system meets the requirements of the existing systems and meets United States Nuclear Regulatory Commission (NRC) Regulatory Guide 1.97 (Revision 2) requirements (post accident), and Branch Technical Position CMEB 9.5-1 requirements (Appendix R/fire in control room).

The new Gamma-Metrics signal processors are designed to replace the existing Westinghouse source and intermediate range drawers located in Nuclear Instrumentation System (NIS) cabinets in the control room. The processor will combine the functions of the existing SR and IR drawers into a single drawer.

In addition to the control room signal processors, a new remote signal processor will replace the existing Westinghouse Neutron Flux Monitoring System (NFMS) train B processor located in Plant Safety Monitoring System (PSMS) cabinet. This processor provides an Appendix R function in addition to its RG 1.97 function. The entire Gamma-Metrics System is qualified for RG 1.97 post Accident monitoring requirements. Therefore, it is possible to use the Gamma-Metric signal processors in the control room for RG 1.97 applications. The reason for the remote signal processor is to satisfy the monitoring requirements during a control room fire.

The outputs of the new system, both safety-related and non-safety-related, (i.e., level trips, Plant Safety Monitoring System (PSMS), indicators, annunciators, etc.)

will replace the outputs of the existing Westinghouse system. The existing remote system indicators will be re-used and re-scaled as needed to support the new design. The source range indication will change from 10^0-10^6 counts per second (CPS) to 10^{-1}-10^6 CPS. Also, the intermediate range indication, which currently displays in "amperes", will be re-scaled to display in "percent of full power". The change in units for the intermediate range will result in a change in the Technical Specification value of the P-6 permissive setpoint and allowable value, which is currently in amperes, to the equivalent value in percent rated thermal power (% RTP). The Gamma-Metrics fission chamber source range detectors indicate approximately a half a decade to one decade lower than the current boron trifluoride (BF_3) detectors for a given neutron flux. However, the lower output of the Gamma-Metrics is compensated for by their ability to indicate one decade lower than the existing Westinghouse detectors.

On the existing Westinghouse system, the source range indication is disabled by de-energizing high voltage to the source range detectors when the source range trip is blocked upon receipt of permissive P-6. This is done in order to prevent damage to the BF_3 detectors due to operation beyond their design limits. The de-energizing of high voltage to the Gamma-Metrics detectors is not required. The Gamma-Metrics fission chamber detectors will remain energized through all levels of operation.

The design change will also make changes to the High Flux at Shutdown Alarm (HFASA). An Integrated Plant Computer (IPC) which automatically adjusts the setpoint for changing background counts currently generates the alarm. The Gamma-Metrics design will provide a similar means to generate the HFASA. The Gamma-Metrics design will automatically adjust for background counts similar to the IPC. The main control room and containment alarms are not being modified. The HFASA alarm will continue to be derived from the source range neutron detectors. Either the Gamma-Metrics or IPC HFASA may be utilized.

Three annunciators that currently annunciate on source range high voltage failure, intermediate range high voltage failure, and intermediate range compensation voltage failure, respectively, will be modified to reflect the new Gamma-Metrics design. These annunciators will annunciate on Gamma-Metrics equipment failure conditions including voltage failure.

ENCLOSURE 2

VOGTLE ELECTRIC GENERATING PLANT
REQUEST TO REVISE TECHNICAL SPECIFICATIONS
REPLACEMENT OF NUCLEAR INSTRUMENTATION SYSTEM SOURCE AND INTERMEDIATE RANGE CHANNELS AND POST-ACCIDENT NEUTRON FLUX MONITORING SYSTEM

10 CFR 50.92 EVALUATION

Background

The overpower protection provided by the out-of-core nuclear instrumentation consists of three discrete but overlapping ranges. These ranges are source range (SR), intermediate range (IR), and power range (PR). Continuation of reactor start-up operation or power increase requires a permissive signal from the higher-range instrumentation channels before the lower-range level trips can be manually blocked by the operator. The following is a description of the nuclear instrumentation system (NIS) trips provided in the Vogtle Electric Generating Plant (VEGP) design for reactor start-up or power escalation. These trips are discussed in Sections 7.2 and 15.4 of the VEGP Updated Final Safety Analysis Report (UFSAR).

The power range high neutron flux trip circuit trips the reactor when two of the four power range channels exceed the trip setpoint. There are two independent bistables per channel, one with a high setting and one with a low setting, and a total of four channels. The high trip setting of 109 percent rated thermal power (% RTP) provides protection during normal power operation and is always active. The low trip setting of 25% RTP, which provides protection during reactor start-up, can be manually bypassed when two out of four power range channels read above the P-10 permissive at 10% RTP. Three out of the four channels below 8% RTP automatically reinstate the trip function.

The intermediate range neutron flux trip circuit trips the reactor when one out of the two intermediate range channels exceeds the trip setpoint of 25% RTP. This trip, which provides backup protection during reactor start-up, can be manually bypassed if two out of four power range channels are above P-10. Three out of the four power range channels below this value automatically reinstate the intermediate range neutron flux trip. The intermediate range channels (including detectors) are separate from the power range channels.

The source range neutron flux trip circuit trips the reactor when one of the two source-range channels exceeds the trip setpoint of 1.0×10^{5} counts per second (CPS) for the present detectors. This trip, which provides protection during reactor start-up and plant shutdown, can be manually bypassed when one of the two intermediate-range channel reads above the P-6 setpoint value of 1×10^{-10} Amps and is automatically reinstated when both intermediate range channels

decrease below 5×10^{-11} Amps. These values are for the present detectors. This trip is also automatically bypassed by two out of four logic from the power range protection interlock P-10. The source-range trip function can also be reinstated below P-10 by manual actuation of two control board mounted switches. Each switch will reinstate the trip function in one of the two protection logic trains. The source-range trip is set between the P-6 permissive setpoint and the maximum source range power level (1×10^{6} CPS) for the present detectors. The channels can be individually blocked at the nuclear instrumentation racks to permit channel testing. This blocking action is annunciated on the control board.

The power range low setpoint trip and the intermediate range and source range trips described above are designed to protect the reactor core against power excursions during reactor start-up or low-power operation. The source range and intermediate range trips provide redundant protection to the low setpoint trip of the power range neutron flux channels for the Condition II fault for an uncontrolled rod cluster control assembly bank withdrawal from a subcritical condition as described in Sections 7.2 and 15.4 of the VEGP UFSAR. In this analysis, only the power range low setpoint trip of 25% RTP is assumed to actuate to mitigate the accident. No automatic protective actuation of the intermediate range or source range trips is credited in this or any of the accident analyses in Chapter 15 of the VEGP UFSAR.

Section 15.4 of the VEGP UFSAR credits the source range channels for providing a high flux at shutdown alarm (HFASA). This alarm alerts the operator to take manual corrective action in the event of a boron dilution event in Modes 3, 4, and 5. The Gamma-Metrics design is equivalent to and provides the same functionality as the present Integrated Plant Computer (IPC) generated HFASA and will provide the same level of alarm notification for indication of unplanned dilution events.

Evaluation

The new Gamma-Metrics equipment is compatible with the rest of the nuclear instrumentation and reactor protection systems, as well as the Plant Safety Monitoring System (PSMS) for post-accident monitoring, and will perform all the functional requirements of the equipment being replaced. However, it differs in six major aspects from the present NIS design, which will necessitate changes to the Technical Specifications and the Technical Specification Bases.

In brief these differences are:

1) Change in source range detector output
2) Change in intermediate range scale units from Amps to Percent Power
3) Change in source range scale from six to seven decades
4) Change in HFASA setpoint
5) No need to de-energize the Gamma-Metrics SR detector high voltage
6) No need to determine detector plateau curve for calibration of Gamma-Metrics equipment.

These differences are discussed below.

The Gamma-Metrics fission chamber source range detectors indicate approximately a half a decade to one decade lower than the current boron trifluoride (BF_3) detectors for a given neutron flux. Also, the change in units for the intermediate range scale will result in a change in the value of the P-6 setpoint from its present value in amperes, to the equivalent value in percent power. The change in the detector output together with the change in intermediate range units requires a verification of the coordination between the SR neutron flux trip and P-6 setpoints.

The coordination of the SR and P-6 setpoints is as follows. The source range neutron flux trip setpoint and the P-6 permissive are set relative to the overlap between the source range and intermediate range scales. The P-6 permissive is selected such that its bistable trips after the IR indication comes on scale (so IR operation can be verified) and before the SR indication goes off scale (within the overlap region of the instruments). Also within this overlap region is the SR neutron flux trip setpoint. The SR neutron flux trip setpoint is set between the P-6 permissive and the upper range of the SR scale. The SR trip setpoint must be set sufficiently above the P-6 value in order to give the operator time to block the SR trip and at the same time be below the maximum range of the SR indication. This is consistent with the Westinghouse functional requirements for nuclear start-up protection. For the SR function, interest is only in relative change from a baseline value and not an absolute value of neutron flux. The functional requirements also provide a range of settings (in terms of reactor power) for the SR, IR, and P-6 setpoints. They are as follows:

SR high neutron flux trip: $\approx 10^{-5}$ to $\approx 10^{-3}$ % of full power,
IR high neutron flux trip: 5 to 30 % of full power,
P-6 permissive: $\approx 10^{-5}$ to $\approx 10^{-3}$ % of full power

VOGTLE ELECTRIC GENERATING PLANT
REQUEST TO REVISE TECHNICAL SPECIFICATIONS
REPLACEMENT OF NUCLEAR INSTRUMENTATION SYSTEM SOURCE AND INTERMEDIATE RANGE CHANNELS AND POST-ACCIDENT NEUTRON FLUX MONITORING SYSTEM

Calculations prepared for this design change verified correct correlation between the SR neutron flux trip and the P-6 permissive setpoints for the new Gamma-Metrics instrumentation. A relationship between reactor power and IR detector current was established using plant-specific data to determine the equivalent power at $1x10^{-10}$ amps (P-6). The plant-specific range-correlation-data (for the present system) was then compared to the new-range-correlation data provided by Gamma-Metrics. Based on this calculation a value of 2.0×10^{-5} % RTP is proposed for the P-6 permissive setpoint. This is functionally equivalent to the present P-6 permissive ($1x10^{-10}$ amps), which initiates at approximately one decade into the IR indication. This setpoint provides adequate margin to the source range trip setpoint to give the operators time to actuate the SR neutron flux trip block signal and at the same time ensure a conservative signal overlap with the intermediate range indication. Also, this is consistent with the Westinghouse recommendation for setting the SR and P-6 setpoints in the range of $\approx 10^{-5}$ to $\approx 10^{-3}$ % of full power.

The source range indication scale will change from 10^{0}-10^{6} CPS to 10^{-1}-10^{6} CPS. This change in source range scale from six to seven decades necessitates changing the allowable value for the SR neutron flux trip setpoint. This modification will also change the method of applying rack uncertainties to determine the allowable value for these instruments, which operate in the logarithmic range.

The setpoint calculation prepared for this design change provides suggested allowable values for the SR and IR setpoints as well as the P-6 permissive setpoint. This calculation used the method of the square root of the sum of the squares to determine the rack uncertainty. However, the method of applying the uncertainty value to the logarithmic instrumentation is different from that which is currently used. The current setpoint methodology applied the percent of span accuracy values for source and intermediate range channels linearly to the range of 0 to 1×10^{6} CPS and 0 to 120% RTP respectively. This method results in overly conservative allowable values for the intermediate and source range channels for a given channel accuracy. Applying the accuracies this way results in allowable values more restrictive than the design capabilities of the instrumentation. This could require excessive calibration checks more frequently than required by the Technical Specifications to ensure compliance. The setpoint calculation applied the accuracies for intermediate and source ranges logarithmically, which is more appropriate since these instrumentation channels operate in this mode. The power range channels, by contrast, operate in the linear mode.

The SR and IR setpoints are nominal values whose values are determined as described above. The allowable value is determined by adding or subtracting the rack inaccuracies, as required, to the nominal setpoint. The intent of the allowable value is to provide the plant a way to assess the operability of the process racks. Although the accuracy of the new instrumentation is better than the existing instrumentation, the net result of applying the rack uncertainties logarithmically is an increase in the source and intermediate range allowable values (SR = 1.7×10^5 CPS vs. 1.4×10^5 CPS existing and IR= 41.9 % RTP vs. 31.1 % RTP existing).

These changes do not affect any safety analysis conclusions because, as discussed earlier, the SR and IR neutron flux trips are not explicitly credited in any design basis accidents. Only the power range low setpoint trip of 25% RTP is assumed to actuate to mitigate the uncontrolled rod cluster control assembly withdrawal accident as described in Sections 7.2 and 15.4 of the VEGP UFSAR. The power range instrument loop spans approximately two decades and therefore provides a much more accurate capability for initiating a reactor trip for start-up excursion events than the seven decade and eight-decade ranges utilized by the source and intermediate ranges, respectively. The proposed change to the setpoints and allowable values will implement realistic values based on the design capabilities of the instrumentation.

The reliability of the reactor protection system has not been decreased because the SR allowable value continues to be well below the power range setpoint of 25% RTP. For the IR, the increase in allowable value does not impact the overall reliability aspects for the reactor protection system because the uncontrolled rod withdrawal analysis in Section 15.4.1 of the VEGP UFSAR indicates that the rise in power is so rapid that the effect of error in the trip setpoint on the actual time at which the rods release is negligible. The reactor trip actuation at 35% RTP (as assumed in the accident analysis) by the power range or 41.9% RTP by the intermediate range (allowable value) will result in essentially the same accident response and therefore, maintain the overall reactor protection system reliability provided by the intermediate range.

As discussed previously, the source range and intermediate range trips provide redundant protection to the low setpoint trip of the power range neutron flux channels. In the accident analyses, no automatic protective actuation of the source or intermediate range trips is credited. The surveillance requirements for the intermediate range trip do not include a requirement for performing a response time test. Similarly, it is not necessary to perform a response time test for the source range trip, so the surveillance requirement is being deleted.

ENCLOSURE 2

VOGTLE ELECTRIC GENERATING PLANT
REQUEST TO REVISE TECHNICAL SPECIFICATIONS
REPLACEMENT OF NUCLEAR INSTRUMENTATION SYSTEM SOURCE AND INTERMEDIATE RANGE CHANNELS AND POST-ACCIDENT NEUTRON FLUX MONITORING SYSTEM

The primary purpose of the HFASA alarm is to monitor for an inadvertent boron dilution accident while the reactor is shutdown. The HFASA design provided by Gamma-Metrics does not provide an alarm setpoint of 2.3 times background assumed in the safety analyses. Gamma-Metrics provides hardware selectable alarm setpoints of 1.25, 1.5, 2.0, 2.5, 3.0, and 4.0. The value of 2.0 times background will be used which is conservative (bounded) relative to that assumed in the safety analyses. The change of the setpoint in the conservative direction will warn the operators of an unplanned boron dilution event in sufficient time (greater than 15 minutes prior to loss of shutdown margin) to allow manual action to terminate the event. The main control room and containment alarms are not being modified. The HFASA will continue to be derived from the source range neutron detectors. The Technical Specifications are being revised to specify a setpoint of less than or equal to 2.3.

On the existing Westinghouse system, the source range indication is disabled by de-energizing high voltage to the source range detectors when the source range trip is blocked upon receipt of the permissive P-6. This is done in order to prevent damage to the BF_3 detectors due to operation beyond their design limits. The removal of high voltage from the Gamma-Metrics fission chamber detectors is not required. They will remain energized through all levels of operation. The Technical Specification Bases are being revised to remove the requirement to de-energize the high voltage to the source range detectors.

The Gamma-Metrics fission chambers do not require detector plateau curves to be obtained as part of the channel calibration. The fission chambers operate in the ionization chamber region of the detector ionization curve. The pulse output of the detectors is not dependent on the applied voltage over a wide range of voltage. The fission chambers are operated at a fixed high voltage. The power range detectors also operate in the ionization chamber region of the detector ionization curve and do not require plateau curves to be obtained as part of the channel calibration. The Technical Specifications are being revised to remove the requirement to determine plateau curves for the source, intermediate, and power range detectors.

The new detectors are qualified in compliance with Regulatory Guide 1.97 requirements. The new detectors will also be used to provide the post-accident monitoring function of Technical Specification 3.3.3.

ENCLOSURE 2

VOGTLE ELECTRIC GENERATING PLANT
REQUEST TO REVISE TECHNICAL SPECIFICATIONS
REPLACEMENT OF NUCLEAR INSTRUMENTATION SYSTEM SOURCE AND INTERMEDIATE RANGE CHANNELS AND POST-ACCIDENT NEUTRON FLUX MONITORING SYSTEM

A typographical error in the Bases for Surveillance Requirement 3.3.1.11 is being corrected. The reference to 50% RTP should be 75% RTP to be consistent with Surveillance Requirement 3.3.1.6.

In summary, the new Gamma-Metrics equipment is compatible with the rest of the nuclear instrumentation and reactor protection systems, as well as the Plant Safety Monitoring System, and will perform all the functional requirements of the equipment being replaced. The changes to the Technical Specifications described above reflect the detailed operational characteristics of the new Gamma-Metrics equipment and do not adversely affect the overall operation or ability of the equipment to perform its intended function. The new Technical Specification setpoint values are functionally equivalent to the existing values and have no adverse impact on the plant safety analyses, and consequently no impact on plant safety.

Determination of No Significant Hazards

The proposed changes to the Operating License have been evaluated to determine whether they constitute a significant hazards consideration as required by 10 CFR 50, Section 50.91 using the standards provided in Section 50.92. The results are provided below:

1. The power range low trip, the intermediate range trip, and the source range trip are designed to provide protection against power excursions during reactor startup or low-power operation. The source and intermediate range trips provide redundant protection during reactor startup or low-power operation. The changes to the source range and intermediate range instrumentation and setpoints, as well as the deletion of source range response time testing, do not affect any safety analysis conclusions because the source range and intermediate range trips are not explicitly credited in any design basis accident. Only the power range low trip setpoint is assumed to actuate to mitigate the uncontrolled rod cluster control assembly withdrawal accident. The high flux at shutdown alarm function during a boron dilution event will continue to be provided by the new source range detector system. No changes have been made to the setpoint assumed in the safety analyses. The new detector system is qualified in compliance with Regulatory Guide 1.97 and will also be used to provide post-accident monitoring. The functional and operability requirements for the power range channels are not affected by deleting the requirement for determining detector voltage plateaus.

Therefore, based on the conclusions of the above evaluation, the proposed changes will not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The functional and operability requirements for the new detector system are the same as for the existing system as defined by the Technical Specifications. No credit is taken for the source and intermediate range trips in any of the design basis accidents. The high flux at shutdown alarm and post-accident monitoring functions continue to be met. The functional and operability requirements for the power range channels are not affected by deleting the requirement for determining detector voltage plateaus.

Therefore, the proposed changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The functional and operability requirements for the new detector system are the same as for the existing system. The functional and operability requirements for the power range channels are not affected by deleting the requirement for determining detector voltage plateaus. The margin of safety provided by the previous Technical Specifications is not significantly affected because the proposed changes are based on the same accident analysis acceptance limits.

Therefore, the proposed changes in this license amendment will not result in a significant reduction in the plant's margin of safety.

Conclusion

Based on the evaluation above, and pursuant to 10 CFR 50, Section 50.91, Southern Nuclear has determined that operation of the Vogtle Electric Generating Plant in accordance with the proposed license amendment request does not involve any significant hazards considerations as defined by NRC regulations in 10 CFR 50, Section 50.92.

ENCLOSURE 3

VOGTLE ELECTRIC GENERATING PLANT
REQUEST TO REVISE TECHNICAL SPECIFICATIONS
REPLACEMENT OF NUCLEAR INSTRUMENTATION SYSTEM SOURCE AND INTERMEDIATE RANGE CHANNELS AND POST-ACCIDENT NEUTRON FLUX MONITORING SYSTEM

ENVIRONMENTAL IMPACT DETERMINATION

10 CFR 51.22 (b) specifies the criteria for categorical exclusions from the requirement for a specific environmental assessment per 10 CFR 51.21. The license amendment request meets the criteria specified in 10 CFR 51.22 (c)(9) as demonstrated below:

Basis for Exclusion

(1) The amendment involves no significant hazards consideration.

As demonstrated in Enclosure 2, the proposed amendment does not involve any significant hazards consideration.

(2) There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

The proposed amendment does not involve a change to the facility or operating procedures that would cause an increase in the amounts of effluents or create new types of effluents.

(3) There is no significant increase in individual or cumulative occupational radiation exposure.

The proposed amendment does not involve a change to the facility or operating procedures that would cause an increase in individual or cumulative occupational radiation exposure.

Conclusion

Based on the above, it is concluded that there will be no impact on the environment resulting from this amendment and the change meets the criteria specified in 10 CFR 51.22 (b) for a categorical exclusion from the requirements of 10 CFR 51.21.