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SOUTHERN COMPANY
Energy to Serve Your World℠

September 19, 2005

NL-05-0237

Docket Nos.: 50-424
50-425

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

Vogtle Electric Generating Plant
Request to Revise Technical Specifications
Reactor Trip System Instrumentation

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.90, Southern Nuclear Operating Company (SNC) proposes to revise the Vogtle Electric Generating Plant (VEGP) Unit 1 and Unit 2 Technical Specifications (TS). The proposed change would revise TS Limiting Conditions for Operation (LCO) 3.3.1, "Reactor Trip System (RTS) Instrumentation" and TS Surveillance Requirements (SR) 3.2.4.2, "Quadrant Power Tilt Ratio (QPTR)." The proposed change would revise TS 3.3.1, Condition D and the NOTE in SR 3.2.4.2 in order to avoid confusion as to when a flux map for QPTR is required.

The basis for this proposed change is described in Enclosure 1. A Significant Hazard Consideration Evaluation is provided in Enclosure 2. A Regulatory Safety Analysis is provided in Enclosure 3. Marked-up TS and Bases pages are provided in Enclosure 4, and clean-typed pages are provided in Enclosure 5.

SNC requests approval of the proposed license amendment by October 1, 2006. The proposed change would be implemented within 90 days of issuance of the amendment.

(Affirmation and signature are provided on the following page.)

Mr. D. E. Grissette states he is a Vice President of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

This letter contains no NRC commitments. If you have any questions, please advise.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

Don E. Grissette

Sworn to and subscribed before me this 19th *day of* September, *2005.*

Notary Public

My commission expires: 11/10/06

Enclosures:
Enclosure 1: Basis for Proposed Changes
Enclosure 2: Significant Hazard Evaluation and Environmental Assessment
Enclosure 3: Regulatory Safety Analysis
Enclosure 4: Marked-up TS and Bases Pages
Enclosure 5: Clean-typed TS and Bases Pages

cc: Southern Nuclear Operating Company
Mr. J. T. Gasser, Executive Vice President
Mr. T. E. Tynan, General Manager – Plant Vogtle
RType: CVC7000

U. S. Nuclear Regulatory Commission
Dr. W. D. Travers, Regional Administrator
Mr. C. Gratton, NRR Project Manager – Vogtle
Mr. G. J. McCoy, Senior Resident Inspector – Vogtle

Enclosure 1

Vogtle Electric Generating Plant
Request to Revise Technical Specifications
Reactor Trip Setpoint Instrumentation

Basis for Proposed Changes

Enclosure 1

Vogtle Electric Generating Plant
Request to Revise Technical Specifications
Reactor Trip Setpoint Instrumentation

Basis for Proposed Changes

Description

Southern Nuclear Operating Company (SNC) proposes to revise the Vogtle Electric Generating Plant (VEGP) Unit 1 and Unit 2 Technical Specifications (TS). The proposed amendment would modify Technical Specification (TS) Limiting Condition for Operation (LCO) 3.3.1 and Surveillance Requirements (SR) 3.2.4.2. The proposed amendment will better align the requirement to perform a flux map once per 12 hours with LCO 3.2.4. The following is a detailed description of the proposed changes.

- LCO 3.3.1, "RTS Instrumentation," a Note is added to refer to LCO 3.2.4 for an inoperable Power Range Channel. The existing Note becomes Note 1 and the new Note is Note 2.
- LCO 3.3.1, "RTS Instrumentation," Required Actions D.1.2, D.2.1 and D.2.2 are deleted. The remaining Required Actions are renumbered accordingly.
- SR 3.2.4.2, "QPTR," the Note is revised to be consistent with the changes to LCO 3.3.1.

Background

Amendment No. 116/94 approved the incorporation of WCAP-14333. In this application, LCO 3.3.1, Condition D was revised to allow 72 hours to place a channel in trip as opposed to 6 hours, but the requirement to perform SR 3.2.4.2 in Required Action D.2.2 remained once per 12 hours. As a result, there is a potential for confusion with the layout of the current TS 3.3.1, Condition D. TS LCO 3.3.1, Condition D could incorrectly lead an operator to believe that he could pursue the option of Required Actions D.1.1 and D.1.2, potentially overlooking the requirement to do a flux map for QPTR within 12 hours. In addition, Required Actions with shorter Completion Times (12 hours) should appear before Required Actions with longer Completion Times (72 hours) in the D.2.1 and D.2.2 option. Deleting Required Action D.1.2, D.2.1 and D.2.2 from LCO 3.3.1, Condition D eliminates requirements that are duplicative to LCO 3.2.4, thereby eliminating the potential for confusion. Finally, SR 3.2.4.2 is revised to be consistent with the proposed changes to LCO 3.3.1, Condition D.

Technical Analysis

Amendment No. 116/94 approved relaxation of allowed bypass test times and Completion Times for Limiting Conditions for Operation (LCO) 3.3.1, "Reactor Trip System (RTS) Instrumentation." These relaxations are those that were generically approved in WCAP-14333-P-A, Revision 1, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times."

Specifically, the amendment allowed, in part:

Completion Times of 72 hours for inoperable analog instruments, and
Bypass times of 12 hours for surveillance testing of analog channels.

Enclosure 1

Vogtle Electric Generating Plant
Request to Revise Technical Specifications
Reactor Trip Setpoint Instrumentation

Basis for Proposed Changes

Condition D applies to the Power Range Neutron Flux-High Function. If one channel is inoperable, then the channel must be placed in trip within 72 hours as stated in Required Action D.1.1. In addition to placing the inoperable channel in the tripped condition, the Required Action in D.1.2 requires the thermal power reduced to $\leq$ 75% RTP within 78 hours. An alternate to D.1.1 and D.1.2 is to place the inoperable channel in the tripped condition and perform SR 3.2.4.2 once every 12 hours.

On the other hand, LCO 3.2.4, SR 3.2.4.2 requires a flux map to be performed whenever a power range channel is inoperable with power $\geq$ 75% RTP. This flux map must be performed once within 12 hours and every 12 hours thereafter. The existing layout of LCO 3.3.1, Condition D could incorrectly lead an operator to believe that he could pursue just the option of D.1.1 and D.1.2, potentially overlooking the requirement to do a flux map for QPTR within 12 hours. The proposed amendment would revise TS 3.3.1 Condition D to avoid confusion as to when a flux map for QPTR is required.

The revised Condition D inserts a NOTE to refer to LCO 3.2.4 for an inoperable power range channel. In addition, Required Actions D.1.2, D.2.1 and D.2.2 are deleted. The requirement to perform SR 3.2.4.2 is defined in LCO 3.2.4. The Note to existing SR 3.2.4.2 is revised to state that SR 3.2.4.2 is only required when the Power Range Neutron Flux input to QPTR is inoperable. If the otherwise inoperable power range channel remains capable of providing a valid input to QPTR, there is no need to perform SR 3.2.4.2. This is consistent with the existing requirements of LCO 3.3.1, Condition D that are proposed for deletion. This proposed change will help eliminate potential confusion regarding the completion time to perform SR 3.2.4.2.

Enclosure 2

Vogtle Electric Generating Plant
Request to Revise Technical Specifications
Reactor Trip Setpoint Instrumentation

Significant Hazards Evaluation
and Environmental Assessment

Enclosure 2

Vogtle Electric Generating Plant
Request to Revise Technical Specifications
Reactor Trip Setpoint Instrumentation

10 CFR 50.92 SIGNIFICANT HAZARDS EVALUATION AND ENVIRONMENTAL ASSESSMENT

Proposed Change

Southern Nuclear Operating Company (SNC) proposes to revise the Vogtle Electric Generating Plant (VEGP) Unit 1 and Unit 2 Technical Specifications (TS). The proposed amendment would modify Technical Specification (TS) Limiting Condition for Operation (LCO) 3.3.1 and Surveillance Requirements (SR) 3.2.4.2. The proposed amendment will better align the requirement to perform a flux map once per 12 hours with LCO 3.2.4. The following is a detailed description of the proposed changes.

- LCO 3.3.1, "RTS Instrumentation," a Note is added to refer to LCO 3.2.4 for an Inoperable Power Range Channel. The existing Note becomes Note 1 and the new Note is Note 2.
- LCO 3.3.1, "RTS Instrumentation," Required Actions D.1.2, D.2.1 and D.2.2 are deleted. The remaining Required Actions are renumbered accordingly.
- SR 3.2.4.2, "QPTR," the Note is revised to be consistent with the changes to LCO 3.3.1.

Evaluation

1. Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

   No. The proposed changes do not adversely affect accident initiators or precursors nor alter the design assumptions, conditions, or configuration of the facility or the manner in which the plant is operated and maintained. The proposed changes do not alter or prevent the ability of structures, systems, and components (SSCs) from performing their intended function to mitigate the consequences of an initiating event within the assumed acceptance limits. The proposed changes do not affect the source term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of an accident previously evaluated. Further, the proposed changes do not increase the types or amounts of radioactive effluent that may be release offsite, nor significantly increase individual or cumulative occupational/public radiation exposures. The proposed changes are consistent with safety analysis assumptions and resultant consequences.

   Therefore, the proposed changes do not increase the probability or consequences of an accident previously evaluated.

2. Do the proposed changes create the possibility of a new or different kind of accident from any previously evaluated?

10 CFR 50.92 SIGNIFICANT HAZARDS EVALUATION AND ENVIRONMENTAL ASSESSMENT

No. The proposed changes do not result in a change in the manner in which the RTS and ESFAS provide plant protection. The RTS and ESFAS will continue to have the same setpoints after the proposed changes are implemented. There are no design changes associated with the license amendment.

The changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. In addition, the changes do not impose any new or different requirements or eliminate any existing requirements. The changes do not alter assumptions made in the safety analysis. The proposed changes are consistent with the safety analysis assumptions and current plant operating practice.

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

3. Do the proposed changes involve a significant reduction in a margin of safety?

No. The proposed changes do not alter the manner in which safety limits, limiting safety system settings or limiting conditions for operation are determined. The safety analysis acceptance criteria are not impacted by these changes. Redundant RTS and ESFAS trains are maintained, and diversity with regard to the signals that provide reactor trip and engineered safety features actuation is also maintained. All signals credited as primary or secondary, and all operator actions credited in the accident analyses will remain the same. The proposed changes will not result in plant operation in a configuration outside the design basis.

Therefore, the proposed changes do not involve a significant reduction in the margin of safety.

Conclusion

Based on the preceding evaluation, Southern Nuclear has determined that the proposed changes meet the requirements of 10 CFR 50.92(c) and do not involve a significant hazards consideration.

Environmental Assessment

Southern Nuclear has evaluated the proposed changes and determined the changes do not involve (1) a significant hazards consideration, (2) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (3) a significant increase in the individual or cumulative occupational exposure. Accordingly, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9), and an environmental assessment of the proposed change is not required.

Enclosure 3

Vogtle Electric Generating Plant
Request to Revise Technical Specifications
Reactor Trip Setpoint Instrumentation

Regulatory Safety Analysis

Enclosure 3

Vogtle Electric Generating Plant
Request to Revise Technical Specifications
Reactor Trip Setpoint Instrumentation

Regulatory Safety Analysis

Applicable Regulatory Requirements/Criteria

The regulatory bases and guidance documents associated with the system discussed in this amendment applications included:

GDC-2 requires that structures, systems, and components important to safety be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, tsunami, and seiches without the loss of the capability to perform their safety functions.

GDC-4 requires that structures, systems, and components important to safety be designed to accommodate the effects of, and to be compatible with, the environmental conditions associated with the normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be appropriately protected against dynamic effects, including the effects of missiles, pipe whipping, discharging fluids that may result from equipment failures, and from events and conditions outside the nuclear power unit. However, dynamic effects associated with postulated pipe ruptures in nuclear power units may be excluded from the design basis when analyses reviewed and approved by the Commission demonstrate that the probability of fluid system piping rupture is extremely low under conditions consistent with the design basis for the piping.

GDC-13 requires that instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems.

GDC-20 requires that the protection system(s) shall be designed (1) to initiate automatically the operation of appropriate systems including the reactivity control systems, to assure that specified acceptable fuel design limits are not exceeded as a result of anticipated operational occurrences and (2) to sense accident conditions and to initiate the operation of systems and components important to safety.

GDC-21 requires that the protection system(s) shall be designed for high functional reliability and testability.

GDC-22 through GDC-25 and GDC-29 require various design attributes for the protection system(s), including independence, safe failure modes, separation from control systems, requirements for reactivity control malfunctions, and protection against anticipated operational occurrences.

Enclosure 3

Vogtle Electric Generating Plant
Request to Revise Technical Specifications
Reactor Trip Setpoint Instrumentation

Regulatory Safety Analysis

Regulatory Guide 1.22 discusses an acceptable method of satisfying GDC-20 and GDC-21 regarding the periodic testing of protection system actuation functions. These periodic tests should duplicate, as closely as practicable, the performance that is required of the actuation devices in the event of an accident.

10 CFR 50.55a(h) requires that the protection systems meet IEEE 279-1971. Section 4.2 of IEEE 279-1971 discusses the general functional requirement for protection systems to assure they satisfy the single failure criterion.

There will be no changes to the RTS instrumentation design such that compliance with any of the regulatory requirements and guidance documents above would come into question. The above evaluations confirm that the plant will continue to comply with all applicable regulatory requirements.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Enclosure 4

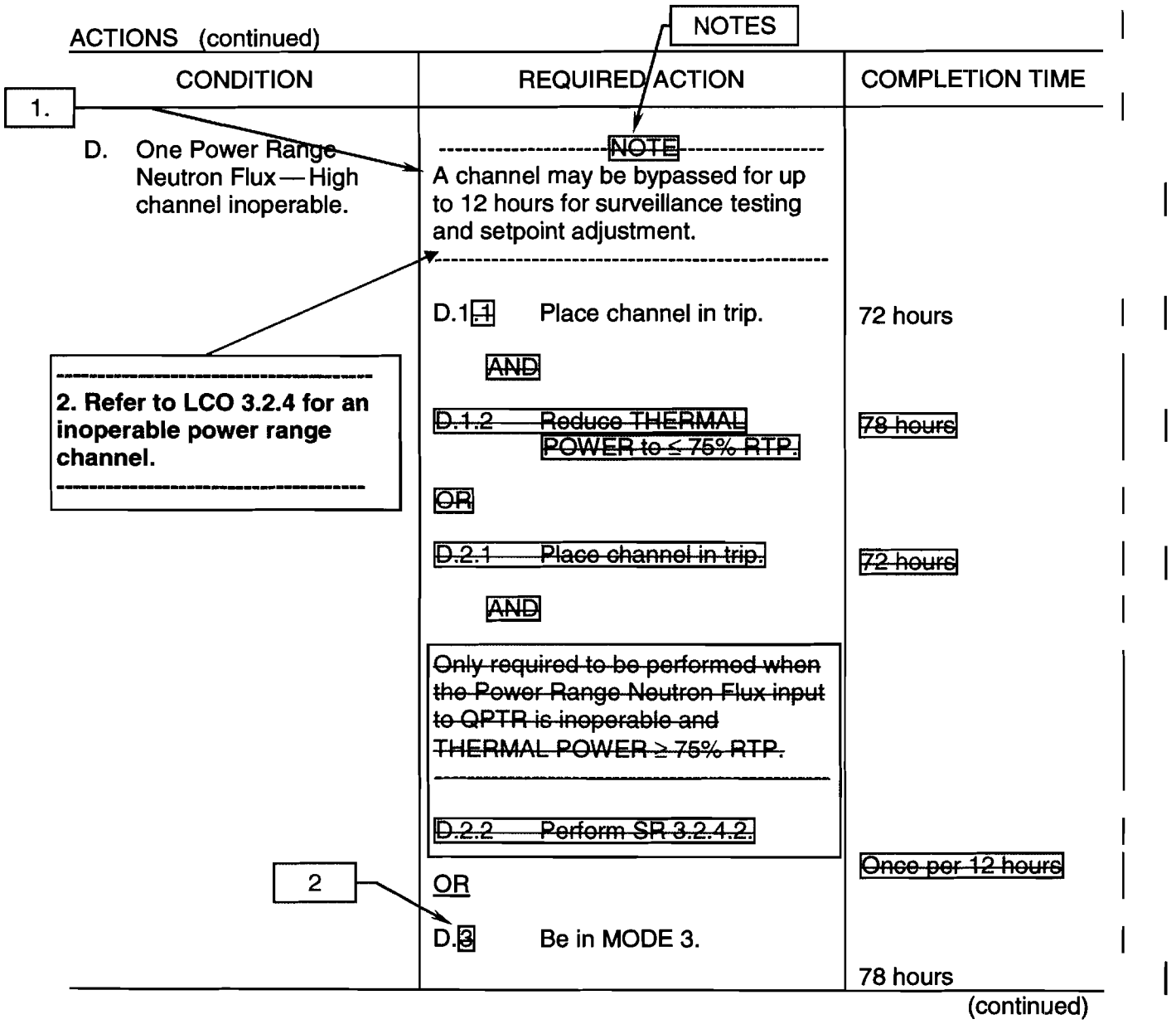
Vogtle Electric Generating Plant
Request to Revise Technical Specifications
Reactor Trip Setpoint Instrumentation

Marked-up TS and Bases Pages

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	----------NOTE---------- With one power range channel inoperable, the remaining three power range channels can be used for calculating QPTR. ----------	
	Verify QPTR is within limit by calculation.	7 days AND Once within 12 hours and every 12 hours thereafter with the QPTR alarm inoperable
SR 3.2.4.2	----------NOTE---------- ~~Only required to be performed if one power range channel is inoperable with THERMAL POWER ≥ 75% RTP.~~ ----------	
	Confirm that the normalized symmetric power distribution is consistent with QPTR.	Once within 12 hours AND 12 hours thereafter

Only required to be performed if input to QPTR from one or more Power Range Neutron Flux channels is inoperable with THERMAL POWER ≥ 75% RTP.


ACTIONS (continued)
NOTES
CONDITION
REQUIRED ACTION
COMPLETION TIME
1.
D. One Power Range Neutron Flux — High channel inoperable.
NOTE
A channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment.
D.1.1 Place channel in trip.
72 hours
AND
D.1.2 Reduce THERMAL POWER to ≤ 75% RTP.
78 hours
OR
D.2.1 Place channel in trip.
72 hours
AND
Only required to be performed when the Power Range Neutron Flux input to QPTR is inoperable and THERMAL POWER ≥ 75% RTP.
D.2.2 Perform SR 3.2.4.2.
Once per 12 hours
2
OR
D.2 Be in MODE 3.
78 hours
2. Refer to LCO 3.2.4 for an inoperable power range channel.
(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.2.4.1 (continued)

This Surveillance verifies that the QPTR, as indicated by the Nuclear Instrumentation System (NIS) excore channels, is within its limits. The Frequency of 7 days when the QPTR alarm is OPERABLE is acceptable because of the low probability that this alarm can remain inoperable without detection. Valid inputs to the detector current comparator from the upper and lower sections from 3 or 4 power range channels are required for the QPTR alarm to be OPERABLE.

When the QPTR alarm is inoperable, the Frequency is increased to 12 hours. This Frequency is adequate to detect any relatively slow changes in QPTR, because for those causes of QPTR that occur ~~quickly (e.g., a dropped rod)~~, there typically are other indications of abnormality that ~~prompt~~ a verification of core power tilt.

the surveillance is only required to be performed if input to QPTR from one or more Power Range Neutron Flux channels is inoperable with

SR 3.2.4.2

This Surveillance is modified by a Note, which states that ~~it is required only when one power range channel is inoperable and the~~ THERMAL POWER ~~is~~ ≥75% RTP.

With an NIS power range channel inoperable, tilt monitoring for a portion of the reactor core becomes degraded. Large tilts are likely detected with the remaining channels, but the capability for detection of small power tilts in some quadrants is decreased. Performing SR 3.2.4.2 at a Frequency of 12 hours provides an acceptable means for confirming the accuracy of the QPTR measurement via the excore detectors.

When one power range channel is inoperable, the incore detectors are used to confirm that the normalized symmetric power distribution is consistent with the indicated QPTR. The incore detector monitoring is performed with a full incore flux map or two sets of four thimble locations with quarter core symmetry. The two sets of four symmetric thimbles is a set of eight unique detector locations. These locations are C-8, E-5, E-11, H-3, H-13, L-5, L-11, and N-8.

(continued)

BASES

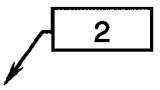
ACTIONS

C.1 and C.2 (continued)

- Manual Reactor Trip;
- RTBs;
- RTB Undervoltage and Shunt Trip Mechanisms; and
- Automatic Trip Logic.

This action addresses the train orientation of the SSPS for these Functions. With one channel or train inoperable, the inoperable channel or train must be restored to OPERABLE status within 48 hours. If the affected Function(s) cannot be restored to OPERABLE status within the allowed 48 hour Completion Time, the unit must be placed in a MODE in which the requirement does not apply. To achieve this status, the RTBs must be opened within the next hour. The additional hour provides sufficient time to accomplish the action in an orderly manner. With the RTBs open, these Functions are no longer required. This Condition is modified by a Note that prohibits closing the RTBs in MODE 5 if any of the above Functions (Function 1, 17, 18, or 19 of Table 3.3.1-1) are not met. Closing the RTBs in MODES 3 or 4 with any of these Functions not met is prohibited by LCO 3.0.4.

The Completion Time is reasonable considering that in this Condition, the remaining OPERABLE channel or train is adequate to perform the safety function, and given the low probability of an event occurring during this interval.



D.1~~.1, D.1.2, D.2.1, D.2.2~~, and D.~~3~~

Condition D applies to the Power Range Neutron Flux — High Function. This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

(continued)

BASES

2

ACTIONS D.1~~.1, D.1.2, D.2.1, D.2.2~~ and D.3 (continued)

The NIS power range detectors provide input to the CRD System and the SG Water Level Control System and, therefore, have a two-out-of-four trip logic. A known inoperable channel must be placed in the tripped condition. This results in a partial trip condition requiring only one-out-of-three logic for actuation. The 72 hours allowed to place the inoperable channel in the tripped condition is justified in WCAP-14333-P-A (Ref. 12).

INSERT A

~~In addition to placing the inoperable channel in the tripped condition, THERMAL POWER must be reduced to ≤ 75% RTP within 78 hours. Reducing the power level prevents operation of the core with radial power distributions beyond the design limits. With one of the NIS power range detectors inoperable, 1/4 of the radial power distribution monitoring capability is lost.~~

~~As an alternative to the above actions, the inoperable channel can be placed in the tripped condition within 72 hours and the QPTR monitored once every 12 hours as per SR 3.2.4.2, QPTR verification. Calculating QPTR every 12 hours compensates for the lost monitoring capability due to the inoperable NIS power range channel and allows continued unit operation at power levels ≤ 75% RTP. The 12 hour Frequency is consistent with LCO 3.2.4, "QUADRANT POWER TILT RATIO (QPTR)."~~

If ~~the~~ Required Action~~s~~ D.1 ~~described above~~ cannot be met within the specified Completion Time~~s~~, the unit must be placed in a MODE where this Function is no longer required OPERABLE. An additional 6 hours beyond the Completion Time for Required Action D.1~~.1 and Required Action D.2.1 are~~ is allowed to place the unit in MODE 3. Six hours is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. ~~If Required Actions D.2.2 cannot be completed within their allowed Completion Times, LCO 3.0.3 must be entered.~~

~~The Required Actions have been modified by a Note that allows placing a channel in the bypass condition for up to 12 hours while performing routine surveillance testing. With one channel inoperable, the Note also allows routine surveillance testing of another channel with a channel in bypass. The Note also allows placing a channel in the bypass condition to allow setpoint adjustments when required to reduce the Power Range Neutron~~

(continued)

INSERT A

The Required Actions have been modified by two Notes. Note 1 allows a channel to be placed in the bypassed condition for up to 12 hours while performing routine surveillance testing. With one channel inoperable, the Note also allows routine surveillance testing of another channel with a channel in bypass. The Note also allows placing a channel in the bypass condition to allow setpoint adjustments when required to reduce the Power Range Neutron Flux-High setpoint in accordance with other Technical Specifications. The 12 hour time limit is justified in Reference 12.

Note 2 refers the user to LCO 3.2.4 for additional requirements that may apply for an inoperable power range channel.

BASES

2

ACTIONS

D.1~~.1, D.1.2, D.2.1, D.2.2~~, and D.~~3~~ (continued)

~~Flux — High setpoint in accordance with other Technical Specifications. The 12 hour time limit is justified in Reference 12.~~

~~Required Action D.2.2 has been modified by a Note which only requires SR 3.2.4.1 to be performed if the Power Range Neutron Flux input to QPTR becomes inoperable. Failure of a component in the Power Range Neutron Flux channel which renders the High Flux Trip function inoperable may not affect the capability to monitor QPTR. As such, determining QPTR using the movable incore detectors once per 12 hours may not be necessary.~~

E.1 and E.2

Condition E applies to the following reactor trip Functions:

- Power Range Neutron Flux — Low;
- Overtemperature ΔT;
- Overpower ΔT;
- Power Range Neutron Flux — High Positive Rate;
- Pressurizer Pressure — High; and
- SG Water Level — Low Low.

This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

(continued)

Enclosure 5

Vogtle Electric Generating Plant
Request to Revise Technical Specifications
Reactor Trip Setpoint Instrumentation

Clean-typed TS and Bases Pages

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.2.4.1	----------NOTE---------- With one power range channel inoperable, the remaining three power range channels can be used for calculating QPTR. --- Verify QPTR is within limit by calculation.	7 days AND Once within 12 hours and every 12 hours thereafter with the QPTR alarm inoperable
SR 3.2.4.2	----------NOTE---------- Only required to be performed if input to QPTR from one or more Power Range Neutron Flux channels is inoperable with THERMAL POWER ≥ 75% RTP. --- Confirm that the normalized symmetric power distribution is consistent with QPTR.	Once within 12 hours AND 12 hours thereafter

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One Power Range Neutron Flux — High channel inoperable.	----------NOTES---------- 1. A channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment. 2. Refer to LCO 3.2.4 for an inoperable power range channel. ---------- D.1 Place channel in trip. OR D.2 Be in MODE 3.	 72 hours 78 hours

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.2.4.1 (continued)

This Surveillance verifies that the QPTR, as indicated by the Nuclear Instrumentation System (NIS) excore channels, is within its limits. The Frequency of 7 days when the QPTR alarm is OPERABLE is acceptable because of the low probability that this alarm can remain inoperable without detection. Valid inputs to the detector current comparator from the upper and lower sections from 3 or 4 power range channels are required for the QPTR alarm to be OPERABLE.

When the QPTR alarm is inoperable, the Frequency is increased to 12 hours. This Frequency is adequate to detect any relatively slow changes in QPTR, because for those causes of QPTR that occur quickly (e.g., a dropped rod), there typically are other indications of abnormality that prompt a verification of core power tilt.

SR 3.2.4.2

This Surveillance is modified by a Note, which states that the surveillance is only required to be performed if input to QPTR from one or more Power Range Neutron Flux channels is inoperable with THERMAL POWER ≥75% RTP.

With an NIS power range channel inoperable, tilt monitoring for a portion of the reactor core becomes degraded. Large tilts are likely detected with the remaining channels, but the capability for detection of small power tilts in some quadrants is decreased. Performing SR 3.2.4.2 at a Frequency of 12 hours provides an acceptable means for confirming the accuracy of the QPTR measurement via the excore detectors.

When one power range channel is inoperable, the incore detectors are used to confirm that the normalized symmetric power distribution is consistent with the indicated QPTR. The incore detector monitoring is performed with a full incore flux map or two sets of four thimble locations with quarter core symmetry. The two sets of four symmetric thimbles is a set of eight unique detector locations. These locations are C-8, E-5, E-11, H-3, H-13, L-5, L-11, and N-8.

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

- Manual Reactor Trip;
- RTBs;
- RTB Undervoltage and Shunt Trip Mechanisms; and
- Automatic Trip Logic.

This action addresses the train orientation of the SSPS for these Functions. With one channel or train inoperable, the inoperable channel or train must be restored to OPERABLE status within 48 hours. If the affected Function(s) cannot be restored to OPERABLE status within the allowed 48 hour Completion Time, the unit must be placed in a MODE in which the requirement does not apply. To achieve this status, the RTBs must be opened within the next hour. The additional hour provides sufficient time to accomplish the action in an orderly manner. With the RTBs open, these Functions are no longer required. This Condition is modified by a Note that prohibits closing the RTBs in MODE 5 if any of the above Functions (Function 1, 17, 18, or 19 of Table 3.3.1-1) are not met. Closing the RTBs in MODES 3 or 4 with any of these Functions not met is prohibited by LCO 3.0.4.

The Completion Time is reasonable considering that in this Condition, the remaining OPERABLE channel or train is adequate to perform the safety function, and given the low probability of an event occurring during this interval.

D.1 and D.2

Condition D applies to the Power Range Neutron Flux — High Function. This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

(continued)

BASES

ACTIONS

D.1 and D.2 (continued)

The NIS power range detectors provide input to the CRD System and the SG Water Level Control System and, therefore, have a two-out-of-four trip logic. A known inoperable channel must be placed in the tripped condition. This results in a partial trip condition requiring only one-out-of-three logic for actuation. The 72 hours allowed to place the inoperable channel in the tripped condition is justified in WCAP-14333-P-A (Ref. 12).

The Required Actions have been modified by two Notes. Note 1 allows a channel to be placed in the bypassed condition for up to 12 hours while performing routine surveillance testing. With one channel inoperable, the Note also allows routine surveillance testing of another channel with a channel in bypass. The Note also allows placing a channel in the bypass condition to allow setpoint adjustments when required to reduce the Power Range Neutron Flux-High setpoint in accordance with other Technical Specifications. The 12 hour time limit is justified in Reference 12.

Note 2 refers the user to LOC 3.2.4 for additional requirements that may apply for an inoperable power range channel.

If Required Action D.1 cannot be met within the specified Completion Time, the unit must be placed in a MODE where this Function is no longer required OPERABLE. An additional 6 hours beyond the Completion Time for Required Action D.1 is allowed to place the unit in MODE 3. Six hours is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

(continued)

BASES

ACTIONS (continued)

E.1 and E.2

Condition E applies to the following reactor trip Functions:

- Power Range Neutron Flux — Low;
- Overtemperature ΔT;
- Overpower ΔT;
- Power Range Neutron Flux — High Positive Rate;
- Pressurizer Pressure — High; and
- SG Water Level — Low Low.

This Condition contains bypass times and Completion Times that are risk-informed. The Configuration Risk Management Program (CRMP) is used to assess changes in core damage frequency resulting from applicable plant configurations. The CRMP uses the equipment out of service risk monitor, a computer based tool that may be used to aid in the risk assessment of on-line maintenance and to evaluate the change in risk from a component failure. The equipment out of service risk monitor uses the plant probabilistic risk assessment model to evaluate the risk of removing equipment from service based on current plant configuration and equipment condition.

(continued)