UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON D.C. 20555

ENCLOSURE 1

July 17, 1991

NOTE TO: David Matthews, Director PD II-3

FROM: Chris Grimes, Chief OTSB CG

SUBJECT: BOARD NOTIFICATION 91-05 REGARDING VOGTLE, UNITS 1 AND 2

REFERENCES: (1) Your memorandum to the ASLB and all parties, dated May 10, 1991, regarding Board Notification 91-05.

(2) Memorandum from Steven A. Varga to the Commissioners, dated June 17, 1991, regarding Board Notification 91-05.

On June 27, 1991, Tom Dunning, OTSB, sent a memorandum to Dr. Murley about the Vogtle IIT findings regarding the technical specifications operability requirements for RHR and diesel-generators. It appears as if Mr. Dunning's memorandum is relevant to ASLB Board Notification 91-05. A copy of the memorandum and related correspondence are enclosed. I recommend that this material be forwarded to the ASLB and parties.

If you have any questions, please contact me at 492-1161.

Enclosures:

1. Memorandum from T.E. Murley to W.T. Russell, dated June 28, 1991, with enclosed memorandum from T.G. Dunning to T.E. Murley, dated June 27, 1991.

2. Note from T.G. Dunning to C.I. Grimes, dated June 3, 1991.

cc: C.E. Rossi
D.S. Hood
S.A. Varga
F.M. Reinhart
T.G. Dunning

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

June 28, 1991

MEMORANDUM FOR: William T. Russell, Associate Director
for Inspection and Technical Assessment

FROM: Thomas E. Murley, Director
Office of Nuclear Reactor Regulation

SUBJECT: JUNE 27, 1991 LETTER THOMAS G. DUNNING TO THOMAS E. MURLEY

The subject letter (see enclosed) is being forwarded to you as Chairman of NRR's Standing Review Panel for Differing Professional Views. You are to conduct a review of the issues and make recommendations to me in accordance with NRR Office Letter No. 300 and NRC Manual Chapter 4125.

I also request that you conduct a prompt review of the issues to determine whether any short term actions are required as a result of the concerns raised.

T E Murley

Thomas E. Murley, ~~Director~~
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc: J. Richardson
E. Rossi
T. Dunning

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

June 27, 1991

Dr. Thomas E. Murley, Director
Office of Nuclear Reactor Regulation
Nuclear Regulatory Commission

I wish to bring to your attention a matter for which I believe the Commission is negligent in its duty to adequately clarify technical specification (TS) requirements. The requirements of concern are those for residual heat removal (RHR) systems that apply when plants are in cold shutdown and during refueling conditions when the water level is less than 23 feet above the reactor vessel flange. As a consequence, I believe that the Commission is failing to carry out it responsibilities to protect the public health and safety.

The safety issue is the manner in which the TS operability requirements for redundant RHR capability are implemented. By the definition of operability, a system is operable when it is capable of performing its specified function <u>and</u> all necessary support systems, including electrical power, are capable of performing their related support function. Electrical power is an necessary support system for each RHR system; and each RHR system requires its associated onsite electrical power source in order to perform its function.

The loss of offsite power is a design basis event for which plant safety is dependent upon the continued capability of the RHR system to remove decay heat from the reactor core and, thereby, ensure the integrity of the fuel cladding as one of the major barriers to the release of radioactivity to the environment. For this event, each electrical power system is dependent upon the operation of its associated diesel generator as the only available onsite power source capable of supporting the RHR function. Simply put, an electrical power supply system is not capable of performing its necessary support function for RHR when its associated diesel generator is inoperable.

In contrast, the stated TS requirement for the electrical power system during cold shutdown and refueling only requires, as a minimum, that one electrical power source be operable. Hence, the only question which could be raised is whether this TS requirement, that permits operation with only one operable diesel generator, supersedes the redundancy requirements for RHR that by the definition of operability necessitate that <u>each</u> RHR system be supported by an operable diesel generator.

In the incident investigation team (IIT) report (NUREG-1410) on the Vogtle Unit 1 event of March 20, 1990, the conclusions is that this facility was in compliance with its TS when it was in the refueling mode during mid-loop operation (less than 23 feet of water above the reactor vessel flange) and only one diesel generator was operable. Therefore, anyone reading this report would get the impression that, not withstanding the TS requirements for redundant RHR, operation with only one diesel generator during this condition is acceptable.

I readily concede that the TS do not make it explicitly clear how the TS requirements for redundant RHR systems are to be applied in relation to the

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definition of operability and the stated requirements for power sources. However, the Commission has provided guidance in past generic communications that establish the Commission's policy with regard to this matter. My conclusions on what this policy is are given in the enclosure and are that operable redundant diesel generators are necessary to support the explicit TS requirements for operable redundant RHR systems during those specified conditions when the facility is in the cold shutdown or refueling mode of operation. Furthermore, these requirements are not superseded by the explicit TS requirements for power sources that apply during these same conditions.

Likewise, it follows that the Commission's policy on this matter is contrary to the conclusions of the IIT report, and that this is a matter which the Commission has an obligation to set the record straight. The failure to do so would give the appearance of endorsing the reported IIT conclusions on the applicability of these TS requirements and the denial of the validity of the conclusions which I have stated on this matter. While it is recognized that there is a program to evaluate the safety risks associated with RHR and shut-down conditions and that the results of this study may lead to additional requirements, the Commission should not default on a decision, one way or the other, on how current TS requirements are to be applied. Needless to say, this decision may very likely have an impact on the operation of some plant, as well as public health and safety, at this time.

I have not raised this issue without having given consideration to what would be an appropriate Commission response to it. I suggest that this issue has a very simple solution which is to immediately advise all operating power reactor licensees of the following:

1. Plant operation with only one operable diesel generator is contrary to the technical specification (TS) requirements for operable redundant residual heat removal (RHR) systems that apply during cold shutdown and refueling conditions. The U.S. Nuclear Regulatory Commission (NRC) position on this matter is based upon the application of the definition of operability which states that a system is operable when its necessary support systems, including electrical power, are capable of performing their related support function. For the operating conditions noted, this necessitates the availability of an operable onsite power source (diesel generator) for each RHR system that is required to be operable. Furthermore, this NRC position is not superseded by the explicit TS operability requirements for electrical power sources that may only require, as a minimum, that one diesel generator be operable.

2. Any plant that is in a cold shutdown or refueling mode of operation where the TS require redundant RHR systems to be operable must have an operable diesel generator, or other onsite power source is applicable, to support each RHR system. If this requirement is not met, action should be immediately taken to restore an inoperable diesel generator, or other power source if applicable, to operable status or to place the plant in a condition in which redundant RHR systems are not required to be operable. Such condition would include raising the water level to 23 feet, or some other specified limit, above the reactor vessel flange in the refueling mode of operation.

3. Plant operation with a diesel generator removed from service for maintenance during conditions that the associated RHR systems are required to be operable would require a license amendment to modify the existing TS requirements prohibiting such action and any other form of relief from the existing TS requirement will not be considered by NRC.

Item 3 is suggested since the Office of General Consul (OGC) has some apparent concerns with regard to the NRR policy for discretionary enforcement of, or waivers of compliance with licensing requirements, namely TS. Those concerns were expressed by OGC with regard to the proposed updated guidance on operability that is being incorporated in the inspection manual.

To concede that the explicit TS requirements for electrical power sources supersede any need to consider the definition of operability as it applies to establish operability requirements for electrical support systems would be a major set back to safety. Taken a step further, it could be argued that since the TS only specify operability requirements for component cooling water (CCW) systems for operating conditions with higher reactor coolant system temperatures than those that define the cold shutdown mode of operation, there is no requirement, applicable by the application of the definition of operability, that CCW systems be operable during cold shutdown or refueling modes of operation. In such cases, it could be argued that fire water could be used as a substitute for CCW to satisfy the capability of the RHR system to perform its function. The possibilities for inappropriate application of TS requirements under such a liberal policy on the application of the definition of operability are endless.

Finally, I suggest that the issue is not one of what the technical requirements for RHR should be but rather where does the NRC come down on the issue of how current TS requirements are to implemented by licensees and how they are to be enforced by NRC. After all the studies are performed and after all the technical arguments are made, NRC will not gain the confidence of the public if it fails to take action on what is now known and reasonable based upon existing policy, and may later be confirmed to be warranted from a study of this matter which NRC undoubtedly considered to be very safety significant in the first place.

My views on this matter are provided out of a sense of my obligation to the public, as a government employee with some responsibility for the safe operation of nuclear power plants, and as welcomed under the Open Door Policy for the expression of concerns. Confidentiality is not requested, however, I request the favor of a reply to my suggestion for NRC action on this matter.

Thomas G. Dunning
Senior Reactor Engineer
Technical Specifications Branch
Division of Operational Events Assessment

Enclosure:
As noted

cc: J. Scinto, OGC

June 3, 1991

NOTE TO: C.I. Grimes, Chief, Technical Specifications Branch
Division of Operational Events Assessment, NRR

FROM: T.G. Dunning, Senior Reactor Engineer
Technical Specifications Branch, DOEA

SUBJECT: TECHNICAL SPECIFICATION REQUIREMENTS FOR RESIDUAL HEAT REMOVAL SYSTEMS DURING SHUTDOWN CONDITIONS

REFERENCE: "Loss of Vital AC Power and the Residual Heat Removal System During Mid-Loop Operations at Vogtle Unit 1 on March 20, 1990," NUREG-1410

Enclosed is a write-up of my conclusions on technical specification (TS) requirements for support systems that are applicable during shutdown conditions. As I noted in our earlier discussion, I believe that the conclusion of the Vogtle IIT report that there was no violation of TS requirements for power systems prior to the Vogtle event was premature. It is concluded that the IIT team conclusion was based on an incomplete understanding of generic communications on residual heat removal system requirements and on the definition of operability as it applies to power sources.

The issue or concern is not that there was a lack of enforcement action taken against Georgia Power Company but rather the message that this conclusion of the IIT report sends to the rest of the industry. The Commission has a duty to uphold its regulations as defined by staff policy until such time as that policy is changed. For any NRC staff initiated change to that policy, CRGR review and approval is appropriate before a new policy is communicated to licensees. On an individual case basis, a waiver of TS requirements is one method short of a license amendment to overcome any TS problem.

The NRC has established TS requirements for redundant heat removal (RHR) capability and by the definition of operability the requirements for redundancy extend to power sources. The TS requirements may only allow sufficient time for a major overhaul of diesel generators when the TS redundancy requirements are relaxed, which is when the unit is in the refueling mode with the reactor cavity flooded to a level of 23 feet above the vessel flange. While licensees may argue that the NRC position on power sources requirements that apply during shutdown is too stringent from a plant maintenance viewpoint, this would require a new NRC policy with respect to the definition of operability as it applies to RHR if it is to be relaxed.

I recognize that there is an effort underway to define shutdown risks. Furthermore, the results of this study may establish new or relax existing TS requirements. In any event, I believe that the attached should be considered in the context of existing requirements and that the same should be communicated to licensees to correct any misunderstanding of the Vogtle IIT report conclusions.

cc: A. Chaffee

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TECHNICAL SPECIFICATION REQUIREMENTS
FOR RESIDUAL HEAT REMOVAL SYSTEMS
DURING SHUTDOWN CONDITIONS

BACKGROUND

In NUREG-1410, "Loss of Vital AC Power and the Residual Heat Removal System During Mid-Loop Operations at Vogtle Unit 1 on March 20, 1990," the incident investigation team (IIT) from U.S. Nuclear Regulatory Commission (NRC) reported its findings and conclusions regarding the loss of ac power event at the Alvin W. Vogtle, Jr., Plant. The following is one of the IIT conclusions:

> The technical specifications do not take into consideration the risk associated with the various configurations of systems that may exist during shutdown conditions. (Section 1.4, "Summary," p. 1-7)

The following is one of the IIT findings:

> With respect to the availability of electrical sources, Vogtle Unit 1 met the minimum conditions of its technical specifications at the time of the incident. One offsite source (a reserve auxiliary transformer) and one diesel generator were available. (Section 3.1.5, "Power Availability During Shutdown Modes," p. 3-7)

The IIT reported a number of general observations on technical specifications (TS), including the following summary statement:

> It appears that the general design criteria, particularly single-failure criterion have not been generally applied operations in cold shutdown and refueling modes. (Section 9.1, "General Observations on Technical Specifications," p. 9-2)

The IIT noted the applicable requirements in the Vogtle TS for residual heat removal as follows:

> When the RCS water inventory is lower than 23 feet above the vessel flange, both RHR trains must be operable and one must be in operation with a minimum flow rate of 3000 gpm. (Section 9.2.4, RCS "Cooling," p. 9.4)

In the IIT report, the staff addressed the requirements of the Vogtle TS for electrical power as follows:

> Technical specifications effectively require one-half of the electrical sources and trains of electrical equipment to be in service during Modes 5 and 6 compared with those required during Modes 1, 2, 3, and 4. The electrical alignment at Vogtle during the incident did not violate technical specifications. In fact, were it not for technical specification 3.9.8.2, which requires that both RHR trains be operable in Mode 6 when water level is less than 23 feet above the vessel flange, safety bus B also could have been removed from service (along with the B diesel generator). (Section 9.2.3, "Electrical Distribution," p. 9-5)

The conclusions on TS requirements in the IIT report included the following statements:

> In conclusion, with the single exception of the requirement that two RHR trains be operable in Mode 6 when the water level is less than 23 feet above the vessel flange, the Vogtle technical specifications do not consider special situations (e.g., reduced RCS water inventory, the RCS integrity, or the containment building being open). In addition, the interrelationships of safety systems (electrical distribution, containment building, and RHR), together with RCS inventory and decay heat level, are not considered in technical specifications. (Section 9.2.3, "Electrical Distribution," p. 9-6)

The IIT report addressed a number of generic communications but did not discuss two important generic letters on electrical power systems and decay heat removal. In the discussion of the TS, the IIT report did not consider the support system requirements that are inherent in the definition of operability or the cooling water support systems needed to support operation of the residual heat removal (RHR) systems and the TS requirements for these support systems. Finally, the IIT report may have attributed a greater measure of risk management to the TS than is warranted.

DISCUSSION

On April 10, 1980, Darrell G. Eisenhut, Acting Director, Division of Operating Reactors, Office of Nuclear Reactor Regulation (NRR) issued a generic letter to all power reactor licensees to address a possible misunderstanding regarding the use of "operable" as it applies to the single failure criterion for safety systems in power reactors. The stated purpose of the letter was to clarify the meaning of this term and to request licensees to take specific actions to ensure that it is appropriately applied to their facilities.

In this generic letter, the staff stated that the NRC developed the standard technical specifications (STS) to preserve the single failure criterion for systems that are relied upon in the safety analysis report (SAR). The Vogtle TS do this for the higher Modes of operation, that is, modes 1 through 4. Hence, in the IIT report, the team may have been concerned that the SAR does not provide an evaluation for a set of events that could be postulated to occur during Modes 5 and 6 and that are similar to those analyzed during power operation. However, the fault would appear to lie with the SAR and not the TS if such assumptions are part of the plant design basis. However, this is not the essence of this GL.

In the generic letter, the staff noted that the limiting conditions for operation (LCO) in TS do not address the effects of outages of any support systems such as electrical power or cooling water that are relied upon to maintain the operability of the particular system. Instead, the staff noted that the STS provide general specifications and an explicit definition of "operable" to encompass all such cases. In the generic letter, the staff requested all licensees to submit proposed changes to the TS to incorporate the definition of operability and two general specifications. Enclosure 1 to the generic letter provided the following definition of "operable":

1.0 DEFINITIONS

OPERABLE - OPERABILITY

> 1.6 A system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified function(s). Implicit in this definition shall be the assumption that all necessary attendant instrumentation, controls, normal and emergency electrical power sources, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its functions(s) are also capable of performing their related support function(s).

In the current and earlier versions of the STS, the first part of the second statement, "Implicit in this definition shall be the assumption that" is replaced by the conjunction "and." Nevertheless, the meaning is not changed with this substitution. There is the clear intent that both normal and emergency power sources must be operable, that is, capable of performing their specified function(s), as necessary attendant support functions in order for any associated system to be operable.

The two general specifications were identified in the Enclosure 1 to the generic letter as follows:

3/4 LIMITING CONDITIONS FOR OPERATION (GENERAL)
3/4.0 APPLICABILITY

LIMITING CONDITION FOR OPERATION

> 3.0.3 In the event a Limiting Condition for Operation and/or associated ACTION requirements cannot be satisfied because of circumstances in excess of those addressed in the specification, the unit shall be placed in at least HOT STANDBY within 1 hour, in at least HOT SHUTDOWN within the next 6 hours, and in at least COLD SHUTDOWN within the following 30 hours unless corrective measures are completed that permit operation under the permissible ACTION statements for the specified time interval as measured from the initial discovery or until the reactor is placed in a MODE in which the specification is not applicable. Exceptions to these requirements shall be stated in the individual specifications.

This version of TS 3.0.3 and the above definition of operable are as they appeared in Revision 2 of NUREG-0452, Technical Specifications for Westinghouse PWRs" (W-STS) of July 1979. In the current version and some earlier versions of the STS, this specification is stated as follows:

> 3.0.3 When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, within one hour action shall be initiated to place the unit in a MODE in which the Specification does not apply by placing it, as applicable, in:
>
> 1. At least HOT STANDBY within the next 6 hours,
> 2. At least HOT SHUTDOWN with the following 6 hours, and
> 3. At least COLD SHUTDOWN within the subsequent 24 hours.

Where corrective measures are completed that permit operation under the ACTION requirements, the ACTION may be taken in accordance with the specified time limits as measured from the time of failure to meet the Limiting Condition for Operation. Exceptions to these requirements are stated in the individual Specifications.

This Specification is not applicable in MODES 5 or 6.

The other specification provided in Enclosure 1 to the generic letter is as follows:

3.0.5 When a system, subsystem, train, component or device is determined to be inoperable solely because its emergency power source is inoperable, or solely because its normal power source is inoperable, it may be considered OPERABLE for the purpose of satisfying the requirements of its applicable Limiting Condition for Operation, provided (1) its corresponding normal or emergency power source is OPERABLE; and (2) all of its redundant system(s), subsystem(s), train(s), component(s) and device(s) are OPERABLE, or likewise satisfy the requirements of this specification. Unless both conditions (1) and (2) are satisfied, the unit shall be placed in at least HOT STANDBY within 1 hour, in at least HOT SHUTDOWN within the next 6 hours, and in at least COLD SHUTDOWN within the following 30 hours. This specification is not applicable in MODES 5 or 6.

The purpose of this specification was provided in part by the following statement in the Bases Section for TS 3.0.5 in Enclosure 1 to the generic letter:

The provisions of this specification permit the ACTION statements associated with individual systems, systems, trains, components, or devices to be consistent with the ACTION statements of the associated electrical power source. It allows operation to be governed by the time limits of the ACTION statement associated with the Limiting Condition for Operation for the normal or emergency power source, not the individual ACTION statements for each system subsystem, train, component or device that is determined to be inoperable solely because of the inoperability of its normal or emergency power source.

Thus, the generic letter of April 10, 1980 made clear two basic issues on power sources that function as support systems. The first was through the definition of operability by the principle that for a system to be operable, both its normal and emergency power source must be operable. The second was through the statement of TS 3.0.5 which acknowledged this dependence when it stated, "When a system is determined to be inoperable solely because its emergency power source is inoperable, or solely because its normal power source is inoperable, . . ."

This principle was initially established in IE Information Notice No. 79-35, "Control of Maintenance and Essential Equipment," of December 31, 1979 which provided the definition of operability that was included in the April 10, 1980 generic letter. The latter referenced this information notice. Also, a copy of the NRC letter to the Duquesne Light Company, of December 5, 1979 was provided as an enclosure to this information notice and included a notice of violation (NOV). The condition cited in the NOV was that maintenance activi-

ties rendered both subsystems of the emergency core cooling system (ECCS) inoperable in that (a) refueling water storage tank isolation valve MOV-CH-115D was closed and incapable of automatically opening in response to a safety injection signal, and (b) refueling water storage tank isolation valve MOV-CH-115B, in the redundant subsystem, was closed, had no emergency power available, and thus was incapable of automatically opening in response to a safety injection signal if there had been a condition of loss of offsite power

The NOV cited the TS definition of "operable" that includes the assumption "all necessary attendant instrumentation, controls, electric power, . . . that are required for the system, . . . to perform its function(s) are also capable of performing their related safety function(s)." In this case, the definition did not specify "emergency and normal power sources" individually but merely specified "electrical power" as a support system function. The TS did not rely on the more explicit definition addressing "emergency power sources" but rather applied the definition addressing "electrical power" to include the availability of an emergency power source, the absence of which rendered the associated valve inoperable. However, although the current STS use the latter definition, "electrical power," rather than "emergency and normal power sources" as addressed in the April 10, 1980 generic letter, both terms share the same meaning regarding the intent of the definitions.

The basis of the NOV was TS 3.5.2, which stated for MODE 1 "two separate and independent ECCS subsystems shall be operable" and Part c. of TS 3.5.2. The latter stated "each subsystem shall include an operable flow path capable of taking suction from the refueling water storage tank upon initiation of a safety injection signal."

On June 11, 1980, Darrell Eisenhut, Director, Division of Licensing, issued a second generic letter to the licensees for all pressurized water reactors (PWRs). In this generic letter, the staff noted that several events occurred at operating PWR facilities in which decay heat removal capability had been seriously degraded by inadequate administrative controls when the plants were in the shutdown modes of operation. The generic letter referenced IE Information Notice 80-20, "Loss of Decay Heat Removal Capability at Davis-Bessie Unit 1 While in a Refueling Mode," which described the Davis-Bessie event of April 19, 1980. The generic letter also referenced IE Bulletin 80-12, "Decay Heat Removal System Operability," of May 9, 1980, where licensees were requested to immediately implement administrative controls to ensure that redundant methods are available for decay heat removal.

In this generic letter, the staff requested that licensees propose TS changes for their facilities to require redundancy in decay heat removal capability for all modes of operation. The staff provided in an enclosure to the generic letter, model TS and their associated Bases obtained from the STS. Two excerpts taken from the TS Bases for the W-STS were as follows:

> In MODES 4 and 5, a single reactor coolant loop or RHR loop provides sufficient heat removal capability for removing decay heat; but single failure considerations require that at least two loops be OPERABLE. Thus if the reactor coolant loops are not OPERABLE, this specification requires two RHR loops to be OPERABLE.

and

> The requirement to have two RHR loops OPERABLE when there is less than 23 feet of water above the core ensures that a single failure of the operating RHR loop will not result in a complete loss of residual heat removal capability. With the reactor vessel head removed and 23 feet of water above the core, a large heat sink is available for core cooling. Thus, in the event of a single failure of the operating RHR loop, adequate time is provided to initiate emergency procedures to cool the core.

Thus, the NRC position is that the single failure criterion applies for the decay heat removal capability. Furthermore, the staff position is that all plants should have TS that reflect requirements to require redundant systems to be operable for decay heat removal while the plant is in Modes 3 through 6. The only exception is during refueling, Mode 6, when 23 feet of water is above the core.

Part 9900 of the Inspection and Enforcement (IE) Manual also provides technical guidance on STS that apply during shutdown conditions. While this guidance applies to the Vogtle event, the IIT report did not cite the IE manual as a source of NRC guidance on these matters.

The first IE Manual reference is "STS Section 3.4.1.4.2 - Component Cooling Water System," issued on December 8, 1986. This guide referenced a NOV that Region II issued to the Florida Power and Light Company because the St. Lucie Plant, Unit 1, did not have two operable independent trains of shutdown cooling and support systems, including component cooling water (CCW) and intake cooling water (ICW). The violation occurred during cold shutdown when the reactor coolant loops were not filled. TS 3.4.1.4.2 requires two shutdown cooling loops to be operable and at least one loop to be in operation in Mode 5 when the reactor coolant loops are not filled. Region II requested that NRR confirm the scope of operability as it applies to support systems such as the CCW and ICW. The staff response referenced the June 11, 1980 generic letter and the staff position on redundancy for protection against single failures to ensure decay heat removal for all modes of operation. NRR confirmed Region II's interpretation that the licensee was in noncompliance with the requirements of TS 3.4.1.4.2 with only one CCW heat exchanger operable.

The St. Lucie TS include requirements for redundant CCW and ICW loops to be operable in Modes 1 through 4 but the plant TS (and the STS) do not address specific CCW or ICW operability requirements in Modes 5 and 6. Nevertheless, the absence of a specific TS addressing CCW or ICW operability in these modes does not negate the shutdown cooling system operability requirements that apply to these support systems as established by the definition of operability. The requirements for CCW and ICW loops to be operable in Mode 6 follow the TS requirements for shutdown cooling loops to be operable, that is, redundancy is required when the water level is less than 23 feet above the reactor vessel flange.

A second guide in the IE manual is "STS, STS SECTION 1, OPERABILITY," issued on May 12, 1986. The background section of this guide notes that the generic letter of April 10, 1980, provided model TS for a new specification to clarify operability requirements for electrical power systems. The discussion section sets forth the principal criteria that facilitate a proper application of the STS definition of "operability" as applied to systems and components which

provide necessary support functions. One of these criteria is "(t)he system operability requirements extend to necessary support systems regardless of the existence or absence of support system requirements." The implication for the electrical power system is clear and, although TS requirements state that "as a minimum," one source of offsite and onsite power is required to be operable in Modes 5 and 6.

While the ac power source requirements for Modes 5 and 6 are stated "as a minimum" and leave open the possibility of more stringent requirements, other power source TS use similar terms where the operability requirement addresses the total design capability, for example, operability of two (of a total of two redundant) dc power sources for Modes 1 through 4 are specified "As a minimum, . . ." Thus, it would be difficult to make a case that the "as a minimum" was intended to imply the possibility for more stringent requirements because this has been used in cases that the total capability provided is required to be operable and there couldn't be a more stringent requirement.

Thus, where independent redundant RHR loops are specifically required to be operable, the requirements for redundancy and independence extend to all necessary support systems including the offsite and onsite power sources. If the TS does not provide an explicit requirement for the cooling water system to be operable, neither the absence of an explicit TS requirement for redundant power sources or the presence of an explicit TS requirement for both a single onsite and offsite power source negate the support system requirements established by the definition of operability.

The staff has not placed the guidance of the generic letter on power sources, particularly TS 3.0.5, into later revisions of the STS. This may be because the staff revised the STS by modifying the action requirements in individual TS to be compatible with the allowed out-of-service time of diesel generators and offsite power sources. If this was the case, compliance with the electrical power system action requirements would be sufficient because more restrictive requirements would not exist in the TS for systems that depend upon that power source as a necessary support system. On July 27, 1981, the staff revised the W-STS on power sources by modifying the action requirements for an inoperable diesel generator. The TS were modified to verify the operability of all systems that depend on the remaining operable diesel generator as a source of emergency power. Also, the steam-driven auxiliary feed pump was required to be verified operable. If these conditions were not met within 2 hours, the remedial action was a forced shutdown.

Nevertheless, there are no known statements of an NRC staff position that would refute the principles set forth in the generic letter of April 10, 1980. In the context of the Vogtle event, the relevant principle is that a system or component is inoperable when either its onsite or offsite power source is inoperable. Finally, the relief provided by TS 3.0.5 did not negate this dependence, but also TS 3.0.5 noted that it was not applicable in Modes 5 and 6 (PWR'S) or in Conditions 4 and 5 (BWRs).

## CONCLUSIONS

By using the guidance in generic communications, the NRC has clearly established the its position for the operability of redundant decay heat removal capability that extends to shutdown conditions. Furthermore, the fundamental

principle in the TS definition of operability is that a system is not operable when its onsite or offsite power source is inoperable. This principle implements the intent of the criterion 34 of the general design criteria (Appendix A to 10 CFR Part 50) on the capability for residual heat removal:

> A system to remove residual heat shall be provided. The safety function shall be to transfer fission product decay heat and other residual heat from the reactor core at a rate such that specified acceptable fuel design limits and the design conditions of the reactor coolant pressure boundary are not exceeded.
>
> Suitable redundancy in components and features, and suitable interconnections, leak detection, and isolation capabilities shall be provided to assure that for onsite electric power system operation (assuming offsite power is not available) and for offsite electric power system operation (assuming onsite power is not available) the system safety function can be accomplished, assuming a single failure. (Emphasis added.)

The finding of the Vogtle IIT that the TS requirements related to offsite and onsite power were met was apparently based only on the explicit requirements of the TS on power sources that applies during Mode 5 and 6 operation. (It is not clear, however, why the IIT concluded that if it were not for the TS that required redundant RHR trains to be operable, the other safety bus also could have been removed from service along with the "B" diesel generator. However, this point is not particularly relevant to the basic issue.)

The IIT conclusion on TS compliance was premature and not based on a full understanding of TS operability requirements as they apply to support systems and as they have been clarified by generic communications to all licensees. Finally, the licensee did not meet the Vogtle TS requirements for RHR system operability because redundant onsite and offsite power sources were not available.

Therefore, licensees and other interested parties would obtain the wrong conclusion from the IIT report on power sources that are required to be operable to support the TS requirements for redundant decay heat removal capability during shutdown conditions.

June 3, 1991

NOTE TO: C.I. Grimes, Chief, Technical Specifications Branch
Division of Operational Events Assessment, NRR

FROM: T.G. Dunning, Senior Reactor Engineer
Technical Specifications Branch, DOEA

SUBJECT: TECHNICAL SPECIFICATION REQUIREMENTS FOR RESIDUAL HEAT REMOVAL SYSTEMS DURING SHUTDOWN CONDITIONS

REFERENCE: "Loss of Vital AC Power and the Residual Heat Removal System During Mid-Loop Operations at Vogtle Unit 1 on March 20, 1990," NUREG-1410

Enclosed is a write-up of my conclusions on technical specification (TS) requirements for support systems that are applicable during shutdown conditions. As I noted in our earlier discussion, I believe that the conclusion of the Vogtle IIT report that there was no violation of TS requirements for power systems prior to the Vogtle event was premature. It is concluded that the IIT team conclusion was based on an incomplete understanding of generic communications on residual heat removal system requirements and on the definition of operability as it applies to power sources.

The issue or concern is not that there was a lack of enforcement action taken against Georgia Power Company but rather the message that this conclusion of the IIT report sends to the rest of the industry. The Commission has a duty to uphold its regulations as defined by staff policy until such time as that policy is changed. For any NRC staff initiated change to that policy, CRGR review and approval is appropriate before a new policy is communicated to licensees. On an individual case basis, a waiver of TS requirements is one method short of a license amendment to overcome any TS problem.

The NRC has established TS requirements for redundant heat removal (RHR) capability and by the definition of operability the requirements for redundancy extend to power sources. The TS requirements may only allow sufficient time for a major overhaul of diesel generators when the TS redundancy requirements are relaxed, which is when the unit is in the refueling mode with the reactor cavity flooded to a level of 23 feet above the vessel flange. While licensees may argue that the NRC position on power sources requirements that apply during shutdown is too stringent from a plant maintenance viewpoint, this would require a new NRC policy with respect to the definition of operability as it applies to RHR if it is to be relaxed.

I recognize that there is an effort underway to define shutdown risks. Furthermore, the results of this study may establish new or relax existing TS requirements. In any event, I believe that the attached should be considered in the context of existing requirements and that the same should be communicated to licensees to correct any misunderstanding of the Vogtle IIT report conclusions.

cc: A. Chaffee

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TECHNICAL SPECIFICATION REQUIREMENTS
FOR RESIDUAL HEAT REMOVAL SYSTEMS
DURING SHUTDOWN CONDITIONS

BACKGROUND

In NUREG-1410, "Loss of Vital AC Power and the Residual Heat Removal System During Mid-Loop Operations at Vogtle Unit 1 on March 20, 1990," the incident investigation team (IIT) from U.S. Nuclear Regulatory Commission (NRC) reported its findings and conclusions regarding the loss of ac power event at the Alvin W. Vogtle, Jr., Plant. The following is one of the IIT conclusions:

> The technical specifications do not take into consideration the risk associated with the various configurations of systems that may exist during shutdown conditions. (Section 1.4, "Summary," p. 1-7)

The following is one of the IIT findings:

> With respect to the availability of electrical sources, Vogtle Unit 1 met the minimum conditions of its technical specifications at the time of the incident. One offsite source (a reserve auxiliary transformer) and one diesel generator were available. (Section 3.1.5, "Power Availability During Shutdown Modes," p. 3-7)

The IIT reported a number of general observations on technical specifications (TS), including the following summary statement:

> It appears that the general design criteria, particularly single-failure criterion have not been generally applied operations in cold shutdown and refueling modes. (Section 9.1, "General Observations on Technical Specifications," p. 9-2)

The IIT noted the applicable requirements in the Vogtle TS for residual heat removal as follows:

> When the RCS water inventory is lower than 23 feet above the vessel flange. both RHR trains must be operable and one must be in operation with a minimum flow rate of 3000 gpm. (Section 9.2.4, RCS "Cooling," p. 9.4)

In the IIT report, the staff addressed the requirements of the Vogtle TS for electrical power as follows:

> Technical specifications effectively require one-half of the electrical sources and trains of electrical equipment to be in service during Modes 5 and 6 compared with those required during Modes 1, 2, 3, and 4. The electrical alignment at Vogtle during the incident did not violate technical specifications. In fact, were it not for technical specification 3.9.8.2, which requires that both RHR trains be operable in Mode 6 when water level is less than 23 feet above the vessel flange, safety bus B also could have been removed from service (along with the B diesel generator). (Section 9.2.3, "Electrical Distribution," p. 9-5)

The conclusions on TS requirements in the IIT report included the following statements:

> In conclusion, with the single exception of the requirement that two RHR trains be operable in Mode 6 when the water level is less than 23 feet above the vessel flange, the Vogtle technical specifications do not consider special situations (e.g., reduced RCS water inventory, the RCS integrity, or the containment building being open). In addition, the interrelationships of safety systems (electrical distribution, containment building, and RHR), together with RCS inventory and decay heat level, are not considered in technical specifications. (Section 9.2.3, "Electrical Distribution," p. 9-6)

The IIT report addressed a number of generic communications but did not discuss two important generic letters on electrical power systems and decay heat removal. In the discussion of the TS, the IIT report did not consider the support system requirements that are inherent in the definition of operability or the cooling water support systems needed to support operation of the residual heat removal (RHR) systems and the TS requirements for these support systems. Finally, the IIT report may have attributed a greater measure of risk management to the TS than is warranted.

DISCUSSION

On April 10, 1980, Darrell G. Eisenhut, Acting Director, Division of Operating Reactors, Office of Nuclear Reactor Regulation (NRR) issued a generic letter to all power reactor licensees to address a possible misunderstanding regarding the use of "operable" as it applies to the single failure criterion for safety systems in power reactors. The stated purpose of the letter was to clarify the meaning of this term and to request licensees to take specific actions to ensure that it is appropriately applied to their facilities.

In this generic letter, the staff stated that the NRC developed the standard technical specifications (STS) to preserve the single failure criterion for systems that are relied upon in the safety analysis report (SAR). The Vogtle TS do this for the higher Modes of operation, that is, modes 1 through 4. Hence, in the IIT report, the team may have been concerned that the SAR does not provide an evaluation for a set of events that could be postulated to occur during Modes 5 and 6 and that are similar to those analyzed during power operation. However, the fault would appear to lie with the SAR and not the TS if such assumptions are part of the plant design basis. However, this is not the essence of this GL.

In the generic letter, the staff noted that the limiting conditions for operation (LCO) in TS do not address the effects of outages of any support systems such as electrical power or cooling water that are relied upon to maintain the operability of the particular system. Instead, the staff noted that the STS provide general specifications and an explicit definition of "operable" to encompass all such cases. In the generic letter, the staff requested all licensees to submit proposed changes to the TS to incorporate the definition of operability and two general specifications. Enclosure 1 to the generic letter provided the following definition of "operable":

1.0 DEFINITIONS

OPERABLE - OPERABILITY

> 1.6 A system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified function(s). Implicit in this definition shall be the assumption that all necessary attendant instrumentation, controls, normal and emergency electrical power sources, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its functions(s) are also capable of performing their related support function(s).

In the current and earlier versions of the STS, the first part of the second statement, "Implicit in this definition shall be the assumption that" is replaced by the conjunction "and." Nevertheless, the meaning is not changed with this substitution. There is the clear intent that both normal and emergency power sources must be operable, that is, capable of performing their specified function(s), as necessary attendant support functions in order for any associated system to be operable.

The two general specifications were identified in the Enclosure 1 to the generic letter as follows:

3/4 LIMITING CONDITIONS FOR OPERATION (GENERAL)
3/4.0 APPLICABILITY

LIMITING CONDITION FOR OPERATION

> 3.0.3 In the event a Limiting Condition for Operation and/or associated ACTION requirements cannot be satisfied because of circumstances in excess of those addressed in the specification, the unit shall be placed in at least HOT STANDBY within 1 hour, in at least HOT SHUTDOWN within the next 6 hours, and in at least COLD SHUTDOWN within the following 30 hours unless corrective measures are completed that permit operation under the permissible ACTION statements for the specified time interval as measured from the initial discovery or until the reactor is placed in a MODE in which the specification is not applicable. Exceptions to these requirements shall be stated in the individual specifications.

This version of TS 3.0.3 and the above definition of operable are as they appeared in Revision 2 of NUREG-0452, Technical Specifications for Westinghouse PWRs" (W-STS) of July 1979. In the current version and some earlier versions of the STS, this specification is stated as follows:

> 3.0.3 When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, within one hour action shall be initiated to place the unit in a MODE in which the Specification does not apply by placing it, as applicable, in:
>
> 1. At least HOT STANDBY within the next 6 hours,
> 2. At least HOT SHUTDOWN with the following 6 hours, and
> 3. At least COLD SHUTDOWN within the subsequent 24 hours.

Where corrective measures are completed that permit operation under the ACTION requirements, the ACTION may be taken in accordance with the specified time limits as measured from the time of failure to meet the Limiting Condition for Operation. Exceptions to these requirements are stated in the individual Specifications.

This Specification is not applicable in MODES 5 or 6.

The other specification provided in Enclosure 1 to the generic letter is as follows:

3.0.5 When a system, subsystem, train, component or device is determined to be inoperable solely because its emergency power source is inoperable, or solely because its normal power source is inoperable, it may be considered OPERABLE for the purpose of satisfying the requirements of its applicable Limiting Condition for Operation, provided (1) its corresponding normal or emergency power source is OPERABLE; and (2) all of its redundant system(s), subsystem(s), train(s), component(s) and device(s) are OPERABLE, or likewise satisfy the requirements of this specification. Unless both conditions (1) and (2) are satisfied, the unit shall be placed in at least HOT STANDBY within 1 hour, in at least HOT SHUTDOWN within the next 6 hours, and in at least COLD SHUTDOWN within the following 30 hours. This specification is not applicable in MODES 5 or 6.

The purpose of this specification was provided in part by the following statement in the Bases Section for TS 3.0.5 in Enclosure 1 to the generic letter:

The provisions of this specification permit the ACTION statements associated with individual systems, systems, trains, components, or devices to be consistent with the ACTION statements of the associated electrical power source. It allows operation to be governed by the time limits of the ACTION statement associated with the Limiting Condition for Operation for the normal or emergency power source, not the individual ACTION statements for each system subsystem, train, component or device that is determined to be inoperable solely because of the inoperability of its normal or emergency power source.

Thus, the generic letter of April 10, 1980 made clear two basic issues on power sources that function as support systems. The first was through the definition of operability by the principle that for a system to be operable, both its normal and emergency power source must be operable. The second was through the statement of TS 3.0.5 which acknowledged this dependence when it stated, "When a system is determined to be inoperable solely because its emergency power source is inoperable, or solely because its normal power source is inoperable, . . ."

This principle was initially established in IE Information Notice No. 79-35, "Control of Maintenance and Essential Equipment," of December 31, 1979 which provided the definition of operability that was included in the April 10, 1980 generic letter. The latter referenced this information notice. Also, a copy of the NRC letter to the Duquesne Light Company, of December 5, 1979 was provided as an enclosure to this information notice and included a notice of violation (NOV). The condition cited in the NOV was that maintenance activi-

ties rendered both subsystems of the emergency core cooling system (ECCS) inoperable in that (a) refueling water storage tank isolation valve MOV-CH-115D was closed and incapable of automatically opening in response to a safety injection signal, and (b) refueling water storage tank isolation valve MOV-CH-115B, in the redundant subsystem, was closed, had no emergency power available, and thus was incapable of automatically opening in response to a safety injection signal if there had been a condition of loss of offsite power.

The NOV cited the TS definition of "operable" that includes the assumption "all necessary attendant instrumentation, controls, electric power, . . . that are required for the system, . . . to perform its function(s) are also capable of performing their related safety function(s)." In this case, the definition did not specify "emergency and normal power sources" individually but merely specified "electrical power" as a support system function. The TS did not rely on the more explicit definition addressing "emergency power sources" but rather applied the definition addressing "electrical power" to include the availability of an emergency power source, the absence of which rendered the associated valve inoperable. However, although the current STS use the latter definition, "electrical power," rather than "emergency and normal power sources" as addressed in the April 10, 1980 generic letter, both terms share the same meaning regarding the intent of the definitions.

The basis of the NOV was TS 3.5.2, which stated for MODE 1 "two separate and independent ECCS subsystems shall be operable" and Part c. of TS 3.5.2. The latter stated "each subsystem shall include an operable flow path capable of taking suction from the refueling water storage tank upon initiation of a safety injection signal."

On June 11, 1980, Darrell Eisenhut, Director, Division of Licensing, issued a second generic letter to the licensees for all pressurized water reactors (PWRs). In this generic letter, the staff noted that several events occurred at operating PWR facilities in which decay heat removal capability had been seriously degraded by inadequate administrative controls when the plants were in the shutdown modes of operation. The generic letter referenced IE Information Notice 80-20, "Loss of Decay Heat Removal Capability at Davis-Bessie Unit 1 While in a Refueling Mode," which described the Davis-Bessie event of April 19, 1980. The generic letter also referenced IE Bulletin 80-12, "Decay Heat Removal System Operability," of May 9, 1980, where licensees were requested to immediately implement administrative controls to ensure that redundant methods are available for decay heat removal.

In this generic letter, the staff requested that licensees propose TS changes for their facilities to require redundancy in decay heat removal capability for all modes of operation. The staff provided in an enclosure to the generic letter, model TS and their associated Bases obtained from the STS. Two excerpts taken from the TS Bases for the W-STS were as follows:

> In MODES 4 and 5, a single reactor coolant loop or RHR loop provides sufficient heat removal capability for removing decay heat; but single failure considerations require that at least two loops be OPERABLE. Thus if the reactor coolant loops are not OPERABLE, this specification requires two RHR loops to be OPERABLE.

and

> The requirement to have two RHR loops OPERABLE when there is less than 23 feet of water above the core ensures that a single failure of the operating RHR loop will not result in a complete loss of residual heat removal capability. With the reactor vessel head removed and 23 feet of water above the core, a large heat sink is available for core cooling. Thus, in the event of a single failure of the operating RHR loop, adequate time is provided to initiate emergency procedures to cool the core.

Thus, the NRC position is that the single failure criterion applies for the decay heat removal capability. Furthermore, the staff position is that all plants should have TS that reflect requirements to require redundant systems to be operable for decay heat removal while the plant is in Modes 3 through 6. The only exception is during refueling, Mode 6, when 23 feet of water is above the core.

Part 9900 of the Inspection and Enforcement (IE) Manual also provides technical guidance on STS that apply during shutdown conditions. While this guidance applies to the Vogtle event, the IIT report did not cite the IE manual as a source of NRC guidance on these matters.

The first IE Manual reference is "STS Section 3.4.1.4.2 - Component Cooling Water System," issued on December 8, 1986. This guide referenced a NOV that Region II issued to the Florida Power and Light Company because the St. Lucie Plant, Unit 1, did not have two operable independent trains of shutdown cooling and support systems, including component cooling water (CCW) and intake cooling water (ICW). The violation occurred during cold shutdown when the reactor coolant loops were not filled. TS 3.4.1.4.2 requires two shutdown cooling loops to be operable and at least one loop to be in operation in Mode 5 when the reactor coolant loops are not filled. Region II requested that NRR confirm the scope of operability as it applies to support systems such as the CCW and ICW. The staff response referenced the June 11, 1980 generic letter and the staff position on redundancy for protection against single failures to ensure decay heat removal for all modes of operation. NRR confirmed Region II's interpretation that the licensee was in noncompliance with the requirements of TS 3.4.1.4.2 with only one CCW heat exchanger operable.

The St. Lucie TS include requirements for redundant CCW and ICW loops to be operable in Modes 1 through 4 but the plant TS (and the STS) do not address specific CCW or ICW operability requirements in Modes 5 and 6. Nevertheless, the absence of a specific TS addressing CCW or ICW operability in these modes does not negate the shutdown cooling system operability requirements that apply to these support systems as established by the definition of operability. The requirements for CCW and ICW loops to be operable in Mode 6 follow the TS requirements for shutdown cooling loops to be operable, that is, redundancy is required when the water level is less than 23 feet above the reactor vessel flange.

A second guide in the IE manual is "STS, STS SECTION 1, OPERABILITY," issued on May 12, 1986. The background section of this guide notes that the generic letter of April 10, 1980, provided model TS for a new specification to clarify operability requirements for electrical power systems. The discussion section sets forth the principal criteria that facilitate a proper application of the STS definition of "operability" as applied to systems and components which

provide necessary support functions. One of these criteria is "(t)he system operability requirements extend to necessary support systems regardless of the existence or absence of support system requirements." The implication for the electrical power system is clear and, although TS requirements state that "as a minimum," one source of offsite and onsite power is required to be operable in Modes 5 and 6.

While the ac power source requirements for Modes 5 and 6 are stated "as a minimum" and leave open the possibility of more stringent requirements, other power source TS use similar terms where the operability requirement addresses the total design capability, for example, operability of two (of a total of two redundant) dc power sources for Modes 1 through 4 are specified "As a minimum, . . ." Thus, it would be difficult to make a case that the "as a minimum" was intended to imply the possibility for more stringent requirements because this has been used in cases that the total capability provided is required to be operable and there couldn't be a more stringent requirement.

Thus, where independent redundant RHR loops are specifically required to be operable, the requirements for redundancy and independence extend to all necessary support systems including the offsite and onsite power sources. If the TS does not provide an explicit requirement for the cooling water system to be operable, neither the absence of an explicit TS requirement for redundant power sources or the presence of an explicit TS requirement for both a single onsite and offsite power source negate the support system requirements established by the definition of operability.

The staff has not placed the guidance of the generic letter on power sources, particularly 1S 3.0.5, into later revisions of the STS. This may be because the staff revised the STS by modifying the action requirements in individual TS to be compatible with the allowed out-of-service time of diesel generators and offsite power sources. If this was the case, compliance with the electrical power system action requirements would be sufficient because more restrictive requirements would not exist in the TS for systems that depend upon that power source as a necessary support system. On July 27, 1981, the staff revised the W-STS on power sources by modifying the action requirements for an inoperable diesel generator. The TS were modified to verify the operability of all systems that depend on the remaining operable diesel generator as a source of emergency power. Also, the steam-driven auxiliary feed pump was required to be verified operable. If these conditions were not met within 2 hours, the remedial action was a forced shutdown.

Nevertheless, there are no known statements of an NRC staff position that would refute the principles set forth in the generic letter of April 10, 1980. In the context of the Vogtle event, the relevant principle is that a system or component is inoperable when either its onsite or offsite power source is inoperable. Finally, the relief provided by TS 3.0.5 did not negate this dependence, but also TS 3.0.5 noted that it was not applicable in Modes 5 and 6 (PWR'S) or in Conditions 4 and 5 (BWRs).

CONCLUSIONS

By using the guidance in generic communications, the NRC has clearly established the its position for the operability of redundant decay heat removal capability that extends to shutdown conditions. Furthermore, the fundamental

principle in the TS definition of operability is that a system is not operable when its onsite or offsite power source is inoperable. This principle implements the intent of the criterion 34 of the general design criteria (Appendix A to 10 CFR Part 50) on the capability for residual heat removal:

> A system to remove residual heat shall be provided. The safety function shall be to transfer fission product decay heat and other residual heat from the reactor core at a rate such that specified acceptable fuel design limits and the design conditions of the reactor coolant pressure boundary are not exceeded.
>
> Suitable redundancy in components and features, and suitable interconnections, leak detection, and isolation capabilities shall be provided to assure that for onsite electric power system operation (assuming offsite power is not available) and for offsite electric power system operation (assuming onsite power is not available) the system safety function can be accomplished, assuming a single failure. (Emphasis added.)

The finding of the Vogtle IIT that the TS requirements related to offsite and onsite power were met was apparently based only on the explicit requirements of the TS on power sources that applies during Mode 5 and 6 operation. (It is not clear, however, why the IIT concluded that if it were not for the TS that required redundant RHR trains to be operable, the other safety bus also could have been removed from service along with the "B" diesel generator. However, this point is not particularly relevant to the basic issue.)

The IIT conclusion on TS compliance was premature and not based on a full understanding of TS operability requirements as they apply to support systems and as they have been clarified by generic communications to all licensees. Finally, the licensee did not meet the Vogtle TS requirements for RHR system operability because redundant onsite and offsite power sources were not available.

Therefore, licensees and other interested parties would obtain the wrong conclusion from the IIT report on power sources that are required to be operable to support the TS requirements for redundant decay heat removal capability during shutdown conditions.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

ENCLOSURE 2

August 29, 1991

MEMORANDUM FOR: Thomas G. Dunning
Senior Reactor Engineer
Technical Specifications Branch
Division of Operational Events Assessment, NRR

FROM: Thomas E. Murley, Director
Office of Nuclear Reactor Regulation

SUBJECT: TECHNICAL SPECIFICATION REQUIREMENTS FOR RESIDUAL HEAT REMOVAL SYSTEMS DURING SHUTDOWN CONDITIONS

Your letter to me of June 27, 1991, has been evaluated as a Differing Professional View in accordance with Office Letter No. 300 and NRC Manual Chapter 4125. The NRR Standing Panel's report to me is enclosed.

I conclude that the existing Technical Specification requirements regarding the need for both normal and emergency AC power for RHR train operability during cold shutdown and refueling are not clear and are subject to differing interpretations. The NRC has not yet clearly communicated to licensees or the staff its position on this issue. NRC procedures require completion of the appropriate backfit analysis in accordance with 10 CFR 50.109. The current staff actions to resolve safety concerns with shutdown and low power operations address the technical concerns raised in your DPV. Specifically, model technical specifications for AC power and the preparation of a regulatory analysis supporting new requirements and staff positions are included in the action plan. This integrated effort is receiving high priority and management oversight. It is not appropriate to separate your technical concerns from the broader staff action plan on shutdown risk.

The NRC Inspector General is being informed of this decision. By copy of this memorandum, David Matthews is requested to supplement ASLB Board Notification 91-05 regarding Vogtle, Units 1 and 2.

T Murley

Thomas E. Murley, Director
Office of Nuclear Reactor Regulation

Enclosures: As stated

cc: D. Matthews

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