



South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

August 23, 2011  
NOC-AE-11002700  
10CFR50.90  
STI: 32899307

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
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Rockville, MD 20852-2738

South Texas Project  
Units 1 and 2  
Docket Nos. STN 50-498, STN 50-499  
License Amendment Request to Revise the Applicability  
of Risk-Managed Technical Specifications to  
Technical Specification 3.7.7, "Control Room Makeup and Cleanup Filtration System"

- References:
1. Letter dated December 28, 2006, from David W. Rencurrel, STPNOC, to NRC Document Control Desk, "Revised Broad Scope Risk-Informed Technical Specification Amendment Request." (ML070040247, NOC-AE-06002036, TAC Nos. MD2341 & MD2342)
  2. Letter dated July 13, 2007, from Mohan C. Thadani, NRC, to James J. Sheppard, STPNOC, "South Texas Project, Units 1 and 2 – Issuance of Amendments Re: Broad-Scope Risk-Informed Technical Specifications Amendments." (ML071780186, ML071780191, ST-AE-NOC-07001652, TAC Nos. MD2341 and MD2342)
  3. Letter dated May 28, 2008, from Scott M. Head, STPNOC, to NRC Document Control Desk, "Clarification of the Applicability of Risk Managed Technical Specifications to Technical Specification 3.7.7." (ML081720133, NOC-AE-08002291)

The STP Nuclear Operating Company (STPNOC) submits this License Amendment Request to revise the application of Risk-Managed Technical Specifications (RMTS) to Technical Specification (TS) 3.7.7, "Control Room Makeup and Cleanup Filtration System." This change corrects a potential misapplication of the Configuration Risk Management Program (CRMP) that is currently allowed by the Specification.

In Reference 1, STPNOC submitted a revised License Amendment Request for a broad scope risk-informed set of TS changes. The proposed amendment was approved in Reference 2 with the issuance of Amendment 179 and Amendment 166 to the STP Unit 1 and Unit 2 Operating Licenses, respectively. Amendments 179 and 166 approved the use of the STP CRMP for

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calculating a risk-informed completion time only in Mode 1 and Mode 2 for specified TS Limiting Condition for Operations.

In Reference 1, STPNOC states that the CRMP would only be applied to the cooling function of TS 3.7.7 and not to the dose mitigation function. In addition, Reference 1 states that the dose mitigation function of the Control Room Makeup and Cleanup Filtration System (CRHVAC) is not dependent on the cooling function. In Reference 3, STPNOC submitted a letter to correct this statement in that the dose mitigation function is dependent on the cooling function. Reference 3 clarifies how the RMTS would be applied to TS 3.7.7 by administratively restricting application of the CRMP to Action a only, for one inoperable CRHVAC system due to a loss of cooling function.

The change describes how the CRMP will be applied to address the loss of cooling function of the CRHVAC. The change will allow elimination of the current administrative restriction that STPNOC imposed on application of TS 3.7.7.

The Enclosure to this letter is an evaluation of the proposed change. The annotated Technical Specification pages are provided as Attachment 1 to the Enclosure.

STPNOC requests approval of the proposed license amendment by August 30, 2012, with a 60-day implementation period to provide time to revise STP licensing documents.

This letter contains no regulatory commitments.

In accordance with 10 CFR 50.91(b), STPNOC is notifying the State of Texas of this request for license amendment by providing a copy of this letter and its attachments.

If you should have any questions regarding this submittal, please contact Ken Taplett at (361) 972-8416 or me at (361) 972-7566.

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

Executed on August 23, 2011  
Date



G. T. Powell  
Vice President,  
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KJT

Enclosure: Evaluation of the Proposed Change

cc:

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## Enclosure

### Evaluation of the Proposed Change

Subject: License Amendment Request for Revision to Technical Specification 3.7.7

- 1.0 Summary Description
- 2.0 Detailed Description
- 3.0 Technical Evaluation
- 4.0 Regulatory Evaluation
- 5.0 Environmental Consideration
- 6.0 References

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#### Attachments:

- 1. Annotated Technical Specification Page
- 2. Annotated Technical Specification Bases Pages

## **Evaluation of the Proposed Change**

### **1.0 Summary Description**

This evaluation supports a request to amend Operating Licenses NPF-76 and NPF-80 for the South Texas Project (STP), Units 1 and 2.

License Amendment 179 and Amendment 166 to the STP Unit 1 and Unit 2 Operating Licenses, respectively, approved a broad scope risk-informed set of Technical Specification (TS) changes. The amendments approved the use of the STP Configuration Risk Management Program (CRMP) for calculating a risk-informed completion time only in Mode 1 or Mode 2 for specified TS Limiting Conditions for Operation.

This proposed change allows the CRMP to be applied to the loss of the cooling function of the Control Room Makeup and Cleanup Filtration System (referred to as CRHVAC hereafter) as specified in the proposed Limiting Condition for Operation Action requirements. The change is based on a calculation that shows the impact of the loss of cooling function on the dose mitigation function for Technical Specification (TS) 3.7.7, "Control Room Makeup and Cleanup Filtration Systems." The loss of cooling function for the CRHVAC is currently modeled in the STP Probabilistic Risk Assessment (PRA).

### **2.0 Detailed Description**

On July 13, 2007, License Amendments 179 and 166 approved application of Risk Managed Technical Specifications (RMTS) to allow the CRMP to be applied to various STP TS when determining allowed outage times (AOT) for inoperable trains. The CRHVAC includes a recirculation and filtration function that maintains the design-basis accident radiation dose to the operators within the limits of General Design Criterion 19. The system also provides required room cooling for the operators and equipment. The cooling function of CRHVAC is modeled in the PRA. The dose mitigation function could not be included in the scope of RMTS because it is not modeled in the PRA. The dose mitigation function is not modeled in the STP PRA because it does not have an impact on the likelihood of a core damaging event, and thus has no impact on core damage frequency (CDF) or large early release frequency (LERF), the metrics for application of RMTS. Consequently, the amendments permitted the CRMP to be applied to TS 3.7.7 on a limited basis.

When the license amendment request for application of RMTS on a broad scope basis was submitted, STPNOC believed the dose mitigation function was independent of the cooling function and the CRMP could be applied to TS 3.7.7 for conditions where only the cooling function is affected. The "limited" basis was approved in the license amendment. The cooling function is provided by Essential Chilled Water (EchW). Reference 6.1 addressed this by stating that the wording below would be included in the TS Bases for TS 3.7.7, and the TS Bases were changed as follows:

The dose mitigation function governed by TS 3.7.7 does not depend on the cooling function governed by TS 3.7.7 that is supported by TS 3.7.14 for EchW. Therefore, if a TS 3.7.7 action applies because EchW is not available or the cooling coil for CRHVAC is not operable, the provision to apply the CRMP may be used.

During a review of the basis for application of RMTS in February 2008, STPNOC determined that at least one operable train of EchW is required to maintain humidity levels to support achieving the filter efficiency assumed in the accident dose analysis. (Reference 6.2) Based on this information, the dose mitigation function governed by TS 3.7.7 has some dependence on the cooling function. Administrative restrictions were put in place to limit the use of RMTS for CRHVAC for Action a only.

STP TS 3.7.7 requires the operability of three independent trains of CRHVAC. The current TS required actions of TS 3.7.7 are shown below.

- a. With one Control Room Makeup and Cleanup Filtration System inoperable for reasons other than condition d, within 7 days restore the inoperable system to OPERABLE status or apply the requirements of the CRMP, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With two Control Room Makeup and Cleanup Filtration Systems inoperable for reasons other than condition d, within 72 hours restore at least two systems to OPERABLE status or apply the requirements of the CRMP, or be at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With three Control Room Makeup and Cleanup Filtration Systems inoperable for reasons other than condition d, within 12 hours restore at least one system to OPERABLE status or apply the requirements of the CRMP, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

Note

The Control Room Envelope (CRE) boundary is not a required system, subsystem, train, component, or device that depends on a diesel generator as a source of emergency power. Specification 3.8.1.1.d need not be applied for an inoperable Control Room Makeup and Cleanup Filtration System that is inoperable solely due to an inoperable Control Room Envelope boundary.

- d. One or more Control Room Makeup and Cleanup Filtration Systems inoperable due to inoperable Control Room Envelope (CRE) boundary perform the following:
- 1) immediately initiate action to implement mitigating actions, and
  - 2) within 24 hours verify mitigating actions ensure CRE occupant exposures to radiological, chemical and smoke hazards will not exceed limits, and
  - 3) within 90 days restore CRE boundary to OPERABLE status

OR

be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

Note that the CRMP is not applied to Action d when the CRHVAC is inoperable due to an inoperable CRE boundary.

The proposed change only allows the CRMP to be applied where one Control Room Makeup and Cleanup Filtration System is inoperable only due to unavailability of cooling. All other options to apply the requirements of the CRMP to TS 3.7.7 are deleted.

This change proposes the following:

- Action a is modified to separate the Action required for a loss of dose mitigation function from the Action required for a loss of only the cooling function and from the Action for a loss of only the Control Room Envelope boundary. The option to apply the requirements of the CRMP is deleted. The modified Action is proposed to read as follows:
  - a. With one Control Room Makeup and Cleanup Filtration System inoperable for reasons other than condition b or condition e, within 7 days restore the inoperable system to OPERABLE status, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

- A new Action b is proposed for the condition where one train of CRHVAC is inoperable only due to unavailability of cooling. The new Action allows application of the CRMP because at least two trains of the CRHVAC cooling function remain operable where only one train of the cooling function is required to meet the safety function. The new Action is proposed to read as follows:
  - b. With one Control Room Makeup and Cleanup Filtration System inoperable only due to unavailability of cooling, within 7 days restore the inoperable system to OPERABLE status or apply the requirements of the CRMP, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- The current Action b is moved to Action c. The option to apply the requirements of the CRMP is deleted. The modified Action is proposed to read as follows:
  - c. With two Control Room Makeup and Cleanup Filtration Systems inoperable for reasons other than condition e, within 72 hours restore at least two systems to OPERABLE status, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- The current Action c is moved to new Action d. The option to apply the requirements of the CRMP is deleted. The modified Action is proposed to read as follows:
  - d. With three Control Room Makeup and Cleanup Filtration Systems inoperable for reasons other than condition e, within 12 hours restore at least one system to OPERABLE status, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- The current Action d is renumbered as new Action e. No other changes are made to the Action requirements.

The proposed changes are provided in Attachment 1 to this Enclosure.

A mark-up of the affected Bases pages to TS 3.7.7 is provided in Attachment 2 to this Enclosure for information.



### **3.0 Technical Evaluation**

#### **3.1 Evaluation of the Application of the CRMP**

The CRHVAC is comprised of three 50-percent redundant trains that share a common intake plenum and exhaust plenum. Each train is comprised of a makeup fan, a makeup filtration unit, a cleanup filtration unit, a cleanup fan, a control room air handling unit, a supply fan, a return fan, and associated ductwork and dampers.

Two of the three 50% design capacity trains are required to be operable to ensure that: (1) the ambient air temperature does not exceed the allowable temperature for continuous-duty rating for the equipment and instrumentation cooled by this system; and (2) the control room remains habitable for operations personnel during and following design-basis accident conditions. The CRHVAC maintains the design-basis accident radiation dose to the operators within the limits of General Design Criterion 19.

An engineering calculation demonstrates that two trains of CRHVAC pressurization (fans) with one train of cooling are adequate for the dose mitigation function based on maintaining the required control room envelope positive pressure and maintaining the relative humidity of the control room air below the 70% acceptance criterion required to support design-basis assumptions for carbon filter efficiency. With one train of CRHVAC inoperable from a loss of cooling, either of the two operable trains of CRHVAC provides adequate cooling to maintain the filter efficiency for the CRHVAC system to perform its design function of mitigating dose.

A single failure while in the action statement is postulated to demonstrate that the CRMP is being applied for the cooling function and is not being applied to extend the allowed outage time to restore necessary redundancy for the required dose mitigation function. Therefore, application of the CRMP to the proposed Action b for one train of CRHVAC that is inoperable only due to unavailability of cooling is permissible.

For those TS where application of the CRMP is allowed, the operator has the option of using the existing TS AOT for routine plant activities and emergent conditions that would not be expected to require an extension of the AOT. This existing AOT is referred to as the "frontstop" time. The frontstop time provides the operator sufficient time to determine and apply an appropriate extended time from the application of the CRMP for those situations where an extended AOT, as allowed by the RMTS, is necessary. Once the CRMP is applied and a component has exceeded its frontstop time, the CRMP is applied to all subsequent inoperable TS components within the scope of the CRMP to determine the time of the extended AOT for the new configuration until no components are in ACTIONS beyond the frontstop time.

The CRHVAC room cooling function is modeled in the PRA. An extended AOT can be calculated for one inoperable train of CRHVAC cooling. Therefore, the CRMP can be applied for the condition of a single train of CRHVAC inoperable only due to the unavailability of cooling.

The dose mitigation function is not modeled in the PRA because it has no effect on core damage frequency or large early release frequency. Consequently, there is no direct quantifiable technical basis for calculating an extended AOT for an inoperable condition involving the dose mitigation function. Therefore, the CRMP can not be applied to the condition of inoperable CRHVAC train(s) where the dose mitigation function is adversely impacted.

### **3.2 Conclusion**

Two trains of CRHVAC pressurization (fans) with one train of cooling are adequate for the dose mitigation function based on maintaining the required control room envelope positive pressure and maintaining the relative humidity of the control room air below the 70% acceptance criterion required to support design basis assumptions for carbon filter efficiency. The CRHVAC room cooling function is modeled in the PRA. An extended AOT can be calculated for one inoperable train of CRHVAC cooling. Therefore, the CRMP can be applied for the condition of a single train of CRHVAC inoperable only due to the unavailability of cooling and a risk-informed completion time can be calculated.

### **4.0 Regulatory Evaluation**

#### **4.1 Applicable Regulatory Requirements/Criteria**

This change reduces the scope of applying the CRMP to TS 3.7.7.

10CFR50.36 requires that TS contain Limiting Conditions for Operations. 10CFR50.36 requires that: "When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met." The STP TS allow for a risk-informed process for determining required remedial actions. A CRMP for determining required actions and AOTs based on a risk-managed action time (RMAT<sup>1</sup>) and a risk-informed completion time (RICT<sup>2</sup>) up to a 30-day limit is allowed. Individual Limiting Conditions for Operation (LCO) will indicate if the CRMP is applicable. Consequently, the provisions of 10CFR50.36 are met for the CRMP application to TS 3.7.7.

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<sup>1</sup> The time interval from the discovery of a condition requiring entry into a Technical Specification Action for a system, structure or component (SSC) within the scope of the RMTS and which results in a plant configuration other than the zero maintenance state until the 1.00E-6 incremental core damage probability (ICDP) or 1.00E-7 incremental large early release probability (ILERP) risk-management action threshold is reached, whichever is the shorter duration (i.e., the threshold where additional actions should be taken to manage risk).

<sup>2</sup> The SSC plant configuration completion time or AOT calculated based on maintaining plant operation within allowed risk thresholds or limits and applying the CRMP and associated PRA.

Implementation of the STP RMTS for the identified scope of TS LCO action requirements is consistent with the guidance of NEI 06-09, Revision 0. (Reference 6.3)

AOTs beyond the frontstop times for structures, systems, or components in TS are controlled by the CRMP. The CRMP methodology for assessing the risk impact of extending AOTs is accomplished by using a full-scope PRA model of sufficient technical adequacy as described in NEI 06-09, Revision 0, and based on consistency with the guidance of NRC RG 1.200, Revision 1. (Reference 6.4)

The CRMP used to determine the AOT of the TS also meets the requirement of 10CFR50.65(a)(4) for performing a risk assessment for equipment removed from service for maintenance.

Based on the discussion above, STPNOC concludes that the proposed change will ensure that application of the CRMP to TS 3.7.7 is in compliance with regulatory requirements.

#### **4.2 Precedent**

A broad scope risk-informed set of Technical Specification (TS) changes was approved with issuance of Amendment 179 and Amendment 166 to the STP Unit 1 and Unit 2 Operating Licenses, respectively. (Reference 6.5)

#### **4.3 Significant Hazards Consideration**

STPNOC has evaluated whether or not a significant hazards consideration is involved with the proposed amendments by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

Response: No

The proposed change allows the Configuration Risk Management Program (CRMP) to be applied to Technical Specification (TS) 3.7.7, "Control Room Makeup and Cleanup Filtration Systems" for the condition where one train of the Control Room Makeup and Cleanup Filtration System is inoperable only due to the unavailability of cooling. The change deletes application of the CRMP where more than one train of CRHVAC is inoperable. Some action steps are re-numbered as an administrative change.

The change does not involve a significant increase in the probability of an accident previously evaluated because the change does not involve a change to the plant or its modes of operation. In addition, the risk-informed configuration management program will be

applied to effectively manage the availability of required structures, systems, and components to assure there is no significant increase in the probability of an accident.

This proposed change does not increase the consequences of an accident because the design-basis mitigation function of the affected systems is not changed and the risk-informed configuration management program will be applied to effectively manage the availability of structures, systems, and components required to mitigate the consequences of an accident.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No

The proposed change allows the Configuration Risk Management Program (CRMP) to be applied to TS 3.7.7, "Control Room Makeup and Cleanup Filtration Systems" for the condition where one train of the Control Room Makeup and Cleanup Filtration System is inoperable only due to the unavailability of cooling. The change deletes application of the CRMP where more than one train of CRHVAC is inoperable. Some action steps are re-numbered as an administrative change.

The proposed change will not alter the plant configuration (no new or different type of equipment will be installed) or require any unusual operator actions. The proposed change will not alter the way any structure, system, or component functions, and will not significantly alter the manner in which the plant is operated. The response of the plant and the operators following an accident will not be different. In addition, the proposed change does not introduce any new failure modes.

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

3. Does the proposed change involve a significant reduction to a margin of safety?

Response No

The proposed change allows the Configuration Risk Management Program (CRMP) to be applied to TS 3.7.7, "Control Room Makeup and Cleanup Filtration Systems" for the condition where one train of the Control Room Makeup and Cleanup Filtration System is inoperable only due to the unavailability of cooling. The change deletes application of the CRMP where more than one train of CRHVAC is inoperable. Some action steps are re-numbered as an administrative change.

The CRMP implements a risk-informed configuration risk management program in a manner to assure that adequate margins of safety are maintained. Application of the configuration risk management program to TS 3.7.7 complements the risk assessment required by the Maintenance Rule and effectively manages the risk for limiting condition for operation when the Control Room Makeup and Cleanup Filtration Systems are inoperable.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, STPNOC concludes that the proposed amendments do not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c) and, accordingly, a finding of “no significant hazards consideration” is justified.

#### **4.4 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.

#### **5.0 Environmental Consideration**

STPNOC has reviewed the proposed amendment and determined that it does 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). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

#### **6.0 References**

- 6.1 Letter dated December 28, 2006, from David W. Rencurrel, STPNOC, to NRC Document Control Desk, “Revised Broad Scope Risk-Informed Technical Specification Amendment Request.” (ML070040247, NOC-AE-06002036, TAC Nos. MD2341 & MD2342)
- 6.2 Letter dated May 28, 2008, from Scott M. Head, STPNOC, to NRC Document Control Desk, “Clarification of the Applicability of Risk Managed Technical Specifications to Technical Specification 3.7.7.” (ML081720133, NOC-AE-08002291)
- 6.3 NEI 06-09 (Revision 0) – A, “Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines, Industry Guidance Document,” November 2006.

- 6.4 Nuclear Regulatory Commission Regulatory Guide 1.200, Revision 1, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," dated January 2007.
- 6.5 Letter dated July 13, 2007, from Mohan C. Thadani, NRC, to James J. Sheppard, STPNOC, "South Texas Project, Units 1 and 2 – Issuance of Amendments Re: Broad-Scope Risk-Informed Technical Specifications Amendments (ML071780186, ML071780191, ST-AE-NOC-07001652, TAC Nos. MD2341 and MD2342)"

## **Enclosure, Attachment 1**

### **Annotated Technical Specification Page**

#### **Technical Specification 3/4.7.7**

#### **Control Room Makeup and Cleanup Filtration System**

## PLANT SYSTEMS

### 3/4.7.7 CONTROL ROOM MAKEUP AND CLEANUP FILTRATION SYSTEM

#### LIMITING CONDITION FOR OPERATION

3.7.7 Three independent Control Room Makeup and Cleanup Filtration Systems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4:

ACTION:

- a. With one Control Room Makeup and Cleanup Filtration System inoperable for reasons other than ~~condition b or~~ condition d ~~e~~, within 7 days restore the inoperable system to OPERABLE status ~~or apply the requirements of the CRMP~~, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. **With one Control Room Makeup and Cleanup Filtration System inoperable only due to unavailability of cooling, within 7 days restore the inoperable system to OPERABLE status or apply the requirements of the CRMP, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.**
- c. With two Control Room Makeup and Cleanup Filtration Systems inoperable for reasons other than condition d ~~e~~, within 72 hours restore at least two systems to OPERABLE status ~~or apply the requirements of the CRMP~~, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- d. With three Control Room Makeup and Cleanup Filtration Systems inoperable for reasons other than condition d ~~e~~, within 12 hours restore at least one system to OPERABLE status ~~or apply the requirements of the CRMP~~, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### Note

The Control Room Envelope (CRE) boundary is not a required system, subsystem, train, component, or device that depends on a diesel generator as a source of emergency power. Specification 3.8.1.1.d need not be applied for an inoperable Control Room Makeup and Cleanup Filtration System that is inoperable solely due to an inoperable Control Room Envelope boundary.

- e. One or more Control Room Makeup and Cleanup Filtration Systems inoperable due to inoperable Control Room Envelope (CRE) boundary perform the following:
  - 1) immediately initiate action to implement mitigating actions, and
  - 2) within 24 hours verify mitigating actions ensure CRE occupant exposures to radiological, chemical and smoke hazards will not exceed limits, and
  - 3) within 90 days restore CRE boundary to OPERABLE status.

OR

be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.



**Enclosure, Attachment 2**

**Annotated Technical Specification Bases Pages**

**For Information**

**(5 pages)**

## PLANT SYSTEMS

### BASES

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#### 3/4.7.7 CONTROL ROOM MAKEUP AND CLEANUP FILTRATION SYSTEM

The Control Room Makeup and Filtration System is comprised of three 50-percent redundant systems (trains) that share a common intake plenum and exhaust plenum. Each system/train is comprised of a makeup fan, a makeup filtration unit, a cleanup filtration unit, a cleanup fan, a control room air handling unit, a supply fan, a return fan, and associated ductwork and dampers. Two of the three 50% design capacity trains are required to remain operable during an accident to ensure that the system design function is met. The toilet kitchen exhaust (excluding exhaust dampers), heating, and computer room HVAC Subsystem associated with the Control Room Makeup and Filtration System are non safety-related and not required for operability.

The OPERABILITY of the Control Room Makeup and Cleanup Filtration System ensures that: (1) the ambient air temperature does not exceed the allowable temperature for continuous-duty rating for the equipment and instrumentation cooled by this system, and (2) the control room will remain habitable for operations personnel during and following most credible accident conditions. Operation of the system with the heaters operating for at least 10 continuous hours in a 92-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rem total effective dose equivalent (TEDE). This limitation is consistent with the requirements of General Design Criterion 19 of Appendix A, 10 CFR Part 50. ANSI N510-1980 will be used as a procedural guide for surveillance testing.

There is no automatic actuation or Surveillance Requirements of the Control Room Makeup and Cleanup Filtration System for toxic gas or smoke because the analysis for the South Texas Project has determined no actuation is required.

The accidents postulated to occur during core alterations, in addition to the fuel handling accident, are: inadvertent criticality (due to a control rod removal error or continuous rod withdrawal error during refueling or boron dilution) and the inadvertent loading of, and subsequent operation with, a fuel assembly in an improper location. These events are not postulated to result in fuel cladding integrity damage. Since the only accident to occur during CORE ALTERATIONS that results in a significant radioactive release is the fuel handling accident and the accident mitigation features of the Control Room Makeup and Cleanup Filtration System are not credited in the accident analysis for a fuel handling accident, there are no OPERABILITY requirements for this system in MODES 5 and 6.

#### ACTION a, b, and c, and d.

The time limits associated with the ACTIONS to restore an inoperable train to OPERABLE status are consistent with the redundancy and capability of the system and the low probability of a design basis accident while the affected train(s) is out of service

PLANT SYSTEMSBASESAction b

Engineering calculation MC-6504 determined that two trains of CRHVAC (same as Control Room Makeup and Cleanup Filtration System) pressurization (fans) with one train of cooling are adequate for the control room operator dose mitigation function based on maintaining the required control room envelope positive pressure and maintaining the relative humidity of the control room air below the 70% acceptance criterion required to support design basis assumptions for carbon filter efficiency. The calculation shows that with one train of CRHVAC inoperable for a loss of cooling, either of the two operable trains of CRHVAC provides adequate cooling to maintain the filter efficiency for the CRHVAC system to perform its design function to mitigate dose.

The TS 3.7.7 cooling function is modeled in the Probabilistic Risk Assessment (PRA) and a risk-informed completion time (RICT) can be calculated for an inoperable train of CRHVAC cooling. The dose mitigation function is not modeled in the PRA because it has no effect on core damage frequency or large early release frequency. Consequently, there is no technical basis for calculating a RICT for an inoperable condition involving the dose mitigation function and the basis for application of the CRMP to TS 3.7.7 is that it will only be applied to the cooling function.

ACTION b allows for calculating a RICT in accordance with the requirements of the CRMP. STPNOC evaluations show that with a train of CRHVAC in TS 3.7.7 Action b inoperable for a loss of cooling (e.g. associated train of Essential Cooling Water or Essential Chilled Water is inoperable), the system is capable of performing its dose mitigation function, including the ability to withstand a single failure of a train providing pressurization/filtration or a train providing cooling in support of filter efficiency. Postulation of a single failure while in the action statement is used to demonstrate that the CRMP is being applied for the cooling function and is not being applied to extend the allowed outage time to restore necessary redundancy for the required dose mitigation function. Therefore, application of the CRMP to TS 3.7.7 Action b for one inoperable train of CRHVAC is permissible.

Action d

ACTION d allows all three trains of Control Room Makeup and Filtration System to be inoperable for a period of 12 hours. Although not all possible configurations can be anticipated, this ACTION is expected to occur when:

- An inoperable component is identified common to all three trains, or
- All three train fans are rendered inoperable by placing the fans in PULL-TO-LOCK to allow a material condition to be corrected that may be in a common ventilation plenum.

Note: If the ventilation plenum is required to be breached, then ACTION d is also entered because the Control Room Makeup and Filtration Systems become inoperable due to an inoperable Control Room Envelope (CRE) boundary.

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The Containment Spray System can be used as a compensatory measure to reduce the potential for radioactive material release under accident conditions when multiple trains of Control Room Makeup and Filtrations Systems are out of service. Procedures will preclude intentionally removing multiple trains of Control Room Makeup and Filtration Systems from service if Containment Spray is not functional or intentionally making a train of Containment Spray unavailable when multiple trains of Control Room Makeup and Filtration Systems are out of service. For purposes of this compensatory action, Containment Spray is considered functional if at least one train can be manually or automatically initiated.

The TS 3.7.7 cooling function is modeled in the PRA and a RICT can be calculated for an inoperable train of CRHVAC cooling. The dose mitigation function is not modeled in the PRA because it has no effect on core damage frequency or large early release frequency. Consequently, there is no technical basis for calculating a RICT for an inoperable condition involving the dose mitigation function and the basis for application of the CRMP to TS 3.7.7 is that it will only be applied to the cooling function.

Although ACTIONS a, b, and c all include the option of calculating a risk-informed completion time (RICT) in accordance with the requirements of the CRMP, application of the CRMP is currently permitted only for ACTION a because STPNOC determined that application of the CRMP to TS 3.7.7 ACTION b or ACTION c would be to extend the time to restore the required redundancy for the dose mitigation function, which would not be permitted under the licensing basis. STPNOC evaluations show that with a train of CRHVAC in TS 3.7.7 Action a for loss of cooling (associated train of EW or EChW is inoperable), the system is capable of meeting its dose mitigation function, including the ability to withstand a single failure of a train providing pressurization/filtration or a train providing cooling in support of filter efficiency despite the unavailability of the train in maintenance. Postulation of a single failure while in the action statement is used to demonstrate that the CRMP is being applied for the cooling function and is not being applied to extend the allowed outage time to restore necessary redundancy for the required dose mitigation function. Therefore, application of the CRMP to TS 3.7.7 Action a for one inoperable train of CRHVAC is permissible.

The option to apply the CRMP to TS 3.7.7 ACTION a applies only to the cooling function of the system supported by the Essential Chilled Water System (EchW) (TS 3.7.14) and may not be applied for conditions that affect the operability of the system with respect to dose mitigation (i.e. CRHVAC train inoperable due to inoperable fan or damper). In cases where both functions are affected (e.g., an inoperable damper or Make-up, Clean-up, Supply, or Return Fan) the dose mitigation function determines compliance and the "frontstop" completion time may not be exceeded.

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#### Action ~~de~~:

If the unfiltered in-leakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to 5 rem total effective dose equivalent (TEDE)), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 90 days.

An inoperable CRE boundary results in making one or more Control Room Makeup and Cleanup Filtration Systems inoperable. However, absent of an additional condition that results in the System(s) being inoperable other than for an inoperable boundary, only entry into ACTION ~~de~~ is required.

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. OPGP03-ZE-0030, "Control Room Envelope Habitability Program" discusses appropriate mitigating actions.

A note precedes ACTION ~~de~~. For this condition, the Control Room Makeup and Cleanup Filtration Systems are inoperable only because the CRE boundary is inoperable. The note clarifies that the CRE boundary is not a required system, subsystem, train, component, or device that depends on a diesel generator as a source of emergency power. TS ACTION 3.8.1.1.d with one standby diesel generator inoperable is satisfied when all required systems, subsystems, trains, components, and devices that depend on the remaining OPERABLE diesel generators as a source of emergency power are OPERABLE and the Control Room Makeup and Cleanup Filtration Systems are inoperable solely because the CRE boundary is inoperable. Since the boundary is a passive function that does not require emergency power, application of TS 3.8.1.1.d provides no effective compensatory action. Appropriate compensatory action is already required by the action of TS 3.7.7.

As stated in OPGP03-ZE-0030, the mitigating actions are verified to ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time for implementation of the mitigating actions is reasonable based on the low probability of a DBA occurring during this time period, and the use of the mitigating actions. The 90 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

For purposes of the compensatory measure, described above when multiple trains of Control Room Makeup and Cleanup Filtration Systems and Containment Spray are affected, the purpose of the compensatory measure is met when the mitigating actions of Action ~~de~~.(2) are in place. If multiple trains of Control Room Makeup and Cleanup Filtration System are inoperable solely because the CRE boundary is inoperable, then the affected trains can be considered to be in service when Action ~~de~~.(2) is met and there are no restrictions in making a train (i.e. multiple trains are not allowed) of Containment.

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Spray unavailable unless the mitigating actions require all Containment Spray Systems to be functional. Similarly, there are no restrictions on making multiple trains of Control Room Makeup and Cleanup Filtration Systems inoperable solely because the CRE boundary is inoperable if or when Containment Spray is not functional.

Surveillance Requirement 4.7.7.e.3 verifies the OPERABILITY of the CRE boundary by testing for unfiltered air in-leakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program. The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem total effective dose equivalent (TEDE) and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air in-leakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air in-leakage is greater than the assumed flow rate in MODES 1, 2, 3, and 4, Action ~~de~~ must be entered. Action ~~de~~ allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident.

Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3, which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F. These compensatory measures may also be used as mitigating actions as required by Action ~~de~~. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY. Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions.

Compensatory actions (in support of Action ~~de~~) also include administrative controls on coordinating opening or breaching the CRE boundary such that appropriate communication is established with the control room to assure timely closing of the boundary if necessary. Extended opening of the boundary is coordinated with the control room with appropriate plans for closure and communication.

Since the Control Room Envelope boundary integrity also affects operability of the overall system, entry and exit is administratively controlled. Administrative control of entry and exit through doors is performed by the persons entering or exiting the area. Entry and exit through doors under administrative controls does not require entry into Action ~~de~~.

Depending upon the nature of the problem and the corrective action, a full scope in-leakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status. There is no CRMCFS actuation for hazardous chemical releases or smoke and there are no surveillance requirements that verify operability for hazardous chemical or smoke. The hazardous chemical analyses for the South Texas Project do not assume any control room isolation and assumes air enters at normal makeup ventilation flow rates. No in-leakage test is required to determine unfiltered in-leakage from toxic gas since this would be a value much less than that currently assumed in the toxic gas analyses. There is no regulatory limit on the amount of smoke allowed in the control room. The plant's ability to manage smoke infiltration was assessed qualitatively. The conclusion is that the operator maintains the ability to safely shutdown the plant during a smoke event originating inside or outside the control room. Therefore, no in-leakage test is required to be conducted to measure the amount of smoke that could infiltrate into the control room.