



Constellation Nuclear

Calvert Cliffs Nuclear Power Plant

*A Member of the
Constellation Energy Group*

July 27, 2001

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
License Amendment Request: Clarification to the Control Room Emergency
Ventilation System and Control Room Emergency Temperature System
Technical Specifications

Pursuant to 10 CFR 50.90, the Calvert Cliffs Nuclear Power Plant, Inc. hereby requests an Amendment to Renewed Operating License Nos. DPR-53 and DPR-69 to clarify Technical Specifications 3.7.8, "Control Room Emergency Ventilation System" and 3.7.9, "Control Room Emergency Temperature System." Specifically, the proposed changes will modify the Technical Specifications to reflect our Licensing Basis for the Control Room Emergency Ventilation System (CREVS) and Control Room Emergency Temperature System (CRETS) when irradiated fuel assemblies are being moved (see Attachment 1 for a complete discussion).

REQUESTED CHANGES

We propose to change Technical Specifications 3.7.8 and 3.7.9 by modifying the technical specification conditions and required actions for the CREVS and CRETS to be more appropriate when we are moving irradiated fuel assemblies. These changes are shown on the markups in Attachment (3). The final Technical Specification pages will be renumbered to accommodate the insertion of this change.

ASSESSMENT AND REVIEW

We have considered the possibility of significant hazards associated with this change and have determined that there are none (see Attachment 2 for a complete discussion). We have also determined that operation with the proposed amendment would not result in any significant change in the types, or significant increases in the amounts, of any effluents that may be released offsite, nor would it result in any significant increase in individual or cumulative occupational radiation exposure. Therefore, the proposed amendment is eligible for categorical exclusion as set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment is needed in connection with the approval of the proposed amendment. The Plant Operations and Safety Review Committee and Offsite Safety Review Committee have reviewed this proposed change and concur that operation with the proposed changes will not result in an undue risk to the health and safety of the public.

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ATTACHMENT (1)

BACKGROUND AND ANALYSIS

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During the conversion to the Improved Technical Specifications (ITS) in 1996, the Control Room Emergency Ventilation System (CREVS) Technical Specification 3.7.8 and Control Room Emergency Temperature System (CRETS) Technical Specification 3.7.9 were created from the technical specification requirements in effect at that time. In an effort to more closely model the ITS, we expanded the applicability for the CREVS and CRETS to include movement of irradiated fuel assemblies. Previous to the conversion, the technical specification requirements for both the CREVS and CRETS were contained in one Technical Specification and were only required during Modes 1 through 4. However, we acknowledged that CREVS and CRETS were also needed during a fuel handling accident to provide protection for the control room operators. Conditions and Required Actions were also proposed that recognized the new applicability. During the Nuclear Regulatory Commission (NRC) Staff review, several questions were asked about these Conditions and Required Actions. In response to those questions, we removed most of the additional Conditions and Required Actions and replaced them with a more general Condition and the associated Required Actions. However, we were not able to anticipate how restrictive these new Conditions would prove. The current Conditions create a situation that is more restrictive than our licensing basis and more restrictive than our original submittal for conversion to the ITS. We wish to change these Conditions and add more appropriate conditions for CREVS and CRETS Required Actions during movement of irradiated fuel assemblies.

System Description

The CREVS provides a protected environment inside the Control Room from which operators can control either unit following an uncontrolled release of radioactivity, chemicals, or toxic gas. The CREVS is a shared system providing protection to the common Control Room for both Unit 1 and Unit 2. The CREVS consists of two trains, including redundant outside air intake ducts and redundant emergency recirculation filter trains that recirculate and filters the control room air. The CREVS components are generally arranged in redundant safety-related ventilation trains, although some equipment is shared between trains. The shared equipment consists of an exhaust-to-atmosphere duct containing redundant isolation valves and a normally closed roof-mounted hatch, an exhaust-to-atmosphere duct from the kitchen and toilet area of the Control Room containing a single isolation valve, and common supply and return ducts in both the standby and emergency recirculation portions of the system. The shared equipment is considered to be a part of each CREVS train. Each CREVS emergency recirculation filter train consists of a prefilter, a high efficiency particulate air filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodine), and a fan.

The CREVS provides automatic airborne radiological protection for the control room operators. The CREVS is needed to respond to six different analyzed accidents. Five of the accidents that have an evaluated CREVS response are main steam line break, maximum hypothetical accident, steam generator tube rupture, control element assembly ejection event, and seized reactor coolant pump rotor event. The worst-case single active failure of a component of the CREVS, assuming a loss-of-offsite power, does not impair the ability of the system to perform its design function (except for one valve in the shared duct between the Control Room and the emergency recirculation filter trains). Therefore, in Modes 1, 2, 3, and 4, two CREVS trains must be Operable to limit operator exposure during and following a design basis accident.

The sixth accident the CREVS is credited for is a design basis fuel handling accident. The CREVS provides automatically-actuated airborne radiological protection for the control room operators during this event. The design basis fuel handling accident does not assume a single failure occurs. Therefore, during movement of irradiated fuel assemblies, one CREVS train must be Operable to cope with the

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release from a fuel handling accident. However, the current Technical Specification Limiting Conditions for Operation (LCO) could be interpreted such that two trains of CREVS are required to be Operable during movement of irradiated fuel when at least one of the Units are in Modes 1, 2, 3, or 4.

The CRETS is a subsystem that provides temperature control for the Control Room following isolation of the Control Room. The CRETS is a shared system that is supported by the CREVS, since the CREVS must be operating for CRETS to perform its safety function. The CRETS consists of two independent, redundant trains that provide cooling of recirculated control room air. Each train consists of cooling coils, instrumentation, and controls to provide for control room temperature control.

During events that require the Control Room to be isolated during Modes 1 through 4, the CRETS is designed to maintain the temperature below the required limit. A single active failure of a component of the CRETS, assuming a loss-of-offsite power, does not impair the ability of the system to perform its design function. Therefore, in Modes 1, 2, 3, and 4, two CRETS trains must be Operable to limit the temperature in the Control Room.

The current Technical Specifications also require two CRETS trains to be Operable during movement of irradiated fuel assemblies when at least one of the Units is in Modes 1, 2, 3, or 4 to support the need to isolate the Control Room during a fuel handling event. The design basis fuel handling accident does not assume a single failure occurs. Therefore, during movement of irradiated fuel assemblies, only one CRETS train must be Operable to cope with the event.

As described during the conversion to ITS (Reference 1), a fuel handling accident scenario does not require that we assume a single failure. Therefore, only one train of CREVS and CRETS is required when fuel movement is in progress. An attempt was made during the original ITS submittal (Reference 2) to create Conditions that address this part of our licensing basis. (Specifically, Conditions D, G, and H for Technical Specification 3.7.8, and Conditions C and D for Technical Specification 3.7.9.) However, the Conditions and Required Actions created were lengthy and did not address all possible combinations of equipment failure. The NRC Staff asked several questions related to these Conditions (Reference 3). In response to those questions, we revised the Conditions for both Technical Specifications, which we believed resolved the NRC questions. In the related discussion, we clearly stated our licensing basis for fuel handling accidents and the intention was that Technical Specification 3.7.8 Condition F and Technical Specification 3.7.9 Condition C only apply to the required one CREVS and CRETS train. However, this created confusion because the Technical Specifications requires two trains of CREVS and CRETS be Operable for Modes 1 through 4 and movement of irradiated fuel assemblies. To eliminate the confusion, we are proposing to modify Technical Specification 3.7.8 Conditions F and G, Technical Specification 3.7.9 Conditions C and D, and the LCO Notes for each TS. We want to clearly separate the Required Actions for Modes 1 through 4 from those required for the movement of irradiated fuel assemblies.

Proposed Changes to Technical Specification 3.7.8

- A second Note is being proposed to reflect the licensing basis for the fuel handling accident.
- Condition F is aimed at providing requirements for when the required one CREVS train is inoperable during movement of irradiated fuel assemblies. To ensure that Condition F meets our licensing basis, we propose modifying Condition F by removing the second portion of the Condition. This part of the Condition requires that movement of irradiated fuel assemblies be stopped immediately if the required train of CREVS is not Operable. This is the portion that has

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created confusion about our licensing basis. With the applicability for the Technical Specification requiring two trains to be Operable, this portion of Condition F caused us to stop moving fuel assemblies even if we had the one train required by our licensing basis for movement of irradiated fuel assemblies.

- Condition G addresses the case where both trains of CREVS are inoperable. In this case, movement of irradiated fuel assemblies would need to stop immediately because the operators would not be protected in the case of a fuel handling accident. We propose adding the words “or during movement of irradiated fuel assemblies” to Condition G and adding Required Action G.2, which would require the suspension of movement of irradiated fuel assemblies, along with the current Required Action G.1, requiring entry into LCO 3.0.3 for the Unit that is operating.

Proposed Changes to Technical Specification 3.7.9

- The Note will be modified to reflect the licensing basis for the fuel handling accident.
- Condition C is aimed at providing requirements for when the required one CRETS train is inoperable during movement of irradiated fuel assemblies. However, this condition created confusion and caused us to stop moving irradiated fuel assemblies even if we had the one train required by our licensing basis. To ensure that the Technical Specification meets our licensing basis, we propose deleting the current Condition C and modify the current Condition D to reflect our licensing basis for the fuel handling event.
- Condition D addresses the case where both trains of CRETS are inoperable. In this case, the movement of irradiated fuel assemblies would need to stop immediately because the operators would not be protected in the case of a fuel handling accident. We propose adding the words “or during movement of irradiated fuel assemblies” to Condition D and adding Required Action D.2, which would require the suspension of movement of irradiated fuel assemblies, along with the current Required Action D.1, requiring entry into LCO 3.0.3 for the Unit that is operating. With the deletion of the current Condition C, Condition D will be re-lettered as Condition C.

All of these changes are shown on the marked-up pages in Attachment (3). These proposed changes reflect the licensing basis for Calvert Cliffs Nuclear Power Plant and more closely match the original submittal of the ITS. However, these changes are not identical to the original submittal and all of the NRC Staff concerns about the original submittal have been addressed in these changes. We are not changing the licensing basis for the plant, we are merely clarifying our plant responses within the licensing basis.

System Safety Analyses and Operation

During some periods of plant operation, one Unit can be operating on Modes 1, 2, 3, or 4, while the other Unit is in an outage. Or an alternative case is where both Units are in Modes 1, 2, 3, or 4, and movement of irradiated fuel assemblies is underway in the spent fuel pool. It is possible to have different licensing bases apply to each Unit. The propose changes to the Technical Specifications will clarify this condition and allow each Unit to only enter the Condition that applies to it. This would eliminate any possible confusion associated with a common Control Room, with a common redundant CREVS/CRETS, and different operating conditions for each Unit.

We are not proposing to change the Conditions associated with any of the Modes 1, 2, 3, or 4 accidents. The Required Actions and associated Completion Times for these Conditions are not changed by this

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request. The licensing basis requires two trains of CREVS and CRETS to be Operable in these Modes to account for a single failure during one of these accidents. That requirement is maintained by this proposal.

During movement of irradiated fuel assemblies, a fuel handling accident is postulated to occur, either in Containment or in the spent fuel pool area. This event relies on the CREVS to respond to protect the operators in the Control Room from possible radiation exposure. The CRETS is relied on to provide temperature control while the CREVS is in the emergency recirculation mode. However, a fuel handling accident does not assume a single failure and does not require that CREVS/CRETS redundancy be maintained. Therefore, the Conditions, Required Actions, and Completion Times during the movement of irradiated fuel assemblies can be changed to more accurately reflect the licensing basis. These proposed changes would allow the Technical Specifications to more accurately reflect the licensing basis and would clarify the Condition requirements based on the Operating Mode of each Unit.

REFERENCES:

- (1) Letter from Mr. C. H. Cruse (BGE) to NRC Document Control Desk, dated October 6, 1997, Revision 6 to the License Amendment Request to Convert to the Improved Technical Specifications (TAC Nos. M97363 and M97364)
- (2) Letter from Mr. C. H. Cruse (BGE) to NRC Document Control Desk, dated December 4, 1996, License Amendment Request; Conversion of the Calvert Cliffs Units 1 and 2 Technical Specifications to the Improved Standard Technical Specifications, NUREG-1432
- (3) Letter from Mr. A. W. Dromerick (NRC) to Mr. C. H. Cruse (BGE), dated June 11, 1997, Request for Additional Information Regarding the Technical Specifications Change Request to Convert to the Improved Technical Specifications for the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 (TAC No. M97363 and M97364)

ATTACHMENT (2)

DETERMINATION OF SIGNIFICANT HAZARDS

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DETERMINATION OF SIGNIFICANT HAZARDS

The proposed change has been evaluated against the standards in 10 CFR 50.92 and has been determined to not involve a significant hazards consideration in operation of the facility in accordance with the proposed amendments:

1. *Would not involve a significant increase in the probability or consequences of an accident previously evaluated.*

The proposed changes will modify the conditions and required actions for the Control Room Emergency Ventilation System (CREVS) and the Control Room Emergency Temperature System (CRETS) to reflect the licensing basis for movement of irradiated fuel assemblies. The CREVS and CRETS mitigate the consequences of an accident and do not initiate an accident. The CREVS provides protection to the control room operators in the event of a radioactive release. The CRETS provides protection to the Control Room by maintaining the temperature below the required limit. Therefore, changing the Conditions, Required Actions, and Completion Times for the CREVS and CRETS does not increase the probability of an accident.

As described in the Updated Final Safety Analysis Report (UFSAR), the CREVS and CRETS mitigate the consequences of six accidents. All but the fuel handling accident are postulated to occur during Modes 1, 2, 3, or 4. The fuel handling accident is only postulated to occur during the movement of irradiated fuel assemblies. The changes proposed would only alter the response to the loss of one CREVS or CRETS train during the movement of irradiated fuel assemblies. Since a single failure is not required to be postulated during the response to a fuel handling accident, having one CREVS or CRETS train out-of-service during fuel movement would not result in a change to the ability of the CREVS or CRETS to mitigate the consequences of a design basis fuel handling accident. The loss of one CREVS or CRETS train during Modes 1, 2, 3, or 4 is covered by other Conditions, and those Conditions have not been changed by this request. Therefore, the ability of the CREVS or CRETS to respond to any design basis accident would not be diminished by this proposed change.

Therefore, the proposed Technical Specification changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. *Would not create the possibility of a new or different type of accident from any accident previously evaluated.*

The proposed changes do not involve a change in the operation of the plant and no new accident initiation mechanism is created by the proposed changes. The operations of the CREVS or CRETS are not altered by the proposed changes. The proposed changes do not change the licensing basis requirements for the CREVS or CRETS response to the accidents described in the UFSAR. No plant changes will be made as a result of this request. No conditions have been created by this request that might result in a new accident that has not been previously analyzed. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. *Would not involve a significant reduction in the margin of safety.*

The margin of safety created by the response of the CREVS or CRETS to various accidents has not been reduced by the proposed changes in the Conditions, Required Actions, or Completion Times. These changes merely clarify the Technical Specification so that the licensing basis is more accurately reflected. The fuel handling accident does not assume a single failure occurs during the

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plant response to the event; therefore, the loss of a single CREVS or CRETS train does not place the plant outside of the licensing basis. This would be reflected in the proposed changes. The changes do not alter the operation or response requirements of the CREVS or CRETS. The CREVS and CRETS will continue to respond to accidents as designed. Operators will continue to be protected as described in the UFSAR. Therefore, the margin of safety is not significantly reduced by these proposed changes.

ATTACHMENT (3)

TECHNICAL SPECIFICATIONS

MARKED-UP PAGES

3.7.8-1

3.7.8-2

3.7.8-3

3.7.9-1

3.7.9-2

3.7 PLANT SYSTEMS

3.7.8 Control Room Emergency Ventilation System (CREVS)

LCO 3.7.8 Two CREVS trains shall be OPERABLE.

NOTE³

1. Only one CREVS redundant component is required to be OPERABLE during movement of irradiated fuel assemblies when both Units are in MODE 5 or 6, or defueled.

2. Only one CREVS train is required to be OPERABLE for the movement of irradiated fuel assemblies

APPLICABILITY: MODES 1, 2, 3, 4,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more ducts with one outside air intake isolation valve inoperable in MODE 1, 2, 3, or 4.	A.1 Close the OPERABLE outside air intake valve in each affected duct.	Immediately
B. Toilet area exhaust isolation valve inoperable.	B.1 Restore valve to OPERABLE status.	24 hours
C. One exhaust to atmosphere isolation valve inoperable in MODE 1, 2, 3, or 4.	C.1 Restore valve to OPERABLE status.	7 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One CREVS train inoperable for reasons other than Condition A, B, or C in MODE 1, 2, 3, or 4.	D.1 Restore CREVS train to OPERABLE status.	7 days
E. Required Action and associated Completion Time of Condition A, B, C, or D not met in MODE 1, 2, 3, or 4.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 5.	6 hours 36 hours
<p>F. Required Action and associated Completion Time of Condition B not met during movement of irradiated fuel assemblies.</p> <p>OR</p> <p>Required CREVS inoperable for reasons other than Condition B during movement of irradiated fuel assemblies.</p>	F.1 Suspend movement of irradiated fuel assemblies.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. Two CREVS trains inoperable for reasons other than Condition A, B, or C in MODE 1, 2, 3, or 4.</p> <p><u>OR</u></p> <p>One or more ducts with two outside air intake isolation valves inoperable in MODE 1, 2, 3, or 4.</p> <p><u>OR</u></p> <p>Two exhaust to atmosphere isolation valves inoperable in MODE 1, 2, 3, or 4.</p>	<p>G.1 Enter LCO 3.0.3.</p> <p><u>AND</u></p> <p>G.2 Suspend movement of irradiated fuel assemblies</p>	<p>Immediately</p> <p>Immediately</p>

Oh during movement of irradiated fuel assemblies

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.8.1 Operate each required CREVS filter train for ≥ 15 minutes.</p>	<p>31 days</p>

3.7 PLANT SYSTEMS

3.7.9 Control Room Emergency Temperature System (CRETS)

LCO 3.7.9 Two CRETS trains shall be OPERABLE

-----NOTE-----
 Only one CRETS train is required to be OPERABLE ^{for the} during movement of irradiated fuel assemblies when both units are in MODE 5 or 6, or defueled.

APPLICABILITY: MODES 1, 2, 3, 4,
 During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One CRETS train inoperable in MODE 1, 2, 3, or 4.	A.1 Restore CRETS train to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours
C. Required CRETS train inoperable during movement of irradiated fuel assemblies.	C.1 Suspend movement of irradiated fuel assemblies.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p><i>C</i> <i>D.</i> Two CRETS trains inoperable in MODE 1, 2, 3, or 4.</p>	<p><i>C</i> <i>D.1</i> Enter LCO 3.0.3. <u>AND</u> <i>C.2</i> Suspend movement of irradiated fuel assemblies</p>	<p>Immediately Immediately</p>
<p><i>OR during movement of irradiated fuel assemblies</i></p>		

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.9.1 Verify each required CRETS train has the capability to maintain control room temperature within limits.</p>	<p>24 months</p>