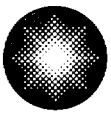
1650 Calvert Cliffs Parkway
Lusby, Maryland 20657



Constellation
Nuclear

Calvert Cliffs
Nuclear Power Plant

A Member of the
Constellation Energy Group

June 11, 2002

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: Revision to Technical Specification 3.7.11

REFERENCE: (a) Industry/TSTF Standard Technical Specification Change Traveler TSTF-51, "Revise Containment Requirements During Handling of Irradiated Fuel", Revision 2

Pursuant to 10 CFR 50.90, Calvert Cliffs Nuclear Power Plant, Inc. hereby requests an amendment to Renewed Operating License Nos. DPR-53 and DPR-69 to incorporate the changes described below into the Technical Specifications for Calvert Cliffs Unit Nos. 1 and 2.

DESCRIPTION

The proposed amendment revises Technical Specification 3.7.11, Spent Fuel Pool Exhaust Ventilation System, for Unit Nos. 1 and 2 to redefine the applicability of the Technical Specification to limit the types of fuel assemblies to which it applies. Technical Specification 3.7.11 requires that the spent fuel pool exhaust ventilation system be operable and in operation during movement of irradiated fuel assemblies in the Auxiliary Building. This proposed amendment revises Technical Specification 3.7.11 to not require the ventilation be operable or in operation for movement of fuel assemblies with an appropriate amount of decay time. This proposed request would change the applicability from "movement of irradiated fuel assemblies" to "movement of recently irradiated fuel assemblies." Recently irradiated fuel assemblies are those which have occupied part of a critical reactor core within the previous 32 days. An evaluation has determined that 32 days is adequate time to allow for sufficient radioactive decay of short lived isotopes resulting in no increase in offsite dose if the ventilation system were not operable. The analysis done to determine the decay time and the associated offsite dose is described in Attachment (1). This change is consistent with changes previously approved for the Improved Standard Technical Specifications (ISTS) as described in Technical Specification Task Force (TSTF)-51 (Reference a). A marked up Technical Specification page is contained in Attachment (3). Changes to the Technical Specification Bases consistent with TSTF-51 and the evaluation performed for this proposed amendment will be made once this request is approved to define recently irradiated fuel assemblies as those that have occupied part of a critical reactor core within the previous 32 days.

A001

ASSESSMENT

We have evaluated the significant hazards considerations associated with this proposed amendment, as required by 10 CFR 50.92, and have determined that there are none (See Attachment 2 for a complete discussion). We have also determined that operation with the proposed amendments will not result in any significant change in the types or significant increases in the amounts of any effluents that may be released offsite, and no significant increases in individual or cumulative occupational radiation exposure. Therefore, the proposed amendments are eligible for categorical exclusion as set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact assessment is needed in connection with the approval of the proposed amendments.

SAFETY COMMITTEE REVIEW

The Plant Operations and Safety Review Committee and the Offsite Safety Review Committee have reviewed these proposed amendments and concur that operation with the proposed amendments will not result in an undue risk to the health and safety of the public.

SCHEDULE

Approval of this request will result in savings associated with the testing and replacement of the spent fuel pool ventilation system charcoal and high efficiency particulate air filters. In addition, this amendment will provide greater operational flexibility for the Auxiliary Building ventilation system. We request approval of this proposed amendment no later than February 1, 2003 or as soon as possible.

PRECEDENT

This change has been approved by the Nuclear Regulatory Commission for incorporation in the ISTS and is incorporated in NUREG-1432, Revision 2. Plants converting to the ISTS under Revision 2 of the NUREG could adopt this change. In addition, a number of plants have submitted and/or received approval for this change. A few of the submittals or approvals are listed below.

- TSTF 51
  Beaver Valley – approved August 3, 2001

- These had parts of TSTF-51 approved as part of their conversion to an alternate source term.
  Watts Bar – approved January 22, 2002
  Turkey Point – approved September 27, 2001
  River Bend – approved September 14, 2001

Should you have questions regarding this matter, we will be pleased to discuss them with you.

Very truly yours,

Peter E. Katz

Peter E. Katz
Vice President -- Calvert Cliffs Nuclear Power Plant

STATE OF MARYLAND :
: **TO WIT:**
COUNTY OF CALVERT :

I, Peter E. Katz, being duly sworn, state that I am Vice President, Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP), and that I am duly authorized to execute and file this License Amendment Request on behalf of CCNPP. To the best of my knowledge and belief, the statements contained in this document are true and correct. To the extent that these statements are not based on my personal knowledge, they are based upon information provided by other CCNPP employees and/or consultants. Such information has been reviewed in accordance with company practice and I believe it to be reliable.

Peter E. Katz

Subscribed and sworn before me, a Notary Public in and for the State of Maryland and County of Calvert, this 11th day of June, 2002.

WITNESS my Hand and Notarial Seal: Denise D. Swiks
Notary Public

My Commission Expires: 2/1/2006
Date

PEK/PSF/bjd

Attachments: (1) Analysis
(2) Determination of Significant Hazards
(3) Technical Specification Marked Up Page

cc: R. S. Fleishman, Esquire
J. E. Silberg, Esquire
Director, Project Directorate I-1, NRC
D. M. Skay, NRC
H. J. Miller, NRC
Resident Inspector, NRC
R. I. McLean, DNR

ATTACHMENT (1)

ANALYSIS

Background

Calvert Cliffs Updated Final Safety Analysis Report (UFSAR) Section 14.18 presents an evaluation of the fuel handling incident (FHI) both in the Containment and in the spent fuel pool (SFP) area. This proposed amendment addresses only the FHI in the SFP area. The analysis assumes that a fuel assembly is dropped during fuel handling in the SFP. Interlocks, procedural, and administrative controls make such an event highly unlikely; however, if an assembly were damaged to the extent that one or more fuel rods were broken, the accumulated fission gasses and iodines in the fuel element gap would be released to the surrounding water. Release of the solid fission products in the fuel would be negligible because of the low fuel temperature, which greatly limits their diffusion.

In the SFP the fuel assemblies are stored within the racks at the bottom of the SFP. The top of the rack extends above the tops of the stored fuel assemblies. A dropped fuel assembly could not strike more than one fuel assembly in the storage rack. Impact could occur only between the ends of the involved fuel assemblies, the bottom-end fitting of the dropped fuel assembly impacting against the top-end fitting of the stored fuel assembly. The results of an analysis of the end-on-energy absorption capability of a fuel assembly indicates that a fuel assembly is capable of absorbing the kinetic energy of the drop with no fuel rod failures. The worst FHI that could occur in the SFP is the dropping of a fuel assembly to the fuel pool floor.

Reconstitution or inspection of a fuel assembly can take place in individual SFP storage racks with spent fuel assemblies placed on rack spacers and with their upper-end fittings removed. In such a configuration, the structural integrity of the fuel assemblies is reduced, and the fuel rods may protrude above the SFP racks. Since fuel damage could occur if a heavy object is dropped on top of an assembly seated on a rack spacer with its upper end fitting removed, administrative controls restrict movement of loads over the affected assemblies on rack spacers plus one storage rack cell on each side of the affected assemblies. Heavy loads may only be moved in this area via the single-failure-proof crane, if assemblies are seated on rack spacers with their upper-end fittings removed. In addition, after the upper-end fittings have been removed, the spent fuel handling machine is administratively prohibited from nearing the affected assemblies on rack spacers plus one storage rack cell on each side of the affected assemblies.

The fuel assembly configurations and load handling descriptions are contained in UFSAR Section 14.18. No new commitments or requirements are added from the above discussion. It is provided for completeness of discussion only.

Analysis

As described in UFSAR Section 14.18, the FHI analysis assumes a total iodine decontamination factor of 100 based on a minimum water depth of 23'. (In the SFP, the Technical Specifications only require 21.5' of water above fuel assemblies seated in the SFP storage racks. This Technical Specification was deemed sufficient to preserve the required 23' of water because a FHI is assumed to occur as a fuel assembly strikes the bottom of the SFP.) When assemblies are placed on rack spacers and their upper-end fittings are removed, a FHI from a dropped heavy object would require a lower decontamination factor based on reduced water coverage. A revised decontamination factor of 64 for a FHI during reconstitution/ inspection with 20.4' of water between the top of the pin and the surface of the water was computed for a 20.5" rack spacer. Note that this is very conservative, since normal level control will result in at least 21.5' of water above exposed fuel pins. A new decay time for the revised offsite and Control Room doses to be bounded by the current and future design basis results were calculated. The minimum time for reconstitution/inspection to occur is ten days after shutdown.

Fission product activity in the fuel rod gap has been determined for the highest power fuel assembly in the core. The rod gap activity is computed as a function of total core inventory for the following isotopes:

30% of Kr-85, 10% of all other noble gases, 12% of I-131, and 10% of all other iodines. These gas gap activities have been validated for assembly average burnup of up to 60,000 MWD/MTU. Such a value bounds Calvert Cliffs current peak pin burnup limit of 60,000 MWD/MTU. Total core inventory is calculated using the methodology described in Technical Information Document TID-14844. Fuel assemblies will not be removed from the core within 100 hours after shutdown. Therefore, many of the short-lived isotopes will have decayed significantly.

If a FHI were to occur while handling fuel in the SFP area, the following assumptions would apply:

a. The activity release to the SFP water is given above. The overall SFP decontamination factor for iodine is 100. This is based upon a water level of at least 23' covering a ruptured fuel assembly. Because a FHI is shown only to occur by the dropping of a fuel assembly onto the floor of the SFP, the Technical Specification requirements that 21.5' of water cover the spent fuel racks preserves at least 23' above a damaged fuel assembly. The release of activity to the air above the SFP is identical to that released to the containment air in the event of a FHI in Containment. This activity is tabulated in UFSAR Table 14.18-1. A FHI during reconstitution or inspection in the SFP is bounded by a FHI with no reconstitution or inspection, if it is assumed that reconstitution/inspection does not occur until at least ten days post-shutdown. The reduced iodine decontamination factor is compensated for by the increased decay time.

b. The breathing rate is 3.47×10^{-4} m^3/sec and site boundary atmospheric dispersion factor is 1.3×10^{-4} sec/m^3.

c. The iodine in the fuel rod gas gap is composed of 99.75% inorganic species and 0.25% organic species. After applying the appropriate decontamination factors for each species (133 for inorganic and 1 for organic), the iodine in the air above the SFP is 75% inorganic species and 25% organic.

d. All of the activity released to the air above the SFP is assumed to be discharged to the outside atmosphere through charcoal filters. The charcoal filters have an absorption efficiency of 90% for inorganic iodine and 70% for organic iodine.

To eliminate the last assumption in support of this proposed Technical Specification change, an evaluation was performed to determine how much radioactive decay is required to reduce the iodine inventory to the same extent that the charcoal filters would. In other words, to determine when radioactive decay balanced the previously credited charcoal adsorption efficiency. Cases were evaluated for assemblies seated in the SFP racks and for an assembly undergoing reconstitution. The results of these cases were the same as those reported in the UFSAR Section 14.18 for the spent fuel pool case.

A FHI after 27 days of decay time post-shutdown, with no filtration credit, is less radiologically severe than a FHI assuming 100 hours of radioactive decay and filtration credit. Therefore, irradiated fuel that has been subcritical for the previous 27 days can be moved in the SFP without the Spent Fuel Pool Exhaust Ventilation System being operable.

A FHI during reconstitution after 32 days of decay time post-shutdown, with no filtration credit is less radiologically severe than a FHI assuming 100 hours of radioactive decay, a reconstitution decontamination factor of 64 and filtration credit.

Conclusion

Therefore, the spent fuel pool exhaust ventilation system is only required when moving recently irradiated fuel in the SFP. Fuel is determined to have been recently irradiated if it occupied part of a critical reactor core within the previous 32 days (most limiting case). This conclusion applies whether fuel assemblies are seated in the spent fuel racks or are being reconstituted.

ATTACHMENT (2)

DETERMINATION OF SIGNIFICANT HAZARDS

ATTACHMENT (2)

DETERMINATION OF SIGNIFICANT HAZARDS

The proposed amendment revises Technical Specification 3.7.11, Spent Fuel Pool Exhaust Ventilation System, for Unit Nos. 1 and 2 to redefine the applicability of the Technical Specification. Currently, Technical Specification 3.7.11 requires that the spent fuel pool exhaust ventilation system be operable and in operation during movement of irradiated fuel assemblies in the Auxiliary Building. This proposed amendment revises Technical Specification 3.7.11 to not require the ventilation be operable or in operation for movement of fuel assemblies with an appropriate amount of decay time. This decay time was determined to ensure that offsite doses would not increase if the ventilation system was not operable.

These proposed changes have been evaluated against the standards in 10 CFR 50.92 and have been determined to not involve a significant hazards consideration, in that 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 system affected by this proposed amendment is the spent fuel pool exhaust ventilation system (SFPEVS). This system mitigates the consequences of a Fuel Handling Incident (FHI) by filtering radioactive iodine from the air above the spent fuel pool prior to that air being exhausted to the environment. This limits the offsite dose possible from a FHI. This proposed amendment revises the Technical Specification applicability for the SFPEVS by defining when the ventilation system is required to limit offsite dose due to a FHI. Because this system is used for the mitigation of an accident, it is not an accident initiator. Therefore, the probability of an accident previously evaluated is not increased.

   The only design basis accident originating in the spent fuel pool is the FHI. This accident is evaluated in the Updated Final Safety Analysis Report. The analysis assumed credit for the filtration system. However, a more recent evaluation shows that 32 days after a fuel assembly has been removed from the critical reactor core, adequate radioactive decay has occurred which compensates for the filtration of the ventilation system. Thus, no increase in offsite dose occurs under these conditions. Therefore, the consequences of an accident previously evaluated have not increased.

   Therefore, the probability or consequences of an accident previously evaluated have not significantly increased.

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

   The SFPEVS is not being altered by this amendment request. No changes are made in the way in which the SFPEVS is operated or in the way fuel is moved in the spent fuel pool. The only change made would allow some irradiated fuel assemblies to be moved in the spent fuel pool without requiring the operation of the ventilation system. Since no changes are being made to the operation of the SFPEVS when it is needed for offsite dose control and the SFPEVS is a accident mitigating system only, changes in when this system is needed to operate cannot create a new type of accident.

   Therefore, the possibility of a new or different type of accident from any previously evaluated is not created.

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

   The margin of safety provided by the SFPEVS is to limit offsite dose due to a FHI to the limits described in the Updated Final Safety Analysis Report. The evaluation performed indicates that radioactive decay can compensate for the filtration system. Thirty-two days after fuel occupied a critical reactor core, enough radioactive decay has occurred that the offsite dose from a FHI assuming

no filtration is the same as the dose determined in the Updated Final Safety Analysis Report. Therefore, no reduction in the margin of safety has occurred because the offsite dose is the same as the previously approved dose limit.

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

ATTACHMENT (3)

TECHNICAL SPECIFICATION MARKED UP PAGE

3.7.11-1

3.7 PLANT SYSTEMS

3.7.11 Spent Fuel Pool Exhaust Ventilation System (SFPEVS)

LCO 3.7.11 The SFPEVS shall be OPERABLE and in operation.

APPLICABILITY: During movement of irradiated fuel assemblies in the Auxiliary Building.

recently

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SFPEVS charcoal adsorber bank inoperable. OR One SFPEVS exhaust fan inoperable. OR One SFPEVS charcoal adsorber bank and one SFPEVS exhaust fan inoperable.	A.1 Verify OPERABLE SFPEVS train is in operation. OR A.2 Suspend movement of irradiated fuel assemblies in the Auxiliary Building.	Immediately Immediately
B. No OPERABLE SFPEVS train. OR No OPERABLE SFPEVS train in operation.	B.1 Suspend movement of irradiated fuel assemblies in the Auxiliary Building.	Immediately

recently