Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Rope Ferry Road
Waterford, CT 06385

Dominion

DEC 27 2001

Docket No. 50-336
B18538

RE: 10 CFR 50.90

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Millstone Nuclear Power Station, Unit No. 2
Technical Specifications Change Request (TSCR) 2-10-01
Fuel Pool Requirements
Revised Significant Hazards Consideration Discussion

In a letter dated November 6, 2001,[1] Dominion Nuclear Connecticut, Inc. (DNC) submitted a license amendment request in the form of changes to the Millstone Unit No. 2 Technical Specifications. The proposed changes would: (1) increase the allowable nominal average fuel assembly enrichment from 4.5 w/o U-235 to 4.85 w/o U-235 for all regions of the spent fuel pool, the new fuel storage racks (dry), and the reactor core; (2) allow fuel to be located in 40 Region B Storage Cells, which are currently empty and blocked, and (3) credit spent fuel pool soluble boron for reactivity control during normal conditions to maintain spent fuel pool $K_{eff} \leq 0.95$.

As part of the proposed Technical Specification changes, we evaluated the changes against the criteria of 10 CFR 50.92 and have determined the proposed changes did not constitute a significant hazards consideration (SHC). The basis for that determination was provided in November 6, 2001,[1] submittal. As a result of a subsequent conversation with your Staff, we are providing a revision to the SHC discussion (Attachment 1). The revised SHC discussion will not affect the conclusion of the safety summary and the original SHC determination.

There are no regulatory commitments contained within this letter.

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(1) J. A. Price letter to the U.S. NRC, "Millstone Power Station, Unit No. 2, Technical Specifications Change Request (TSCR) 2-10-01, Fuel Pool Requirements," dated November 6, 2001.

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If you should have any questions on the above, please contact Mr. Ravi Joshi at (860) 440-2080.

Very truly yours,

DOMINION NUCLEAR CONNECTICUT, INC.

J. Alan Price, Vice President
Nuclear Technical Services - Millstone

Sworn to and subscribed before me

this 27 day of December, 2001

Notary Public

My Commission expires

WM. E. BROWN
NOTARY PUBLIC
MY COMMISSION EXPIRES MAR. 31, 2006

Attachments (1)

cc: H. J. Miller, Region I Administrator
J. T. Harrison, NRC Project Manager, Millstone Unit No. 2
NRC Senior Resident Inspector, Millstone Unit No. 2

Director
Bureau of Air Management
Monitoring and Radiation Division
Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

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Attachment 1

Millstone Nuclear Power Station, Unit No. 2

Technical Specifications Change Request (TSCR) 2-10-01
Fuel Pool Requirements
Revised Significant Hazards Consideration

Technical Specification Change Request (TSCR) 2-10-01
Fuel Pool Requirements
Significant Hazards Consideration

Description of License Amendment Request

Dominion Nuclear Connecticut, Inc. (DNC) hereby proposes to revise the Millstone Unit 2 Technical Specifications as described in our letter dated November 6, 2001.[1] The proposed Technical Specification changes implement the following design changes:

- Increase the allowable nominal average fuel assembly enrichment from 4.5 w/o U-235 to 4.85 w/o U-235 for all regions of the spent fuel pool, the new fuel storage racks (dry), and the reactor core.
- Allow fuel to be located in 40 Region B storage cells which are currently empty and blocked. The cell blockers will be retained, and fuel is proposed to be stored under the cell blockers.
- Credit spent fuel pool soluble boron for reactivity control during normal conditions to maintain spent fuel pool $K_{eff} \leq 0.95$.

There are no physical changes in the plant hardware to implement these changes. Refer to Attachment 1 of the November 6, 2001, submittal for a detailed discussion of the proposed changes.

Basis for No Significant Hazards Consideration

In accordance with 10 CFR 50.92, DNC has reviewed the proposed changes and has concluded that they do not involve a Significant Hazards Consideration (SHC). The basis for this conclusion is that the three criteria of 10 CFR 50.92(c) are not compromised. The proposed changes do not involve an SHC because the changes do not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

   Previously evaluated Final Safety Analysis Report (FSAR) Chapter 14 accidents are a fuel handling accident either in the spent fuel pool (SFP) or in containment, and a spent fuel cask drop accident.

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[1] J. A. Price letter to the U.S. NRC, "Millstone Power Station, Unit No. 2, Technical Specifications Change Request (TSCR) 2-10-01, Fuel Pool Requirements," dated November 6, 2001.

Since there are no changes to plant equipment, nor any changes in how fuel is moved, there are no changes to the probability of a fuel handling accident in the spent fuel pool or containment.

Since there are no changes to plant equipment, nor any changes in how a shielded cask would be moved, there are no changes to the probability of a spent fuel cask drop accident.

The consequences of a fuel drop accident in either containment or the spent fuel pool are not affected, since none of the inputs to these fuel drop accidents is affected. There are no physical hardware changes made to the plant. The limiting fuel burnup is not changed, nor is there any change in the source term of radioactivity present in the fuel. Allowing fuel to be stored in the 40 Region B locations currently empty, does not alter the existing FSAR conclusion that a dropped fuel assembly or consolidated storage box could not strike more than one fuel assembly in the storage rack. This is still true since the fuel stored in these 40 locations is stored at the same elevation as fuel in any other storage locations. The FSAR states that the worst fuel handling incident that could occur in the SFP is the drop of a fuel assembly to the pool floor, with resultant failure of 14 fuel rods when the assembly rotates and impacts a protruding structure. Radiological consequences for both the failure of 14 rods and the entire fuel assembly are presented in the FSAR. The storage of fuel in the 40 currently blocked locations does not affect this FSAR sequence of events for the dropped fuel assembly in the SFP accident. The amount of soluble boron concentration necessary in the SFP to ensure that K_{eff} is maintained $\leq$ 0.95 on a 95/95 bases is increased from 800 ppm to 1400 ppm. However, this increase in required SFP soluble boron concentration does not increase any dose consequences from the fuel drop accident in the SFP. The increase in soluble boron concentration from 800 ppm to 1400 ppm is a result of crediting an additional 600 ppm of SFP soluble boron under normal conditions.

The consequences of a spent fuel cask drop accident in the SFP is not affected, since none of the inputs to the spent fuel cask drop accident is affected. There are no physical hardware changes made to the plant. The limiting fuel burnup is not changed, nor is there any change in the source term of radioactivity present in the fuel. The amount of soluble boron concentration necessary in the SFP to ensure that K_{eff} is maintained $\leq$ 0.95 on a 95/95 bases is increased from 800 ppm to 1400 ppm. However, this increase in required SFP soluble boron concentration does not increase any dose consequences from the spent fuel cask drop accident in the SFP. The increase in soluble boron concentration from 800 ppm to 1400 ppm is a result of crediting an additional 600 ppm of SFP soluble boron under normal conditions.

With regard to the proposed change in the design features section of Technical Specifications (TS), which would allow higher enrichments in the new fuel storage (dry) vault, there are no FSAR Chapter 14 accident conditions currently analyzed,

therefore there can be no change in probability or consequences of an existing accident.

With regard to the proposed change in the design features section of TS, which would allow higher enrichments in the reactor core, enrichment by itself is not a parameter which will affect the probability or consequences of an accident previously analyzed. The effects of enrichment on other reactor core parameters such as shutdown margin, MTC and power distributions is considered by meeting the existing TS requirements for these parameters. Also, the reactor core radioactive source term is not affected since the exiting design basis analysis bounds use of the proposed enrichment. Therefore, a change in the maximum enrichment limit will not impact any safety analyses because the important inputs to these analyses are protected by Technical Specifications. Since there are no changes to these existing reactor core TS parameter limits, there will be no effect on the probability or consequences of an accident previously analyzed.

Therefore, based on the above analysis, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

The changes to be made primarily affect nuclear criticality analysis and do not create a new or different kind of accident. Changes in allowed enrichment, boraflex credit, soluble boron credit, and allowing fuel to be stored in 40 additional locations are all impacts to the SFP criticality analysis. The SFP criticality analysis is part of the basic design of the system and is not an accident. The ability to maintain the SFP $K_{eff} \leq 0.95$, as well as within the 10 CFR 50 App. A GDC62 criteria of sub-critical have been evaluated. Criticality impacts are more appropriately discussed under the margin of safety criterion.

Since there are no changes to the plant equipment, there is no possibility of a new or different kind of accident being initiated or affected by equipment issues. There are no changes in how fuel is moved or qualified for storage, so a new accident can not be initiated from fuel handling related procedures.

Higher SFP soluble boron concentrations are required than previously required to compensate for the positive reactivity insertions from postulated accident conditions (i.e., dropped cask). However, merely increasing the amount of SFP soluble boron required for compensating for the existing analyzed accident does not create the potential for a new or different kind of accident.

With regard to the proposed change in the design section of TS, which would allow higher enrichments in the new fuel storage (dry) vault, no new or different kind of accident conditions are created. The existing new fuel storage analysis previously submitted to the NRC is not altered, and already bounds enrichments up to 5.0 w/o U-235.

With regard to the proposed change in the design features section of TS, which would allow higher enrichments in the reactor core, the higher enrichment fuel in the reactor core does not require any new or different plant equipment, and does not change the manner in which currently installed equipment is operated. There are no changes to normal core operation, and the unit will meet all applicable design criteria and will operate within the existing reactor core TS limits. No new failure modes have been created for any system, component or piece of equipment, and no new single failure mechanisms are introduced. Therefore, allowing higher enrichments in the reactor core will not create a new or different kind of accident condition.

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

3. Involve a significant reduction in a margin of safety.

The margin of safety relevant to the SFP are:

- to ensure that the SFP K_{eff} remains $\leq$ 0.95 on a 95/95 basis to ensure the criticality safety of the SFP.
- to ensure that the spent fuel in the SFP remains adequately cooled so that the fission product barriers remain intact.

A criticality analysis has been performed to ensure that the spent fuel pool K_{eff} remains $\leq$ 0.95 on a 95/95 basis under all normal and postulated accident conditions. Thus the margin of criticality safety is not changed. Most of the changes in the criticality analysis are of an input nature, such as a change in allowed enrichment. The only change in methodology is the crediting of soluble boron for normal conditions. The approach used is consistent with WCAP-14416-NP-A. The NRC has previously approved for other plants similar applications for soluble boron credit for normal conditions. The criticality analysis has been performed to ensure that the spent fuel pool K_{eff} remains less than 1.00 on a 95/95 basis even with 0 ppm soluble boron concentration in the SFP. This ensures compliance with GDC62.

The only change that could affect the SFP cooling analysis is allowing 40 additional fuel assemblies to be stored in the SFP. The current design basis heat load analysis already bounds the storage of these fuel assemblies. This ensures that the

spent fuel in the SFP remains adequately cooled so that the fission product barriers remain intact. The current design basis heat load analysis bounds the increased fuel storage.

With regard to the proposed change in the design section of TS, which would allow higher enrichments in the new fuel storage (dry) vault, there is no significant reduction in the margin of safety. The existing new fuel storage analysis previously submitted and approved by the NRC is not altered, and already bounds enrichments up to 5.0 w/o U-235, to ensure that K_{eff} of the new fuel storage racks is maintained ≤ 0.95.

With regard to the proposed change in the design features section of TS, which would allow higher enrichments in the reactor core, enrichment by itself is not a parameter which will affect the margin of safety. The margins of safety, such as fuel DNB protection, fuel melt protection and RCS boundary protection, are met by complying with the safety analysis and associated TS limits. The effects of enrichment on other reactor core parameters such as shutdown margin, MTC and power distributions is considered by meeting the existing TS requirements for these parameters. Therefore, a change in the maximum core enrichment limit will not impact any margins of safety because the important inputs to the safety analyses are protected by Technical Specifications. Since there are no change to these existing reactor core TS parameter limits, there will be no effect on the margin of safety.

Therefore, based on the above analysis, the proposed changes do not involve a reduction in a margin of safety.