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April 3, 2013

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

Serial No. 13-056
NSSL/MAE R0
Docket No. 50-336
License No. DPR-65

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2
LICENSE AMENDMENT REQUEST REGARDING CHANGES TO TECHNICAL SPECIFICATION 3/4.9.16, "SHIELDED CASK"

Pursuant to 10 CFR 50.90, Dominion Nuclear Connecticut, Inc. (DNC) requests an amendment, in the form of changes to the Technical Specifications (TS) to Facility Operating License Number DPR-65 for Millstone Power Station Unit 2 (MPS2). The proposed changes will revise TS 3.9.16 "Shielded Cask." These changes revise the minimum decay time for fuel assemblies adjacent to the spent fuel pool cask laydown area from 1 year to 90 days, based on the results of a revised radiological analysis of incidents related to spent fuel casks in the MPS2 spent fuel pool.

Information provided in the attachments to this letter is summarized below:

Attachment 1 provides a description, technical analysis, regulatory and environmental analysis of the proposed changes. As discussed in Attachment 1, the proposed amendment does not involve a significant hazards consideration pursuant to the provisions of 10 CFR 50.92. Attachment 2 contains the marked-up page to reflect the proposed changes to the TS.

The proposed changes have been reviewed and approved by the Facility Safety Review Committee.

DNC requests approval of the proposed amendment by May 30, 2014. Once approved, the amendment will be implemented within 30 days.

In accordance with 10 CFR 50.91(b), a copy of this license amendment request is being provided to the State of Connecticut.

A001
NRR

Should you have any questions in regard to this submittal, please contact Wanda D. Craft at (804) 273-4687.

Sincerely,

Eugene S. Grecheck
Vice President – Nuclear Engineering and Development

VICKI L. HULL
Notary Public
Commonwealth of Virginia
140542
My Commission Expires May 31, 2014

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Eugene S. Grecheck, who is Vice President – Nuclear Engineering and Development of Dominion Nuclear Connecticut, Inc. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 3rd day of April, 2013.

My Commission Expires: May 31, 2014.

Vicki L. Hull
Notary Public

Commitments made in this letter: None

Attachments:

1. Evaluation of Technical Specifications Changes
2. Marked-up Technical Specifications Page

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Attachment 1

Evaluation of Technical Specifications Changes

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2

Evaluation of Technical Specifications Changes

Table of Contents

1.0 Summary Description

Dominion Nuclear Connecticut, Inc. (DNC) proposes to amend Operating License DPR-65 by incorporating proposed changes to Technical Specifications (TS) 3.9.16.1, "Shielded Cask," for Millstone Power Station Unit 2 (MPS2).

2.0 Detailed Description of Proposed Technical Specifications Changes

2.1 TS 3.9.16.1 – Shielded Cask

Technical Specification 3.9.16 currently has one subsection (TS 3.9.16.1). TS 3.9.16.2 was deleted by Amendment 274. An administrative change is being proposed to renumber this single section to TS 3.9.16. In addition, the stated minimum decay time for fuel assemblies adjacent to the spent fuel cask laydown area is being reduced based on the revised radiological analysis.

The proposed changes follow:

LCO 3.9.16.1

Limiting Condition of Operation (LCO) 3.9.16.1 is administratively being renumbered as LCO 3.9.16. The stated decay time in LCO 3.9.16 is being revised from 1 year to 90 days, consistent with the revised radiological analysis.

Surveillance Requirement 4.9.16.1

The existing surveillance requirement 4.9.16.1 is renumbered as 4.9.16, consistent with the proposed LCO 3.9.16. The surveillance requirement is revised to cite the revised decay time in LCO 3.9.16.

3.0 Discussion

LCO 3.9.16.1 currently requires that the fuel within a specified distance of the spent fuel cask laydown area shall have decayed at least one year. This effectively imposes a one year interval between completion of a refueling outage and staging casks in the spent fuel pool (SFP) for loading. This existing limitation is based on a conservative radiological analysis of postulated events involving shielded casks that are assumed to damage fuel assemblies in the SFP. This limitation imposes operational constraints on the scheduling of spent fuel cask loading without providing a commensurate benefit to radiological safety.

The revised radiological analysis, discussed in Section 4.2, retains the methodology and conservatism of the existing analysis, in conjunction with assuming a decay time of 90 days. As demonstrated in Section 4.2, results of the revised radiological analysis remain a small fraction of the acceptance criteria. The proposed amendment provides needed operational flexibility in spent fuel cask loading activities following refueling outages for MPS2. The requested change is needed to support spent fuel cask loading activities during the latter half of 2014.

4.0 Technical Evaluation Summary

4.1 Introduction

The radiological analysis of cask events in the SFP has been performed in accordance with the accident dose criteria in the following regulatory requirements and criteria:

- 10 CFR Part 50.67, "Accident Source Term", as supplemented by Section 4.4 of RG 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors"
- SRP Section 15.0.1, "Radiological Consequence Analyses Using Alternative Source Terms"
- 10 CFR Part 50, Appendix A, "General Design Criterion for Nuclear Power Plants": GDC 19, "Control Room"

The proposed changes address a precondition which presently limits loading spent fuel casks. These proposed TS changes do not result in any hardware changes to the plant and present no change in plant operation. Specifically, there are no changes in how casks are prepared for use or loaded or in any administrative means that are used to qualify fuel for placement in casks.

4.2 Radiological Analysis

The basis of the current radiological analysis was submitted in Reference 1 and approved in Reference 2. The revised analysis was conducted employing the same methodology used in Reference 1, with appropriate changes based on a 90-day decay time in lieu of the present 1 year and additional changes as summarized below.

The assumed number of damaged fuel assemblies was revised as discussed below to conservatively bound the possible number of fuel assemblies in the SFP.

The assumed source term postulates 217 fuel assemblies (full core) with 90-day decay and 1376 consolidated fuel assemblies with 5-year decay. The assumed number of 90-day decay assemblies bounds the credible number of assemblies that could be discharged during a refueling outage. The assumption of 1376 consolidated fuel assemblies provides a source term that models more fuel assemblies than the total number of storage locations in the SFP (1346 locations).

The current licensing basis (CLB) for the MPS2 cask drop accident was analyzed by DNC and is summarized in the final safety analysis report (FSAR) Section 14.7.4 "Radiological Consequences of Fuel Handling Accident." The limiting case of this event is the cask tip accident, which was submitted to the NRC for review as part of the discussion of the alternative source term (AST) fuel handing accident (FHA) in the AST license amendment request (LAR) [Reference 1] and found acceptable by the NRC [Reference 2]. As noted in Reference 1, the cask tip accident is a subset of accidents represented as a fuel handling accident in FSAR Section 14.7.4. It is an event in the spent fuel pool where a shielded cask is postulated to tip over and damage the fuel within the potential impact area.

For the revised MPS2 cask tip analysis, the design inputs and assumptions remain the same with the following exceptions for source term and control room ventilation:

Source Term

In the CLB cask tip accident, the potential impact area includes up to 872 fuel storage locations. The CLB source term includes the gap inventory from 184 individual fuel assemblies (in 184 SPF fuel storage locations) decayed for one year and 1376 consolidated fuel assemblies (in 688 consolidated canisters in 688 SPF fuel storage locations) decayed for 5 years.

At one point in the history of the analysis of this accident, DNC limited the maximum number of consolidated canisters (which are equivalent to two fuel assemblies decayed for at least 5 years) to 688 in the SFP. There are currently only three consolidated canisters in the MPS2 SFP with no intention to further consolidate fuel assemblies; however, a technical specification still exists that allows consolidation. Given this, the assumption of an additional 685 consolidated canisters beyond the existing three has been retained in the revised radiological dose consequence analysis.

The revised analysis is based upon a full core discharge of 217 individual fuel assemblies decayed for 90 days and 1376 consolidated fuel assemblies (in 688 consolidated canisters) decayed for 5 years. The revised analysis conservatively includes the additional inventory of 33 more fuel assemblies with 90 days of decay than can actually fit in the potential impact area.

The revised analysis is based on the same core inventory radioactivity per fuel assembly that was used in the CLB analysis. These modeling changes support a change in the technical specification minimum decay for cask loading activities from 1 year to 90 days.

The following is a summary of fuel assemblies used in the CLB and the revised analysis:

	Fuel Assemblies Analyzed	
Decay Time	CLB	Revised
90 Days	0	**217**
1 Year	184	**0**
5 Years	1376	1376
Total	1560	**1593**

Changes: Bolded & underlined

The following is a comparison of the source term radioactivity for the CLB and the revised analysis. To obtain released activity, gap fractions and the pool decontamination factor must be applied to these values.

	Source Term Activity (Ci)	
	CLB	Revised
I-129	3.12e+1	**3.04e+1**
I-131	0	**3.43e+4**
Kr-85	6.50e+6	**6.66e+6**
Xe-131m	0	**4.67e+3**
Xe-133	0	**1.08e+3**

Changes: Bolded & underlined

It is to be noted that I-129 activity for the revised source term is less than the CLB even though the revised analysis has more fuel assemblies. This is due to a difference in round-off (revised analysis used 1.906e-2 Curie (Ci) per fuel assembly versus 0.02 Ci per fuel assembly for the CLB).

CLB: 1560 fuel assemblies x 0.02 Ci/fuel assembly = 3.12e+1 Ci
Revised: 1593 fuel assemblies x 1.906e-2 Ci/fuel assembly = 3.04e+1 Ci

Control Room Ventilation

The CLB assumes 200 cubic feet per minute (cfm) of control room (CR) unfiltered inleakage beginning after CR isolation. The revised analysis includes an additional 20 seconds of 200 cfm unfiltered inleakage from accident initiation to CR isolation.

Both the CLB and revised analysis considered isolated and unisolated CR scenarios. For the CLB, the limiting scenario was the isolated CR; whereas, the unisolated CR is the limiting scenario for the revised analysis. The following is a summary of the Control Room filtered and unfiltered flows for the CLB and the revised analysis cases, with and without CR isolation.

Time	CLB Isolated CR (cfm)		Revised Isolated CR (cfm)		Revised Unisolated CR (cfm)	
	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered
0 – 20 sec [1]	800	0	**<u>1000</u>**	0	**<u>1000</u>**	0
20 sec – 1 hr 20 sec [2]	200	0	200	0	**<u>1000</u>**	0
1 hr 20 sec – 720 hr [3]	200	2250	200	2250	**<u>1000</u>**	**<u>0</u>**

[1] Normal CR Intake occurs prior to 20 sec
[2] CR Isolation occurs at 20 sec
[3] CR Emergency Ventilation Recirculation starts at 1 hr 20 sec

Changes: Bolded & underlined

<u>Analysis Results</u>

The following is a summary of the CLB and the revised analysis dose consequences at the Exclusion Area Boundary (EAB), the Low Population Zone (LPZ) and the CR:

	TEDE (Rem)		
	CLB	Revised	Acceptance Criteria
EAB	0.5	0.5	6.3 [1]
LPZ	0.05	**<u>0.1</u>**	6.3 [1]
CR	0.25	**<u>0.8</u>**	5.0 [2]

[1] Based upon Regulatory Guide 1.183, Table 6
[2] Based upon 10 CFR 50.67

Changes: Bolded & underlined

The increased dose consequences in the revised analysis are primarily a result of the higher source term, caused by assuming a shorter decay period of 90 days compared to one year, and the assumption of an additional 33 fuel assemblies. The EAB consequences appear unchanged only due to round-off. As shown in the table above, there is significant margin to the acceptance criteria for the revised analysis. Thus, the revised analysis supports the change in the technical specification minimum decay for cask loading activities from 1 year to 90 days.

4.3 Conclusions

Implementation of the proposed changes meets the applicable acceptance criteria and will have no effect on current plant operation. There are no hardware changes made to the plant due to these proposed changes. There are no changes in how spent fuel casks are handled, or the process used to manipulate and load spent fuel casks in the spent fuel pool.

5.0 Regulatory Evaluation

5.1 Applicable Regulatory Requirements and Criteria

The following are applicable regulatory requirements and criteria:

- 10 CFR Part 50.67, "Accident Source Term."
- 10 CFR Part 50, Appendix A, "General Design Criterion for Nuclear Power Plants":GDC 19, "Control room."
- RG 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors."
- NUREG-0800, "Standard Review Plan," Section 15.6.2, "Radiological Consequences of the Failure of Small Lines Carrying Primary Coolant Outside Containment."
- NUREG-0800, "Standard Review Plan," Section 2.3.4, "Short-Term Diffusion Estimates for Accidental Atmospheric Releases."
- NUREG-0800, "Standard Review Plan," Section 15.0.1, "Radiological Consequence Analyses Using Alternative Source Term."

5.2 No Significant Hazards Consideration

DNC has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by addressing 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 does not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The proposed change will not affect the physical plant, including the spent fuel pool, spent fuel racks, or fuel handling equipment. The change increases the calculated dose consequences for the limiting radiological event, but the increase is not significant since the existing value is a minimal fraction of the acceptance criterion. The revised calculated dose remains a small fraction of the acceptance criterion.

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

   There is no change to the physical plant, including the equipment and procedures used to handle fuel (or any heavy load) over fuel storage racks, or how the fuel assemblies are stored in the storage racks. Thus, there are no new accidents created over and above the existing postulated spent fuel cask accidents which have been evaluated for the proposed change. Reducing the minimum decay time for fuel assemblies in the vicinity of the spent fuel cask affects the radiological source term (amount and type of radioisotopes present in the fuel) but has no influence on the postulated accident scenario itself.

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

   Response: No.

   The proposed change does not involve a significant reduction in a margin of safety. The licensing requirement for the minimum decay time is that radiological dose criteria are met. The limiting accident scenario was analyzed for the proposed change, and the dose criteria continue to be met. Specifically, the calculated dose consequences for the proposed change are and remain a small fraction of the acceptance criteria.

Based on the above information, DNC concludes that the proposed license amendment involves no significant hazards consideration under the criteria set forth in 10 CFR 50.92(c) and, accordingly, a finding of no significant hazards consideration is justified.

5.3 Precedents

No directly applicable precedents have been identified.

5.4 Conclusion

Based on the considerations discussed above, there is reasonable assurance that (1) the health and safety of the public will not be endangered by the proposed changes, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the requested license amendments will not be inimical to the common defense and security or to the health and safety of the public.

6.0 Environmental Considerations

DNC has reviewed the proposed license amendment for environmental considerations. The proposed license amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion from an environmental assessment as 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.

7.0 References

1. Letter from Eugene S. Grecheck (DNC) to USNRC, "Millstone Power Station Unit 2, License Basis Document Change Request (LBDCR) 04-MP2-011, Proposed Technical Specifications Changes, Implementation of Alternate Source Term," June 13, 2006. (ADAMS Accession No. ML061940105)

2. Letter from John Hughey (NRC) to David A. Christian (DNC), "Millstone Power Station, Unit No. 2 – Issuance of Amendment Regarding Alternate Source Term (TAC NO. MD2346)," May 31, 2007. (ADAMS Accession No. ML071450053)

Attachment 2

Marked-up Technical Specifications Page

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2

REFUELING OPERATIONS

SHIELDED CASK

LIMITING CONDITION FOR OPERATION

~~3.9.16.1~~ 3.19.16 All fuel within a distance L from the center of the spent fuel pool cask laydown area shall have decayed for at least ~~1 year~~ 90 days. The distance L equals the major dimension of the shielded cask.

APPLICABILITY: Whenever a shielded cask is on the refueling floor.

ACTION:

With the requirements of the above specification not satisfied, do not move a shielded cask to the refueling floor. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

~~4.9.16.1~~ 4.19.16 The decay time of all fuel within a distance L from the center of the spent fuel pool cask laydown area shall be determined to be ≥ ~~1 year~~ 90 days within 24 hours prior to moving a shielded cask to the refueling floor and at least once per 72 hours thereafter.