



ENTERGY

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Director
Nuclear Safety & Regulatory Affairs

May 2, 1996

U.S. Nuclear Regulatory Commission
Mail Station P1-37
Washington, D.C. 20555

Attention: Document Control Desk

Subject: Grand Gulf Nuclear Station
Docket No. 50-416
License No. NPF-29
Request for a Revision to the Reactor Vessel Material
Surveillance Program Schedule

GNRO-96/00035

Gentlemen:

Entergy Operations, Inc. is requesting a revision to the Grand Gulf Nuclear Station (GGNS) reactor vessel material surveillance program schedule as required by 10CFR50, Appendix H, Section III.B.3.

Background

10CFR50, Appendix H, requires that a proposed withdrawal schedule for the reactor vessel material specimens exposed in surveillance capsules be approved by the NRC prior to implementation.

The withdrawal schedule was originally located in the Technical Specifications (TS). It has since been relocated to the Updated Final Safety Analysis Report (UFSAR) in accordance with Generic Letter 91-01 that allowed relocation since the TS requirement duplicated the Appendix H requirement. The TS change was approved by Amendment 81 on 8/12/91. Except for its location, GGNS's current schedule remains the same as the original schedule.

The current withdrawal schedule was developed in accordance with the requirements of 10CFR50, Appendix H. ASTM E185-73 endorsed in Appendix H recommends that, for a Case A plant, the first and second capsules be removed when the capsule fluence reaches approximately 100% of the wall fluence. GGNS is a Case A plant, but since the surveillance capsules will not reach this fluence during the lifetime of the plant, a 25% and 75% of design life criteria of a Case B plant were used to develop the withdrawal schedule for the first two capsules.

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The current withdrawal schedule requires the removal of the first and second surveillance capsule at 8 and 24 effective full power years (EFPY), respectively. A third capsule is a spare without a specific withdrawal schedule.

In accordance with the withdrawal schedule, GGNS withdrew the first reactor vessel material surveillance capsule on 5/7/95 during Refueling Outage 7.

After the withdrawal of the first capsule, GGNS became aware that testing of the first capsule at such an early EFPY may not be useful because the low fluence and good material chemistry will result in a minimal shift.

Because no useful data from testing of the withdrawn material specimens are expected, GGNS decided to request a change to the withdrawal schedule that would allow the first capsule to be placed back into the vessel and would extend the time that the first capsule was due for withdrawal. Therefore, the specimens have not been shipped for testing.

Discussion

The original schedule did not account for GGNS specific conditions:

- Excellent alloy chemistry (low copper of 0.02-0.06%)
- Low reactor pressure vessel beltline fluence ($<5 \times 10^{18}$ n/cm² 32 EFPY fluence)
- Resulting low shift in the reference nil-ductility temperature (RT_{NDT})

Attachment 1 is a technical report from General Electric that gives full details for the conditions that exist at GGNS and provides the basis for a revised withdrawal schedule to allow the first capsule to be removed at 24 EFPY.

GGNS is a member of the Boiling Water Reactors Owner's Group (BWROG) supplemental surveillance program (SSP)¹. This program is designed to significantly increase the amount of BWR surveillance data in a systematic manner. As part of this program, the BWROG prepared supplemental capsules which were installed in Cooper and Oyster Creek. These capsules contain the limiting GGNS weld and plate materials. The capsules are due to be withdrawn in 1996, 2000, and 2002. The capsules to be removed in 1996 will have a fluence higher than 25% of the design

¹ Greater detail on this program is given in Attachment 1.

life fluence used in establishing the original schedule. Therefore, with the use of the SSP test results, GGNS will meet the intent of the original test schedule. In the future, if the specimen results indicate that a change to the GGNS withdrawal schedule is warranted, GGNS will propose changes to the schedule to reflect the testing results.

Proposed Change to the Withdrawal Schedule

In accordance with 10CFR50, Appendix H, Section III.B.3, GGNS requests a change to the withdrawal schedule for the reactor vessel surveillance capsules.

The current schedule for withdrawal of the surveillance capsules is withdrawal of the first capsule at 8 EFPY, the second capsule at 24 EFPY and the third at 32 EFPY (standby).

The revised schedule for withdrawal of the surveillance capsules is the first capsule at 24 EFPY. The withdrawal schedule for the second capsule is to be determined at a later date. The third capsule (currently withdrawn and requested to be returned to the vessel) will be returned to the vessel and retained as a standby capsule.

The capsules currently in the vessel (denoted as No. 2 and No. 3 in the current schedule) are considered equivalent concerning the materials in each capsule and the fluence on each capsule. The three capsules originally installed contained the same number and type of specimens (Charpy and flux wires). The capsules were installed in locations that have a similar fluence and temperature environment. The physical location of each of the capsules in the vessel (No. 1 at 3°, No. 2 at 177°, and No. 3 at 183°) doesn't affect the testing results of the specimens in the capsules. Each has remained in the vessel for the same length of time. Since the important characteristics of the two remaining capsules are the same, either of these two capsules may be the capsule proposed to be withdrawn at 24 EFPY. The schedule for removing the remaining capsule (either No. 2 or No. 3) would be determined at a later date. Therefore, either of these capsules would be acceptable as the first capsule to be withdrawn.

Additionally, since testing the capsule specimens destroys the specimens themselves and the testing at 8 EFPY is not justified according to Attachment 1, GGNS is not planning to test the specimens that have been withdrawn. GGNS proposes to return the withdrawn capsule to the vessel during RFO8 scheduled to begin 10/96. Since the withdrawn capsule has been stored outside the vessel for almost a year, GGNS wishes to return the capsule to the vessel as soon as possible so as not to waste any more exposure to the capsule.

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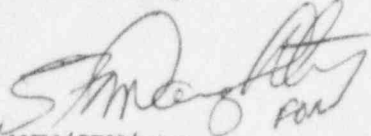
Therefore, GGNS requests that NRC review be completed by 9/15/96. This will allow the withdrawn capsule to be returned to the vessel during the outage scheduled for 10/96.

It should be noted however that there is little industry experience in returning the spring loaded capsules to holders like those located in GGNS's reactor vessel. At this time, GGNS expects no problems returning the capsule to the holder and intends to make every reasonable effort to do so if this request is approved. However, if problems were to arise during RFO8, GGNS would provide an alternate proposal to the NRC.

GGNS is now aware of an Atomic Safety and Licensing Board decision issued on October 4, 1995 concerning an amendment request from Perry Nuclear Power Plant. The decision requires that changes to the specimen withdrawal schedule be submitted as licensing amendments and include the information required by 10CFR50.91 and 50.92. In accordance with this decision, GGNS will provide a no significant hazards consideration evaluation for the requested changes. This evaluation will be submitted soon under separate cover.

If you have any questions, please contact Sheri Mahoney at 601-437-6552.

Yours truly,



MJM/SBM/mtc

attachment:

Surveillance Specimen Program Evaluation for Grand Gulf
Nuclear Station

cc:

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Attachment 1

Surveillance Specimen Program Evaluation
for
Grand Gulf Nuclear Station