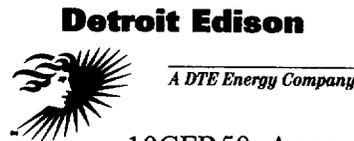


William T. O'Connor, Jr.
Vice President, Nuclear Generation

Fermi 2
6400 North Dixie Hwy., Newport, Michigan 48166
Tel: 734.586.5201 Fax: 734.586.4172



10CFR50, Appendix H

September 29, 2000
NRC-00-0067

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington D C 20555-0001

- References: 1) Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43
- 2) NRC letter to BWRVIP, "BWR Integrated Surveillance Program (BWRVIP-78) (TAC No. M99894)," dated May 16, 2000
- 3) Electric Power Research Institute, TR-114228, "BWR Vessel and Internals Project – BWR Integrated Surveillance Program Plan (BWRVIP-78)," dated December, 1999

Subject: Request for Deferral of Reporting the First Reactor
Pressure Vessel (RPV) Surveillance Capsule Test Results

Pursuant to Section IV of Appendix H to 10CFR Part 50, Detroit Edison hereby requests the deferral of testing and reporting the test results of the first Fermi 2 RPV surveillance capsule for one refueling cycle (approximately 18 months). The proposed deferral would extend the date for reporting the test results of the capsule, withdrawn from the RPV during the Seventh Refueling Outage (RF07), from April 29, 2001 until October 29, 2002.

Reference 2 provided guidelines to the Boiling Water Reactor Vessel and Internals Project (BWRVIP) of the technical bases licensees should include in their requests

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for the deferral of surveillance capsule withdrawal and/or testing. The enclosure to this letter provides Detroit Edison's response to these guidelines as they relate to Fermi 2.

The NRC staff is currently reviewing the proposed BWRVIP Integrated Surveillance Program (ISP) plan (Reference 3) for monitoring radiation embrittlement of Boiling Water Reactor (BWR) Reactor Pressure Vessels (RPVs). Once the ISP is approved by the NRC, Detroit Edison will follow the requirements of the approved ISP as delineated in 10CFR50, Appendix H, Section III. It is our understanding that testing of this surveillance capsule would not be required under the BWRVIP ISP (Reference 2). Approval of the proposed deferral in this letter is requested by January 15, 2001. This date is determined based on the time required for testing and reporting the results should compliance with the April 29, 2001 date become necessary.

Should you have any questions or require additional information, please contact Mr. Norman K. Peterson of my staff at (734) 586-4258.

Sincerely,



Enclosure

cc: D. S. Hood
M. A. Ring
NRC Resident Office
Regional Administrator, Region III
Supervisor, Electric Operators,
Michigan Public Service Commission

**REQUEST FOR DEFERRAL OF REPORTING THE FIRST REACTOR
PRESSURE VESSEL (RPV) SURVEILLANCE CAPSULE TEST RESULTS**

On March 14, 2000, representatives of the Boiling Water Reactor Vessel and Internals Project (BWRVIP) met with the NRC staff to discuss the proposed BWR Reactor Pressure Vessel (RPV) Integrated Surveillance Program (ISP) for monitoring changes in RPV material properties due to neutron irradiation. During discussions it became apparent that it may be appropriate for BWR licensees to seek deferral of their currently scheduled surveillance capsule withdrawal and/or deferral of the testing of previously withdrawn capsules in accordance with 10CFR50, Appendix H, Section IV. Such deferral would permit the NRC to complete their review of the ISP. The staff indicated that even though their review of the ISP is not complete, they supported the concept of deferrals of up to one operating cycle for the purpose of supporting the ISP.

As a result of the meeting and to facilitate the development of deferral requests, the NRC issued guidance (Reference 2) to the BWRVIP chairman providing three technical issues that licensees should address in their deferral requests. Using the guidance provided in Reference 2, Detroit Edison hereby provides the information below to address these issues. This information is provided in support of the request for a one operating cycle deferral of testing, and reporting the test results of the first RPV surveillance capsule as required by 10CFR50, Appendix H.

The first surveillance capsule for Fermi 2 was removed from the RPV on April 29, 2000. The capsule had accumulated approximately 8.13 Effective Full Power Years (EFPY). To meet the requirements in 10CFR50, Appendix H, test results must be reported to the NRC by April 29, 2001. By applying a one cycle extension to the test and reporting schedule, Detroit Edison proposes that the reporting time period be extended until October 29, 2002.

It is expected that a Safety Evaluation will be issued for the ISP (BWRVIP-78) before the end of the proposed deferral period. Upon approval of the ISP, Fermi will follow the requirements of the ISP as outlined in 10CFR50, Appendix H.

The following discussion provides Detroit Edison's response to the three technical issues addressed in Reference 2, as they relate to the Fermi 2 RPV:

1. NRC Guidance:

Explain how this deferral is consistent with the ISP plan submitted by the BWRVIP on December 28, 1999 (BWRVIP-78). It is the staff's understanding that the proposed ISP was not designed to be an "optimized" program regarding the removal schedule of the capsules that support the ISP. Likewise, additional capsules not originally scheduled to be included in the ISP may be incorporated into later ISP designs. The licensee should address how the deferral of the removal or testing their next capsule for one cycle is either (1) an express outcome of the ISP as submitted or (2) not prohibited by the current ISP proposal (i.e., that testing of the capsule at this time is not critical to achieving data which is of particular value to the ISP).

Detroit Edison Response:

BWRVIP-78, as submitted to the NRC in December 1999, identifies the heat numbers for the Fermi 2 surveillance weld specimen as 33A277, and for the plate specimens as B8614-1 and C4574-2. These heats are not representative of the limiting welds or plates for the Fermi 2 RPV nor are they representative for any other BWR RPV. As a result, the Fermi 2 specimens are not required to be tested under the ISP test matrix. The data obtained from testing the Fermi 2 specimens will have no value in the ISP. Table 3-2 of BWRVIP-78 recommends deferring the first Fermi 2 surveillance capsule testing indefinitely.

The limiting weld material for the Fermi 2 RPV is weld specimen Heat Number 13253/12008. The BWRVIP-78 report identifies the representative material for Fermi 2 as weld specimen Heat Number CE-2 (WM) contained in the Oyster Creek Supplemental Surveillance Program (SSP) capsules E and G. Capsule G was removed in 1996. Testing and reporting of the capsule G specimen is expected to be completed by December 2000. Capsule E is scheduled to be removed during the Oyster Creek refueling outage later this year.

Similarly, the limiting plate materials for the Fermi 2 RPV are plate specimen Heat Numbers C4554-1 and C4568-2. The corresponding representative material identified in the ISP is the Hatch, Unit 1 plate specimen Heat Number C4114-2. Both the first and second Hatch, Unit 1 capsules have been removed and tested. Therefore, this request for deferral is consistent with the ISP plan in BWRVIP-78.

2. NRC Guidance:

Explain how the acquisition of materials property data in accordance with the facility's plant-specific Appendix H program is not necessary at this time to ensure that the integrity for the facility's RPV will be maintained through the period of deferral. Examples of rationales which the staff would find acceptable include: (1) the materials in the facility's surveillance program lack unirradiated baseline data so that no meaningful estimation of material property shift can be made; (2) the next capsule represents the first capsule to be withdrawn by the plant so that an insufficient number of data points (< 2) will be available to use the data within the Regulatory Guide 1.99, Rev. 2, "Radiation Embrittlement of Reactor Vessel Materials," Position 2 methodology for plant-specific modifications to the embrittlement correlation and the ability to monitor RPV embrittlement will not be significantly affected by a one cycle deferral; (3) the data from the capsule would not be expected to provide Charpy shift values large enough (i.e., > 56 F for welds, or > 34 F for plates and forgings) to be distinguished from the scatter in the Charpy test method.

Detroit Edison Response:

The surveillance capsule removed from the Fermi 2 RPV was the first one to be removed. Data from this capsule is limited in use because there is no baseline data or archival specimens for the Fermi 2 surveillance materials. Also, the information obtained from testing plate specimens will

not provide any specific benefit until the second capsule is removed and tested to provide two shift data points. Furthermore, the capsule removed has accumulated fluence associated with approximately 8.13 EFPY of service. Based on the projected fluence at the capsule location and the chemistry recorded for the Fermi 2 materials, it is predicted (based on Regulatory Guide 1.99, Revision 2) that the shift in Charpy transition temperature (ΔT_{30}) will be approximately 26°F for the weld material specimens and 11°F for the base metal material specimens. This is significantly lower than the scatter in the Charpy test method. This demonstrates that the RPV integrity will be maintained throughout the deferral period.

3. NRC Guidance:

Explain how deferral of the acquisition of dosimetry data from the capsule to be tested does not affect the validity of the facility's RPV integrity assessments through the period of the deferral. This is a particularly important point for facilities which intend to defer the withdrawal or testing of their first surveillance capsule. Any potential non-conservatism's in the licensee's current methodology when compared to the methodology that would be expressly acceptable to the staff, i.e., a methodology which complies with Draft Regulatory Guide (DG) 1053 (formerly DG-1025, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence"), should be evaluated, quantitatively or qualitatively. In particular, the licensee should state why their facility's currently approved P-T limit curves will be adequate over the period of deferral without the assessment of the capsule's dosimeter wire data and the associated recalculation of RPV fluences. Compensatory actions, for example, utilizing 32 EFPY P-T limit curve when the actual RPV usage is much less, may also be considered as a basis for not needing to recalculate RPV fluence for the period of deferment.

Detroit Edison Response:

Dosimetry results from the end of the first operating cycle, with adjustments for 110% power uprate, form the basis for the projected Fermi 2 RPV fluence. The conservatism in using the first cycle fluence values to represent later core loading patterns is due to the fact that first cycle operation tends to produce higher flux at the core periphery than does operation during subsequent cycles. Conservatism in the analysis has been assured using projected shift values based on End-Of-License (EOL) fluence and upper bound chemistries for the limiting beltline materials. This is important because the current most limiting Fermi 2 minimum RPV temperature versus pressure (P-T) curves (Technical Specifications Figure 3.4.10-1), which are valid through 32 EFPY, are based on other limiting material located outside the vessel beltline which are not affected by irradiation embrittlement. Even with the conservatism mentioned above, the P-T curves indicate that the beltline materials are not expected to become limiting for heatup, cooldown, or hydrotest conditions through 32 EFPY. Thus, even if the surveillance materials matched the beltline materials, data from the surveillance program are not expected to affect the operating P-T limits through EOL. These facts provide additional assurance that the Fermi 2 RPV will be operated with adequate safety margin to ensure its integrity during the deferral period of one operating cycle.