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SUBJECT: Requests concurrence w/util understanding of 10CRF, of App H criteria re dosimetry program for each reactor, per Revs 2 & 2A to BAW-1543A, "Integrated Reactor Vessel Matl Surrveillance Program" & BAW-1875A.

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September 8, 1986

Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ATTENTION: J.F. Stolz, Project Director
PWR Project Directorate No. 6

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287

Dear Sir:

By letters dated March 13, 1985 and May 3, 1985, to Mr. J.H. Taylor (B&W) from Mr. Cecil O. Thomas (NRC), and letter dated May 8, 1985 to Mr. H.B. Tucker (B&WOG) from Hugh L. Thompson (NRC), the NRC accepted the Topical Report, BAW-1543A, Revision 2 and 2A, Integrated Reactor Vessel Material Surveillance Program (IRVSP) for referencing in license applications in accordance with the requirements of Section II.C of Appendix H, 10CFR50.

By letters dated July 29, 1985 and July 3, 1986 Duke Power Company (Duke) requested consideration and approval of the IRVSP for Oconee Nuclear Station in accordance with Section II.C of Appendix H, 10CFR50.

The principal objectives of the IRVSP are to determine the change(s) in the mechanical properties of reactor vessel steel resulting from long term neutron irradiation and to monitor the neutron fluence as required by 10CFR50, Appendix G and Appendix H respectively.

For Oconee Nuclear Station the main objectives of the IRSVP will be satisfied when the last surveillance capsules for Units 2 and 3 and Unit 1 are removed from the host Cristal River-3 reactor at the end of sixth and seventh cycles, respectively. At that time, the Oconee reactor vessel surveillance capsule program will be completed since the surveillance specimens will have accumulated a neutron fluence equal to that at the end of reactor vessel life.

The recently approved BAW-1875A, "The B&W Owners Group Cavity Dosimetry Program" outlines a program for benchmarking and development of a cavity dosimetry method which will be able to correlate reactor cavity fast flux measurements with the

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pressure vessel neutron flux. The method will provide the means for an extension of the current Oconee surveillance program and continuous long term measurements of the vessel fluence.

A plant specific cavity dosimetry program for Oconee Nuclear Station will be developed when the results of the B&WOG benchmarking become available in early 1990's. However, in preparation for the Oconee cavity dosimetry program Duke is planning to install cavity dosimetry hardware in Oconee Unit 2 during a near future refueling outage. The early installation will assure continuous monitoring of the vessel fluence following the withdrawal of the last Oconee capsule. In addition, it will provide sufficient time for debugging and possibly benchmarking of the cavity dosimetry data against the present data from the capsule's program.

Duke's approach for a dosimetry program does not include installation of cavity dosimetry in Oconee Units 1 and 3. However, fluences for all Oconee units will be determined based on cavity dosimetry data from Unit 2 using the current approved methodologies and semi-empirical methods to be developed by the B&WOG program described in BAW-1875A. The vessel fluences for Units 1 and 3 can be accurately determined with acceptable uncertainties based on Unit 2 cavity dosimetry data. This is possible because of close similarities such as design parameters, operating history, fuel cycle designs and same operation personnel for all three units.

Section II.C of Appendix H to 10CFR50 requires an adequate dosimetry program for each reactor as a part of the IRVSP. Specifically, Section II.C of Appendix H states:

> "An integrated surveillance program may be considered for a set of reactors that have similar design and operating features. The representative materials chosen for surveillance from each reactor in the set may be irradiated in one or more of the reactors, but there must be an adequate dosimetry program for each reactor."

Furthermore, the NRC acceptance of IRVSP dated March 13, 1985 concludes:

> "In-cavity dosimetry testing should continue in order to reduce uncertainties in neutron fluence for vessels that do not contain in-vessel dosimetry. If these test results provide an effective method of monitoring vessel neutron fluence the in-cavity dosimetry should be incorporated in plants."

However, neither the Appendix H Section II.C nor the NRC acceptance of BAW-1543 dated March 13, 1985 require installation of cavity dosimetry hardware in each reactor.

Duke believes that a cavity dosimetry program based on data from Unit 2 cavity

dosimetry will adequately satisfy the requirements of Appendix H for all Oconee units. The design and operating features of Oconee units are sufficiently similar to allow accurate prediction of fluence and radiation damage as a function of power output for Units 1 and 3 utilizing cavity dosimetry data from Unit 2.

To satisfy the requirements for a cavity dosimetry program for each reactor, as understood by Duke, separate cavity dosimetry installation for each Oconee unit is not warranted. However, a dosimetry program for each Oconee reactor consisting of analytical and semi-empirical methods applied to the Oconee Unit 2 cavity dosimetry data can accurately predict the vessel fluences in compliance with the regulatory requirements.

We request the NRC's concurrence with our understanding of the Appendix H requirements for a dosimetry program for each reactor. Advanced planning for development of a dosimetry program for each Oconee unit assures the continuity of the vessel fluence monitoring following the withdrawal of the last Oconee capsules in late 1980's. Early feedback from the NRC on this request, by December 15, 1986, will provide Duke with sufficient lead time for alteration of the intended Oconee Nuclear Station dosimetry program, if needed.

Very truly yours,

H.B. Tucker/MAH

Hal B. Tucker

MAH/04/jgm

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