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SUBJECT: Responds to Generic Ltr 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in...."

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June 3, 1988

U. S. Nuclear Regulatory Commission
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Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Generic Letter 88-05: Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants

References: 1) IE Bulletin No. 82-02: Degradation of Threaded Fasteners in the Reactor Coolant Pressure Boundary of PWR Plants

2) Letter from C. W. Giesler (WPSC) to J. G. Keppler (US NRC) dated August 2, 1982

3) Letter from C. W. Giesler (WPSC) to J. G. Keppler (US NRC) dated July 14, 1983

Generic Letter 88-05 summarizes domestic PWR plant experiences where boric acid leakage has had the potential to degrade carbon steel reactor coolant system pressure boundary components. The references cited above provide additional background information.

The generic letter requests that licensees submit a written response providing assurances that "a program has been implemented consisting of systematic measures to ensure that boric acid corrosion does not lead to degradation of the assurance that the reactor coolant pressure boundary will have an extremely low probability of abnormal leakage, rapidly propagating failure, or gross rupture."

The prevention, control and correction of boric acid leakage and corrosion is achieved through the routine performance of existing procedures and practices, and is a significant contributor to the excellent housekeeping which has become a Kewaunee trademark.

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Historically, few significant boric acid leaks have been observed; those few significant leaks were discovered, evaluated, and corrected by way of procedures and/or practices currently in place. A high level of cognizance has been established, and is maintained, by the performance of pre-startup piping walk-downs, at-power management tours, and pre-outage containment tours; the result is an intolerance for component/system dysfunction (e.g., boric acid leakage). Evaluations are performed on an as-needed basis and documented as appropriate under the control of any or all of the following: plant incident reports, plant work requests, design changes, contractor/vendor studies, etc.

In summary, WPSC does not currently administer one all-encompassing formal program for the control and correction of boric acid leakage. However, we do believe that each of the key elements identified in the generic letter (i.e., inspection, prevention, evaluation, and correction) are adequately implemented through existing surveillance, operating, and maintenance procedures, and provide assurances of compliance as requested by the referenced generic letter.

The attachment to this letter provides a general summary of the boric acid leakage/corrosion control and corrective actions employed at the Kewaunee Nuclear Power Plant.

If further information is required, please feel free to contact my staff.

Sincerely,

E. R. Mathews

D. C. Hintz for
Vice President - Nuclear Power

CSS/jms

Attach.

cc - Mr. Robert Nelson, US NRC
US NRC, Region III

Subscribed and Sworn to Before Me
This 3rd Day of June, 1988

Lois A. Nuthals
Notary Public, State of Wisconsin

My Commission Expires: May 3, 1992

Attachment to

Letter from D. C. Hintz (WPSC) to

US NRC Document Control Desk

Dated June 3, 1988

In-house reviews of reactor coolant pressure boundary components have been performed, and supplement industry investigations. Potential leak sources identified at the Kewaunee Nuclear Power Plant are generally similar to those identified throughout the industry and include:

--steam generator primary manway closures
--reactor coolant pump closures
--pressurizer manway closures
--reactor vessel closures
--control rod drive flange connections
--valve bonnets and flange connections

Routine surveillance is performed on the reactor coolant system, and on select systems communicating with it, to:

--identify and quantify leakage
--locate external leakage paths and sources
--limit allowable leak rates
--evaluate the potential effects of the leakage/corrosion

Additional visual surveillance is administered by:

--comprehensive piping walkdowns to detect leakage at startup after each refueling outage

--plant tours (excluding containment) each shift by operations staff

--monthly management tours of the containment building, during power operation, to identify, among other things, component leakage

--comprehensive pre-outage containment tour by management to assess material condition of plant

Procedures have been implemented to:

--provide for the cleaning and visual inspection of threaded/flanged reactor coolant pressure boundary components

--provide for specific visual inspection of gasket sealing surfaces

--ensure that only approved (typically nickel-based) thread lubricants are used on reactor coolant pressure boundary components

--provide proper bolt torquing specifications

--prohibit the use of injection sealants on primary side closures

--provide for repair/replacement of components exhibiting boric acid induced corrosion

Procedural enhancements are currently planned, and may include:

--installation of more corrosion-resistant bolting materials, where appropriate

--improved gasket materials and procedures