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 SCHROCK, C.A.      Wisconsin Public Service Corp.  
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SUBJECT: Informs that util determined that scheduled upgrade of analog radiation monitoring sys to digital sys not safety-related mod that requires prior staff review & approval. Util proceeding w/mod, per 10CFR50.59.

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August 2, 1993

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
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Ladies/Gentlemen:

Docket 50-305  
Operating License DPR-43  
Kewaunee Nuclear Power Plant  
Replacement of Analog Radiation Monitoring Instrumentation With Digital Equipment

- References:
- 1) Federal Register: Volume 57, No. 158; Friday August 14, 1992; Notices; Page 36680
  - 2) Letter from C. R. Steinhardt (WPSC) to Document Control Desk (NRC) dated September 10, 1992
  - 3) Letter from A. G. Hansen (NRC) to C. A. Schrock (WPSC) dated November 20, 1992.

In Reference 1, the Nuclear Regulatory Commission (NRC) issued a proposed generic communication. The proposed Generic Letter (GL) informed licensees of the NRC position concerning analog to digital replacements of safety systems. The staff position stated that installation of digital based safety systems:

- 1) is an unreviewed safety question,
- 2) requires review by the NRC staff, and
- 3) cannot be performed under the 10 CFR 50.59 rule.

As stated in the draft GL, the staff's position applies to all "safety-related" digital equipment.

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In Reference 2, Wisconsin Public Service Corporation (WPSC) notified the NRC staff:

- 1) of our intent to replace the Kewaunee Nuclear Power Plant (KNPP) analog process radiation monitors with a digital system,
- 2) that the scope of the replacement included safety related radiation monitoring channels, and
- 3) that the 10 CFR 50.59 safety evaluation for the replacement activities had identified an unreviewed safety question.

In Reference 3, the NRC transmitted a Request for Additional Information (RAI) concerning the proposed modification which was required to complete the staff review.

Since receipt of the staff's RAI, WPSC has performed additional investigation, evaluation, and assessment of the technical and licensing issues for the proposed modification. As a result of these efforts, WPSC has determined the radiation monitoring instrumentation is not safety-related instrumentation as defined by the NRC. This determination was discussed in a conference call with J. L. Mauck, S. V. Athavale, and R. J. Laufer, of the NRC on July 27, 1993. The pertinent points of this discussion are summarized below.

- 1) Kewaunee currently categorizes structures, systems, or components (SSC) whose failure could result in exceeding 1% of 10 CFR 100.11 radiological dose guidelines as "safety-related". This was the basis for identifying the radiation monitoring channels as safety-related in Reference 2.
- 2) Although several of the radiation monitoring instrumentation channels are commonly referred to as "safety-related" equipment by WPSC (as reflected in our previous submittal), the Kewaunee definition encompasses a broader scope of equipment than the NRC definition.
- 3) The NRC definition of "safety-related" equipment (as stated in Generic Letter 84-01, "NRC Use of the Terms, 'Important to Safety' and 'Safety Related'" and references) applies to SSC that will prevent or mitigate the consequences of accidents which could result in offsite exposures "comparable to 10 CFR 100 guidelines".
- 4) 10 CFR 100.11 provides the threshold values of 25 Rem whole body dose and 300 Rem thyroid dose, but clarifies that these values are not necessarily acceptable limits for emergency doses to the public under accident conditions (i.e. lower values may be used to determine acceptable dose limits).

- 5) NUREG 0800, "Standard Review Plan" defines radiological dose acceptance criteria for various accident and transient analyses as being:
  - "small fraction" (i.e. 10%),
  - "well within" (i.e. 25%),
  - "within limits" (i.e. 100%)of 10 CFR 100.11 guideline values.
- 6) A review of the Kewaunee USAR Chapter 14 Safety Analyses concluded that the radiation monitoring system is not relied upon to mitigate the radiological dose consequences of postulated accidents to within the acceptance criteria specified in NUREG 0800. Where initiation of engineered safeguards features (ESF) is required to maintain the dose consequences within the NUREG 0800 acceptance criteria, the ESF equipment is actuated by other safety grade signals (typically Safety Injection).
- 7) Since the radiation monitoring channels are not relied upon to maintain radiological consequences of postulated accidents within the NUREG acceptance criteria, WPSC concludes the instrumentation is not "safety-related" in accordance with the NRC definition. In accordance with the staff's position stated in the draft Generic Letter, the proposed analog to digital replacement modification does not require prior NRC review and approval provided that the requirements of 10 CFR 50.59 are met (i.e. an unreviewed safety question does not result). WPSC noted that our conclusion is consistent with recent NRC staff comments on the draft EPRI TR-102348 document entitled "Guidelines for Licensing Digital I&C Upgrades".
- 8) WPSC is proceeding with finalization of the 10 CFR 50.59 Safety Evaluation for this modification. WPSC is using the approach recommended by the draft EPRI guidelines, in consideration with NRC staff comments on the document (as noted above). At this juncture, we are confident that the technical evaluations, when finalized, will demonstrate that an unreviewed safety question does not exist.

In summary, WPSC has determined that the scheduled upgrade of the analog radiation monitoring system to a digital system is not a safety-related modification that requires prior staff review and approval. WPSC is proceeding with the modification under the 10 CFR 50.59 rule. In accordance with the provisions of the rule, if any of our reviews or evaluations identify an unreviewed safety question, WPSC will submit the required information for NRC review and approval prior to installation.

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As discussed in our conference call of July 27, 1993, WPSC considers that a docketed response to the NRC staff request for additional information (dated November 20, 1993) is no longer required. We appreciate the staff's time and support concerning this matter. If you have any questions, please contact V. J. Cuneo of my staff.

Sincerely,

*C. A. Schrock*

C. A. Schrock  
Manager - Nuclear Engineering

VJC/cjt

cc - US NRC Region III  
US NRC Senior Resident Inspector

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