

CATEGORY 1

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MARCHI,M.L. Wisconsin Public Service Corp.
RECIP.NAME RECIPIENT AFFILIATION
 Document Control Branch (Document Control Desk)

SUBJECT: Responds to NRC 980305 ltr re violations noted in insp rept
50-305/98-04 on 980223-0227. Corrective actions: procedures
will be upgraded to more closely monitor dose rates during
changing plant conditions.

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Public Service

NRC-98-42

Public Service Corporation

a subsidiary of WPS resources corporation

600 North Adams Street

P.O. Box 19002

Green Bay, WI 54307-9002

1-800-450-7260

April 27, 1998

10 CFR 2.201

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

Ladies/Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Reply to Notice of Violation, Inspection Report 98-004

Reference: 1) Letter from J. A. Grobe (NRC) to M. L. Marchi (WPSC) dated March 26, 1998 (NRC Radiation Protection and Chemistry Inspection Report No. 50-305/98004(DRS) and Notice of Violation).

In reference 1, the Nuclear Regulatory Commission (NRC) provided Wisconsin Public Service Corporation (WPSC) with the results of the NRC inspection activities conducted February 23 through February 27, 1998.

During the inspection, NRC identified a Severity Level IV violation. The violation was cited due to failure to conduct adequate surveys to evaluate the effect of increasing reactor coolant activity on radiological conditions following the plant shutdown on February 7, 1998.

Attached is our response to the notice. If you should have any questions with regard to this response, please contact me or a member of my staff.

Sincerely,



Mark L. Marchi
Manager - Nuclear Business Group

MTR

Attach.

cc: US NRC Senior Resident Inspector
US NRC Region III

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ATTACHMENT 1

Letter from M. L. Marchi (WPSC)

to

Document Control Desk (NRC)

Dated

April 27, 1998

Re: Reply to Notice of Violation, Inspection Report 98-004

NRC Notice of Violation 98-004-01

10 CFR 20.1501 requires, in part, that each licensee make or cause to be made, surveys that may be necessary for the licensee to comply with the regulations in Part 20 and that are reasonable under the circumstances to evaluate the extent of radiation levels, the concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present.

Pursuant to 10 CFR 20.1003, *survey* means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation.

10 CFR 20.1902(a) requires, in part, that the licensee post each radiation area with a conspicuous sign or signs bearing the words "CAUTION, RADIATION AREA." 10 CFR 20.1902(b), requires, in part, that the licensee post each high radiation area with a conspicuous sign or signs bearing the radiation symbol and the words "CAUTION, HIGH RADIATION AREA" or "DANGER, HIGH RADIATION AREA."

Contrary to the above, as of February 9, 1998, the licensee did not make surveys to ensure compliance with 10 CFR 20.1902(a) and 10 CFR 20.1902(b) which specify requirements for posting radiation areas and high radiation areas. Specifically, surveys performed on February 9, 1998, revealed areas with radiation dose rates in excess of 5 millirem in one hour at a distance of 30 centimeters from the radiation source (a radiation area) in both the north penetration room on the 606 foot level of the auxiliary building and the open area near the containment spray pumps located on the 586 foot level of the auxiliary building area. These areas were not posted with a sign bearing the radiation symbol and the words "CAUTION, RADIATION AREA." Additionally, surveys performed on February 9, 1998, revealed an area with radiation dose rates in excess of 100 millirem in one hour at a distance of 30 centimeters from the radiation source (a high radiation area) in the residual heat removal system valve gallery on the 586 foot level of the auxiliary building. This area was not posted with a sign bearing the radiation symbol and the words "CAUTION, HIGH RADIATION AREA" or "DANGER, HIGH RADIATION AREA."

WPSC Response

Wisconsin Public Service Corporation (WPSC) does not contest this violation. WPSC agrees that the cause of the violation was failure to conduct surveys and appropriately post the areas in a timely manner. However, we feel that rigorous preplanning and focus on work scheduled in containment may have diverted our attention from changes within the auxiliary building in areas

where no outage work was planned. Our assessment is that this violation had no effect on personnel or public health or safety. No unplanned radiation exposures were identified as a result of the incorrect postings.

Reason For Violation

The violation was caused by personnel failing to maintain awareness to changing radiological conditions in all areas of the plant following shutdown on February 7, 1998, and during the subsequent and slow-to-develop Reactor Coolant System (RCS) crud burst which peaked on Tuesday, February 10, 1998. As a result, radiation surveys were not performed in a timely manner and caution signs were not posted as required at specific areas in accordance with 10 CFR 20.1902 until after the dose rates exceeded the posting requirements.

Factors which contributed to this violation are:

- a) New or different methods employed to adjust RCS chemistry. This was the first shutdown in five years where hydrogen peroxide was not injected for purposes of inducing and cleaning up a crud burst. Delithiation of the RCS was also necessary prior to shutdown because of the newly instituted 18-month operating cycle. That increased the rate at which cobalt-58 was made soluble and available for transport throughout the system. Oxygenated water in the Residual Heat Removal (RHR) system entered the RCS when the RHR system was started, which then caused the most severe crud burst observed in the last ten years.
- b) Inadequate inter-group communication. The Health Physics (HP) Group was aware of the planned shutdown but, through oversight, was not represented at a pre-outage meeting at which the possibility for abnormally high RCS activity concentrations and higher than normal dose rates were discussed. During plant shutdown and cooldown the HP Group was informed of RCS activity concentrations but either did not know what the raw chemistry data meant or did not understand the effect it could have on radiological conditions.

- c) Initial absence of increasing dose rate indications. About 20 hours after shutdown, in the early evening of February 7, the Senior Resident Inspector questioned the HP Group with respect to performing surveys regarding changes in plant conditions following startup of the RHR system. Surveys were performed in response to this query but no increases in dose rates were identified. Another survey the following morning, February 8, did not show any significant increase in dose rates. However, on the morning of February 9, after the Senior Resident Inspector questioned radiological conditions a second time, surveys in specific areas did reveal elevated dose rates which exceeded the regulatory requirements for posting radiological caution signs.

Three areas were found not posted as required. The north penetration room and the area near the containment spray pumps were not posted as radiation areas; observed dose rates ranged from 25 to 75 mrem/hr. In the RHR valve gallery, dose rates of up to 150 mrem/hr at 30 cm from four valves and pipes were recorded; the gates to the area were locked but the area was posted as a radiation area, not a high radiation area as required. Upon discovery, correct postings were immediately put in place. A review of Radiologically Controlled Area (RCA) entry and exit logs showed no unexpectedly high doses to workers or unplanned radiation exposures attributable to these incorrect postings.

At the exit meeting for NRC Inspection 98-005, held on April 13, 1998, and covering the period of March 3 through April 13, 1998, the Senior Resident Inspector commented that he had observed increased aggressiveness by the HP Group in evaluating changes in radiological conditions as plant conditions changed during the inspection period.

Corrective Actions

- 1) Procedures will be upgraded to more closely monitor dose rates during changing plant conditions. During an assessment of routine plant evolutions, locations most susceptible to increases in dose rates will be identified and guidance developed for periodic surveys of those locations. The frequency and extent of these surveys will be specified to coincide with the onset of certain plant evolutions.
- 2) The radiological posting program and procedures are being reviewed to ensure that guidance contained in various NRC and industry documents is clearly stated and consistently implemented. Shortly after Inspection 98-004, two members of the Kewaunee HP Group participated in self assessment audits at other nuclear plants, one in Region III and one in Region IV. Direct observation of posting programs at these plants has provided valuable insight on how Kewaunee's program can be improved.
- 3) Methods to improve communications and information exchange between plant groups during scheduled plant evolutions will be evaluated. The requirement for not only surveying specific areas, but tracking, trending and plotting those survey results and then sharing this information with other plant groups is being evaluated.
- 4) The details of this violation, including root causes, lessons learned and proposed corrective actions have already been discussed with all members of the HP Group as part of the Radiation Technologist Continuing Training Program. This training was held in March 1998.

Compliance Schedule

Item 4 is complete. Items 1 through 3 will be completed prior to the next shutdown for refueling, presently scheduled for October 1998.