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AUTH. NAME AUTHOR AFFILIATION
ALEXICH, M. P. Indiana & Michigan Electric Co.
RECIP. NAME RECIPIENT AFFILIATION
DENTON, H. R. Office of Nuclear Reactor Regulation, Director (post 851125

SUBJECT: Requests concurrence w/encl justification re location of noble gas effluent monitor for main steam lines, per 860219 ltr concerning NUREG-0737, Item II.F.1-1.

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INDIANA & MICHIGAN ELECTRIC COMPANY

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May 20, 1986
AEP:NRC:0678T

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
LOCATION OF MAIN STEAM NOBLE GAS EFFLUENT MONITORS
NUREG-0737, SECTION II.F.1-1

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

Dear Mr. Denton:

Per Item II of our letter AEP:NRC:0678S, dated February 19, 1986, attached is justification for the location of the noble gas effluent monitor for the main steam lines. As explained in the attachment to this letter, the justification for the location is based on three factors: space and temperature constraints with placing the monitor on the main steam pipes, the design setpoints of the power-operated relief valves (PORVs) and the safety relief valves, and the preplanned alternative method of monitoring if the PORVs or noble gas monitors are unavailable. Included in this justification is a discussion of the environmental qualification of the monitors. We are requesting NRC concurrence with our placement of the noble gas monitors on the PORV discharge line and with our interpretation that this location meets the intent of NUREG-0737, II.F.1, Attachment 1.

This document has been prepared following Corporate procedures which incorporate a reasonable set of controls to insure its accuracy and completeness prior to signature by the undersigned.

Very truly yours,

M. P. Alexich
Vice President

MPA/pm

Attachment

cc: John E. Dolan
W. G. Smith, Jr. - Bridgman
R. C. Callen
G. Bruchmann
G. Charnoff
NRC Resident Inspector - Bridgman

A046
1/1

ATTACHMENT TO AEP:NRC:0678T
JUSTIFICATION FOR LOCATION OF THE
MAIN STEAM LINE NOBLE GAS MONITORS

At the D. C. Cook Plant the main steam line noble gas monitors are mounted upstream of the power-operated relief valve (PORV) on the PORV discharge line. The space available on the main steam line is insufficient to mount the noble gas monitors directly on this line. In addition, the temperature of the main steam line is greater than 180°F, which is the temperature limit for the noble gas monitor.

Since the monitor is located upstream of the PORV, the PORV must open for the monitor to be available. The D. C. Cook Plant's PORVs and PORVs throughout the country, have proven to be reliable. In addition, the design setpoint of the PORVs is less than those for the safety valves. The PORVs are set at 1055 psig. The first two safety valves of each loop are set at 1065 psig. The second two are set at 1075 psig, and the fifth safety valve is set at 1085 psig. The uncertainties of the setpoints are such that the actual lift points may be different from the setpoints, but it is expected that with a pressure transient high enough to open the valves, all the valves would open at the same time. Thus, the uncertainties of the setpoints are insignificant compared to the size of the pressure spike. If a safety valve opens and the PORV does not open or the PORV monitor itself fails, an alternative method to determine the effluent concentration or a default concentration would be used.

A preplanned alternative to determine the radioactive main steam effluents is already in place when offsite power is available. This method involves sending a worker to the condenser to obtain a hand-held monitor reading. This reading is then related to a secondary-side radioactivity concentration. The doses in the turbine building are expected to be low for all accidents, so access to the area is not a problem.

Moreover, an alternative method to determine radioactive release concentrations without offsite power available is being developed. With a loss of offsite power, the main steam isolation valves close. When these valves are closed the concentration at the condenser is not representative of the secondary-side concentration exhausted out of the PORVs or the safety valves. Therefore, a second alternative method is being developed. The alternative method will be based on primary coolant concentrations. These concentrations will be determined using the post-accident sampling system, which is accessible. Default values which have been calculated can be used if the PORV monitor is unavailable until concentration estimates are available from the alternative method.

The only environmental qualification concern is temperature, because radiation and steam will not affect the monitor for the types of accidents during which the monitor is needed. The temperature limit of the detector is 180°F. An analysis of the temperature transient showed that after 24 hours the highest temperature would be 171°F, but this assumes the safety valves are relieving for 24 hours. The FSAR assumes the release lasts for only 8 hours. Over that time the peak temperature is 162°F. We expect the PORV monitor to be available even after the most severe temperature transients. If the monitor should fail because of temperature, the above alternative method could be used.

The placement of the radiation monitor on the PORV line rather than the main steam line was made because of the heat and space limitations. At the present location, the monitor determines the amount of radioactivity released through the PORV and consequently the safety valves. The reliability and the design setpoints are such that the PORV will open before or with the safety valves. If the PORV does not open or the monitor does not operate, alternative methods will be used to determine the quantity of the radioactive releases.

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19 MAY 1986

DOCKET NO(S). 50-315/316

Mr. John Dolan, Vice President
Indiana and Michigan Electric Company
c/o American Electric Power Service Corporation
1 Riverside Plaza
Columbus, Ohio 43215

SUBJECT: D. C. Cook Nuclear Plant, Units 1 and 2

The following documents concerning our review of the subject facility are transmitted for your information.

☐ Notice of Receipt of Application, dated _____.

☐ Draft/Final Environmental Statment, dated _____.

☐ Notice of Availability of Draft/Final Environmental Statement, dated _____.

☐ Safety Evaluation Report, or Supplement No. _____, dated _____.

☐ Notice of Hearing on Application for Construction Permit, dated _____.

☐ Notice of Consideration of Issuance of Facility Operating License, dated _____.

☒ ~~Monthly~~ Bi-Weekly Notice; Applications and Amendments to Operating Licenses Involving no Significant Hazards Considerations, dated May 7, 1986. (See pages 16929 and 16936)

☐ Application and Safety Analysis Report, Volume _____.

☐ Amendment No. _____ to Application/SAR dated _____.

☐ Construction Permit No. CPPR- _____, Amendment No. _____ dated _____.

☐ Facility Operating License No. _____, Amendment No. _____, dated _____.

☐ Order Extending Construction Completion Date, dated _____.

☐ Other *(Specify)* _____

Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc: See next page

OFFICE	PWR#4/DPWR-A		PWR#4/DPWR-A				
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DATE	5/14/86		05/14/86				

NRC FORM 318 (1/84) NRCM 0240