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AUTH. NAME AUTHOR AFFILIATION
ALEXICH, M. P. Indiana & Michigan Electric Co.
RECIP. NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

SUBJECT: Forwards proposed Tech Spec change re requirements set forth in NUREG-0737 & clarified in Generic Ltr 83-37. Approval of Tech Spec implementation schedule re post accident sampling sys & iodine particulate monitoring requested. Fee paid.
SEE ~~REPTS~~. PROPOSED CHANGES TO TECH SPECS.

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INDIANA & MICHIGAN ELECTRIC COMPANY

P.O. BOX 16631
COLUMBUS, OHIO 43216

July 31, 1987
AEP:NRC:0856G

Donald C. Cook Nuclear Plant Units 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
NUREG-0737, TECHNICAL SPECIFICATION CHANGES
(GENERIC LETTER NO. 83-37)
RADIATION MONITORING INSTRUMENTATION

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

Attn: T. E. Murley

Dear Dr. Murley:

This letter and its attachments transmit proposed Technical Specification (T/S) change requests associated with the requirements set forth in NUREG-0737 and clarified in Generic Letter No. 83-37. This letter supersedes Items 2, 4, 5 and 6 in Attachment 1 to our July 19, 1984 letter (AEP:NRC:0856A). The items set forth in the July 19, 1984 letter and in this letter deal with Post Accident Sampling (NUREG-0737 Item II.B.3) including NUREG-0737 Item II.F.1.2 on Sampling and Analysis of Plant Effluents, Noble Gas Effluent Monitors (NUREG-0737 Item II.F.1.1) and Containment High-Range Radiation Monitor (NUREG-0737 Item II.F.1.3). Although the proposed specifications were written in accordance with the guidance of Generic Letter 83-37, there are differences between the specifications in this submittal and those in Generic Letter 83-37 to account for our plant-specific needs. Pursuant to discussions with your staff, the proposed T/S changes are predicated on NRC approval of previously submitted requests for exemption from certain NUREG-0737 requirements which your staff has not yet acted upon. In addition, we have previously submitted requests for NRC concurrence with our position on compliance with specific NUREG-0737 items; the attached proposed T/S changes are also based on the assumption that these concurrences will be received. The format of the attached T/Ss is consistent with that of our current approved T/Ss. In view of the basis on which we are submitting these proposed T/S changes, we request your approval of the following T/S implementation schedule: (1) T/Ss associated with the Post Accident Sampling System (PASS), iodine and particulate monitoring, and containment high-range radiation monitor will be implemented by September 30, 1987; and (2) T/Ss associated with the

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noble gas monitors will be implemented by December 31, 1987. This difference in implementation dates is due to the fact that we are still in the process of final calibration of the noble gas monitors and that we will still need some additional experience with these instruments before T/S compliance can be ensured.

Attachment 1 to this letter contains a discussion of the proposed changes to our T/Ss as well as the justification as required under 10 CFR 50.92. Attachment 2 contains the proposed T/Ss for Unit 1 and Unit 2. For completeness, and to assist in your review, Attachment 3 contains a copy of the July 19, 1984 submittal referenced above, as well as copies of previous exemption/concurrence submittals.

We believe that the proposed changes will not result in (1) a significant change in the type of effluents or significant increase in the amounts of any effluent that may be released offsite or (2) a significant increase in individual cumulative occupational radiation exposure.

These proposed changes have been reviewed by the Plant Nuclear Safety Review Committee (PNSRC) and will be reviewed by the Nuclear Safety and Design Review Committee (NSDRC) at their next regularly scheduled meeting.

In compliance with the requirements of 10 CFR 50.91(b)(1), copies of this letter and its attachments have been transmitted to Mr. R. C. Callen of the Michigan Public Service Commission and Mr. G. Bruchmann of the Michigan Department of Public Health.

Pursuant to CFR 170.12(c) we have enclosed an application fee of $150.00 for the proposed amendments.

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

cm

Attachments

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

ATTACHMENT 1 TO AEP:NRC:0856G

DONALD C. COOK NUCLEAR PLANT UNITS 1 AND 2

DISCUSSION OF PROPOSED TECHNICAL SPECIFICATION CHANGES

[illegible]

Discussion of Proposed Changes

Technical Specification Changes

1. Post-Accident Sampling (NUREG-0737 Item II.B.3)

The guidance given in Enclosure 1 to Generic Letter No. 83-37 states:

> "Licensees should ensure that their plant has capability to obtain and analyze reactor coolant and containment atmosphere samples under accident conditions. An administrative program should be established, implemented and maintained to ensure this capability. The program should include:
>
> a. training of personnel
> b. procedures for sampling and analysis, and
> c. provisions for maintenance of sampling and analysis equipment.
>
> "It is acceptable to the Staff, if the licensee elects to reference this program in the administrative controls section of the Technical Specifications and include a detailed description of the program in the plant operation manuals. A copy of the program should be easily available to the operating staff during accident and transient conditions."

Attachment 2 contains a proposed new Technical Specification (T/S) Section 6.8.4 for both Units 1 and 2 applicable to the Post Accident Sampling System (PASS). We believe this new T/S section is responsive to the Generic Letter (GL) 83-37 guidance. Minor rewording of the T/Ss suggested by GL 83-37 has been done in order to make the new proposed Section 6.8.4 consistent with our other administrative T/Ss. It should be noted, however, that with regard to the PASS, on June 27, 1986 we submitted a letter (AEP:NRC:0678V) that provided a detailed description of our system and requested exemptions from certain of the NUREG-0737 Item II.B.3 requirements. Specifically, we identified that: (1) we do not provide procedures for grab sampling of primary coolant for pH and dissolved oxygen and hydrogen; in-line monitoring is used instead; (2) we do not provide heat tracing of the containment air sample line to prevent iodine plate-out, since isotopic iodines and non-volatile fission products are analyzed in the reactor coolant and containment sump for assessment of core damage; and (3) analysis of diluted grab samples of containment atmosphere for determination of hydrogen concentration is not within the measurement capability of the laboratory gas chromatograph; rather than grab sampling, the PASS provides the capability to obtain and analyze hydrogen concentration in undiluted containment using an in-line gas chromatograph. These exemptions were found acceptable in the NRC's Safety Evaluation of this item dated November 4, 1986.

2. Noble Gas Effluent Monitors (NUREG-0737 Item II.F.1.1)

The guidance given in Generic Letter No. 83-37 states:

> "Noble gas effluent monitors provide information, during and following an accident, which are [sic] considered helpful to the operator in accessing [sic] the plant conditions. It is desired that these monitors be operable at all times during plant operation, but they are not required for safe shutdown of the plant. In case of failure of the monitor, appropriate actions should be taken to restore its operational capability in a reasonable period of time. Considering the importance of the availability of the equipment and possible delays involved in administrative controls, 7 days is considered to be the appropriate time period to restore the operability of the monitor. An alternate method for monitoring the effluent should be initiated as soon as practical, but no later than 72 hours after the identification of the failure of the monitor. If the monitor is not restored to operable conditions within 7 days after the failure a special report should be submitted to the NRC within 14 days following the event, outlining the cause of inoperability, actions taken and the planned schedule for restoring the system to operable status."

Consistent with the above guidance, we are proposing revised T/S Tables 3.3-6 and 4.3-3 for both Units 1 and 2 that incorporate extended-range noble gas effluent channels. The format and content of the proposed T/S tables are consistent with those of our currently approved T/Ss for these instruments. The proposed T/S tables are based on the assumption that the exemption and concurrence requests previously submitted with regard to NUREG-0737 Item II.F.1.1 will receive NRC approval. Specifically, our previous submittals identified the following:

a. Mid- and high-range noble gas monitoring channels are not provided for the gland steam condenser (GSC) vent. The results of our analysis as reported in our June 23, 1986 submittal (AEP:NRC:0678W) showed that the maximum noble gas concentration expected in the GSC exhaust would be approximately 5.48×10^{-3} uCi/cc. Consequently, we believe our present low-range channel with a range of 5.8×10^{-7} uCi/cc to 2.7×10^{-2} uCi/cc is adequate to monitor this exhaust pathway, and an exemption from the NUREG-0737 upper range of 10^{0} uCi/cc was requested in that submittal.

b. To provide noble gas effluent monitoring as required by NUREG-0737, we use the Eberline SPING monitoring system. IE Information Notice 86-30, dated April 29, 1986, stated that the SPING would not be an appropriate instrument for this purpose since "...its associated microcomputer is vulnerable to radiation damage from a total integrated dose greater than 1000 rads." The results of our analysis, which were stated in our July 23, 1986 submittal

(AEP:NRC:0678Y), showed that we would not expect the noble gas monitors at the Cook Plant to receive more than 1000 rads of integrated dose during the course of an accident. In that submittal we therefore requested NRC concurrence in using the SPING system for post-accident noble gas monitoring.

c. Xe-133 equivalent correction factor curves for the changes of the distribution of noble gases were developed, as part of the effort associated with the primary and transfer calibration for the noble gas effluent monitors. The monitoring system does not have the capability to correct for the changing gas mixture prior to its reading out (displaying) or recording the noble gas concentration. At this time we plan for the Xe-133 equivalent correction curve either to be included in our Off-Site Dose Assessment Program (DAP) or to be implemented through procedures. Our July 23, 1986 submittal referenced in b. above therefore requested an exemption from the requirement stated in Table II.F.1-1 of NUREG-0737: "DISPLAY - Continuous and recording as equivalent Xe-133 concentrations or uCi/cc of actual noble gases."

d. We have previously submitted justification of the 1×10^4 uCi/cc upper range for our noble gas monitors on the unit vent and steam jet air ejector (AEP:NRC:0678W, dated June 23, 1986). We believe this upper limit to be acceptable, since the containment exhaust pathway is through the unit vent, which is always diluted by the auxiliary building exhaust air. In addition, the analysis presented in the attachment to our June 23, 1986 letter showed that the noble gas concentration in the Steam Jet Ejector exhaust would not exceed 2×10^3 uCi/cc. Our June 23, 1986 submittal therefore requested your concurrence that the design-basis maximum range of 1×10^4 uCi/cc for these two release pathways is acceptable.

e. Our submittal of September 8, 1986 (AEP:NRC:0678Z) requested an exemption from the NUREG-0737 upper-limit range requirement for noble gas monitoring of main steam power-operated relief valves (PORVs). This was based on our analysis of an accident involving a steam generator tube rupture that showed that if this event occurred, the maximum radioactivity expected in the main steam effluent released from the PORVs would be 0.263uCi/cc Xe-133 equivalent. We therefore requested an upper limit of 10^2 uCi/cc Xe-133 equivalent rather than the NUREG-0737 upper limit of 10^3 uCi/cc.

In a submittal dated February 19, 1986 (AEP:NRC:0678U) we transmitted to the NRC an Eberline Instrument Corporation report titled "PING/SPING Particulate, Iodine and Noble Gas Monitor Detector System Technical Specification." This report was submitted to provide detailed information on the detector system mechanical

design, sensitivity, range, linearity and energy response, and methods of primary and user calibration. This information was provided in response to NUREG-0737 Item II.F.1.1. We would like to point out, as a matter of clarification, that our instruments do not have the solid state mass-flow sensor (listed as an option in the Eberline report) installed. We have been informed by Eberline that this option has no effect on the linearity, energy response or sensitivity of the monitoring channels. This therefore does not change the technical information transmitted to you via the February 19, 1986 letter.

During a recent inspection by NRC Region III, the inspector raised some concerns regarding iodine break-through and moisture build-up in the unit vent noble gas monitor. In response to the inspector's concern, we are performing further analyses to confirm that iodine break-through and moisture build-up do not affect the high-range noble gas monitoring system for the unit vent.

3. Sampling and Analysis of Plant Effluent (NUREG-0737 Item II.F.1.2)

The guidance given in Generic Letter 83-37 states:

> "Each operating nuclear power reactor should have the capability to collect and analyze or measure representative samples of radioactive iodines and particulates in plant gaseous effluents during and following an accident. An administrative program should be established, implemented and maintained to ensure this capability. The program should include:
>
> a. training of personnel
> b. procedures for sampling and analysis, and
> c. provisions for maintenance of sampling and analysis equipment
>
> "It is acceptable to the staff, if the licensee elects to reference this program in the administrative controls section of the Technical Specifications and include a detailed description of the program in the plant operation manuals. A copy of the program should be readily available to the operating staff during accident and transient conditions."

As discussed in Item 1 above, Attachment 2 contains a proposed new T/S Section 6.8.4 for both Units 1 and 2. We believe our proposed T/S is consistent with the Generic Letter 83-37 guidance although some changes in the wording have been made to accurately reflect the systems installed at the Cook Plant. This section is also applicable to sampling for iodine and particulates. Our June 23, 1986 submittal (AEP:NRC:0678W) requested several exemptions from the NUREG-0737 requirements for iodine and particulate sampling of plant effluents. Consequently, procedures to perform this sampling are not provided at the plant. Specifically, we do not provide sampling for iodine or particulates at the steam jet air ejector (SJAE) exhaust or the gland steam condenser (GSC) exhaust.

In the case of particulates, the analysis results provided in our June 23, 1986 submittal showed that given the worst-case accident scenario (steam generator tube rupture with 1% failed fuel) in terms of potential releases from the SJAE or GSC pathways, we would not expect to see any particulates released in the SJAE or GSC exhaust. In the case of iodine, the accident analysis mentioned above showed that the expected iodine concentrations at the SJAE and GSC exhausts were extremely small (approximately 1.54×10^{-6} uCi/cc for the SJAE and 1.03×10^{-8} uCi/cc for the GSC). In addition, the analysis did not consider iodine line-loss in the main steam system and sample lines which would serve to lower these concentrations significantly. As a result, rather than monitoring iodine concentrations at these two release points, we would expect to rely on our emergency field sampling procedures to provide the information necessary to assess the effect on public health and safety should this type of release occur.

During a recent inspection by NRC Region III the inspector raised some concerns regarding iodine plate-out and particulate deposition. Although we take these factors into account in our analyses, we understand that his concern was that our assumptions may be inconsistent with new criteria which are currently under development at the NRC. As a result of these discussions with the inspector, we agreed that if we are advised by the NRC that these new criteria are appropriate for application to the Cook Plant, we would evaluate them for plant impact and corrective action.

4. Containment High-Range Radiation Monitor (NUREG-0737 Item II.F.1.3)

The guidance given in Generic Letter 83-37 states:

> "A minimum of two in containment radiation-level monitors with a maximum range of 10^8 rad/hr (10^7 R/hr for photon only) should be operable at all times except for cold shutdown and refueling outages. In case of failure of the monitor, appropriate actions should be taken to restore its operational capability as soon as possible. If the monitor is not restored to operable condition within 7 days after the failure, a special report should be submitted to the NRC within 14 days following the event, outlining the cause of inoperability, actions taken and the planned schedule for restoring the equipment to operable status."

The proposed T/S changes in Attachment 2 include the appropriate revisions to include the containment high-range area radiation monitor, including the action statements suggested by Generic Letter 83-37. In a recent inspection by NRC Region III the NRC inspector specifically requested that we submit to your staff for review and approval the evaluations on which we conclude that these monitors meet the redundancy requirements of NUREG-0737 with regard to monitor location (i.e., one monitor is in the lower containment volume, and the other is in the upper containment volume). In compliance with the inspector's request, our evaluation of this matter will be submitted in approximately one month.

Bases Changes

Changes to the Bases section of the T/Ss for both Units 1 and 2 have been made as appropriate to reflect the addition to the T/Ss of the containment high range area monitor, mid- and high-range channels for the unit vent noble gas monitor, radiation monitors for the steam generator PORVs, and mid- and high-range channels for the steam jet air ejector vent. Specifically, the basis for the alarm or trip setpoints is given where applicable, and the monitoring ranges for these instruments are provided. In addition, some page renumbering was necessary to enable the proposed changes to be included in our current T/S manuals.

10 CFR 50.92 Evaluation

Per 10 CFR 50.92, a proposed amendment will not involve a significant hazards consideration if the proposed amendment does not:

(1) involve a significant increase in the probability or consequences of an accident previously evaluated,

(2) create the possibility of a new or different kind of accident from any accident previously analyzed or evaluated, or

(3) involve a significant reduction in a margin of safety.

Criterion 1

These changes will expand the license requirements for post-accident monitoring instrumentation and assist the operator in recovering from an accident. The changes will not involve a significant increase in the probability or consequences of any previously evaluated accident.

Criterion 2

The changes do not affect normal or accident plant operation. In an accident they will serve to provide data to the operator; therefore, the changes will not create the possibility of a new or different kind of accident from any previously analyzed or evaluated.

Criterion 3

The changes do not involve a significant reduction in the margin of safety, since they will only require that additional data be available to the operator.

The Commission has provided guidance concerning the determination of significant hazards by providing certain examples (48 FR 14870) of amendments considered not likely to involve significant hazards consideration. The second of these examples refers to changes that impose additional limitations, restrictions, or controls not presently included in the T/Ss. Since the requirement for the NUREG-0737 radiation monitoring instrumentation constitutes a restriction which the current T/Ss do not have, we believe this example is applicable and that the changes involve no significant hazards consideration.

The above T/S changes constitute additional restrictions to the present T/Ss. Therefore, we believe that these changes do not involve a significant hazards consideration as defined in 10 CFR 50.92.