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SUBJECT: Clarifies previous submittals re control room ventilation sys.

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AEP:NRC:0914E

Donald C. Cook Nuclear Plant Units 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
MODIFICATION OF SUBMITTALS REGARDING CONTROL ROOM VENTILATION

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

Attn: T. E. Murley

December 29, 1988

Dear Dr. Murley:

The purpose of this letter is to clarify previous submittals we have made that involve the control room ventilation systems at the Donald C. Cook Nuclear Plant. The clarifications are described below.

1. Withdrawal of Spray Additive System Proposed Technical Specification Change

   The first modification is to request withdrawal of our proposal to delete Technical Specification (T/S) 3/4 6.2.2 (spray additive system). Our request to delete the T/S was submitted via our letter AEP:NRC:0914C on February 28, 1986.

   The T/S change was originally requested as a result of NRC concerns with our method for satisfying the 5-year spray additive eductor surveillance required by T/S 4.6.2.2.d. Rather than revise the test method, we contracted with Westinghouse Electric Corporation (Westinghouse) to demonstrate that the spray additive system was unnecessary. The analyses and evaluations included offsite and control room thyroid doses resulting from a LOCA. The Westinghouse analyses were submitted with our letter AEP:NRC:0914C. On May 11, 1988, we were informed that the deletion of T/S 4.6.2.2 would not be approved by the NRC on a plant-specific basis.

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On October 11, 1988, we submitted control room dose calculations via our letter AEP:NRC:03980. The calculations were performed as a result of a September 1986 NRC review of our compliance with NUREG 0737 Item III D.3.4. Since we had been informed that our request to delete T/S requirements related to the spray additive tank would not be approved in the foreseeable future, the control room dose calculations submitted in our letter AEP:NRC:03980 took credit for the spray additive tank. Because the latest control room dose analysis does not support operation without the spray additive tank, we request that our proposal to delete T/S 3/4 6.2.2 be withdrawn. (The NRC concerns regarding testing of the spray additive eductor were successfully resolved in a meeting held in the AEP offices in Columbus, OH on November 15, 1988.)

2. Revision to Control Room Dose Calculations

The second clarification involves the control room thyroid dose calculations that were submitted in our letter AEP:NRC:03980, on October 11, 1988. Subsequent to the submittal, an error was discovered that impacted the results in a non-conservative direction.

The error involved the definition of the decontamination factor (DF) for elemental and particulate forms of iodine. DF is defined in Section 8.3.7 of ANSI/ANS 56.5 - 1979 (which is referenced by the Standard Review Plan) as the ratio of the iodine concentration at the time of interest to the original concentration prior to application of the plateout model. For elemental iodine, the Standard limits the maximum DF to 200 for sodium hydroxide sprays. There is no limit on the maximum DF for particulate iodine, but the removal coefficient must be reduced by a factor of 10 once a DF of 100 is reached.

In the calculations that supported the October 11, 1988 submittal, half of the iodine originally present in the containment atmosphere was assumed to instantaneously plate out, as permitted by Section 8.3.2 of the ANS Standard. However, the DF limits used in the calculation were determined using the initial iodine concentration as that concentration after plateout occurred. This meant that the maximum elemental iodine DF was 400 rather than 200, and that the particulate removal constant was changed at a DF of 200, instead of 100.

The calculations were revised to correct the error. In the process, several enhancements were made. Elemental iodine

removal was based on a conservative fit to Figure 14.3.5-1 of the Updated FSAR, rather than limited to 10 hr^{-1} as in the original calculation. The specific curve used in our control room reanalysis is provided in Figure 1. The particulate iodine removal coefficient was reduced to one tenth its original value after a DF of 100 was reached; removal continued at the reduced rate until the effect on dose became insignificant. In the original calculation, removal was assumed to stop at the removal rate reset setpoint.

The results of both the original and revised analyses are provided in Tables 1 and 2. All results remain within the 50 rem guideline of ICRP publications 26 and 30. For the cases involving single failures, the revised doses are actually lower than those originally reported, due to the effects of the enhancements included in the revised analysis.

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

Sincerely,

M. P. Alexich
Vice President

MPA/eh

Attachment

cc: D. H. Williams, Jr.
W. G. Smith, Jr. - Bridgman
R. C. Callen
G. Charnoff
G. Bruchmann
A. B. Davis - Region III
NRC Resident Inspector - Bridgman

Table 1

30 - DAY DOSE TO CONTROL ROOM PERSONNEL DUE TO A LOCA
(No Failure)

THYROID DOSES - REM

	Filtered Makeup - cfm			
	900	1000	1100	1200
Original Analysis	27.0	29.0	31.1	33.1
Revised Analysis	28.5	30.6	32.8	34.9

TABLE 2

30 - DAY DOSE TO CONTROL ROOM PERSONNEL DUE TO A LOCA

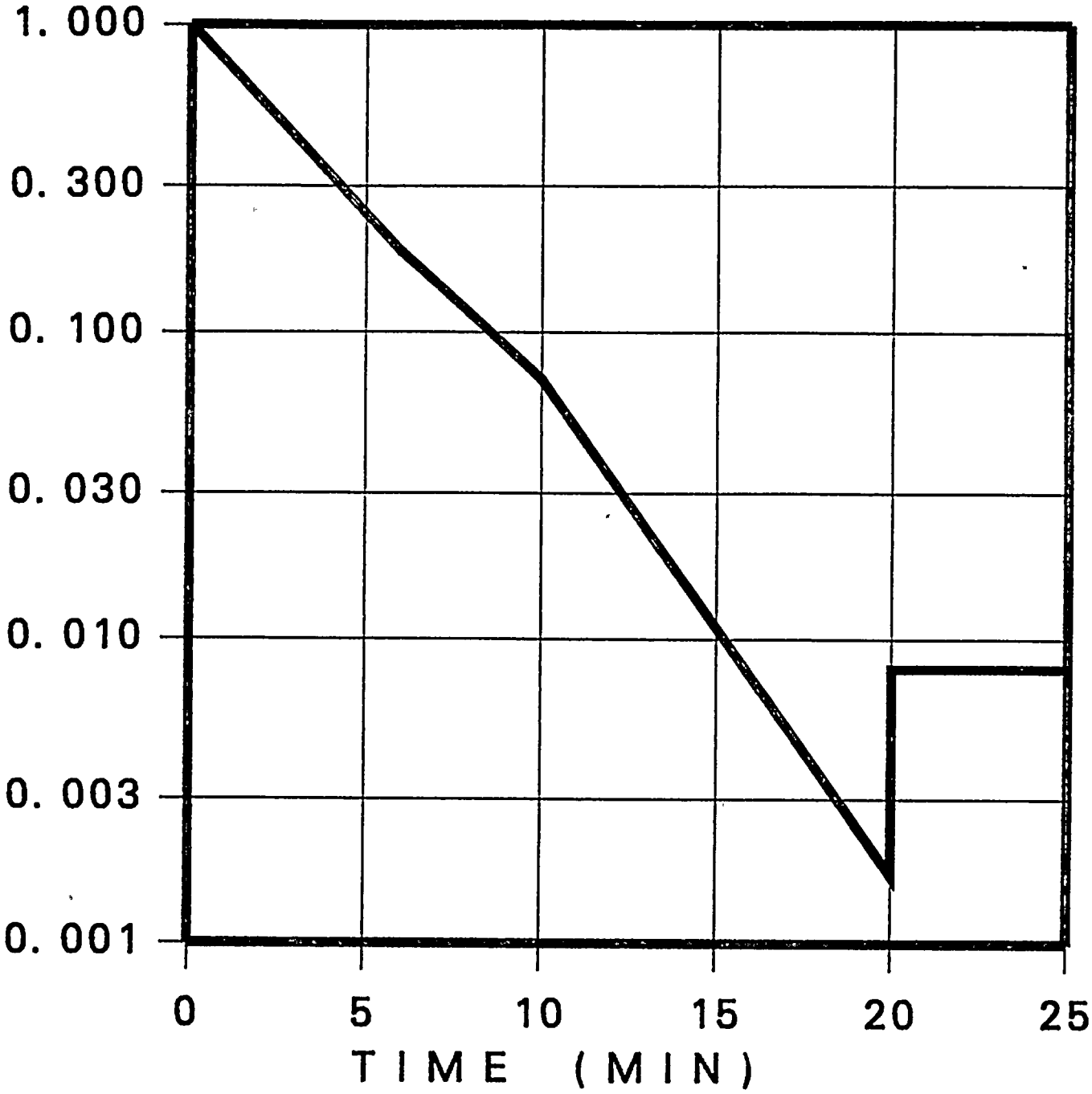
SINGLE FAILURE CASE

NORMAL INTAKE DAMPER OPEN 2.0 HOURS WITH 200 CFM FLOW

THYROID DOSES - REM

	Filtered Makeup - cfm			
	900	1000	1100	1200
Original Analysis	43.1	45.1	47.1	49.1
Revised Analysis	41.7	43.8	45.9	48.1

FIGURE 1



TOTAL FRACTION OF IODINE PRESENT IN THE CONTAINMENT (AFTER PLATEOUT) AS A FUNCTION OF TIME FOLLOWING A LOSS OF COOLANT ACCIDENT