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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: Application for amends to License DPR-58 & DPR-74, changing Tech Spec 3/4.7.5.1 re control room emergency ventilation sys & adding Tech Spec 3/4.3.3.11 re chlorine detection sys, per NUREG-0737, Item III.D.3.4. Fee paid.
SEE PROPOSED CHANGES TO TECH SPECS.

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P.O. BOX 16631
COLUMBUS, OHIO 43216

July,10, 1986
AEP:NRC:0856 O

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
CONTROL ROOM VENTILATION AND CHLORINE DETECTION
TECHNICAL SPECIFICATIONS

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

Dear Mr. Denton:

This letter and its attachments constitute an application for amendment to the Technical Specifications (T/Ss) for the Donald C. Cook Nuclear Plant Unit Nos. 1 and 2. Specifically, we propose to modify T/S 3/4.7.5.1 (Control Room Emergency Ventilation System) and to add T/S 3/4.3.3.11 (Chlorine Detection System). The changes are designed to address control room habitability concerns related to NUREG-0737 Item III.D.3.4, and to clarify ventilation system operability requirements as discussed with members of your staff in Bethesda, MD on January 13, 1986. The reasons for the proposed changes and our analyses concerning significant hazards considerations are contained in Attachment 1 to this letter. The proposed revised T/S pages are contained in Attachment 2.

At the January 13, 1986 meeting, members of your staff recommended modifications to our T/S-specified test temperature for laboratory testing of charcoal adsorber methyl iodide efficiency (reference T/Ss 4.7.5.1.c and 4.7.5.1.d). That recommendation is currently under review, as we have described in Item 2 of Attachment 1.

We believe that the proposed changes will not result in (1) a significant change in the types of effluents or a significant increase in the amounts of any effluent that may be released offsite, or (2) a significant increase in individual or 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. George Bruchmann of the Michigan Department of Public Health.

Recd w/ docks

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Pursuant to 10 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 RBK 7/9/86

MPA/rjn

Attachments

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

ATTACHMENT 1 TO AEP:NRC:0856 O

REASONS AND 10 CFR 50.92 ANALYSES FOR

CHANGES TO THE DONALD C. COOK NUCLEAR PLANT

UNIT NOS. 1 AND 2

TECHNICAL SPECIFICATIONS

This license amendment request proposes to modify T/S 3/4.7.5.1 (Control Room Emergency Ventilation System) and to add a T/S 3/4.3.3.11 (Chlorine Detection System). The proposed changes are intended to address control room habitability issues related to NUREG-0737 Item III.D.3.4 and Generic Letter 83-37. Additionally, the changes clarify several aspects of control room ventilation system operability requirements which were discussed with your staff in a meeting in Bethesda, MD on January 13, 1986.

To facilitate your staff's review of these changes, we have divided them into eleven categories. Each of these categories is discussed separately below. Preceding these categories is a description of the control room emergency ventilation system, which includes discussions of the radiological and toxic gas modes of operation.

Control Room Ventilation System Description

Figure 1 is a simplified flow diagram of the control room ventilation system. It also shows the layout of the various rooms which are served by the control room ventilation system. These rooms include the control room itself, the HVAC machine room (which houses the various ventilation equipment), and the P-250 computer room.

During normal operation of the control room HVAC system, outdoor air is drawn into the system through bubble-tight damper HV-ACRDA-1. The HVAC system supplies air to the P-250 computer room and to the control room. Air from the computer room transfers to the machine room through a transfer grill. Air returns to the HVAC system from the control room and the machine room. Damper HV-ACRDA-2 is maintained in a position sufficient to provide pressurization in the event of a radiological release. Damper ACRDA-3 is maintained closed for reasons related to toxic gas releases which will be described below. Damper ACRDA-4, the toilet room exhaust, is normally maintained open.

In the event of a radiological accident, the system would automatically be realigned in the recirculation/cleanup mode. This would occur on a safety injection signal from either unit. In this mode, dampers HV-ACRDA-1 and HV-ACRDA-4 would automatically close, to prevent unfiltered air from being drawn into the system. Damper HV-ACRDA-3 would automatically open to provide recirculation capability, and both pressurization fans would automatically start. The operator would then turn off one of the redundant fans to ensure that air velocity through the filter unit will provide minimum iodine residence times of approximately 0.25 seconds.

In the recirculation/cleanup mode, pressurization of the areas is provided by outdoor makeup air drawn by the pressurization fans through damper HV-ACRDA-2. The system is designed to provide a flow rate through the filter unit of 6000 cfm $\pm$ 10%. This flow rate is a combination of air recirculated through damper HV-ACRDA-3 and drawn from the outside through HV-ACRDA-2. The design of the system is such that a minimum 1/16 inch W.G. pressure would be maintained in the control room itself. The computer room and equipment rooms would see significantly less ingress and egress under accident conditions than the control room. Therefore, they are designed to provide a pressure greater than ambient, but potentially lower than the control room itself.

A chlorine gas detector is located in the normal air inlet duct. In the event chlorine is detected, the ventilation system would be manually realigned in the isolation mode of operation. This is accomplished by closing dampers HV-ACRDA-1 and HV-ACRDA-4. The control room pressurization fans are not run, to limit the amount of contaminated outdoor air which can enter the control room. Damper HV-ACRDA-2 cannot be closed from the control room beyond the setting for the recirculation/cleanup mode. Without the pressurization fans running, air entering through HV-ACRDA-2 is limited to that amount driven by the small differential pressure which may exist between the control room and adjoining areas and the outside atmosphere. Maintaining damper HV-ACRDA-3 closed ensures that air entering via damper HV-ACRDA-2 passes through the charcoal adsorbers prior to entering the control room.

1. Adoption of the 1980 Version of ANSI N510

The proposed change consists of replacing reference to the 1975 version of the ANSI N510 Standard with reference to the 1980 version, in T/S 4.7.5.1 The change will address problems we have experienced with literal application of the 1975 version, as described below.

At the D. C. Cook Plant, our Engineered Safety Features (ESF), storage pool, and control room ventilation systems are not of ANSI N509-1976 design. Additionally, they were operational before the issuance of ANSI N510-1975. Thus, literal compliance with all requirements of the ANSI N510 testing standard cannot physically be achieved. The 1980 version of ANSI N510 recognizes that all ventilation systems are not of ANSI N509-1976 design. Section 1.2 of ANSI N510-1980 states:

> It is the intent of this standard that it be rigorously applied only to systems designed and built to ANSI N509; however, sections of this standard may be used for technical guidance for testing of non-N509 systems.

ANSI N510 (1975 and 1980) requires that an air-aerosol mixing uniformity test be performed upon completion of initial system installation. ANSI N510 specifies the uniformity test as a prerequisite to T/S-required in-place leak testing of charcoal and HEPA filters. The purpose of the uniformity test is to verify that tracer injection and sample ports are located so as to provide proper mixing of the tracer in the air approaching the component stage to be tested. In July and August of 1985, we performed the uniformity test on the units which were expected at that time to exhibit the worst-case air distribution. These were the ESF ventilation units designated 1-HV-AES-1 and 2-HV-AES-1.

For the uniformity test, ANSI N510-1975 requires that values of upstream aerosol concentration in the sample plane differ by no more than 10%. ANSI N510-1980 is slightly less stringent, requiring individual samples in the upstream sample plane to be within $\pm$ 20% of the mean concentration. Our tests showed a worst-case variance of + 42%, -30% of the mean concentration. However, readings in the center of the sample plane, where the normal upstream sample is taken for charcoal and HEPA leak testing, were within 20% of the mean concentration.

The testing described above was conducted with the help of a consultant. The consultant was a member of the ANSI N510 Committee, although he was not representing the committee while working for us. He stated:

> In my opinion, you have optimized the location of the injection port and technique of injection for this system. Addition of baffling or other attempts to enhance the air-aerosol mixing would be fruitless....Your test results show conclusively that each area in the sampling plane upstream of the HEPA filter bank is being adequately challenged. While certain individual recordings differ from the mean concentration by somewhat more than $\pm$ 20%, the intent, though not the letter of ANSI N510-80 is certainly being met.

This information was brought to the attention of your staff on September 9, 1985. We were told at that time that our testing results were acceptable and that based on this the units could be considered operable. We were instructed, however, to submit a T/S change to document this discussion. Subsequent testing has been performed on the Control Room Ventilation Systems. Results were not within the bounds of the previously described tests. Concentrations in the upstream sample plane showed a worst-case variance of + 73%, - 72% of the mean concentration. Readings in the center of the sample plane were within 38% of the mean concentration. To correct for this high variance, we propose to use a correction factor. This factor will be used in lieu of the muiltpoint sampling technique suggested by Section 11 of ANSI-N510. As discussed previously, our control room ventilation system pre-dates ANSI N510-1975 and is not of ANSI N509 design. Thus, no provisions were included in the system design to allow for multipoint sampling.

The correction factor is derived from data obtained from performance of an air-aerosol mixing uniformity test which is similar to that recommended by Section 9 of ANSI N510-1980. The data is evaluated using statistical methods based on Section 11 of ANSI N510-1980. The lower limit 95% confidence level concentration at the upstream sample matrix is divided into the upper limit 95% confidence level concentration at the normal upstream single sample point. This results in the correction factor, which is multiplied by the penetration determined using in-place leak testing. If this correction factor is less than 1.0, 1.0 will be used. A similar correction factor is currently being applied.

To address the situation described above, we propose to adopt the 1980 version of ANSI N510 (which includes provisions for non-ANSI N509 systems) and to modify the Bases section of T/S 3/4.7.5.1 to take specific exemption from the literal requirements of the air-aerosol mixing uniformity test. Our comparison of the 1975 to the 1980 version of ANSI N510 has determined that the differences discussed above were the only ones of major significance, with the exception of requirements which will be described later related to methyl iodide lab testing. Several minor changes related to penetrometer sensitivity, adsorber residence time calculations, and background dust testing were also made in the 1980 edition, but our review determined these to be either more restrictive or to have minimal impact on safety.

Per 10 CFR 50.92, a proposed amendment will involve a no 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

The change to the 1980 version of the ANSI-N510 testing standard will update our T/Ss to currently acceptable testing standards. Since the 1980 version corresponds more closely to the D. C. Cook Plant ventilation system design, we believe this change does not involve a significant increase in the probability or consequences of a previously analyzed accident.

Criterion 2

The change involves only our testing methods to verify ventilation system operability. As this change does not involve modifications to the plant or changes in operation of the systems involved, we believe it will not create the possibility of a new or different kind of accident from any previously analyzed or evaluated.

Criterion 3

We are proposing to test our ventilation systems in a manner which corresponds more closely to the system design. Since the 1980 version of the code is the current industry standard, we believe that no reduction in a margin of safety will occur.

2. Laboratory Testing of Adsorbent

T/Ss 4.7.5.1.c and 4.7.5.1.d require a laboratory test to verify charcoal adsorber removal efficiency for methyl iodides. We currently test to the RDT M 16-1T-1973 standard, which is referenced by ANSI N510-1975. This test specified test conditions of 130°C and 95% relative humidity, which have been included in our present T/Ss. The 1980 version of ANSI N510, which we are proposing to adopt, specifies ASTM D 3803-1979 as the testing standard, and states that test conditions shall be in accordance with plant T/Ss.

At a meeting in Bethesda, MD on January 13, 1986, members of your staff commented that the efficiencies determined under test conditions of 130°C might not be indicative of efficiencies which could be anticipated under accident conditions. This was because the high temperature might cause vaporization of volatile filter contaminants, including moisture, thus increasing indicated adsorber efficiency. Your staff recommended we consider a test temperature of 30°C.

We are currently evaluating your staff's concern. We have recently performed a lab test on test canisters obtained from one of our Engineered Safeguards Features (ESF) ventilation units. One sample was tested at 130°C, using the 1975 version of ANSI N510, and the other at 30°C using the 1980 version, which we are proposing to adopt. The sample tested at 30°C had an indicated efficiency which was less than the 130°C sample by only 0.28%.

We plan to continue evaluating the need for different test conditions through July 1988, using parallel testing methods wherever practicable. The Engineering Safeguards Features and Storage Pool Ventilation units will also be evaluated during this time. Should our review determine the need for adopting different test conditions, we will submit proposed T/S changes requesting them. Until that time, we will continue to abide by our current T/S requirements.

3. Filter Train Inoperability

As presently written, T/S 3.7.5.1 allows the charcoal adsorber and HEPA filtration unit to be inoperable for only 24 hours before shutdown of the plant must begin. This amount of time is not sufficient to allow for orderly filter unit repair and adequate post-maintenance testing. For example, lab testing of the charcoal adsorber might be required during power operation because of the T/S requirement to test after every 720 hours of adsorber operation. If the charcoal should conclusively fail the lab test, the repair would most likely involve emptying and refilling all 18 charcoal trays in the unit. This is a time-consuming process, because of the great care necessary to ensure that the charcoal is packed sufficiently tight to prevent excessive settling and resultant bypass. When this process is complete, leak testing of the adsorber bank must be performed to ensure that no excessive bypass leakage occurs. Because repair and testing as described above are essentially impossible to complete in a 24-hour period, we are proposing to increase the allowable out-of-service time for the filter train from the present 24 hours to 72 hours.

The Donald C. Cook Plant was the first to which Standard T/Ss were applied. Because of such things as inconsistencies between specifications that could not be envisioned before the specifications were actually used in operation, it became necessary to modify the T/Ss from time to time. Because so many changes were necessary, the T/Ss were reissued in total in Amendment 12 to Unit 1, which was dated March 30, 1976. In your staff's Safety Evaluation Report which accompanied the amendment it was stated:

> Many of the times and frequencies originally specified were arbitrary; operating experience indicates that these times can be adjusted to provide time for more orderly and thorough planning and accomplishment of the required tasks and reduce the radiation exposure of plant personnel without a significant impact on safety.

It is our belief that T/S 3/4.7.5.1, which has not been amended since its original issue, falls into this category. The extension to 72 hours will allow more orderly maintenance and testing activities, and should contribute significantly to reducing the chance of personnel error. The increase in the probability of an accident during the additional 48 hours is extremely small. Moreover, it is anticipated that some level of protection would still be available in the event of an accident. For example, the doors which connect the control rooms could be opened, thus allowing the affected unit to benefit from the filter train in the other unit, assuming it is available. The affected unit could also be isolated from the outside atmosphere, drastically reducing the amount of contaminated outdoor air which would enter the room. (The isolation procedure will be described later, in the discussion of the chlorine detection system proposed T/Ss.) Lastly, respirators and self-contained breathing packs are available in close proximity to the control room. It is therefore our belief that the extension of time would not significantly compromise safety.

Per 10 CFR 50.92, a proposed amendment will involve a no 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

Since no physical changes will be necessary to the plant, this group of changes would not be expected to increase the probability of an accident evaluated previously. Since the filter train will be permitted to be out of service for a longer period of time, the significance of the consequences of an accident requiring control room ventilation filtration could be increased. However, we believe that the decreased likelihood of personnel error involved in filter train repair, the availability of other alternatives for accident mitigation, and the very small likelihood of an accident during the additional out-of-service time, result in the fact that any increase in accident consequences would be insignificant.

Criterion 2

Since no changes will result in plant design or operations, this group of changes would not be expected to create the possibility of a new or different kind of accident from any accident previously analyzed or evaluated.

Criterion 3

This group of changes may reduce a margin of safety, but for the reasons detailed under Criterion 1, above, any reduction in a safety margin is believed to be insignificant.

4. Control Room Pressure Boundary

T/S 4.7.5.1.e requires the Control Room Emergency Ventilation System to be capable of maintaining the control room at a positive pressure of at least 1/16 inch W.G. relative to the outside atmosphere. The action statements of T/S 3.7.5.1 address the heating and cooling systems, the pressurization fans, and the filter train. They do not, however, specifically address the pressure boundary. The purpose of this proposed change is to clarify the T/S pressurization requirements, since the 1/16 inch W.G. requirement is limited to the control room, and does not include the machine room and P250 computer room, as described in the introduction to this attachment and below.

Our interpretation of our present T/S 3/4.7.5.1 is that the pressure boundary is a part of the filter train, and thus falls under the action statements associated with it. We do not interpret the pressurization fan action statement as applicable, because it addresses inoperability of one of the two redundant fans, whereas the pressure boundary, like the filter train, is not redundant. Our interpretation has been discussed with Mr. J. Hayes of your staff during his April 2, 1986 visit to the D. C. Cook Plant, and has been documented in our letter AEP:NRC:0975B, dated April 8, 1986.

Because the pressure boundary is an integral part of the Control Room Emergency Ventilation System, necessary to limit amounts of unfiltered in-leakage to within analyzed limits, we propose to define it as a subsystem of the Control Room Ventilation System. We have added an action statement (d) which allows the same inoperability time as proposed for the filter train in Modes 1 through 4, consistent with the interpretation described previously. We have also included pressure boundary requirements in action statement (f), which we are proposing to add to address control room habitability requirements in Modes 5 and 6. Requirements for this action statement were made consistent with those proposed for the filter train in Modes 5 and 6. Further details on the additions of Mode 5 and 6 requirements will be provided later.

We also propose to add a surveillance requirement (4.7.5.1.e.4) for the pressure in the HVAC machine room and P250 computer room. We have included a sketch as Figure 1 which illustrates the layout of the areas and their communication paths. Under radiological accident conditions, the control room itself would be maintained at a positive pressure of at least 1/16 inch W.G. relative to the outside atmosphere by operation of one of the redundant pressurization fans. The HVAC machine room and the P250 room would not be expected to be entered or exited very frequently in the event of an accident, as would be expected for the control room itself. Therefore, their design provides pressures above ambient, but potentially lower than the control rooms. Thus, our proposed T/S 4.7.5.1.e.4 requires a surveillance on an 18-month basis to verify that pressures are positive with respect to the outside atmosphere. We note that air is supplied directly to the P-250 computer room, and then transfers to the machine room via transfer grills located in the wall between the rooms. Pressure in the P-250 computer room would always be

slightly higher than the machine room because of the small pressure drop associated with air passage through the transfer openings. Therefore, positive measurement in the machine room will ensure a positive pressure in the computer room.

As discussed previously, our interpretation of T/S 3/4.7.5.1 establishes the pressure boundary as a part of the filter train. Therefore, we are proposing an Action time of 72 hours, as proposed for the filter train.

Per 10 CFR 50.92, a proposed amendment will involve a no 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

The purpose of this group of changes is to formalize in the T/Ss our interpretation of the relation of the control room pressure boundary to the Control Room Emergency Ventilation System. This interpretation has previously been discussed with the NRC and has been documented in our letter AEP:NRC:0975B. Therefore, this group of changes is administrative in nature. This group of changes also creates additional surveillance requirements, while not deleting or modifying any previous requirements. Therefore, these changes would not be expected to result in a significant increase in the probability or consequences of a previously evaluated accident.

Criterion 2

This group of changes will result in no physical changes to the plant, and only minor changes in testing requirements. These additional testing requirements are only to measure pressure in rooms connected to the control room, and will utilize standard equipment and standard testing procedures. Thus, it is not anticipated that these changes will create the possibility of a new or different kind of accident from any previously analyzed or evaluated.

Criterion 3

These changes do not delete or reduce in any way previous requirements for safety. Thus, they should not reduce previous margins of safety.

5. Addition of Modes 5 and 6 Applicability and Actions

Generic Letter 83-37, which concerned NUREG-0737 Technical Specifications, stated that T/Ss should require that "two independent control room emergency air cleanup systems should be operable continuously during all modes of plant operation and capable of meeting design requirements." Because of this, we are proposing that T/S 3.7.5.1 for the Control Room Emergency Ventilation System be revised to include the requirement that this system be operable in all modes rather than just Modes 1 through 4. For inoperability of the filter train or the pressure boundary, or for the case of inoperability of both trains of redundant components, we propose suspension of all operations involving core alterations or positive reactivity changes. These changes represent additional restrictions required by NUREG-0737 and Generic Letter 83-37, and in no way reduce previous safety requirements.

Per 10 CFR 50.92, a proposed amendment will involve a no 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 constitute additional restrictions on the plant in terms of T/S mode applicability and action statement requirements. Since none of these changes reduce in any way previous safety requirements, they would not be expected to result in an increase in the probability or consequences of a previously evaluated accident.

Criterion 2

No physical changes will be necessary to the plant as a result of this group of changes. Additionally, no new types of plant operation will be introduced; rather, present operating requirements will be extended to include additional modes. Therefore, these changes should not create the possibility of a new or different kind of accident from any previously analyzed or evaluated.

Criterion 3

These changes add additional safety requirements and in no way reduce any existing requirements. Thus, no reduction in margin of safety should occur because of these changes.

6. Limits on Outdoor Makeup Air

In order to ensure that the control room is maintained habitable during a radiological-type accident, it is necessary to limit the amount of outdoor air that is brought into the control room ventilation system for pressurization purposes or due to in-leakage. As currently written, T/S 3/4.7.5.1 does not establish limits on the amounts of filtered outdoor makeup air which may be drawn into the control rooms for the purpose of providing pressurization during operation in the recirculation/cleanup mode. Additionally, no limits are set for amounts of unfiltered air which may leak into the control room. (At the Cook Plant, our primary source of unfiltered air in-leakage would be through damper HV-ACRDA-1, due to operation of the air conditioning system. Net leakage through other dampers would be to the outside atmosphere, because of the positive pressure maintained in the areas.) Limits on air in-leakage are necessary to ensure that doses to control room personnel will not exceed the limits established in General Design Criteria (GDC) 19 of 10 CFR 50, Appendix A.

In order to determine tolerable limits on air in-leakage, we had the Westinghouse Electric Corporation perform control room habitability analyses. These analyses have been included as Attachment 3 to this letter.

The Westinghouse analyses for skin and whole body doses were analyzed for air in-leakage rates of 200 to 800 cfm. These are total in-leakage values which in practice would consist of the sum of filtered and unfiltered contributions. The Westinghouse methodology attributes whole body and skin doses only to the noble gases, which are unaffected by charcoal and HEPA filtration. We have been informed by Westinghouse that their results, presented in Figure 1 of Attachment 3, can be linearly extrapolated to yield conservative results at in-leakage rates in excess of 800 cfm. The Westinghouse thyroid dose analysis assumed values of filtered in-leakage ranging from 200 to 800 cfm, while unfiltered in-leakage ranged from 0 to 60 cfm. As with the skin and whole body doses, Westinghouse has informed us that their thyroid results can be linearly extrapolated to obtain doses for higher in-leakage rates. For unfiltered in-leakage, we propose to assume a nominal 10 cfm unfiltered in-leakage to account for loss of pressurization due to opening and closing of control room doors during the course of the accident. The unfiltered in-leakage contribution of the bubble-tight damper HV-ACRDA-1 will be added onto the 10 cfm baseline to obtain the total unfiltered in-leakage rate.

It is our intent to operate within limits on filtered and unfiltered in-leakage which will ensure that doses to operators during the course of a LOCA will not exceed GDC-19 limits of 5 rem whole body, 30 rem skin, and 30 rem thyroid. The Westinghouse figures, linearly extrapolated as necessary, will be used to establish these limits. Linearly extrapolated versions have been included in the Bases section of T/S 3/4.7.5.1. To ensure that we operate within these limits, we propose to add a T/S 4.7.5.1.e.5, which will require us to measure in-leakage rates on an 18-month schedule. These measurements will include air intake through damper HV-ACRDA-2 and in-leakage through damper HV-ACRDA-1 while operating in the recirculation/cleanup mode.

The Westinghouse thyroid analysis assumed 95% charcoal adsorber efficiency for methyl iodide removal. Therefore, we propose to increase our T/S requirements on methyl iodide testing from the present requirement of 90% to 95% to achieve consistency with the Westinghouse analysis. This change affects T/Ss 4.7.5.1.c.3, 4.7.5.1.d.1, and 4.7.5.1.d.2.

We note that the Westinghouse analysis assumed a power level of 3391 MWt. This is consistent with the full power rating of Unit 1, but slightly lower than the 3411 MWt for which Unit 2 is licensed. Since fission product production is proportional to power level, it is expected the error involved would be less than 1%. This error is within the readability limits associated with Figures 1 and 2 of the Westinghouse analysis, and therefore will not significantly impact the analysis results.

The analyses performed by Westinghouse took credit for the iodine removal capabilities of the NaOH containment spray additive. In our letter AEP:NRC:0914C, dated February 28, 1986, we submitted analyses in support of removal of the spray additive tank and deletion of the T/S which governs it, 3/4.6.2.2. These analyses included an analysis of control room thyroid dose following a LOCA. The air in-leakage limit figures included in our proposed version of the Bases section for T/S 3/4.7.5.1 were obtained taking credit for the NaOH spray additive. Thus, NRC approval of our proposed T/S changes in AEP:NRC:0914C will require that we obtain modifications to the Bases section of T/S 3/4.7.5.1 prior to our implementation of the spray additive T/S changes.

Per 10 CFR 50.92, a proposed amendment will involve a no 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

As the current T/Ss do not require testing for air in-leakage, this change represents additional restrictions to the T/Ss which should enhance safety. The limits are based on analyses performed by Westinghouse which we have included in this letter. Because these changes represent additional restrictions, and because they are consistent with the Westinghouse analyses, we believe that they will not involve a significant increase in the probability or consequences of a previously evaluated accident.

Criterion 2

The accidents of concern for control room ventilation systems are generally considered to be fires, radiological releases, or toxic gas releases. Causes of these are not a function of the amount of in-leakage to the Control Room Ventilation System. Therefore, we conclude that these changes will not create the possibility of a new or different kind of accident from any previously analyzed or evaluated.

Criterion 3

Since these changes represent additional restrictions to the T/Ss, and since in-leakage limits and filter efficiency have been established consistent with the analyses, we do not believe that they will significantly decrease margins of safety.

7. Clarification of System Operation Description

The purpose of these changes is to clarify descriptions of control room ventilation system operation which are included in the T/Ss.

As presently written, T/S 4.7.5.1.e.2 instructs us to verify every 18 months that:

> On a Safety Injection Signal from either Unit 1 or Unit 2, or on a containment phase A isolation signal, the system automatically diverts its inlet flow through the HEPA filters and charcoal adsorber bank and that either fan can then be manually started in the recirculation mode.

This does not adequately describe the Cook Plant System for the following reasons:

(1) Automatic system actuation occurs on a safety injection signal from either unit. The safety injection signal will also initiate the respective unit's phase A containment isolation. However, the containment phase A isolation signal will not of itself initiate ventilation system actuation.

(2) In the event of a safety injection signal from either unit, both pressurization fans would automatically start. One would then be turned off by the operators to ensure adequate iodine residence times. The T/S as currently written implies that the fans must be turned on manually.

To make the T/S more accurately reflect the Cook system, we propose to revise it to require verification that:

a) On a Safety Injection Signal from Unit 1, the system automatically initiates operation in the recirculation/cleanup mode.

b) On a Safety Injection Signal from Unit 2, the system automatically initiates operation in the recirculation/cleanup mode.

We have separated the testing requirements for the Unit 1 and Unit 2 signals to emphasize that the signal from both units must be tested, i.e., that either/or is not sufficient.

In addition to changes to the system start description, we also propose to modify T/Ss 4.7.5.1.c.4 and 4.7.5.1.e.3. These T/Ss were modified to reflect the fact that the design requirements of 6000 cfm $\pm$ 10% and 1/16 inch W.G. are for operation in the radiological, or recirculation/cleanup mode of operation.

Details on system configuration in the recirculation mode will be provided in the Bases section. Placing the system description in the Bases allows us to expand our description of how the system is intended to function without making the T/S itself longer or wordier than necessary.

Per 10 CFR 50.92, a proposed amendment will involve a no 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 are administrative in nature, intended primarily to correct errors in the T/S description of Control Room Ventilation System operation. Since no changes in plant operations or physical changes to the plant will occur due to these changes, they do not involve a significant increase in the probability or consequences of a previously evaluated accident.

Criterion 2

Since no changes to the physical plant or plant operations will occur because of these changes, they should not create the possibility of a new or different kind of accident from any previously evaluated.

Criterion 3

These changes are administrative in nature, intended primarily to correct errors in the present T/Ss with regard to system operation descriptions. Thus, they should involve no reduction in margins of safety.

8. Leak-Testing of Charcoal and HEPA Filters

T/Ss 4.7.5.1.c and 4.7.5.1.d require testing of charcoal samples to demonstrate adequate removal efficiencies for methyl iodides. The samples may be obtained from test canisters or from samples removed from the charcoal bed. To obtain a sample from the charcoal bed requires the removal of an adsorber tray. Prudence dictates that after the tray is replaced in the housing, a leak test should be performed on the charcoal adsorber unit to ensure that the gaskets remain intact and that excessive bypass leakage will not occur.

Leak-testing of the charcoal adsorber bank after adsorber tray reinstallation is required by our T/S 4.7.5.1.d.2, and after complete or partial replacement of a charcoal adsorber bank by T/S 4.7.5.1.g. It is not, however, specifically required by T/S 4.7.5.1.c.3, even though this T/S also allows removal of a charcoal tray to obtain a sample. To achieve consistency throughout the T/S, we are proposing to add the leak-testing requirement to T/S 4.7.5.1.c.3.

In addition to leak-testing of the charcoal adsorbers, T/S 4.7.5.1.d.2 requires leak-testing of the HEPA filters following reinstallation of the charcoal tray used to obtain a carbon sample. Charcoal trays and HEPA filters are located in different sections of the filter housing; reinstallation of a charcoal tray would not be expected to impact the leakage characteristics of the HEPA units. Leak-testing of the HEPA units following charcoal tray installation is not a recommended test per Table 1 of ANSI N510-1980, nor is it recommended by Regulatory Position C.5 of Regulatory Guide 1.52, Revision 2, March 1978. It is therefore our belief that this test requirement is an error in our present T/Ss. We have deleted the requirement in our proposed version of T/S 4.7.5.d.2.

Per 10 CFR 50.92, a proposed amendment will involve a no 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

The addition of testing requirements to T/S 4.7.5.1.c is made to achieve consistency throughout the T/Ss. The deletion of HEPA testing requirements from T/S 4.7.5.1.d is intended to correct an error in our present T/Ss. Since testing requirements are being deleted, this change may be perceived to involve an increase in the probability or consequences of a previously evaluated accident or a reduction in a margin of safety. However, for reasons described previously, it is our belief that these would be insignificant.

Criterion 2

The accidents of concern for control room ventilation systems are generally considered to be fires, radiological releases, or toxic gas releases. Causes of these are not a function of testing requirements for the control room ventilation system. Therefore, we conclude that these changes will not create the possibility of a new or different kind of accident from any previously analyzed or evaluated.

Criterion 3

See Criterion 1, above.

9. Addition of Chlorine Detection T/Ss

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

"Licensees should assure that control room operators will be adequately protected against the effects of the accidental release of toxic and/or radioactive gases and that the nuclear power plant can be safely operated or shutdown under design basis accident conditions. If the results of the analyses of postulated accidental release of toxic gases (at or near the plant) indicate any need for installing the toxic gas detection system, it should be included in the Technical Specifications. Typical acceptable LCO and surveillance requirements for such a detection system (e.g., chlorine detection system) are provided in Enclosure 3. All detection systems should be included in the Technical Specifications."

We are proposing a new T/S 3/4.3.3.11 on the chlorine detection system for both Units 1 and 2 T/Ss to ensure that the control room operators will be adequately protected against the effects of accidental release of toxic gases (specifically chlorine) at or near the plant. T/S 3/4.3.3.11 follows the sample T/S given in Enclosure 3 to Generic Letter No. 83-37, except for the following deviations:

i. We do not have two independent chlorine detection systems in each unit; we have one chlorine detector per unit located in the fresh air inlet duct to the Control Room Ventilation system. We have therefore changed the requirement from two independent chlorine detection systems to one chlorine detection system. Because of the proximity of the Unit 1 and Unit 2 control rooms, in the event the chlorine detector of either unit is inoperable the proposed T/S requires that the ventilation systems of both control rooms be placed in an isolated condition, as described in the introduction to this attachment. In addition, we have removed action (a) from the sample T/S since it is no longer applicable. (Since we have only one detection system, action (b) is sufficient.)

ii. Our chlorine detection system will trigger an alarm in the control room when the chlorine concentration of the air being vented into the control room ventilation system is greater than the alarm setpoint. When this occurs, the operators have been instructed to place the Control Room Ventilation Systems of both units in an isolated condition, as described in the introduction to this attachment. There is no automatic trip function connected with the chlorine detection system. We have therefore eliminated the reference to a trip setpoint.

iii. A "qualitative assessment of channel behavior during operation by observation" is not possible without injection of chlorine into the control rooms. Since chlorine is not normally present in the control room atmosphere, the detectors would normally be reading 0 ppm, which is not indicative of detector operability.

iv. We have also made a nomenclature change to the surveillance requirement. More specifically, we have changed "ANALOG CHANNEL OPERATIONAL TEST" to "CHANNEL FUNCTIONAL TEST."

In addition, we are proposing to add a T/S Bases section 3/4.3.3.11, entitled "Chlorine Detection Systems." This section will explain the purpose of the chlorine detector T/S and the operation of the control room ventilation system in an isolated condition.

Per 10 CFR 50.92, a proposed amendment will involve a no 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 represent additional restrictions and in no way reduce previous T/S commitments. Thus they are not expected to increase the probability or consequences of a previously evaluated accident.

Criterion 2

No physical changes to the plant will result from these changes. Additionally, no changes in plant operation will be necessary. Therefore, these changes should not create the possibility of a new or different kind of accident from any previously analyzed or evaluated.

Criterion 3

Since no reduction in previous T/S commitments will occur as a result of these changes they should not involve a reduction in any margins of safety.

10. Changes to the Control Room Ventilation System Bases

We also propose to modify the Bases section for T/S 3/4.7.5.1. Our proposed changes include discussions of the following:

a. The use of the 1980 version of the ANSI N510 standard.

b. Control Room Ventilation System operation under conditions of toxic gas and radiological releases.

c. Analysis limits on air in-leakage.

d. Definition of the pressure boundary.

11. Editorial Changes

In addition to the changes described previously, several editorial changes were made. These were changes to correct typographical errors in our present T/Ss, or changes that were necessary as a result of those changes described previously. These changes are described in Table 1 below. Because these changes are purely editorial, they do not reduce a margin of safety, do not increase the probability or consequences of a previously analyzed accident, and do not introduce the possibility of a new accident. Therefore, we believe these changes do not involve a significant hazards consideration as defined by 10 CFR 50.92.

Table 1. Listing of Editorial Changes

#	Unit	T/S	Description
1	1	3/4.7.5.b, c	"and" moved from T/S 3.7.5.1.b to T/S 3.7.5.1.c.
2	1	3.7.5.1	Applicability changed to "All MODES" because of the addition of action for Modes 5 and 6.
3	1	3.7.5.1-Action	"MODES 1, 2, 3, and 4" added after "ACTION" because of the addition of action for Modes 5 and 6.
4	1	4.7.5.1.c	A comma was deleted after the word "system".
5	1	4.7.5.1.d.2	"s" added to "demonstrate."
6	1	4.7.5.1.e.1	"(W.G.)" added after "Water Gauge".
7	1	T/S 3/4.7.5	The entire T/S was retyped; thus, the location of sections on the various pages has changed.
8	1	Bases for T/S 3/4.3.3.9,10	T/S numbers were deleted from the beginning of the paragraphs.
9	1	Bases for T/S 3/4.7.5	"General Design Criteria 10" was changed to "General Design Criteria 19"; "t" added to "consistent."
10	1	Bases for T/S 3/4.7.6,7	Moved to Bases page B 3/4 7-5f because of the extension of the Bases section of T/S 3/4.7.5.

#	Unit	T/S	Description
11	2	LCO for T/S 3.7.5.1	"whall" changed to "shall."
12	2	3.7.5.1	Applicability changed to "All MODES" because of the addition of action for Modes 5 and 6.
13	2	3.7.5.1-Action	"MODES 1, 2, 3, and 4" added after "ACTION" because of the addition of action for Modes 5 and 6.
14	2	4.7.5.1.d.2	"s" added to "demonstrate."
15	2	4.7.5.1.e.1	"(W.G.)" added after "Water Gauge."
16	2	3/4.7.5	The entire T/S was retyped; thus, the location of sections on the various pages has changed.
17	2	Bases for T/S 3/4.3.4	Moved to Bases page B 3/4 3-4 because of the addition of a Bases section for T/S 3/4.3.3.11.

Conclusion

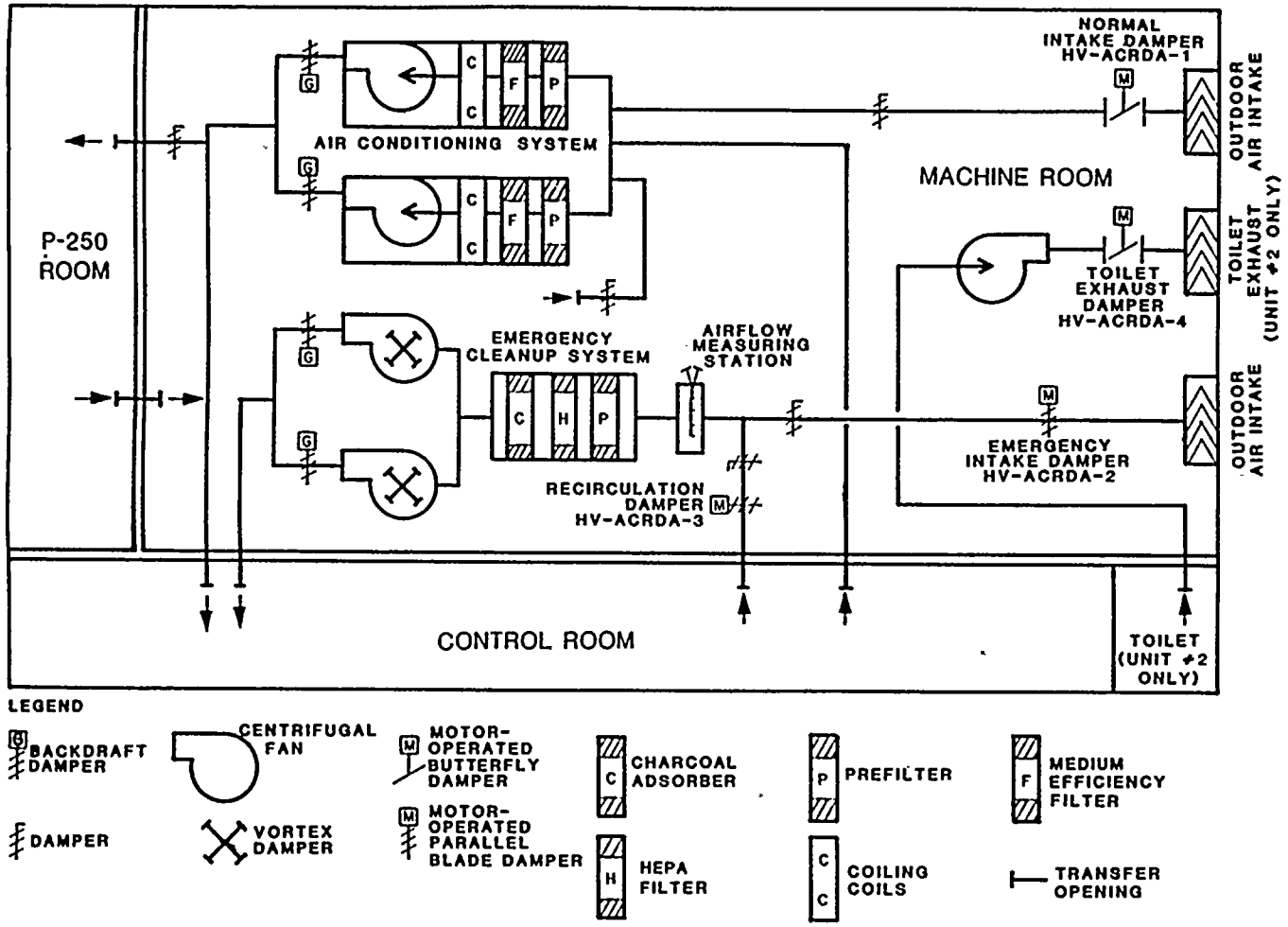
In conclusion, we believe that the proposed changes do not involve significant hazards considerations because, as demonstrated in the previous discussion, operation of the D. C. Cook Plant in accordance with the changes would not:

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

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

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

FIGURE 1: **CONTROL ROOM VENTILATION SYSTEM**



Attachment 1 to AEP:NRC:0856 O