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SUBJECT: Application for amend to license DPR-58, to change TS 3/4.4.5 & bases for TS 3/4.4.5, 3/4.4.6.2 & 3/4.4.8 to remove voltage-based repair criteria, F* repair criteria & sleeving methodologies from Unit 1 TS & clarify bases sections.

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American Electric Power
Cook Nuclear Plant
Unit 1 Steam Generator Replacement Project
One Cook Place
Bridgman, MI 49106
616-466-3472



August 17, 1999

C0799-05
10 CFR 50.90

Docket No: 50-315

U.S. Nuclear Regulatory Commission
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Donald C. Cook Nuclear Plant Unit 1
TECHNICAL SPECIFICATION CHANGE REQUEST
TECHNICAL SPECIFICATION 3/4.4.5,
AND BASES 3/4.4.5, 3/4.4.6.2, AND 3/4.4.8

Pursuant to 10 CFR 50.90, Indiana Michigan Power Company (I&M), the Licensee for Donald C. Cook Nuclear Plant Unit 1, proposes to amend Appendix A, Technical Specifications (T/S), of Facility Operating License DPR-58. I&M proposes to amend Unit 1 T/S 3/4.4.5 and the bases for T/S 3/4.4.5, T/S 3/4.4.6.2, and T/S 3/4.4.8. This proposed amendment removes the voltage-based repair criteria, F* repair criteria, and sleeving methodologies from the Unit 1 T/S and clarifies the bases sections accordingly.

This proposed change is part of the Unit 1 steam generator (SG) replacement effort. The amendment is to be implemented upon completion of the SG replacement. I&M will be replacing the original Unit 1 Westinghouse model 51 SGs with Babcock and Wilcox (B&W) SGs having improved materials and enhanced design features. The replacement effort is scheduled to occur during the current outage, prior to Unit 1 restart. The current voltage-based and F* repair criteria and sleeving methodologies in the Unit 1 T/S, incorporated via past amendments to specifically address various SG tube degradation mechanisms associated with the Westinghouse Model 51 SGs, are not applicable to the replacement SGs.

Attachment 1 provides the background and reason for the change, a description of the proposed change, the justification for the change, and our analysis concerning significant hazards considerations. Attachment 2 provides the current T/S pages, marked-up to reflect the proposed changes. Attachment 3 provides the proposed revised T/S pages. Attachment 4 provides an environmental assessment of the proposed change.

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In accordance with the requirements of 10 CFR 50.91, copies of this letter and its attachments have been transmitted to the Michigan Public Service Commission and the Michigan Department of Public Health.

Should you have any questions, please contact Mr. Gordon P. Arent, Acting Director of Regulatory Affairs, at (616) 465-5901, extension 1575.

Sincerely,



R. P. Powers
Vice President

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 17th DAY OF Aug., 1999


Notary Public

My Commission Expires _____

PATRICIA A. EDDIE
Notary Public - Calumet Co. Mich.
My Commission Expires
NOVEMBER - 5 - 2000

Attachments

/jmc

- c: A. C. Bakken, III, w/attachments
J. E. Dyer, w/attachments
MDEQ - DW & RPD
NRC Resident Inspector, w/attachments
R. Whale

WALTER S. EDIE
COMMISSIONER OF THE
STATE OF MISSISSIPPI
MEMPHIS, TENNESSEE

BACKGROUND AND REASON FOR CHANGE; DESCRIPTION OF CHANGE;
JUSTIFICATION FOR CHANGE; AND 10 CFR 50.92 ANALYSIS FOR CHANGE
TO UNIT 1 TECHNICAL SPECIFICATIONS

A. BACKGROUND AND REASON FOR CHANGE

Indiana Michigan Power Company (I&M), the Licensee for Donald C. Cook Nuclear Plant, Units 1 and 2; plans to replace the Unit 1 steam generators (SGs) during the current outage prior to Unit 1 restart. The current surveillance requirements for sample selection, inspection frequency, acceptance criteria, repair methods, and required reports were specifically developed for application to the degraded Westinghouse model 51 SGs (OSGs) installed in Unit 1. These requirements were developed, in part, to permit tubes to remain in service that were experiencing various tube degradation mechanisms. After replacement of the OSGs, the current voltage-based repair criteria, F* repair criteria, and sleeving methods will no longer be applicable due to material and design changes incorporated into the replacement steam generators (RSGs).

The analyses performed to support application of the voltage-based and F* repair criteria were specifically based on the OSGs. These analyses will no longer apply to the RSGs following replacement of the OSGs. In addition, the currently approved Westinghouse mechanical, Westinghouse laser-welded, and Combustion Engineering leak tight welded sleeving processes will no longer be applicable to Unit 1. These sleeving processes were developed specifically for Westinghouse SG materials and design and are, therefore, not applicable to the B&W RSGs.

B. DESCRIPTION OF CHANGE

Introduction

Changes are proposed to amend Technical Specification (T/S) 3/4.4.5, "Steam Generators," T/S Bases 3/4.4.5, "Steam Generators Tube Integrity," T/S bases 3/4.4.6.2, "Operational Leakage," and T/S bases 3/4.4.8, "Specific Activity," for Unit 1 to support SG replacement. The replacement effort is scheduled to occur during the current outage, prior to Unit 1 restart. The RSG materials and design features for tubing and tube supports are different from the OSGs. In light of the design differences, the analyses performed for use of voltage-based and F* repair criteria and sleeving methodologies for Unit 1 tubes do not apply to the RSGs. Therefore, reference to these criteria and methodologies will no longer be appropriate in the T/S.



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Description and Basis for Current Requirements

The surveillance requirements specified in T/S 3/4.4.5 for inspection of SG tubes are intended to provide reasonable assurance that the structural and leakage integrity of the tubes is acceptable for continued service and will withstand the peak pressures that could develop following a postulated accident. The most severe accident for peak differential pressure on the tubes is the main steamline break (MSLB) accident.

Prior to development of specialized repair criteria (voltage-based and F*), the plugging criteria for Unit 1 were based on a tube integrity minimum wall thickness requirement established for the plant as part of the original licensing basis. The specialized criteria for SG tubes and sleeves in the current T/S are based on analyses performed to requirements of regulatory guide (RG) 1.121 and generic letter (GL) 95-05. For tubes left in service due to application of voltage-based or F* repair criteria, analyses have been performed to demonstrate acceptable probability of tube burst, and to provide assurance that MSLB leakage is within site-specific limits.

The current repair methods of sleeving provide a process to re-establish the primary system pressure boundary of a tube containing degradation exceeding the repair limit. Installation of the sleeve provides a leak tight boundary that spans the defective area and restores the structural integrity of the tubing to satisfy RG 1.121 requirements.

The current program for in-service inspection of SG tubes is based on a modification of RG 1.83, revision 1, GL 95-05, and F* criteria. In-service inspection of SG tubing is necessary to maintain surveillance of the conditions of the tubes in the event that there is evidence of mechanical damage or progressive degradation due to design, manufacturing errors, or in-service conditions that could lead to corrosion. In-service inspection of SG tubing also provides a means of characterizing the nature and cause of tube degradation so that corrective measures can be taken.

T/S reporting requirements associated with application of voltage-based repair and F* repair criteria provide assurance that the NRC is aware of any abnormalities detected during an inspection and provide notification as to the extent of application of the criteria.

T/S 4.4.5 provides the surveillance requirements for sample selection, inspection frequency, acceptance criteria, repair methods, and required reports to the NRC. Provisions of T/S 4.4.5 that are affected by this proposed T/S amendment are summarized as follows:



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T/S surveillance requirement 4.4.5.2 provides the requirement for SG tube sample selection and inspection and preface the list of exceptions to the random selection of SG tubes. This section also states that tubes repaired by sleeving do not constitute areas of previous defects or imperfections.

T/S surveillance requirement 4.4.5.2.b.1 requires all tubes not plugged or repaired that previously had detectable wall penetrations be included in the first sample.

T/S surveillance requirement 4.4.5.2.b.4 requires that, for all indications left in service as a result of application of the tube support plate (TSP) voltage-based repair criteria, the indications shall be inspected by bobbin coil probe during future refueling outages.

T/S surveillance requirement 4.4.5.2.c requires that tubes that remain in service due to the application of the F* repair criteria will be inspected in the roll expanded region during future outages.

T/S surveillance requirement 4.4.5.2.e requires the determination of TSP intersections having outside diameter, stress corrosion cracking (ODSCC) indications be based on a random sample inspection of at least 20% of the total number of tubes inspected over their full length. Implementation of the SG tube/TSP plugging criteria requires a 100% bobbin coil inspection for hot leg support plate intersections and cold leg intersections down to the lowest cold leg TSP with known ODSCC indications.

T/S surveillance requirement 4.4.5.2.f requires that inspection of sleeves follow the criteria for first sample selection and sample expansion according to table 4.4-2.

T/S surveillance requirement 4.4.5.2 also specifies the criteria to classify the sample inspection results into three categories. The "note" to these criteria states that previously degraded tubes or sleeves must exhibit significant ($\geq 10\%$) further wall penetrations to be included in the percentage calculation defined in the classification criteria.

T/S surveillance requirement 4.4.5.3.a requires the first in-service inspection to be performed within a specified interval of time following initial criticality. Frequencies of subsequent in-service inspections are also addressed.

T/S surveillance requirement 4.4.5.4.a.1 defines "imperfections" for both tubes and sleeves as exceptions to dimensions, finish or contour from that required by fabrication drawings or specifications.

T/S surveillance requirement 4.4.5.4.a.2 defines "degradation" for both tubes and sleeves as service-induced cracking, wastage, wear, or general corrosion on either the inside or outside of the tube or sleeve.

T/S surveillance requirement 4.4.5.4.a.3 defines "degraded tube or sleeve" as having an imperfection of greater than or equal to 20% of the nominal wall thickness.

T/S surveillance requirement 4.4.5.4.a.5 defines "defect" as an imperfection that exceeds the defined repair limit.

T/S surveillance requirement 4.4.5.4.a.6 defines the "repair/plugging limit" for tubing or sleeved tubes as the imperfection depth equal to 40% of the nominal tube wall thickness. The plugging limit imperfection depth for laser welded sleeves is equal to 23% of the nominal sleeve wall thickness. The plugging limit imperfection depth for non-laser welded sleeves is equal to 29% of the nominal sleeve wall thickness. This definition does not apply to defects in the tubesheet that meet the criteria for an F* tube.

T/S surveillance requirement 4.4.5.4.a.7 defines "unserviceable" as the condition for tubes and sleeves that leak or would not maintain their structural integrity under the conditions specified in 4.4.5.3.c.

T/S surveillance requirement 4.4.5.4.a.8 defines "inspection" as the means of determining the condition of the SG tube or sleeve from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg. For a tube in which the TSP elevation interim plugging limit has been applied, the "inspection" will include all the hot leg intersections and cold leg intersections down to, at least, the level of the last crack indication.

T/S surveillance requirement 4.4.5.4.a.9 defines and permits "sleeving" of two types. Tube support plate sleeves are centered about the tube support plate intersection. Tubesheet sleeves start at the primary fluid tubesheet interface and extend through the entire tubesheet.

T/S surveillance requirement 4.4.5.4.a.10 defines the "tube support plate repair limit" used to disposition alloy 600 SG tubes for continued service that are experiencing predominately axially-oriented ODSCC confined within the

thickness of the tube support plates. At tube support plate intersections, the plugging limit is based on maintaining SG tube serviceability as determined by various bobbin voltage criteria. Mid-cycle repair limits are also defined.

T/S surveillance requirement 4.4.5.4.a.11 defines the F* "distance" as the distance from the bottom of the hardroll transition toward the bottom of the tubesheet that has been conservatively determined to be 1.11 inches (not including eddy current uncertainty).

T/S surveillance requirement 4.4.5.4.a.12 defines the "F* tube" as a SG tube with degradation, below the F* distance, equal to or greater than 40%, but that has no indications of degradation (i.e., no indication of cracking) within the F* distance.

T/S surveillance requirement 4.4.5.4.a.13 defines "tube repair" as sleeving described by reports listed in T/S surveillance requirement 4.4.5.4.c. Discussion allows use of sleeving as preventive measures and for a method of returning previously plugged tubes to service following appropriate inspections.

T/S surveillance requirement 4.4.5.4.b states that a SG shall be determined operable after completing the corresponding actions required by table 4.4-2.

T/S surveillance requirement 4.4.5.4.c identifies the topical reports for sleeving methodologies approved for use on Unit 1.

T/S surveillance requirement 4.4.5.5.a requires that the number of tubes plugged or sleeved be reported to the NRC within 15 days of the completion of each in-service inspection of the SG tubes.

T/S surveillance requirement 4.4.5.5.b requires that the number of tubes and sleeves inspected be reported and tubes that are plugged or sleeved be identified in the annual operating report.

T/S surveillance requirement 4.4.5.5.d requires notification to the NRC of implementation of voltage-based repair prior to returning the SGs to service if any of the following conditions arise.

1. The estimated end-of-cycle (EOC) leakage limit exceeds that assumed in the licensing basis offsite dose calculation for the MSLB.



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2. Circumferential crack-like indications are detected at the tube support plate intersections.
3. Indications are identified that extend beyond the confines of the tube support plate.
4. Indications are identified at the tube support plate elevations that are attributable to primary water stress corrosion cracking.
5. The calculated conditional burst probability based on projected EOC voltage distribution exceeds 1×10^{-2} . This determination also requires an assessment of the safety significance of the occurrence.

T/S table 4.4-2 provides the required sample size, resulting category, and required actions for first, second, and third sample SG tube inspections.

T/S bases 3/4.4.5 addresses requirements of T/S surveillance 4.4.5. Additionally, T/S bases 3/4.5.6.2 addresses the anticipated primary-to-secondary leakage associated with the MSLB, which is based on the SG tube structural integrity condition required by T/S surveillance 4.4.5.

T/S bases 3/4.4.8 addresses the limitations on the primary coolant activity based on maintaining acceptable offsite doses following a steam generator tube rupture (SGTR) event. This bases section was previously modified to include a MSLB case for high primary-to-secondary leakage (120 gpm) at a primary coolant activity level corresponding to 1% failed fuel.

Description of Proposed Modifications to Unit 1 Technical Specifications

I&M proposes to revise T/S 3/4.4.5, T/S bases 3/4.4.5, T/S bases 3/4.4.6.2, and T/S bases 3/4.4.8. These revisions remove the modifications that were made to the Unit 1 T/S to address the various SG tube degradation mechanisms that have occurred on the Unit 1 OSGs. Incorporation of these proposed changes will cause the Unit 1 T/S to essentially revert back to the original licensing bases (except for operational leakage limits) that are consistent with both the Standard Technical Specifications for Westinghouse PWR Plants (NUREG-0452) and the Unit 2 requirements. The proposed T/S changes are as follows.

T/S surveillance requirement 4.4.5.2, SG tube sample selection and inspection.



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T/S surveillance requirement 4.4.5.2 is revised to remove reference to previous defects or imperfections repaired by sleeving.

T/S surveillance requirement 4.4.5.2.b.1 is revised to remove the reference to sleeving.

T/S surveillance requirements 4.4.5.2.b.4, 4.4.5.2.c, 4.4.5.2.e, and 4.4.5.2.f are deleted.

T/S surveillance requirement 4.4.5.2.d is renumbered.

T/S surveillance requirement 4.4.5.2 is revised to remove the reference to sleeving.

T/S surveillance requirement 4.4.5.3, inspection frequencies.

T/S surveillance requirement 4.4.5.3.a is revised to apply to the same initial interval for in-service inspection to RSGs as was done for the original OSGs.

T/S surveillance requirement 4.4.5.4, acceptance criteria.

T/S surveillance requirement 4.4.5.4.a items 1, 2, 3, 6, 7, and 8 are revised to remove references to sleeving.

T/S surveillance requirement 4.4.5.4.a items 5 and 6 are revised to remove references to repair limits.

T/S surveillance requirement 4.4.5.4.a.5 is revised to define a defect in terms of the plugging limit.

T/S surveillance requirement 4.4.5.4.a.6 is revised to remove the discussion of applicability to F* tubes and sleeves.

T/S surveillance requirement 4.4.5.4.a.8 is revised to remove the reference to interim plugging limit.

T/S surveillance requirement 4.4.5.4.a items 9, 10, 11, 12, and 13 are deleted.

T/S surveillance requirement 4.4.5.4.b is revised to remove references to sleeves and repair limits.

T/S surveillance requirement 4.4.5.4.c is deleted.

T/S surveillance requirement 4.4.5.5, Reports.

T/S surveillance requirements 4.4.5.5.a, 4.4.5.5.b.1, and 4.4.5.5.b.3 are revised to remove references to sleeving.



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T/S surveillance requirement 4.4.5.5.d is deleted.

T/S Table 4.4-2.

Table 4.4-2 is revised to remove references to sleeving.

Bases T/S 3/4.4.5, Steam Generator Tube Integrity.

T/S bases 3/4.4.5 are revised to remove any references to repair of defective tubes, repair limits, and sleeving. Details on the voltage-based repair limits are removed and all references to approved methodologies for sleeving are removed.

Bases T/S 3/4.4.6.2, Operational Leakage.

T/S bases 3/4.4.6.2 are revised to remove the detail of crack growth and expected maximum primary-to-secondary leakage during a MSLB.

Bases T/S 3/4.4.8, Specific Activity.

T/S bases 3/4.4.8 are revised to remove the paragraph that discusses MSLB offsite doses at a primary-to-secondary leak rate of 120 gpm.

C. JUSTIFICATION FOR CHANGE

For Unit 1 operation after steam generator replacement, the voltage-based and F* requirements will no longer be applicable. The T/S acceptance limits will be based on through-wall criteria that require tubes be plugged when imperfections exceed the plugging limit of 40% of the nominal tube wall thickness. The proposed program for periodic in-service inspection of the replacement SGs monitors the integrity of the SG tubing to provide reasonable assurance that there is sufficient time to take proper and timely corrective action if any tube degradation is present. The proposed program is consistent with NUREG-0452 and was the basis for the original T/S issued with the Unit 1 operating license, DPR-58.

The purpose of the T/S plugging limit, in conjunction with surveillance and maintenance programs, is to provide reasonable assurance that the SG tubes accepted for continued service will retain adequate structural and leakage integrity during normal, transient, and postulated accident conditions. Although D.C. Cook is not a GDC plant, I&M has determined that the RSG design is consistent with general design criteria (GDC) 14, 15, 30, 31, and 32 of 10 CFR 50, appendix A. Compatibility with these GDCs, as

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discussed below, supports the application of T/S acceptance limits based on through-wall criteria.

RSG design, surveillance, and maintenance meet the requirements of GDC 14. The RSG portions of the reactor coolant pressure boundary are designed, fabricated, erected, and tested to have an extremely low probability of abnormal leakage, rapidly propagating failure, or gross rupture. The RSG design meets the applicable ASME Code requirements and complies with 10 CFR 50.55a.

RSG design, surveillance, and maintenance meet the requirements of GDC 15. The RSG portions of the reactor coolant system are designed with sufficient margin to provide reasonable assurance that the applicable stress limits are not exceeded during any condition of normal operation or anticipated operational occurrences. The RSG tubing has been structurally evaluated under the applicable requirements of ASME Section III, 1989 Edition, for Service Levels A, B, C, and D (normal, upset, emergency, and faulted conditions, respectively).

RSG design meets the requirements of GDC 30. The RSG portions of the reactor coolant pressure boundary are designed, fabricated, erected, and tested to the highest practical quality standards by meeting the ASME Code and 10 CFR 50, appendix B. Detection and identification of the location of RSG leakage is through existing plant instrumentation and procedures.

RSG design meets the requirements of GDC 31. The RSG portions of the reactor coolant pressure boundary are designed with sufficient margin to assure that, when stressed under operating, maintenance, testing, and postulated accident conditions: (1) the boundary behaves in a non-brittle manner; and (2) the probability of rapidly propagating fracture is minimized. The design considers service temperatures and other operating maintenance, testing, and postulated accident conditions; uncertainties in determining material properties; effects of radiation on material properties; residual, steady state, and transient stresses; and size of indications.

RSG design, surveillance, and maintenance meet the requirements of GDC 32. RSG portions of the reactor coolant pressure boundary are designed to permit periodic inspection and testing of important areas and features to assess structural and leak-tight integrity. The RSG has tubing fabricated from thermally treated SB-163 material (Alloy 690) which is examined by eddy current methods to the requirements of ASME Section III, NB-2550. In accordance with NUREG-0452 and consistent with the original licensing basis for Unit 1, the design requires that the depth of an allowable outside diameter flaw shall not exceed 40% of the nominal tube wall thickness.



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Upon replacement of the SGs, the current sleeving methodology will no longer be applicable. The proposed change is required because the sleeving methodologies referenced in the Unit 1 T/S are specific to Westinghouse model 51 SGs and have not been analyzed or approved by the NRC for use with the RSGs manufactured by B&W.

This change removes the interim SG tube plugging criteria from the T/S and reinstates the original T/S criteria consistent with Unit 2 (which does not have significantly degraded steam generators). These criteria are in accordance with NUREG-0452. The criterion for tube plugging is based on a minimum wall thickness due to wastage as determined by ASME Section XI. Because the proposed T/S surveillance requirements do not allow for continued operation with voltage based and F* indications, the probability of a SGTR is not increased.

Therefore, implementation of this proposed T/S amendment request will provide reasonable assurance that the Unit 1 SGs maintain adequate structural and leakage integrity consistent with GDC 14, 15, 30, 31, and 32 of 10 CFR 50, appendix A.

Unit 1 will continue to apply the T/S maximum primary-to-secondary leakage limit of 150 gallons per day (gpd) through any one SG to minimize the potential for excessive leakage during plant conditions. The EPRI recommended 150 gpd limit provides for leakage detection and plant shutdown in the event of an unexpected tube leak and minimizes the potential for excessive leakage or tube burst in the event of MSLB or loss of cooling accident (LOCA) conditions.

The design basis doses calculated for postulated accidents involving degradation of SG tubes, such as SGTR and MSLB accidents, as presented in UFSAR chapter 14 accident analysis have been evaluated. The SGTR consequences continue to be bounded by the design basis due to the allowable leakage rate specified by this change. The proposed T/S leakage rate is maintained at 150 gpd per SG. However, a maximum leakage of 500 gpd per SG and total leakage of 1440 gpd for all four generators was used for determination of offsite dose in UFSAR chapter 14. The MSLB consequences are decreased by installation of the RSGs due to the reduction in primary-to-secondary leakage during the MSLB. Under the approved interim plugging criteria, a leak rate of 8.4 gpm was determined to be the upper limit for primary-to-secondary leakage in the faulted steam generator. This leakage, combined with the 150 gpd leakage from the non-faulted SGs, was determined to limit the offsite dose to 10% of the 10 CFR 100 limits. Following replacement of the SGs, the leakage is limited during the MSLB to 150 gpd for both the faulted and unfaulted SGs. Therefore, the Unit 1 MSLB dose will be bounded by the current Unit 2 dose analysis, which is less than 10% of 10 CFR 100 limits.

Amendment 166 to DPR-58 added a discussion in the bases sections of T/S 3/4.4.5 and T/S 3/4.4.8 regarding the MSLB offsite dose, which was calculated using assumed SG leakage of 120 gpm. Subsequently, amendment 178 to DPR-58 imposed a more limiting condition based on a 12.6 gpm SG leakage for the MSLB to limit offsite doses to 10% of the 10 CFR 100 limits (this value was later revised to 8.4 gpm). Amendment 178 revised T/S bases 3/4.4.5 to remove the reference to the 120 gpm MSLB offsite dose evaluation, but inadvertently did not revise T/S bases 3/4.4.8. Because the discussion regarding the 120 gpm SG leak rate no longer applies, it will be removed from T/S bases 3/4.4.8 by this change.

D. BASES FOR NO SIGNIFICANT HAZARDS DETERMINATION
(10 CFR 50.92 ANALYSIS)

Indiana Michigan Power Company, the Licensee for Donald C. Cook Nuclear Plant Unit 1, proposes to amend Technical Specification (T/S) 3/4.4.5, "Steam Generators," T/S Bases 3/4.4.5, "Steam Generators Tube Integrity," T/S Bases 3/4.4.6.2, "Operational Leakage," and T/S Bases 3/4.4.8, "Specific Activity," to support steam generator (SG) replacement. I&M will be replacing the original Unit 1 Westinghouse model 51 SGs with B&W SGs. The replacement effort is scheduled to occur during the current outage, prior to Unit 1 restart.

I&M has evaluated this proposed T/S amendment and determined that it does not involve a significant hazard. According to 10 CFR 50.92(c), a proposed amendment to an operating license does not involve a significant hazard if operation of the facility in accordance with the proposed amendment does not:

1. involve a significant increase in the probability or consequences of an accident previously evaluated; or
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.

No Significant Hazards Analysis

Criterion 1:

The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

This change removes the interim steam generator tube plugging criteria from the T/S and reinstates the original T/S criteria consistent with Unit 2 (which does not have significantly degraded

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steam generators). The current T/S allow for continued operation with tubes that demonstrate indications per F* and voltage-based criteria. The basis used to justify the interim criteria is specific to the Unit 1 original steam generators (OSGs) and does not apply to the replacement steam generators (RSGs).

The proposed change returns the plugging criteria for the steam generator tubes to the original licensing basis. The criteria are in accordance with NUREG-0452, (old) "Standard Technical Specifications." The plugging criteria are based on a minimum wall thickness due to wastage as determined by ASME Section XI. The proposed change is conservative in nature because it does not allow for continued operation with F* and voltage-based degraded tubes. Because of this, the probability of a steam generator tube rupture (SGTR) is not increased.

The potential for a SGTR is also not increased as demonstrated in the qualification analysis and testing for the RSGs. The program for periodic in-service inspection monitors the integrity of the SG tubing to provide reasonable assurance that there is sufficient time to take proper and timely corrective action if any tube degradation is detected. The tube inspections themselves are not initiators of a SGTR. Therefore, this change is not expected to increase the probability of a SGTR during normal or accident conditions.

Unit 1 will continue to apply the T/S maximum primary-to-secondary leakage limit of 150 gallons per day (gpd) through any one SG to minimize the potential for excessive leakage. The EPRI-recommended 150 gpd limit provides for leakage detection and plant shutdown in the event of an unexpected tube leak and minimizes the potential for excessive leakage or tube burst in the event of main steamline break (MSLB) or loss-of-coolant accident (LOCA) conditions. This lower limit is more restrictive than the limit (500 gpd per SG and total leakage of 1440 gpd) utilized for determination of offsite dose and also provides further assurance that the probability of a SGTR is not increased.

The design basis doses calculated for postulated accidents involving degradation of SG tubes, such as SGTR and MSLB accidents, as presented in UFSAR chapter 14 accident analysis, have been evaluated. The SGTR consequences continue to be bounded by the design basis analyses due to the allowable leakage rate specified by this change. The proposed T/S leakage rate is maintained at 150 gpd per SG. However, the maximum leakage of 500 gpd per SG and total leakage of 1440 gpd for all four generators was used to determine offsite dose in UFSAR chapter 14. The MSLB consequences are decreased by installation of the RSGs due to the reduction in primary-to-secondary leakage during the MSLB. Under the approved interim plugging criteria, a leak rate of 8.4 gpm was determined to be the upper limit for allowable primary-to-



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secondary leakage in the faulted steam generator. This leakage, combined with the 150 gpd leakage from the non-faulted SGs, was determined to limit the offsite dose to 10% of the 10 CFR 100 limits. Following replacement of the SGs, the leakage is limited during the MSLB to 150 gpd for both the faulted and unfaulted SGs. Therefore, the Unit 1 MSLB dose will be bounded by the current Unit 2 dose analysis, which is less than 10% of 10 CFR 100 limits.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Criterion 2:

The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

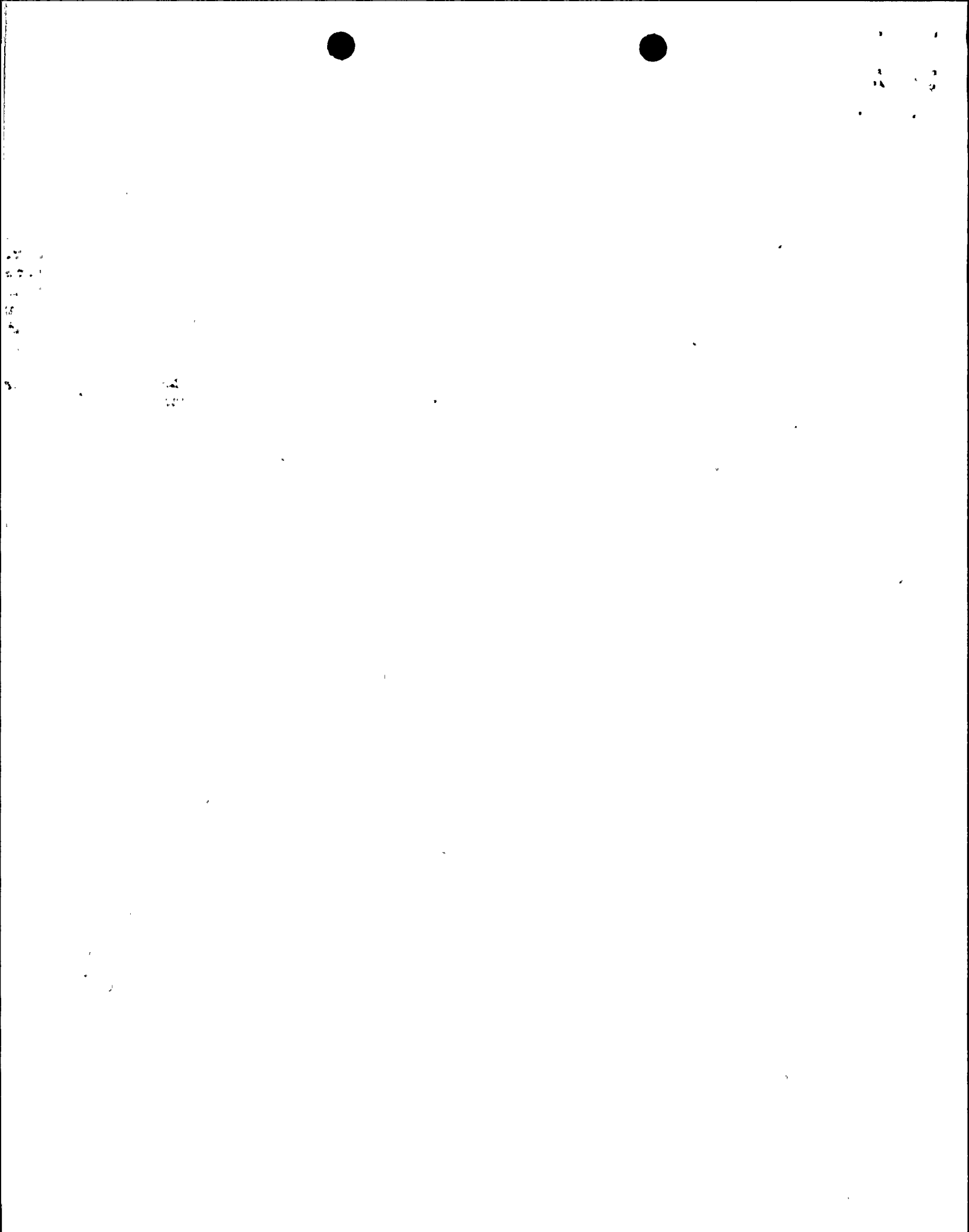
Removing application of voltage-based repair criteria, F* repair criteria, and sleeving methodologies upon installation of the RSGs will not introduce significant or adverse changes to the plant design basis that could lead to a new or different kind of accident being created. This change does not change the overall objective of surveillance activities - maintaining the structural integrity of this portion of the reactor coolant system. The surveillance activities are performed during outages. The proposed change in the surveillance program returns the program to the initial licensing basis. No new failures are created.

Therefore, the proposed change does not create the possibility of a new or different kind of accident previously evaluated.

Criterion 3:

The proposed change does not involve a significant reduction in a margin of safety.

Removing the application of voltage-based and F* repair criteria and sleeving methodologies does not involve a reduction in a margin of safety. The RSG tubing has been shown to retain adequate structural and leakage integrity during normal, transient, and postulated accident conditions consistent with GDC 14, 15, 30, 31, and 32 of 10 CFR 50 appendix A. The RSG tubing has been designed and evaluated consistent with the ASME Section III, 1989 edition. The proposed plugging criteria are based on ASME Section XI and do not allow for operation with indications identified by F* and voltage-based criteria. The proposed program for periodic in-service inspection of the RSGs monitors the integrity of the SG tubing to provide reasonable assurance that there is sufficient time to take proper and timely corrective action if any tube degradation is present. The proposed program



is consistent with NUREG-0452 and was the basis for the original Unit 1 T/S surveillance program.

The proposed change maintains the T/S maximum primary-to-secondary leakage at 150 gpd per generator to minimize the potential for excessive leakage. This limit provides for leakage detection and shutdown in the event of an unexpected tube leak and minimizes the potential for excessive leakage or tube burst in the event of a MSLB or LOCA. Because this limit is maintained, the margin of safety is maintained.

Therefore, it is concluded that this change does not involve a significant reduction in a margin of safety.