October 17, 2001

Mr. John K. Wood
Vice President - Nuclear, Perry
FirstEnergy Nuclear Operating Company
P.O. Box 97, A200
Perry, OH 44081

SUBJECT: PERRY NUCLEAR POWER PLANT, UNIT 1 - SAFETY EVALUATION OF RELIEF REQUEST IR-049 ASSOCIATED WITH THE SECOND 10-YEAR INTERVAL INSERVICE TESTING PROGRAM (TAC NO. MB1174)

Dear Mr. Wood:

By letter dated February 12, 2001 (PY-CEI/NRR-2528L), and supplemented by letter dated July 9, 2001 (PY-CEI/NRR-2577L), the FirstEnergy Nuclear Operating Company submitted a risk-informed inservice inspection (RI-ISI) program as an alternative to the current ISI program at the Perry Nuclear Power Plant for American Society of Mechanical Engineers (ASME) Code Class 1 piping welds, which consist of Categories B-F and B-J welds. The program was developed in accordance with the methodology contained in the Electric Power Research Institute (EPRI) topical report TR-112657, Rev. B-A, which has been approved by the staff. This relief request was made pursuant to 10 CFR 50.55a(a)(3)(i) for the second 10-year ISI interval.

The staff review of the proposed RI-ISI program concludes that the program is an acceptable alternative to the current ISI program based on the ASME Code, Section XI requirements for ASME Code Class 1, Categories B-F and B-J welds, pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the alternative provides an acceptable level of quality and safety. The enclosed safety evaluation authorizes implementation of the proposed RI-ISI program for the remaining two periods of the second 10-year ISI interval, which begins in November 2001 and ends in November 2008.

The staff's safety evaluation is enclosed.

Sincerely,

/RA/

Anthony J. Mendiola, Chief, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-440

Enclosure: As stated

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RISK-INFORMED INSERVICE INSPECTION PROGRAM

FIRSTENERGY NUCLEAR OPERATING COMPANY

PERRY NUCLEAR POWER PLANT

DOCKET NO. 50-440

1.0 INTRODUCTION

By letter dated February 12, 2001 (Reference 1), the FirstEnergy Nuclear Operating Company (the licensee) proposed a risk-informed inservice inspection (RI-ISI) program as an alternative to a portion of their current inservice inspection (ISI) program at the Perry Nuclear Power Plant (PNPP). Additional clarifying information was provided by the licensee in a letter dated July 9, 2001 (Reference 2). The scope of the RI-ISI program is limited to the American Society of Mechanical Engineers (ASME) Code Class 1 piping, Examination Categories B-F and B-J welds only. The licensee's RI-ISI program was developed in accordance with the methodology contained in the Electric Power Research Institute (EPRI) topical report TR-112657, Rev. B-A (Reference 3), which was previously reviewed and approved by the U.S. Nuclear Regulatory Commission (NRC) staff. PNPP is currently near the end of the first period of the second 10-year ISI interval. The RI-ISI program proposed by the licensee was made pursuant to Section 50.55a(a)(3)(i) of Title 10 of the Code of Federal Regulations (10 CFR) for the remaining two periods of the second 10-year ISI interval at PNPP.

2.0 BACKGROUND

2.1 Applicable Requirements

Pursuant to 10 CFR 50.55a(g), ISI of the ASME Code Class 1, 2, and 3 components is required to be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code, *"*Rules for Inservice Inspection of Nuclear Power Plant Components*"* (hereinafter referred to as the Code) and applicable addenda, except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(a)(3) states, in part, that alternatives to the requirements of paragraph (g) may be used, when authorized by the Director of the Office of Nuclear Reactor Regulation, if the licensee demonstrates that the proposed alternative would provide an acceptable level of quality and safety or if the specified requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements set forth in the Code to the extent practical within the limitations of design, geometry, and materials of construction of the components. The

regulations require that ISI of components conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of the Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. For PNPP, the applicable edition of the Code for the second 10-year ISI interval, which began in November 1998, is the 1989 edition.

2.2 Summary of Proposed Approach

The licensee has proposed to use a RI-ISI program for ASME Code Class 1 piping, Examination Categories B-F and B-J welds, as an alternative to the Code requirements. The Code requires, in part, that for each successive 10-year ISI interval, 100 percent of Category B-F welds and 25 percent of Category B-J welds for the ASME Code Class 1 piping greater than 1-inch in nominal diameter be selected for volumetric and/or surface examination, based on existing stress analyses and cumulative usage factors. The submittal follows the staff-approved RI-ISI process and methodology delineated in EPRI TR-112657, Rev. B-A. By assessing piping failure potential and piping failure consequences and by performing probabilistic risk assessments (PRA) and safety-significance ranking of piping segments, inspection locations are significantly reduced. However, the program retains the fundamental requirements of the Code, such as inspection methods, acceptance guidelines, pressure testing, corrective measures, documentation requirements, and quality control requirements. Thus, ISI program requirements of other non-related portions of the Code are unaffected.

In addition, the licensee indicated that, in accordance with EPRI TR-112657, Rev. B-A, the existing augmented ISI program implemented in response to NUREG-0313, “Technical Report on Material Selection and Processing Guidelines for BWR Coolant Pressure Boundary Piping,” for detecting potential inter-granular stress corrosion cracking (IGSCC) will remain unchanged, except piping welds identified as Category “A” per NUREG-0313. The Category “A” welds are considered resistant to IGSCC, and thus, assigned a low failure potential, provided no other damage mechanisms are present, and subsumed into the RI-ISI program. The licensee further indicated that the existing augmented inspection programs for flow accelerated corrosion (FAC) per Generic Letter 89-08, “Erosion/Corrosion-Induced Pipe Wall Thinning,” and for piping welds in the high energy break exclusion region (HEBER) will remain unchanged.

3.0 EVALUATION

Pursuant to 10 CFR 50.55a(a)(3), the staff has reviewed and evaluated the licensee’s proposed RI-ISI program, including those portions related to the applicable methodology and processes contained in EPRI TR-112657, Rev. B-A, based on guidance and acceptance criteria provided in Regulatory Guides (RGs) 1.174 (Reference 4) and 1.178 (Reference 5) and in Standard Review Plan (SRP) Chapter 3.9.8 (Reference 6).

3.1 Proposed Changes to the ISI Program

The scope of the licensee’s RI-ISI program is limited to Category B-J piping welds and Category B-F dissimilar metal nozzle welds only. The RI-ISI program was proposed as an

alternative to the existing ISI program, which is based on examination requirements of the Code. A general description of the proposed changes to the ISI program was provided in Sections 3 and 5 of the licensee's submittal.

During the course of its review, the staff verified that the proposed RI-ISI program is consistent with the guidelines contained in EPRI TR-112657, Rev. B-A, which states that industry and plant-specific piping failure information, if any, is to be utilized to identify piping degradation mechanisms and failure modes and consequence evaluations are to be performed using PRAs to establish piping segment safety ranking for determining new inspection locations. Thus, the staff concludes that the licensee's application of the EPRI TR-112657, Rev. B-A, approach is an acceptable alternative to the current PNPP piping ISI requirements with regard to the number, locations, and methods of inspections, and provides an acceptable level of quality and safety.

3.2 Engineering Analysis

In accordance with the guidance provided in RGs 1.174 and 1.178, an engineering analysis of the proposed changes using a combination of traditional engineering analysis and supporting insights from the PNPP PRA was performed. The licensee discussed how the engineering analyses conducted for the PNPP RI-ISI program ensure that the proposed changes are consistent with the principles of defense-in-depth and that adequate safety margins will be maintained. The licensee evaluated a piping location's susceptibility to a particular degradation mechanism that may be a precursor to a leak or rupture and then performed an independent assessment of the consequences of a failure at that location. The approach is consistent with the process stated in the approved EPRI TR-112657, Rev. B-A, except for one deviation related to screening criteria for piping locations susceptible to thermal stratification, cycling, and striping.

The PNPP RI-ISI program is limited to ASME Code Class 1 piping welds, Examination Categories B-F and B-J welds only. The licensee stated in Reference 1 that other non-related portions of the ASME Section XI Code will be unaffected by the RI-ISI program, such as inspection methods, acceptance guidelines, pressure testing, corrective measures, documentation requirements, and quality control requirements. This is consistent with the guidelines provided in EPRI TR-112657, Rev. B-A, and, therefore, is acceptable.

The licensee also states in their submittal that all existing Relief Requests that had been approved by the NRC will remain in place, except IR-004, IR-005, IR-029, and IR-024. Relief Requests IR-004, IR-005, and IR-029 are withdrawn because the specific welds included in these Relief Requests are not being selected by the RI-ISI process. Relief Request IR-024 is modified because the purpose of the specific examination coverage is subsumed by the RI-ISI process. The staff found that the licensee's proposed changes in existing Relief Requests are in conformance with the process outlined in EPRI TR-112657, Rev. B-A, and, therefore, are acceptable.

In its submittal, the licensee states that current augmented ISI programs, including programs for FAC and HEBER, remain unchanged. The augmented examinations for IGSCC also remain unchanged, except for Category "A" welds, which are considered resistant to IGSCC and are subsumed into the RI-ISI program as having a low failure potential if no other degradation

mechanisms are present. This is consistent with the guidance contained in EPRI TR-112657, Rev. B-A, and in Generic Letter 88-01, "NRC Position on IGSCC in BWR Austenitic Stainless Steel," and, therefore, is acceptable.

PNPP is currently near the end of the first period of the second 10-year ISI interval. The licensee indicated that 22 percent of the examinations required by the Code have been completed in the first period and proposed to complete the remaining 78 percent of the examinations in the second and third periods based on the requirements of the RI-ISI program. The staff prefers completion of all examinations under a single program in an ISI interval. However, since the licensee has completed more than the Code-required minimum percentage (16 percent) of examinations in the first period, the staff concludes that the total number of examinations to be performed under the RI-ISI program, as proposed by the licensee, is adequate and acceptable. The licensee further indicates that subsequent inspection intervals will entail inspection of 100 percent of the selected RI-ISI program locations, which is consistent with the Code requirement of 100 percent implementation of an ISI program in each 10-year ISI interval and, therefore, is acceptable. However, it is recognized that the RI-ISI program selected inspection locations may be adjusted in the future to ensure that the appropriate identification of high safety-significant locations is maintained.

In Table 5-1 of the licensee's submittal, a detailed listing regarding the number of Category B-F and B-J welds selected for inspection in the RI-ISI program, in comparison with the respective number of welds selected under the current Code ISI program is provided. The RI-ISI program reduces the total number of B-F and B-J welds to be examined to 83 (including 23 welds credited from the existing augmented inspection program for IGSCC, 13 welds not required for IGSCC, but that remain to be examined for defense-in-depth purposes, and augmented inspections for FAC and HEBER that are not being credited) from a total of 244 under the existing Code program. The reduction is significant (64 percent) and the number of welds credited from augmented inspections is in conformance with the guidelines stated in EPRI TR-112657, Rev. B-A (i.e., less than 50 percent of the total 83 selected welds and not crediting augmented examinations for FAC and HEBER) and, therefore, is acceptable. In addition, the RI-ISI program selected 10 out of a total of 19 welds in the high risk region (52 percent in comparison to a minimum of 25 percent required by EPRI TR-112657, Rev. B-A), 54 out of a total of 327 welds in the medium risk region (16.5 percent in comparison to a minimum of 10 percent required by EPRI TR-112657, Rev. B-A), and 83 out of a total of 800 B-F and B-J welds (adequate to meet a minimum of 10 percent in EPRI TR-112657, Rev. B-A, for defense-in-depth considerations). Thus, the staff concludes that the RI-ISI selection of examination locations, although greatly reduced in total number from the Code program, meets the guidance of EPRI TR-112657, Rev. B-A, and therefore, is adequate and acceptable.

The licensee indicated that if an unacceptable flaw or relevant condition is found during RI-ISI, an engineering evaluation will be performed on root cause, service condition, and degradation mechanisms to determine whether repair or replacement is warranted. The potential for a common root cause in other elements will also be evaluated to determine whether additional examinations are needed. This is consistent with the guidance of EPRI TR-112657, Rev. B-A, and, therefore, is acceptable.

The licensee also described their deviation to the previously approved methodology contained in EPRI TR-112657, Rev. B-A, regarding thermal stratification, cycling, and striping (TASCS) susceptibility screening criteria, which consist of additional considerations to potential mixing of

fluid in the turbulent penetration region at branch piping connections, diminished stratified temperature differences at locations that lack a sustained source of cold or hot fluid, and situations with a low potential for cyclic thermal fluctuation at a leaking valve. The staff found that the proposed additional screening criteria are consistent with the Nuclear Energy Institute Report, "Interim Thermal Fatigue Management Guidelines (MRP-24)," which was evaluated by the staff and, therefore, is acceptable. It is expected that the licensee will meet the guidelines in MRP-24 when the report is finalized.

Piping systems within the scope of the RI-ISI program were divided into piping segments. Pipe segments are defined as lengths of pipe whose failure would lead to the same consequence and are exposed to the same degradation mechanism. The licensee's submittal also states that failure potential estimates were generated utilizing industry failure history, plant-specific failure history, and other relevant information using the guidance provided in EPRI TR-112657, Rev. B-A. The staff concludes that the licensee has met the SRP 3.9.8 guidelines to confirm that a systematic process was used to identify pipe segments susceptibility to common degradation mechanisms and to categorize these degradation mechanisms into the appropriate degradation categories with respect to their potential to result in a postulated leak or rupture.

Additionally, the licensee stated that the consequences of pressure boundary failure (PBF) were evaluated and ranked based on their impact on core damage frequency (CDF) and large early release frequency (LERF) and that the impacts due to both direct and indirect effects were considered using the guidance provided in EPRI TR-112657, Rev. B-A. Further, the licensee reported no deviations from the consequence evaluation methodology approved by the staff in EPRI TR-112657, Rev. B-A. Based on the above discussion, the staff finds the consequence evaluation performed for this application to be acceptable.

3.3 Probabilistic Risk Assessment

To support this RI-ISI submittal, the licensee used its current version of the PNPP PRA, PSACY08, which was completed in June 2000. The main purpose of this revision was to update plant-specific system unavailability data and to address over-conservatism in the diesel generator common cause failure modeling. The CDF and LERF estimates that were used in support of the PNPP RI-ISI submittal were about 1.4E-5/year and 2E-6/year, respectively.

The staff evaluation on the PNPP individual plant examination (IPE) was issued in August 1994, and concluded that the IPE met the intent of Generic Letter 88-20, "Individual Plant Examination for Severe Accident Vulnerabilities." Since this IPE, the PNPP PRA has been through three revisions up to the time of this submittal, including a Boiling Water Reactor Owners Group (BWROG) peer certification review in 1997, and in support of an extended allowed out of service time for diesel generators in 1998.

The EPRI methodology presented in EPRI TR-112657, Rev. B-A, requires that functions relied upon to mitigate external events and to mitigate transients during operation modes outside the scope of the PRA (e.g., shutdown operations) also be systematically included in the consequence evaluation. The licensee indicated that for the PNPP RI-ISI application, these events and operations were considered during the consequence evaluation portion of the RI-ISI analyses and were determined to not change the results of the RI-ISI application.

The staff recognizes that the quantitative results of the PRA are used as order of magnitude estimates for several risk and reliability parameters used to support the assignment of segments into three broad consequence categories. The staff did not review the PNPP PRA to

assess the accuracy of the quantitative estimates. The staff believes that inaccuracies in the models or in assumptions large enough to invalidate the broad categorizations developed to support RI-ISI should have been identified during the staff's original review of the IPE, through the BWROG peer certification review, and by the licensee's model update control program. Therefore, while minor errors or inappropriate assumptions in the PRA could affect the consequence categorization of a few segments, and thus, the location of a number of inspections, these errors will not invalidate the general results or conclusions of this evaluation. The staff finds that the quality of the licensee's PRA is sufficient to support the application of the approved EPRI methodology and the proposed RI-ISI program.

The degradation category and the consequence category were combined according to the approved methodology described in EPRI TR-112657, Rev. B-A, to categorize the risk significance of each segment. The risk significance of each segment is used to determine the number of weld inspections required in each segment.

The licensee conducted a risk impact analysis in accordance with the requirements presented in Section 3.7 of EPRI TR-112657, Rev. B-A, to estimate the net change in risk expected from replacing the current ISI program with the RI-ISI program. The calculations estimated the net change in risk due to removing and adding locations to the inspection program. For the segments in the high consequence category, the licensee used the conditional core damage probability (CCDP) and conditional large early release probability (CLERP) based on the highest evaluated CCDP, which was 1E-2, and CLERP, which was 2E-3. For the segments in the medium consequence category, bounding estimates were used for CCDP, which was 1E-4, and CLERP, which was 1E-5. The licensee estimated the change in risk using pipe PBF likelihoods that are consistent with those previously approved in RI-ISI submittals using the EPRI methodology.

The licensee performed its analysis with and without taking credit for an increased probability of detection (POD) due to enhanced inspection effectiveness from application of the RI-ISI approach. The licensee estimated the aggregate change in CDF to be about 1.28E-9/year and estimated the aggregate change in LERF to be about 2.33E-10/year when excluding credit for any increased POD due to the use of improved inspection techniques. Including the expected increase in POD results in an aggregate estimated change in CDF of -3.79E-9/year and aggregate estimated change in LERF of -7.54E-10/year.

The staff finds that the licensee's process to evaluate the potential change in risk reasonable because it accounts for the change in the number and location of elements inspected, recognizes the difference in degradation mechanism related to failure likelihood, and considers the effects of enhanced inspections. System-level and aggregate estimates of the changes in CDF and LERF are less than the corresponding guideline values in EPRI TR-112657, Rev. B-A. Therefore, the staff finds that the change in risk meets the EPRI guidelines.

The staff finds that redistributing the welds to be inspected, with consideration of the risk-significance of the segments, provides assurance that segments whose failure have a significant impact on plant risk receive an acceptable and often improved level of inspection. Therefore, the staff concludes that the implementation of the RI-ISI program as described in the licensee's application will have a small impact on risk, which is consistent with the guidelines of RG 1.174, and thus, will not cause the NRC safety goals to be exceeded.

3.4 Integrated Decision-making

As described in the licensee's submittal, an integrated approach is utilized in defining the proposed RI-ISI program by considering in concert the traditional engineering analysis, risk evaluation, and the implementation and performance monitoring of piping under the program. This is consistent with the guidelines of RG 1.178.

The selection of pipe segments to be inspected, which uses the results of the risk category rankings and other operational considerations is described in Section 3.5 of the submittal. Table 3.5-1 of the submittal provides the number of elements selected for inspection by risk category for the various PNPP systems. Tables 5-1 and 5-2 of the submittal provide the summary tables that compare the number of inspections required under the existing Code ISI program with the alternative RI-ISI program and Table 3.6-1 presents the risk impact analysis results by each system. The licensee used the methodology described in EPRI TR-112657, Rev. B-A, to guide the selection of examination elements within high and medium risk ranked piping segments. The EPRI topical report describes targeted examination volumes (typically associated with welds) and methods of examination based on the type(s) of degradation expected. The staff has reviewed these guidelines and has determined that, if implemented as described, the RI-ISI examinations should result in improved detection of service-related degradations over that currently provided by the Code.

The staff finds that the location selection process is acceptable since it is consistent with the process approved in EPRI TR-112657, Rev. B-A, takes into account defense-in-depth, and includes coverage of welds subjected to degradation mechanisms in addition to those covered by augmented inspection programs.

The objective of ISI required by the Code is to identify conditions (i.e., flaw indications) that are precursors to leaks and ruptures in the pressure boundary that may impact plant safety. Based on the integrated approach for the improved detection of service-related degradation and location selection, the staff has concluded the proposed RI-ISI program meets this objective. Further, since the risk-informed program is based on inspection for cause, the element selection targets specific degradation mechanisms.

Chapter 4 of EPRI TR-112657, Rev. B-A, provides guidelines for the areas and/or volumes to be inspected as well as the examination method, acceptance standard, and evaluation standard for each degradation mechanism. Based on a review of the cited portion of the EPRI topical report, the staff concludes that the examination methods for the proposed RI-ISI program are appropriate since they are selected based on specific degradation mechanisms, pipe sizes, and materials of concern.

3.5 Implementation and Monitoring

Implementation and performance monitoring strategies require careful consideration by the licensee and are addressed in Element 3 of RG 1.178 and SRP 3.9.8. The objective of Element 3 is to assess performance of the affected piping systems under the proposed RI-ISI program by implementing monitoring strategies that confirm the assumptions and analyses used in the development of the RI-ISI program. Pursuant to 10 CFR 50.55a(a)(3)(i), a

proposed alternative, in this case the implementation of the RI-ISI program, including inspection scope, examination methods, and methods of evaluation of examination results, must provide an acceptable level of quality and safety.

In their submittal, the licensee states that upon approval of the RI-ISI program, it will prepare procedures that comply with the EPRI TR-112657, Rev. B-A, guidelines to implement and monitor the RI-ISI program. The licensee confirmed that the applicable portions of the Code not affected by this change will be retained, such as inspection methods, acceptance guidelines, pressure testing, corrective measures, documentation requirements, and quality control requirements.

The licensee also states that the RI-ISI program is a living program that will require feedback of new, relevant information to ensure the appropriate identification of high safety-significant piping locations. The licensee further states that, as a minimum, risk ranking of piping segments will be reviewed and adjusted on an ASME period basis and that significant changes, based on NRC bulletins or generic letters or industry and plant-specific feedback, may require more frequent adjustments.

The proposed periodic reporting requirements meet existing Code requirements and applicable regulations and, therefore, are considered acceptable. The staff finds that the proposed process for RI-ISI program updates meets the guidelines of RG 1.174 that risk-informed applications should include performance monitoring and feedback provisions. Therefore, the licensee's proposed process for program updates is considered acceptable.

4.0 CONCLUSION

10 CFR 50.55a(a)(3)(i) permits alternatives to specified regulatory requirements when authorized by the Director of the Office of Nuclear Reactor Regulation on the basis that an alternative provides an acceptable level of quality and safety. In this case, the licensee's proposed alternative is to use the risk-informed process described in the NRC-approved EPRI-TR 112657, Rev. B-A. As discussed in Section 3.0, the staff concludes that the licensee's proposed RI-ISI program, as described in its submittal, will provide an acceptable level of quality and safety with regard to the number of inspections, locations of inspections, and methods of inspections.

The staff finds that the results of the different elements of the engineering analysis are considered in an integrated decision-making process. The impact of the proposed change in the ISI program is founded on the adequacy of the engineering analysis and acceptable change in plant risk in accordance with RG 1.174 and RG 1.178 guidelines.

The licensee's methodology also considers implementation and performance monitoring strategies. Inspection strategies ensure that failure mechanisms of concern have been addressed and there is adequate assurance of detecting damage before structural integrity is affected. The risk significance of piping segments is taken into account in defining the inspection scope for the RI-ISI program.

System pressure tests and visual examination of piping structural elements will continue to be performed on all Class 1, 2, and 3 systems in accordance with the Code program. The RI-ISI

program applies the same performance measurement strategies as the existing Code requirements and, in addition, increases the inspection volumes at weld locations that are exposed to thermal fatigue.

The licensee's methodology provides for conducting an engineering analysis of the proposed changes using a combination of engineering analysis with supporting insights from a PRA. Defense-in-depth and quality are not degraded in that the methodology provides reasonable confidence that any reduction in existing inspections will not lead to degraded piping performance when compared to existing performance levels. Inspections are focused on locations with active degradation mechanisms as well as selected locations that monitor the performance of piping systems.

As discussed above, the staff's review of the licensee's proposed RI-ISI program concludes that the program is an acceptable alternative to the current ISI program, which is based on the Code requirements for Class 1 welds. Therefore, the staff authorizes the proposed RI-ISI program for the remaining two periods of the second 10-year ISI interval pursuant to 10 CFR 50.55a(a)(3)(i), which begins in November 2001 and ends in November 2008, on the basis that the alternative provides an acceptable level of quality and safety.

Principle Reviewers: Shou-nien Hou, EMCB, NRR
Donald Harrison, SPSB, NRR

Date: October 17, 2001

5.0 REFERENCES

1. Letter, J. K. Wood to U. S. Nuclear Regulatory Commission, containing *Risk-Informed Inservice Inspection Program Plan - Perry Nuclear Power Plant, Unit 1, PY-CEI/NRR-2528L*, February 12, 2001.

2. Letter, J. K. Wood to U. S. Nuclear Regulatory Commission, containing *Perry Nuclear Power Plant Responses to an NRC Request for Additional Information (RAI), PY-CEI/NRR-2577L*, July 9, 2001.

3. Electric Power Research Institute, *Revised Risk-Informed Inservice Inspection Evaluation Procedure*, EPRI TR-112657, Revision B-A, December 1999.

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