

December 27, 2001

Mr. Oliver D. Kingsley, President
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: LASALLE COUNTY STATION, UNITS 1 AND 2 - RELIEF REQUEST CR-35
(TAC NOS. MB1982 AND MB1983)

Dear Mr. Kingsley:

By letter dated May 18, 2001, Exelon Generation Company, LLC, submitted a request for relief from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, requirements for the selection and examination of Class 1 and 2 piping welds. The Relief Request CR-35 by LaSalle County Station, Units 1 and 2, proposes as an alternative to the existing ASME Code to use the Electric Power Research Institute (EPRI) Topical Report (TR) 112657, Revision B-A, "Revised Risk-Informed Inservice Inspection Evaluation Procedure," methodology for a Risk-Informed Inservice Inspection program approved by the U.S. Nuclear Regulatory Commission (NRC) to the extent and within the limitations specified in the NRC's "Safety Evaluation Report Related to EPRI Risk-Informed Inservice Inspection Evaluation Procedure (EPRI TR-112657, Revision B, July 1999)," dated October 28, 1999. Additional clarifying information was provided in letters dated October 19, 2001, and November 20, 2001.

The NRC staff has evaluated Relief Request CR-35, and finds that the proposed alternative may be authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that it provides an acceptable level of quality and safety for the LaSalle County Station, Units 1 and 2. The proposed alternative is only being authorized for the remainder of the second 10-year inservice inspection (ISI) interval for LaSalle County Station, Units 1 and 2. A relief request for the third 10-year ISI interval, if necessary, should be submitted separately at a later date. Our 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 Nos. 50-373 and 50-374

Enclosure: Safety Evaluation

cc w/encl: See next page

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Units 1 and 2

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The NRC staff has evaluated Relief Request CR-35, and finds that the proposed alternative may be authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that it provides an acceptable level of quality and safety for the LaSalle County Station, Units 1 and 2. The proposed alternative is only being authorized for the remainder of the second 10-year inservice inspection (ISI) interval for LaSalle County Station, Units 1 and 2. A relief request for the third 10-year ISI interval, if necessary, should be submitted separately at a later date. Our safety evaluation is enclosed.

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Docket Nos. 50-373 and 50-374

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE INSERVICE INSPECTION REQUIREMENTS

RELIEF REQUEST CR-35

LASALLE COUNTY STATION, UNITS 1 AND 2

EXELON GENERATION COMPANY, LLC

DOCKET NOS. 50-373 AND 50-374

1.0 INTRODUCTION

Current inservice inspection (ISI) requirements for the LaSalle County Station (LaSalle) are contained in the 1989 Edition of Section XI, Division 1 of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, entitled Rules for Inservice Inspection of Nuclear Power Plant Components (hereinafter referred to as the ASME Code). In a submittal dated May 18, 2001, (Ref. 1), Exelon Generation Company, proposed a new risk-informed inservice inspection (RI-ISI) program as an alternative to a portion of their current ISI program. Additional clarifying information was provided in letters from the licensee dated October 19, 2001 (Ref. 2), and November 20, 2001 (Ref. 3).

The RI-ISI program is limited to ASME Class 1 and Class 2 piping welds. The program was developed in accordance with the Electric Power Research Institute (EPRI) methodology contained in the Nuclear Regulatory Commission (NRC) approved EPRI Topical Report EPRI TR-112657, Revision B-A (TR-112657) (Ref. 4).

In the proposed RI-ISI program, piping failure potential estimates were determined using TR-112657 guidance, which utilizes industry piping failure history, plant-specific piping failure history, and other relevant information. Using the failure potential and supporting insights on piping failure consequences from the licensee's probabilistic risk assessment (PRA), a safety ranking of piping segments was established for determination of new inspection locations. The proposed program maintains the fundamental requirements of the ASME Code, such as the examination technology, examination frequency, and acceptance criteria. However, the proposed program reduces the required examination locations significantly while demonstrating that an acceptable level of quality and safety is maintained. Thus, the proposed alternative approach is based on the conclusion that it provides an acceptable level of quality and safety and, therefore, is in conformance with *Title 10 of the Code of Federal Regulations* (10 CFR), Part 50.55a(a)(3)(i).

The licensee submitted the proposed RI-ISI program pursuant to 10 CFR 50.55a(a)(3)(i) for the second and third 10-year ISI intervals for LaSalle County Station Units 1 and 2.

2.0 SUMMARY OF PROPOSED APPROACH

The ASME Code, Section XI, requires that for each successive 10-year ISI interval, 100 percent of Category B-F welds and 25 percent of Category B-J welds for ASME Code Class 1 piping greater than one inch in nominal diameter be selected for volumetric and/or surface examination based on existing stress analyses and cumulative usage factors. For Category C-F piping welds, 7.5 percent of non-exempt welds shall be selected for volumetric and/or surface examination.

The licensee submitted the application as an RI-ISI "template" application. Template applications are short overview submittals intended to expedite preparation and review of RI-ISI submittals that comply with a pre-approved methodology. The licensee proposed to implement the staff-approved RI-ISI methodology delineated in TR-112657.

In accordance with Table 6.2 of the EPRI TR-112657, the existing augmented ISI program implemented in response to NRC Bulletins 88-08, "Thermal Stresses in Piping Connected to Reactor Coolant Systems" is subsumed into the proposed RI-ISI program for those components that are within the scope of the RI-ISI program and the potential for thermal fatigue is explicitly considered in the RI-ISI process based on EPRI TR-112657. Other existing augmented ISI programs that are unaffected by the proposed RI-ISI program include Generic Letter 88-01, "Intergranular Stress Corrosion Cracking (IGSCC) in Boiling Water Reactor Austenitic Stainless Steel Piping," except for Category A welds, Generic Letter 89-13, "Service Water Integrity Program," Generic Letter 89-08, "Flow Accelerated Corrosion (FAC)," and USNRC Branch Technical Position MEB 3-1, "High-Energy Line Breaks."

The licensee stated that in instances where a location may be found at the time of the examination that does not meet the greater than 90 percent coverage requirement, the process outlined in the EPRI Topical Report will be followed. Section 6.4 of the EPRI Topical Report states that a new relief request will be generated for any RI-ISI piping element selection for which greater than 90 percent examination coverage is not achieved. The licensee also indicated that LaSalle will not need any additional relief requests or need to revise any relief request to implement the RI-ISI program.

The licensee requested approval of this alternative for implementation during the second and third periods of the second ISI interval for both Unit 1 and Unit 2. According to the information provided in Reference 1, LaSalle Unit 1 is currently in the second 10-year interval that started on November 23, 1994, and is projected to end on October 11, 2006, including all extensions currently being taken. The current period (i.e., the second period of the interval) started on October 12, 1999, and ends on October 11, 2003. Unit 2 is currently in the second 10-year interval that started on October 17, 1994, and is projected to end on July 4, 2007, including all extensions currently being taken. The current period (i.e., the second period of the interval) started on July 5, 2000, and ends on July 4, 2004.

The implementation of an RI-ISI program for piping should be initiated at the start of a plant's 10-year ISI interval consistent with the requirements of the ASME Code and Addenda committed to by the licensee in accordance with 10 CFR 50.55a. However, the implementation

may begin at any point in an existing interval as long as the examinations are scheduled and distributed consistent with the ASME Code requirements (e.g., the minimum examinations completed at the end of the three inspection intervals under ASME Code Program B should be 16 percent, 50 percent, and 100 percent, respectively, and the maximum examinations credited at the end of the respective periods should be 34 percent, 67 percent, and 100 percent).

It is also the staff's view that the inspections for the RI-ISI program and for the balance of the ISI program should be on the same interval start and end dates. This can be accomplished by either implementing the RI-ISI program at the beginning of the interval or merging the RI-ISI program into the ISI program for the balance of the inspections if the RI-ISI program is to begin during an existing ISI interval. One reason for this view is that it eliminates the problem of having different Codes of record for the RI-ISI program and for the balance of the ISI program. A potential problem with using two different interval start dates and hence two different Codes of record would be having two sets of repair/replacement rules depending upon which program identified the need for repair (e.g., a weld inspection versus a pressure test). In Reference 1, the licensee stated that LaSalle will schedule and credit both risk-informed and the balance of the ASME Code examinations consistent with ASME Section XI minimum and maximum requirements. Selected Risk Category 2, 3, 4, and 5 welds that have been examined in the first period prior to the approval of the RI-ISI program will be credited in the RI-ISI program.

The staff finds that the LaSalle Station Units 1 and 2 RI-ISI programs meet the ASME Code and 10 CFR 50.55a requirements for minimum and maximum inspections during inspection periods and intervals, and for program submittal to the NRC.

3.0 EVALUATION

The licensee's submittal was reviewed with respect to the methodology and criteria contained in TR-112657. Further guidance in defining acceptable methods for implementing an RI-ISI program is also provided in Regulatory Guide (RG) 1.174, RG 1.178, and Standard Review Plan (SRP) Chapter 3.9.8 (Refs. 5, 6, and 7).

3.1 Proposed Changes to ISI Program

Pursuant to 10 CFR 50.55a(a)(3)(i), the licensee has proposed to implement an RI-ISI program in accordance with the methodology contained in TR-112657 as an alternative to the ASME Code examination requirements for ASME Class 1 and 2 piping for LaSalle Units 1 and 2. A general description of the proposed changes to the ISI program was provided in Section 3 of the licensee's submittal.

3.2 Engineering Analysis

In accordance with the guidance provided in RGs 1.174 and 1.178, an engineering analysis of the proposed changes is required using a combination of traditional engineering analysis and supporting insights from the PRA. The licensee elaborated as to how the engineering analyses conducted for the LaSalle's RI-ISI program ensures that the proposed changes are consistent with the principles of defense-in-depth. This is accomplished by evaluating a location's susceptibility to a particular degradation mechanism and then performing an independent

assessment of the consequence of a failure at that location. No changes to the evaluation of design-basis accidents in the final safety analysis report are being made by the RI-ISI process. Therefore, sufficient safety margins will be maintained.

The licensee's RI-ISI program at LaSalle is applicable to ASME Class 1 Categories B-F and B-J and ASME Class 2 Categories C-F-1 and C-F-2 piping welds. The licensee stated in its submittal that other non-related portions of the ASME Code will be unaffected by this program. Piping systems defined by the scope of the RI-ISI program were divided into piping segments. Pipe segments are defined as lengths of pipe whose failure leads to similar consequences and that are exposed to the same degradation mechanisms. That is, some lengths of pipe whose failure would lead to the same consequences may be split into two or more segments when two or more regions are exposed to different degradation mechanisms.

The submittal states that failure potential categories were generated utilizing industry failure history, plant-specific failure history, and other relevant information using the guidance provided in TR-112657. The degradation mechanisms identified in the submittal include thermal fatigue, IGSCC, erosion-cavitation, and FAC.

Augmented programs for IGSCC (Generic Letter 88-01) except Category A welds, service water integrity (Generic Letter 89-13), FAC (Generic Letter 89-09), and high-energy line break (USNRC Branch Technical Position MEB 3-1) are not subsumed into the RI-ISI program and remain unaffected. Elements in the LaSalle County Station that are covered by these augmented programs were included in the consequence assessment, degradation assessment, and risk categorization evaluations to determine whether the affected piping was subject to damage mechanisms other than those addressed by the augmented program. If another damage mechanism was identified, the element was retained within the scope of consideration for element selection as part of the RI-ISI program. When inspections are required under the RI-ISI and augmented programs, all inspection requirements for both RI-ISI and augmented programs are met. If no other damage mechanism was identified, the element was excluded from the RI-ISI element selection population (i.e., not included in the population of elements from which 25 percent or 10 percent must be selected for inspection) and retained in the appropriate augmented inspection program. The licensee's approach deviates from the approved methodology because the methodology in TR-112657 includes all elements in the RI-ISI element selection population but allows crediting up to 50 percent of the augmented inspections as RI-ISI element inspections. The deviation as described in References 1 and 2 is acceptable because inspections required only in the augmented programs are not credited as RI-ISI inspections. Elements in the augmented programs will continue to be inspected for the appropriate degradation mechanisms, and the RI-ISI program will address other damage mechanisms.

The licensee stated that the consequences of pressure boundary failure were evaluated and ranked based on their impact on core damage probability and large early release probability. Both direct and indirect effects of pipe ruptures were evaluated and included in the consequence characterization. The licensee used its PRA models to directly support their estimation of the consequences of pressure boundary failure for each piping element in the evaluation. The licensee reported no deviations from the segment definition and consequence characterization methodology approved by the staff in TR-112657 and their analyses are acceptable.

3.3 Probabilistic Risk Assessment

To support this RI-ISI submittal, the licensee used the LaSalle 2000A/B/C Core Damage Frequency (CDF) Models (SA787) and the LaSalle 2000A Large Early Release Frequency (LERF) Models (SA796). The licensee reported a CDF of $5.9\text{E-}6/\text{yr}$ and a LERF of $1.0\text{E-}6/\text{yr}$ for each unit. The licensee submitted its individual plant examination (IPE) on April 28, 1994. The staff evaluation report dated March 14, 1996, noted that review of the LaSalle IPE was a modified (less rigorous) IPE review than usually performed because the LaSalle IPE was developed from previous staff studies. However, the staff evaluation report identified weaknesses in other IPE submittals from the same licensee and stated that these weaknesses should be addressed in any update of the LaSalle PRA. The staff identified technical concerns with the methodology for common cause and human reliability analysis (HRA) in the Zion, Quad Cities, and Dresden IPEs. In Reference 2, the licensee described how most of the concerns have been addressed by incorporating methodologies described in several staff sponsored NUREG/CRs. The licensee also stated that the final concern, that the HRA might not adequately reflect the plant procedures, was addressed by a review of the procedures and updating of the HRA.

LaSalle's PRA model was updated in the spring of 2000. The PRA and its supporting bases documentation were reviewed by a Boiling Water Reactor Owners Group Peer Review/Certification Team. A PRA Maintenance and Update Procedure formalizes the PRA update process and ensures that the PRA reflects the current plant configuration and plant procedures.

The approved TR-112657 requires that functions relied upon to mitigate external events and to mitigate transients during operation modes outside the scope of the PRA also be systematically included in the categorization. The licensee reported no deviations from the approved methodology in this area and therefore, the staff finds its evaluation acceptable.

The staff did not review the PRA analysis to assess the accuracy of the quantitative estimates. Quantitative results of the PRA are used, in combination with a quantitative characterization of the pipe segment failure likelihood, to support the assignment of segments into broad safety significance categories reflecting the relative importance of pipe segment failures on CDF and LERF and to provide an illustrative estimate of the change in risk. Inaccuracies in the models or assumptions large enough to invalidate the analyses developed to support RI-ISI should have been identified in the licensee's or the staff's reviews. Minor errors or inappropriate assumptions will only affect the consequence categorization of a few segments and will not invalidate the general results or conclusions. Furthermore, the continuous use and documented maintenance of the PRA provides further opportunities to identify inaccuracies, if any, in the PRA models and assumptions. The staff finds that the quality of the LaSalle PRA is sufficient to support this submittal.

As required by Section 3.7 of TR-112657, the licensee evaluated the change in risk expected from replacing the current ISI program with the RI-ISI program. The analysis estimates the net change in risk due to the positive and negative influence of adding and removing locations from the inspection program. As discussed in Section 3.2 of this safety evaluation (SE), the licensee deviated from the EPRI methodology by excluding some elements from the population of elements from which RI-ISI locations for inspection were selected. In Reference 2, the licensee stated that the change in risk estimates included the increase in risk caused by discontinued

Section XI inspections in the population of elements excluded from RI-ISI element selection. Therefore, excluding some elements from the population of elements for possible inspection does not affect the change in risk calculations.

The licensee used the failure frequencies developed in EPRI Topical Report TR-111880 (Ref. 8) to support the estimate for the change in risk. The non-proprietary version of TR-111880 (Ref. 9) illustrates the characteristics and format of the information used, but does not include the calculated parameters. The change in risk is calculated utilizing the Markov model described in EPRI Topical Report TR-111061 (Ref. 10) to estimate the "inspection efficiency factor" (IEF). The IEF calculation incorporates the time between ISI inspections and the time between opportunities to detect a leak together with the probability of detection to estimate the reduction in pipe failure frequency arising from including the element in an ISI program. The method is the same as that used by the licensee, and approved by the staff, in the Dresden RI-ISI submittal (Ref. 11). The staff finds the calculations acceptable to use in support of this RI-ISI submittal.

The licensee estimated the change in CDF and LERF for Unit 1 to be $3.62\text{E-}9/\text{yr}$ and $3.75\text{E-}10/\text{yr}$, respectively (Ref. 2). For Unit 2, the estimated change in CDF and LERF is $3.61\text{E-}9/\text{yr}$ and $1.67\text{E-}9/\text{yr}$, respectively (Ref. 2). In Tables RAI-1 and RAI-2 in Reference 2, the licensee also reported the system level changes for all the systems included in the scope of the submittal. All of the estimated changes in risk are below the EPRI guideline for acceptable estimated changes in CDF and LERF.

The staff finds that the licensee's process to evaluate the potential change in risk is 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 synergistic effects of multiple degradation mechanisms within the same piping segment. The staff finds that redistributing the welds to be inspected with consideration of the safety-significance of the segments provides assurance that segments whose failures 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 application is acceptable and, based on the reported quantitative results, any increase in risk associated with the implementation of the RI-ISI program is small and is consistent with the intent of the Commission's Policy Statement, and therefore, is consistent with RG 1.178.

3.4 Integrated Decision-Making

As described in the licensee's May 18, 2001, and October 19, 2001 submittals, 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 is described in Section 3.5 of the submittal using the results of the risk category rankings and other operational considerations. The submittal states that in accordance with the EPRI TR, 25 percent of high safety-significant (HSS) and 10 percent of medium safety significant elements are selected for inspection. As discussed in the submittal and earlier in this SE, these percentages are drawn from the population of welds included in the RI-ISI element selection population. The inspections are

generally selected on a system-by-system basis. The licensee stated that an attempt is made to ensure that all damage mechanisms and all combinations of damage mechanisms are represented in the elements selected for inspection.

Table 2 of the submittal provides the failure potential assessment summary for Units 1 and 2. Tables 3 and 4 of the submittal identify on a per system basis for Units 1 and 2, respectively, the number of elements (welds) by risk category. Tables 5 and 6 provide a summary comparing the number of inspections required under the existing ASME Code ISI program with the alternative RI-ISI program for each applicable system. The licensee used the methodology described in TR-112657 to guide the selection of examination elements within high and medium ranked piping segments. The EPRI 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 discontinuities over that currently required by the ASME Code.

The staff finds the location selection process to be acceptable since it is consistent with the process approved in TR-112657, takes into account defense-in-depth, and includes coverage of welds subjected to degradation mechanisms in addition to those covered by augmented inspection programs. As described in Section 3.2 of this SE, excluding elements exposed only to a damage mechanism addressed by an augmented program from the RI-ISI element selection population is an acceptable deviation from the EPRI methodology.

The objective of ISI required by the ASME 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. Therefore, the RI-ISI program must meet this objective to be found acceptable for use. Further, since the risk-informed program is based on inspection for cause, element selection should target specific degradation mechanisms. Chapter 4 of TR-112657 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 the review of the cited portion of the EPRI report, the staff concludes that the examination methods 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 the 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. To approve an alternative pursuant to 10 CFR 50.55a(a)(3)(i), 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.

The licensee stated in its submittal that upon approval of the RI-ISI program, procedures that comply with the EPRI TR-112657 guidelines will be prepared to implement and monitor the RI-ISI program. The licensee confirmed that the applicable portions of the ASME Code not

affected by the change, such as inspection methods, acceptance criteria, pressure testing, corrective measures, documentation requirements, and quality control requirements would be retained.

The licensee stated in Reference 1 and further clarified in References 2 and 3 that the RI-ISI program is a living program and its implementation will require feedback of new relevant information to ensure the appropriate identification of high safety significant piping locations. Such relevant information would include major updates to the LaSalle PRA models which could impact both the risk characterization and risk impact assessments, any new trends in service experience with piping systems at LaSalle and across the industry, and new information on element accessibility that will be obtained as the risk informed inspections are implemented. Reference 3 states that as a minimum, risk ranking of piping segments will be reviewed and adjusted on an ASME-period basis and that significant changes may require more frequent adjustment as directed by NRC bulletin or generic letter requirements, or by industry or plant-specific feedback. Reference 3 also states that the RI-ISI program will be updated and submitted to the NRC at the end of the 10-year ISI interval and may be submitted to the NRC prior to the end of the 10-year ISI interval if there is a deviation from the RI-ISI methodology described in the initial 10-year interval ISI submittal to the NRC or if industry experience determines that there is a need for significant revision to the program as described in the initial 10-year interval ISI submittal to the NRC for that interval.

The licensee's submittal (Ref. 1) presented the criteria for engineering evaluations and additional examinations if unacceptable flaws or relevant conditions are found during examinations. The submittal stated that the evaluation will include whether other elements in the segment or segments are subject to the same root cause conditions. Reference 2 clarified that the number of additional elements shall be the number of piping structural elements with the same postulated failure mode originally scheduled for the fuel cycle. Reference 2 also stated that the scope of additional examinations may be limited to those HSS piping structural elements (i.e., EPRI Risk Group Categories 1 through 5) within systems, whose material and service conditions are determined by an evaluation to have the same postulated failure mode as the piping structural element that contained the original flaw or relevant condition. Reference 2 further stated that if there are not enough HSS elements with the same postulated failure mode, lower safety significant elements (in lower Risk Group Categories other than Risk Group Categories 6 and 7) with the same postulated failure mode will be selected such that the number of additional elements is at least equal to the number of elements with the same postulated failure mode originally scheduled for that fuel cycle.

The proposed periodic reporting requirements meet existing ASME Code requirements and applicable regulations and, therefore, are considered acceptable. The proposed process for RI-ISI program updates meet the guidelines of RG 1.174 that risk-informed applications must include performance monitoring and feedback provisions; therefore, the process for program updates is considered acceptable.

4.0 CONCLUSION

In accordance with 10 CFR 50.55a(a)(3)(i), proposed alternatives to regulatory requirements may be used when authorized by the NRC when the applicant demonstrates that the 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. The staff concludes that the licensee's proposed RI-ISI program, which is consistent with the methodology described in EPRI TR-112657, will provide an acceptable level of quality and safety pursuant to 10 CFR 50.55a(a)(3)(i) for the proposed alternative to the piping ISI requirements with regard to the number of inspections, locations of inspections, and methods of inspection.

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 LaSalle 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 ASME Class 1, 2, and 3 systems in accordance with the ASME Code program. The RI-ISI program applies the same performance measurement strategies as existing ASME Code requirements and, in addition, increases the inspection volumes at some weld locations.

The LaSalle 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.

The licensee has stated that the ASME Code minimum and maximum inspection requirements for Program B will be met and that the RI-ISI inspections and the balance of the inspections will be on the same interval start and end dates. The staff finds that the LaSalle County Station Units 1 and 2 RI-ISI programs meet the ASME Code requirements for minimum and maximum inspections during inspection periods and intervals. The staff also finds that the LaSalle County Units 1 and 2 RI-ISI programs meet the 10 CFR 50.55a requirements for program submittal to the NRC.

The licensee has proposed that the requested relief be granted for the remainder of the second ISI interval, which is projected to end on October 11, 2003, for Unit 1, and July 4, 2004, for Unit 2, and for the following third 10-year ISI interval. The licensee's requested relief is consistent with the 1995 Edition and 1996 Addenda of the ASME Code requirements which are currently incorporated by reference in 10 CFR 50.55a. This may result in the requested relief becoming unnecessary for the third 10-year interval when that Code Edition and Addenda (or later) are required to be used. Therefore, it is premature to request relief now for the third 10-year ISI interval.

The proposed RI-ISI program is only being authorized by this safety evaluation for the remainder of the second 10-year ISI interval for LaSalle County Station, Units 1 and 2.

5.0 REFERENCES

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