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U.S. Nuclear Regulatory Commission
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Gentlemen:

REQUEST FOR AUTHORIZATION TO USE A RISK-INFORMED INSERVICE INSPECTION ALTERNATIVE TO THE ASME BOILER AND PRESSURE VESSEL CODE SECTION XI REQUIREMENTS FOR CLASS 1 AND 2 PIPING SALEM GENERATING STATION UNIT NOS. 1 AND 2 DOCKET NOS. 50-272 AND 50-311

In accordance with 10 CFR 50.55a, "Codes and Standards," paragraph (a)(3)(i), PSEG Nuclear LLC is submitting a proposed alternative to the existing American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components", requirements for the selection and examination of Class 1 and 2 piping welds. The alternative proposed by Salem Generating Station Unit Nos. 1 and 2 uses the methodology contained in the NRC approved Electric Power Research Institute (EPRI) Topical Report (TR) 112657, Revision B-A, "Revised Risk-Informed Inservice Inspection Evaluation Procedure."

The enclosed Risk-Informed Inservice Inspection Program Plan Salem Generating Station, Units 1 and 2 demonstrates that the proposed alternative would provide an acceptable level of quality and safety, as required by 10 CFR 50.55a (a)(3)(i). The format of the Salem Risk-Informed ISI submittal is consistent with the Nuclear Energy Institute (NEI) and industry template developed for applications of the Risk-Informed ISI methodology.

Salem Generating Station plans to implement the Risk-Informed ISI Program for Unit 1 at the start of the third inservice inspection interval, which began May 19, 2001. For Unit 2, the planned implementation is during the third period of the second interval, which began May 10, 1992.

Approval of this proposed alternative is requested by August 15, 2003 to support the Unit 2 refueling outage scheduled for the fall of 2003.

A047

Should you have any questions concerning this letter, please contact Mr. Carl L. Berger at (856) 339-1432.

Sincerely,

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RISK-INFORMED INSERVICE INSPECTION PROGRAM PLAN

SALEM GENERATING STATION, UNITS 1 AND 2

REVISION 0

Table of Contents

1. Introduction

    1.1 Relation to NRC Regulatory Guides 1.174 and 1.178
    1.2 PSA Quality

2. Proposed Alternative to Current Inservice Inspection Programs

    2.1 ASME Section XI
    2.2 Augmented Programs

3. Risk-Informed ISI Process

    3.1 Scope of Program
    3.2 Consequence Evaluation
    3.3 Failure Potential Assessment
    3.4 Risk Characterization
    3.5 Element and NDE Selection
        3.5.1 Additional Examinations
        3.5.2 Program Relief Requests
    3.6 Risk Impact Assessment
        3.6.1 Quantitative Analysis
        3.6.2 Defense-in-Depth

4. Implementation and Monitoring Program

5. Proposed ISI Program Plan Change

6. References/Documentation

Tables

1. INTRODUCTION

The Salem Generating Station (SGS) Unit 1 is currently at the beginning of its third inservice inspection (ISI) interval as defined by the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Section XI Code for Inspection Program B, and Unit 2 is nearing the end of its second ISI interval. SGS plans to implement a risk-informed inservice inspection (RI-ISI) program for Unit 1 at the start of the third inservice inspection interval, which began May 19, 2001. For Unit 2, SGS plans to implement the RI-ISI program during the third period of the second interval. The Unit 2 second interval began May 10, 1992.

The ASME Section XI Code used for Unit 1 during the second interval was the 1983 Edition with Summer 1983 Addenda, and for Unit 2 the 1986 Edition was used. Pursuant to 10 CFR 50.55a(g)(4)(ii), the applicable ASME Section XI Code for the third interval of SGS Unit 1 is the 1995 Edition with Addenda through 1996. For Unit 2, SGS expects the 1998 Edition through 2000 Addenda to be applicable for the third interval.

The objective of this submittal is to request the use of a risk-informed process for the inservice inspection of Class 1 and 2 piping. The RI-ISI process used in this submittal is described in Electric Power Research Institute (EPRI) Topical Report (TR) 112657 Rev. B-A "Revised Risk-Informed Inservice Inspection Evaluation Procedure." The RI-ISI application was also conducted in a manner consistent with ASME Code Case N-578 "Risk-Informed Requirements for Class 1, 2, and 3 Piping, Method B."

1.1 Relation to NRC Regulatory Guides 1.174 and 1.178

As a risk-informed application, this submittal meets the intent and principles of Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions On Plant-Specific Changes to the Licensing Basis" and Regulatory Guide 1.178, "An Approach for Plant-Specific Risk-Informed Decisionmaking Inservice Inspection of Piping". Further information is provided in Section 3.6.2 relative to defense-in-depth.

1.2 PSA Quality

The original Salem Generating Station Probabilistic Risk Assessment (SGS PRA) included a detailed analysis of both SGS units, as they existed on July 1, 1987. An update performed in 1990, which was done prior to the Individual Plant Examination (IPE) submittal, accounted for design changes implemented through August 1990. Plant risk was analyzed for high and low (startup and shutdown) power operation. Accidents occurring during refueling or other extended shutdowns were not considered. This is consistent with NRC guidance for individual plant examinations.

The SGS IPE was submitted to the NRC on July 30, 1993. The NRC sent a request for additional information on the SGS IPE to PSEG dated April 25, 1995, that had 38 questions. These questions were answered by PSEG in a letter dated August 1, 1995. The NRC responded in a letter dated March 21, 1996 and approved the SGS IPE. This letter had the following conclusion:

"Based on the above findings, the staff notes that: (1) the licensee's IPE is complete with regard to the information requested by GL 88-20 (and associated guidance NUREG-1335), and (2) the IPE results are reasonable given the SGS design, operation, and history. As a result the staff concludes that the licensee's IPE process is capable of identifying the most likely severe accidents and severe accident vulnerabilities, and therefore, that the SGS IPE has met the intent of GL 88-20.

It should be noted that the staff's review primarily focused on the licensee's ability to examine the SGS for severe accident vulnerabilities. Although certain aspects of the IPE were explored in more detail than others, the review is not intended to validate the accuracy of the licensee's detailed findings (or quantification estimates) that stemmed from the examination. Therefore, this SER does not constitute NRC approval or endorsement of any IPE material for purposes other than those associated with meeting the intent of GL 88-20."

The initial Probabilistic Risk Assessment model has gone through several revisions. The previous revision (Revision 2) captured all significant plant changes until 1998. The most recent update captured all significant plant changesthrough March 1997 for Salem 2 and June 1997 for Salem 1. All Salem Engineering Calculations/revisions issued from 01/01/1996 through 12/31/2000 were reviewed, and incorporated into the model, if applicable.

A draft of Revision 3.0 was submitted to the Westinghouse Owner's Group (WOG) certification process in December 2001. All Grade "A" and certain Grade "B" certification comments were resolved and the final Revision 3.0 was issued in June 2002.

The Risk-Informed Inservice Inspection (RI-ISI) calculations are based on the Salem Probabilistic Safety Assessment (PSA), Revision 3. The base case core damage frequency (CDF) of the Salem PSA Revision 3 is 4.395E-5/year without excessive loss of coolant accidents (LOCAs), and 4.472E-5/year with excessive LOCAs.

The methodology for performing Level 1 PSA is the same as before; however, the methodology for calculating large early release frequency (LERF) (Level 2) has changed significantly through usage of a simplified model, based on the methodology described in NUREG/CR-6595.

The derived methodology resulted in a table consisting of LERF multipliers, which are multiplied by each Plant Damage State (PDS) from Level 1. Using this approach, 100% of all Level 1 PDSs could easily be captured for LERF calculation. However, many of them were eliminated from calculations, since their contribution to CDF and LERF were negligible.

The base case LERF of the SGS PSA Revision 3 is 4.12E-6 without excessive LOCAs, and 4.89E-6/yr with excessive LOCAs.

The Summary of Results of the WOG SGS PSA certification from December 2001 has these statements:

"All of the technical elements were graded as sufficient to support applications requiring the capabilities defined for grade 2. The SGS PRA thus provides an appropriate and sufficiently robust tool to support such activities as Maintenance Rule implementation, supported as necessary by deterministic insights and plant expert panel input.

All of the elements were further graded as sufficient to support applications requiring the capabilities defined for grade 3, e.g., risk-informed applications supported by deterministic insights but in some cases this is contingent upon implementation of recommended enhancements.

The general assessment of the peer reviewers was that the SGS PRA can be effectively used to support applications involving risk significance determinations supported by deterministic analyses, once the items noted in the element summaries and Fact & Observation sheets are addressed. Specific suggestions have been provided in this regard, but other options and alternatives that accomplish the same objectives may be available and may be preferable.

As noted in Section 3, even without modifying the PRA to address recommended enhancements the PRA can be used in risk informed applications, if additional activities are undertaken to compensate for PRA limitations that are pertinent to the application."

2. PROPOSED ALTERNATIVE TO CURRENT ISI PROGRAM REQUIREMENTS

2.1 ASME Section XI

ASME Section XI Examination Categories B-F, B-J, C-F-1 and C-F-2 currently contain the requirements for the nondestructive examination (NDE) of Class 1 and 2 piping components. The alternative RI-ISI program for piping is described in EPRI TR-112657. The RI-ISI program will be substituted for the current program for Class 1 and 2 piping (Examination Categories B-F, B-J, C-F-1 and C-F-2) in accordance with 10 CFR 50.55a(a)(3)(i) by alternatively providing an acceptable level of quality and safety. Other non-related portions of the ASME Section XI Code will be unaffected. EPRI TR-112657 provides the requirements for defining the relationship between the RI-ISI program and the remaining unaffected portions of ASME Section XI.

2.2 Augmented Programs

The following augmented inspection programs were considered during preparation of the RI-ISI application:

- The augmented inspection program for flow accelerated corrosion (FAC) per Generic Letter 89-08 is relied upon to manage this damage mechanism but is not otherwise affected or changed by the RI-ISI program.

- SGS had previously met their commitment to NRC Bulletin 88-08, "Thermal Stresses in Piping Connected to Reactor Coolant System" by performing augmented examinations on specified piping locations that were considered subject to thermal fatigue. This issue has been subsumed by the RI-ISI Program because the potential for thermal fatigue in piping is explicitly considered during the application of the RI-ISI process.

3. RISK-INFORMED ISI PROCESS

The process used to develop the RI-ISI program conformed to the methodology described in EPRI TR-112657 and consisted of the following steps:

- Scope Definition
- Consequence Evaluation
- Failure Potential Assessment
- Risk Characterization
- Element and NDE Selection
- Risk Impact Assessment
- Implementation Program
- Feedback Loop

A deviation to the EPRI RI-ISI methodology has been implemented in the failure potential assessment for SGS. Table 3-16 of EPRI TR-112657 contains criteria for assessing the potential for thermal stratification, cycling and striping (TASCS). Key attributes for horizontal or slightly sloped piping greater than 1" nominal pipe size (NPS) include:

1. Potential exists for low flow in a pipe section connected to a component allowing mixing of hot and cold fluids, or
2. Potential exists for leakage flow past a valve, including in-leakage, out-leakage and cross-leakage allowing mixing of hot and cold fluids, or
3. Potential exists for convective heating in dead-ended pipe sections connected to a source of hot fluid, or
4. Potential exists for two phase (steam/water) flow, or

5. Potential exists for turbulent penetration into a relatively colder branch pipe connected to header piping containing hot fluid with turbulent flow,

   AND

   $\Delta T > 50°F$,

   AND

   Richardson Number > 4 *(this value predicts the potential buoyancy of a stratified flow)*

These criteria, based on meeting a high cycle fatigue endurance limit with the actual ΔT assumed equal to the greatest potential ΔT for the transient, will identify all locations where stratification is likely to occur, but allows for no assessment of severity. As such, many locations will be identified as subject to TASCS where no significant potential for thermal fatigue exists. The critical attribute missing from the existing methodology that would allow consideration of fatigue severity is a criterion that addresses the potential for fluid cycling. The impact of this additional consideration on the existing TASCS susceptibility criteria is presented below.

- **Turbulent penetration TASCS**

  Turbulent penetration typically occurs in lines connected to piping containing hot flowing fluid. In the case of downward sloping lines that then turn horizontal, significant top-to-bottom cyclic ΔTs can develop in the horizontal sections if the horizontal section is less than about 25 pipe diameters from the reactor coolant piping. Therefore, TASCS is considered for this configuration.

  For upward sloping branch lines connected to the hot fluid source that turn horizontal or in horizontal branch lines, natural convective effects combined with effects of turbulence penetration will keep the line filled with hot water. If there is no potential for in-leakage towards the hot fluid source from the outboard end of the line, this will result in a well-mixed fluid condition where significant top-to-bottom ΔTs will not occur. Therefore TASCS is not considered for these configurations. Even in fairly long lines, where some heat loss from the outside of the piping will tend to occur and some fluid stratification may be present, there is no significant potential for cycling as has been observed for the in-leakage case. The effect of TASCS will not be significant under these conditions and can be neglected.

- **Low flow TASCS**

  In some situations, the transient startup of a system (e.g., RHR suction piping) creates the potential for fluid stratification as flow is established. In cases where no cold fluid source exists, the hot flowing fluid will fairly rapidly displace the cold fluid in stagnant lines, while fluid mixing will occur in the piping further removed from the hot source and stratified conditions will exist only briefly as the line fills with hot fluid. As such, since the situation is transient in nature, it can be assumed that the criteria for thermal transients (TT) will govern.

- **Valve leakage TASCS**

  Sometimes a very small leakage flow of hot water can occur outward past a valve into a line that is relatively colder, creating a significant temperature difference. However, since this is generally a "steady-state" phenomenon with no potential for cyclic temperature changes, the effect of TASCS is not significant and can be neglected.

- **Convection heating TASCS**

  Similarly, there sometimes exists the potential for heat transfer across a valve to an isolated section beyond the valve, resulting in fluid stratification due to natural convection. However, since there is no potential for cyclic temperature changes in this case, the effect of TASCS is not significant and can be neglected.

In summary, these additional considerations for determining the potential for thermal fatigue as a result of the effects of TASCS provide an allowance for the consideration of cycle severity in assessing the potential for TASCS effects. The above criteria have previously been submitted by EPRI for generic approval (Letters dated February 28, 2001 and March 28, 2001, from P.J. O'Regan (EPRI) to Dr. B. Sheron (USNRC), "Extension of Risk-Informed Inservice Inspection Methodology"). The NRC has granted approval for RI-ISI relief requests incorporating these TASCS criteria at several facilities, including Comanche Peak (SER dated September 28, 2001) and South Texas Project (SER dated March 5, 2002).

3.1 Scope of Program

The systems included in the RI-ISI program are provided in Tables 3.1-1 and 3.1-2 for Units 1 and 2, respectively. The piping and instrumentation diagrams and additional plant information including the existing plant ISI program were used to define the Class 1 and 2 piping system boundaries.

3.2 Consequence Evaluation

The consequence(s) of pressure boundary failures were evaluated and ranked based on their impact on core damage and containment performance (i.e., isolation, bypass and large early release). The consequence evaluation included an assessment of shutdown and external events. The impact on these measures due to both direct and indirect effects was considered using the guidance provided in EPRI TR-112657.

3.3 Failure Potential Assessment

Failure potential estimates were generated utilizing industry failure history, plant specific failure history, and other relevant information. These failure estimates were determined using the guidance provided in EPRI TR-112657, with the exception of the previously stated deviation.

Tables 3.3-1 and 3.3-2 summarize the failure potential assessment by system for each degradation mechanism that was identified as potentially operative in Units 1 and 2, respectively.

3.4 Risk Characterization

In the preceding steps, each run of piping within the scope of the program was evaluated to determine its impact on core damage and containment performance (i.e., isolation, bypass and large, early release) as well as its potential for failure. Given the results of these steps, piping segments are then defined as continuous runs of piping potentially susceptible to the same type(s) of degradation and whose failure will result in similar consequence(s). Segments are then ranked based upon their risk significance as defined in EPRI TR-112657.

The results of these calculations are presented in Tables 3.4-1 and 3.4-2 for Units 1 and 2, respectively.

3.5 Element and NDE Selection

In general, EPRI TR-112657 requires that 25% of the locations in the high risk region and 10% of the locations in the medium risk region be selected for inspection using appropriate NDE methods tailored to the applicable degradation mechanism. In addition, per Section 3.6.4.2 of EPRI TR-112657, if the percentage of Class 1 piping locations selected for examination falls substantially below 10%, then the basis for selection needs to be investigated.

The initial results of the RI-ISI application were that 7.9% of the Class 1 piping welds in Unit 1 and 7.3% in Unit 2 were selected for RI-ISI examination. These resulting percentages were below 10% because approximately 75% of the Class 1 piping population could be isolated in the event of a pipe break. For piping that can be isolated, a postulated break does not result in a loss of coolant accident. This supports a lower risk ranking for isolable welds, which in turn decreases the percentage of Class 1 welds that require risk-informed examination.

Even with this justification, SGS decided to add nine selections in Unit 1 and nineteen selections in Unit 2 in order to increase the overall percentage of Class 1 selections. These additional selections also support the defense-in-depth philosophy. The additional welds increased the percentage of Class 1 selections to 8.5% for Unit 1 and 8.6% for Unit 2.

One additional factor that was considered during the evaluation was that the overall percentage of Class 1 selections included both socket and non-socket welds. Therefore, the final percentage of Class 1 selections was 8.5% for Unit 1 and 8.6% for Unit 2 when both socket and non-socket piping welds were considered. For Unit 1, this percentage increases to 14.2% (102 of 719 welds) when considering only those piping welds that are non-socket welded. For Unit 2, the percentage of Class 1, non-socket welds selected for examination is 14.6% (109 of 745 welds). It should be noted that non-socket welds are subject to volumetric examination, so this percentage does not rely upon welds that are solely subject to a VT-2 visual examination.

As stated in TR-112657, the existing FAC augmented inspection program provides the means to effectively manage this mechanism. No additional credit was taken for any

FAC augmented inspection program locations beyond those selected by the RI-ISI process to meet the sampling percentage requirements.

A brief summary is provided in the following table, and the results of the selections are presented in Tables 3.5-1 and 3.5-2. Section 4 of EPRI TR-112657 was used as guidance in determining the examination requirements for these locations.

Unit	Class 1 Piping Welds[1]		Class 2 Piping Welds[2]		All Piping Welds[3]	
	Total	Selected	Total	Selected	Total	Selected
1	1395	119[4]	1714	36	3109	155
2	1379	119[4]	1625	49	3004	168

Notes

1. Includes all Category B-F and B-J locations.
2. Includes all Category C-F-1 and C-F-2 locations.
3. All in-scope piping components, regardless of risk classification, will continue to receive Code required pressure testing, as part of the current ASME Section XI program. VT-2 visual examinations are scheduled in accordance with the station's pressure test program that remains unaffected by the RI-ISI program.
4. The initial RI-ISI application yielded 110 Class 1 selections in Unit 1 and 100 Class 1 selections in Unit 2. Nine welds in Unit 1 and nineteen welds in Unit 2 were subsequently added to the initial selections to help address the Class 1 selection percentage criteria described in Section 3 6 4.2 of EPRI TR-112657.

3.5.1 Additional Examinations

The RI-ISI program in all cases will determine through an engineering evaluation the root cause of any unacceptable flaw or relevant condition found during examination. The evaluation will include the applicable service conditions and degradation mechanisms to establish that the element(s) will still perform their intended safety function during subsequent operation. Elements not meeting this requirement will be repaired or replaced.

The evaluation will include whether other elements in the segment or additional segments are subject to the same root cause conditions. Additional examinations will be performed on those elements with the same root cause conditions or degradation mechanisms. The additional examinations will include high risk significant elements and medium risk significant elements, if needed, up to a number equivalent to the number of elements required to be inspected on the segment or segments during the current outage. If unacceptable flaws or relevant conditions are again found similar to the initial problem, the remaining elements identified as susceptible will be examined. No additional examinations will be performed if there are no additional elements identified as being susceptible to the same root cause conditions.

3.5.2 Program Relief Requests

An attempt has been made to select RI-ISI locations for examination such that a minimum of >90% coverage (i.e., Code Case N-460 criteria) is attainable. However, some limitations will not be known until the examination is performed, since some locations may be examined for the first time by the specified techniques

In instances where locations are found at the time of the examination that do not meet the >90% coverage requirement, the process outlined in EPRI TR-112657 will be followed.

None of the existing SGS relief requests are being withdrawn due to the RI-ISI application.

3.6 Risk Impact Assessment

The RI-ISI program has been developed in accordance with the requirements of EPRI TR-112657, which incorporates the guidance of Regulatory Guide 1.174, and the risk from implementation of this program is expected to remain neutral or decrease when compared to that estimated from current requirements.

This evaluation identified the allocation of segments into High, Medium, and Low risk regions of the EPRI TR-112657 and ASME Code Case N-578 risk ranking matrix, and then determined for each of these risk classes what inspection changes are proposed for each of the locations in each segment. The changes include changing the number and location of inspections within the segment and in many cases improving the effectiveness of the inspection to account for the findings of the RI-ISI degradation mechanism assessment. For example, for locations subject to thermal fatigue, examinations will be conducted on an expanded volume and will be focused to enhance the probability of detection (POD) during the inspection process.

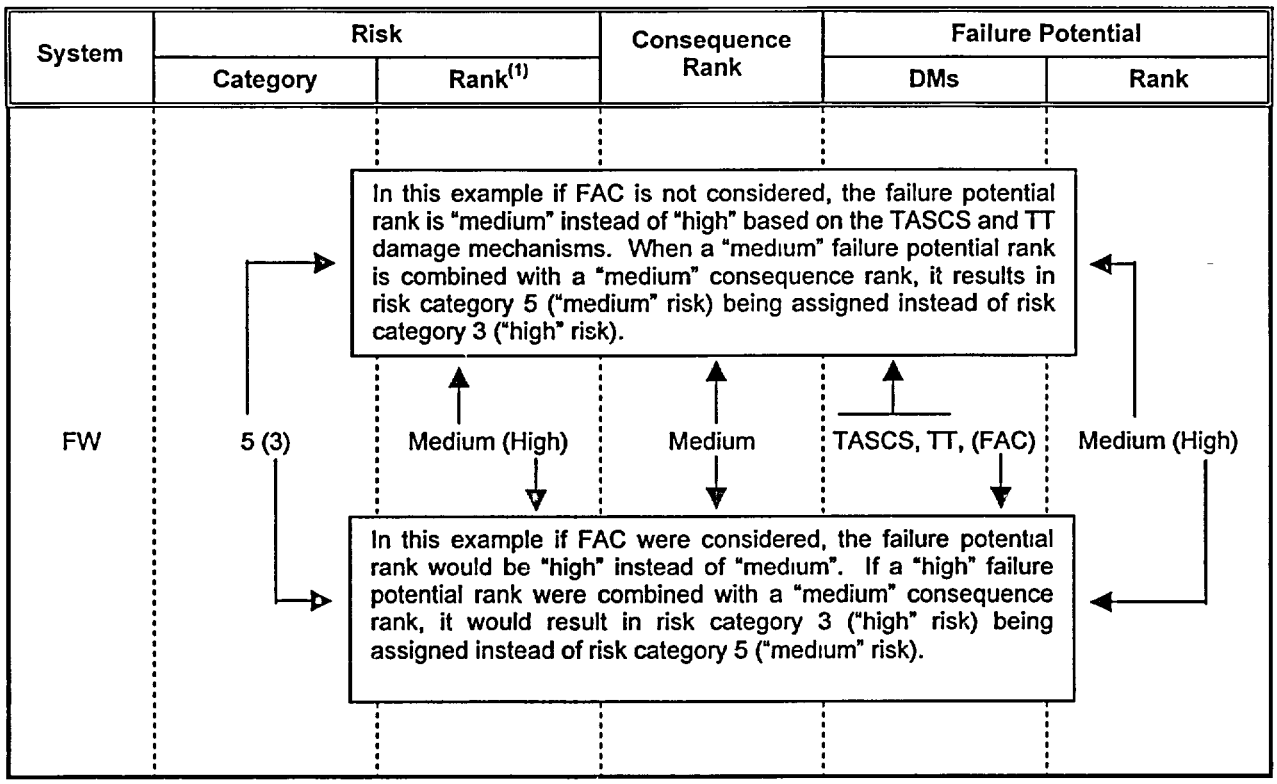
3.6.1 Quantitative Analysis

Limits are imposed by the EPRI methodology to ensure that the change in risk of implementing the RI-ISI program meets the requirements of Regulatory Guides 1.174 and 1.178. The EPRI criterion requires that the cumulative change in core damage frequency (CDF) and large early release frequency (LERF) be less than 1E-07 and 1E-08 per year per system, respectively.

Salem conducted a risk impact analysis per the requirements of Section 3.7 of EPRI TR-112657. The analysis estimates the net change in risk due to the positive and negative influence of adding and removing locations from the inspection program. A risk quantification was performed using the "Simplified Risk Quantification Method" described in Section 3.7 of EPRI TR-112657. The conditional core damage probability (CCDP) and conditional large early release probability (CLERP) used for high consequence category segments was based on the highest evaluated CCDP (1E-01) and CLERP (1E-02), whereas, for medium consequence category segments, bounding estimates of CCDP (1E-04) and CLERP (1E-05) were used. The likelihood of pressure boundary failure (PBF) is determined by the presence of different degradation mechanisms and the rank is based on the relative failure probability. The basic likelihood of PBF for a piping location with no degradation mechanism present is given as x_o and is expected to have a value less than 1E-08. Piping locations identified as medium failure potential have a likelihood of $20x_o$. These PBF likelihoods are consistent with References 9 and 14 of EPRI TR-112657. In addition, the analysis was

performed both with and without taking credit for enhanced inspection effectiveness due to an increased POD from application of the RI-ISI approach.

Tables 3.6-1 and 3.6-2 present summaries of the RI-ISI program versus the applicable ASME Section XI Code Edition program requirements and identifies on a per system basis each applicable risk category for Units 1 and 2, respectively. The presence of FAC was adjusted for in the performance of the quantitative analysis by excluding its impact on the risk ranking. The impact of FAC is excluded in the risk ranking, and therefore in the determination of the change in risk, because FAC is a damage mechanism managed by a separate, independent plant augmented inspection program. The RI-ISI Program credits and relies upon this augmented plant inspection program to manage this damage mechanism. The plant FAC Program will continue to determine where and when examinations shall be performed. Hence, since the number of FAC examination locations remains the same "before" and "after" and no delta exists, there is no need to include the impact of FAC in the performance of the risk impact analysis. However, in an effort to be as informative as possible, for those systems where FAC is present, Tables 3.6-1 and 3.6-2 present the information in such a manner as to depict what the resultant risk categorization is both with and without consideration of FAC. This is accomplished by enclosing the FAC damage mechanism, as well as all other resultant corresponding changes (failure potential rank, risk category and risk rank), in parenthesis. Again, this has only been done for information purposes, and has no impact on the assessment itself. The use of this approach to depict the impact of degradation mechanisms managed by augmented inspection programs on the risk categorization is consistent with that used in the delta risk assessment for the Arkansas Nuclear One, Unit 2 (ANO-2) pilot application. An example is provided below.



Note

1. The risk rank is not included in Tables 3.6-1 or 3.6-2 but it is included in Tables 5-2-1 and 5-2-2.

As indicated in the following tables, this evaluation has demonstrated that unacceptable risk impacts will not occur from implementation of the RI-ISI program, and satisfies the acceptance criteria of Regulatory Guide 1.174 and EPRI TR-112657.

Unit 1 Risk Impact Results

System[1]	$\Delta Risk_{CDF}$		$\Delta Risk_{LERF}$	
	w/ POD	w/o POD	w/ POD	w/o POD
RCS	5.50E-08	9.90E-08	5.50E-09	9.90E-09
RHRS	-2.30E-08	4.99E-09	-2.30E-09	4.99E-10
SIS	-1.20E-07	-4.75E-08	-1.20E-08	-4.75E-09
CVCS	-4 11E-08	-2.50E-08	-4.11E-09	-2.50E-09
MSS	negligible	negligible	negligible	negligible
FWS	-1.80E-11	1.00E-11	-1.80E-12	1.00E-12
CSS	-2.55E-08	-2.55E-08	-2.55E-09	-2.55E-09
AFS	-5.40E-11	-1.00E-11	-5.40E-12	-1.00E-12
SWS	-3.50E-09	-3.50E-09	-3.50E-10	-3 50E-10
Total	**-1.58E-07**	**2.43E-09**	**-1.58E-08**	**2.43E-10**

Note

1. Systems are described in Table 3.1-1.

Unit 2 Risk Impact Results

System[1]	$\Delta Risk_{CDF}$		$\Delta Risk_{LERF}$	
	w/ POD	w/o POD	w/ POD	w/o POD
RCS	8.00E-09	6.00E-08	8.00E-10	6.00E-09
RHRS	-8.60E-08	-3.40E-08	-8.60E-09	-3 40E-09
SIS	-1.29E-07	-7.25E-08	-1.29E-08	-7.25E-09
CVCS	-3.76E-08	-2.15E-08	-3 76E-09	-2.15E-09
MSS	negligible	negligible	negligible	negligible
FWS	-4.80E-11	-2.00E-11	-4.80E-12	-2.00E-12
CSS	-6.40E-08	-6.40E-08	-6.40E-09	-6 40E-09
AFS	-6.00E-11	-2.00E-11	-6.00E-12	-2.00E-12
SWS	-3.50E-09	-3.50E-09	-3 50E-10	-3.50E-10
Total	**-3.12E-07**	**-1.36E-07**	**-3.12E-08**	**-1.36E-08**

Note

1. Systems are described in Table 3 1-2.

3.6.2 Defense-in-Depth

The intent of the inspections mandated by ASME Section XI for piping welds is to identify conditions such as flaws or indications that may be precursors to leaks or ruptures in a system's pressure boundary. Currently, the process for picking inspection locations is based upon structural discontinuity and stress analysis results. As depicted in ASME White Paper 92-01-01 Rev. 1, "Evaluation of Inservice Inspection Requirements for Class 1, Category B-J Pressure Retaining Welds," this method has been ineffective in identifying leaks or failures. EPRI TR-112657 and Code Case N-578 provide a more robust selection process founded on actual service experience with nuclear plant piping failure data.

This process has two key independent ingredients, that is, a determination of each location's susceptibility to degradation and secondly, an independent assessment of the consequence of the piping failure. These two ingredients assure defense-in-depth is maintained. First, by evaluating a location's susceptibility to degradation, the likelihood of finding flaws or indications that may be precursors to leak or ruptures is increased. Secondly, the consequence assessment effort has a single failure criterion. As such, no matter how unlikely a failure scenario is, it is ranked High in the consequence assessment, and at worst Medium in the risk assessment (i.e., Risk Category 4), if as a result of the failure there is no mitigative equipment available to respond to the event. In addition, the consequence assessment takes into account equipment reliability, and less credit is given to less reliable equipment.

All locations within the Class 1 and 2 pressure boundaries will continue to receive a system pressure test and visual VT-2 examination as currently required by the Code regardless of its risk classification.

4. IMPLEMENTATION AND MONITORING PROGRAM

Upon approval of the RI-ISI program, procedures that comply with the guidelines described in EPRI TR-112657 will be prepared to implement and monitor the program. The new program will be integrated into the third inservice inspection interval for Unit 1, and the second inservice inspection interval for Unit 2. No changes to the Technical Specifications or Updated Final Safety Analysis Report are necessary for program implementation.

The applicable aspects of the ASME 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. Existing ASME Section XI program implementing procedures will be retained and modified to address the RI-ISI process, as appropriate.

The monitoring and corrective action program will contain the following elements:

A. Identify
B. Characterize
C. (1) Evaluate, determine the cause and extent of the condition identified
   (2) Evaluate, develop a corrective action plan or plans
D. Decide
E. Implement
F. Monitor
G. Trend

The RI-ISI program is a living program requiring feedback of new relevant information to ensure the appropriate identification of high safety significant piping locations. As a minimum, risk ranking of piping segments will be reviewed and adjusted on an ASME period basis. In addition, significant changes may require more frequent adjustment as directed by NRC Bulletin or Generic Letter requirements, or by industry and plant specific feedback.

5. PROPOSED ISI PROGRAM PLAN CHANGE

A comparison between the RI-ISI program and ASME Section XI Code program requirements for in-scope piping is provided in Tables 5-1-1 and 5-2-1 for Unit 1 and Tables 5-1-2 and 5-2-2 for Unit 2. Tables 5-1-1 and 5-1-2 provide summary comparisons by risk region. Tables 5-2-1 and 5-2-2 provide the same comparison information, but in a more detailed manner by risk category, similar to the format used in Table 3.6-1 and 3.6-2.

SGS is implementing the RI-ISI program at the start of the first period of its third inspection interval for Unit 1. As such, 100% of the required RI-ISI program inspections will be completed in the third interval.

For Unit 2, Salem is implementing the RI-ISI program during the third period of its second interval. Up until this point in the interval, 60.2% of the examinations required by ASME Section XI have been completed for Examination Categories B-F, B-J, C-F-1, and C-F-2 piping welds. Beginning in the third period of the second interval, the examinations for Unit 2 determined by the RI-ISI process will replace those formerly selected per ASME Section XI criteria. Since 60.2% of the examinations have been completed thus far in the interval, 39.8% of the RI-ISI examinations will be performed during the third period so that 100% of the selected examinations are performed during the course of the interval.

Examinations shall be performed such that the period examination percentage requirements of ASME Section XI, paragraphs IWB-2412 and IWC-2412 are met.

6. REFERENCES/DOCUMENTATION

EPRI TR-112657, "Revised Risk-Informed Inservice Inspection Evaluation Procedure", Rev. B-A

ASME Code Case N-578, "Risk-Informed Requirements for Class 1, 2, and 3 Piping, Method B, Section XI, Division 1"

Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions On Plant-Specific Changes to the Licensing Basis"

Regulatory Guide 1.178, "An Approach for Plant-Specific Risk-Informed Decisionmaking Inservice Inspection of Piping"

Supporting Onsite Documentation

"Risk-Informed Inservice Inspection Consequence Evaluation of Class 1 & 2 Piping, Salem Nuclear Generating Station Units 1 and 2", Revision 1, dated September 24, 2002

Calculation File No. W-SALM-01-301, "Degradation Mechanism Evaluation for Salem Units 1/2", Revision 1, dated July 31, 2002

Calculation File No. PSEG-001-003, "Salem Service History and Susceptibility Review", Revision 0, dated August 14, 2002

Calculation File No. PSEG-001-004, "Risk Ranking for Salem Units 1 and 2", Revision 1, dated December 6, 2002

Calculation File No. PSEG-001-005, "Risk Impact Analysis for Salem Units 1 and 2", Revision 0, dated December 6, 2002

Record of Conversation No. ROC-003, "Minutes of the Element Selection Meeting for the Risk-Informed ISI Project at the Salem Nuclear Generating Station", Revision 1, dated August 22-23, 2002

Table 3.1-1

Unit 1 - System Selection and Segment / Element Definition

System Description	Number of Segments	Number of Elements
RCS – Reactor Coolant System	77	340
RHRS – Residual Heat Removal System	32	208
SIS – Safety Injection System	191	1470
CVCS – Chemical and Volume Control System	65	484
MSS – Main Steam System	47	235
FWS – Feedwater System	39	98
CSS – Containment Spray System	26	178
AFS – Auxiliary Feedwater System	7	31
SWS – Service Water System	15	65
Totals	499	3109

Table 3.1-2

Unit 2 - System Selection and Segment / Element Definition

System Description	Number of Segments	Number of Elements
RCS – Reactor Coolant System	91	348
RHRS – Residual Heat Removal System	66	403
SIS – Safety Injection System	134	1079
CVCS – Chemical and Volume Control System	73	620
MSS – Main Steam System	47	249
FWS – Feedwater System	28	68
CSS – Containment Spray System	25	149
AFS – Auxiliary Feedwater System	5	24
SWS – Service Water System	15	64
Totals	484	3004

Table 3.3-1

Unit 1 - Failure Potential Assessment Summary

System[1]	Thermal Fatigue		Stress Corrosion Cracking				Localized Corrosion			Flow Sensitive	
	TASCS	TT	IGSCC	TGSCC	ECSCC	PWSCC	MIC	PIT	CC	E-C	FAC
RCS	X	X	X		X	X					
RHRS	X				X						
SIS	X	X	X		X						
CVCS	X	X			X						
MSS											
FWS	X	X									X
CSS			X		X						
AFS		X									X
SWS											

Note

1. Systems are described in Table 3.1-1.

Table 3.3-2

Unit 2 - Failure Potential Assessment Summary

System[1]	Thermal Fatigue		Stress Corrosion Cracking				Localized Corrosion			Flow Sensitive	
	TASCS	TT	IGSCC	TGSCC	ECSCC	PWSCC	MIC	PIT	CC	E-C	FAC
RCS	X	X	X		X	X					
RHRS	X		X		X						
SIS	X	X	X		X						
CVCS	X	X			X						
MSS											
FWS	X	X									X
CSS			X		X						
AFS		X									X
SWS											

Note

1. Systems are described in Table 3.1-2.

Table 3.4-1

Unit 1 - Number of Segments by Risk Category With and Without Impact of FAC

System[1]	High Risk Region						Medium Risk Region				Low Risk Region			
	Category 1		Category 2		Category 3		Category 4		Category 5		Category 6		Category 7	
	With	Without	With	Without	With	Without	With	Without	With	Without	With	Without	With	Without
RCS			21	21			41	41			8	8	7	7
RHRS			2	2			14	14	2	2	12	12	2	2
SIS			19	19			58	58	20	20	77	77	17	17
CVCS			3	3			8	8	8	8	46	46		
MSS											47	47		
FWS					17[2]	0			4	6	18	33		
CSS			3	3			11	11	1	1	9	9	2	2
AFS					2[3]	0			5	7				
SWS							15	15						
Total			48	48	19	0	147	147	40	44	217	232	28	28

Notes

1. Systems are described in Table 3.1-1.
2. Of these 17 segments, 2 segments become Category 5 after FAC is removed from consideration due to the presence of another "medium" failure potential damage mechanism, and 15 segments become Category 6 after FAC is removed from consideration due to no other damage mechanisms being present.
3. These two segments become Category 5 after FAC is removed from consideration due to the presence of another "medium" failure potential damage mechanism.

Table 3.4-2

Unit 2 - Number of Segments by Risk Category With and Without Impact of FAC

System[1]	High Risk Region						Medium Risk Region				Low Risk Region			
	Category 1		Category 2		Category 3		Category 4		Category 5		Category 6		Category 7	
	With	Without	With	Without	With	Without	With	Without	With	Without	With	Without	With	Without
RCS			28	28			47	47			8	8	8	8
RHRS			5	5			37	37	2	2	20	20	2	2
SIS			14	14			31	31	19	19	53	53	17	17
CVCS			3	3			9	9	12	12	49	49		
MSS											47	47		
FWS					13[2]	0			4	8	11	20		
CSS			6	6			6	6	3	3	10	10		
AFS					1[3]	0			4	5				
SWS							15	15						
Total			56	56	14	0	145	145	44	49	198	207	27	27

Notes

1. Systems are described in Table 3.1-2.
2. Of these 13 segments, 4 segments become Category 5 after FAC is removed from consideration due to the presence of another "medium" failure potential damage mechanism, and 9 segments become Category 6 after FAC is removed from consideration due to no other damage mechanisms being present.
3. This one segment becomes Category 5 after FAC is removed from consideration due to the presence of another "medium" failure potential damage mechanism.

Table 3.5-1

Unit 1 - Number of Elements Selected for Inspection by Risk Category Excluding Impact of FAC

System[1]	High Risk Region						Medium Risk Region				Low Risk Region			
	Category 1		Category 2		Category 3		Category 4		Category 5		Category 6		Category 7	
	Total	Selected	Total	Selected	Total	Selected	Total	Selected	Total	Selected	Total	Selected	Total	Selected
RCS			31	10[2]			208	25[3]	0	0	16	0	85	0
RHRS			7	2			109	11	3	1	69	0	20	0
SIS			50	13			404	44[4]	47	5	847	0	122	0
CVCS			7	2			102	11	39	4	336	0	0	0
MSS			0	0			0	0	0	0	235	0	0	0
FWS			0	0			0	0	13	2	85	0	0	0
CSS			5	2			101	11	2	1	52	0	18	0
AFS			0	0			0	0	31	4	0	0	0	0
SWS			0	0			65	7	0	0	0	0	0	0
Total			100	29			989	109	135	17	1640	0	245	0

Notes

1. Systems are described in Table 3.1-1.
2. 2 of these 10 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details
3. 4 of these 25 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
4. 3 of these 44 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.

Table 3.5-2

Unit 2 - Number of Elements Selected for Inspection by Risk Category Excluding Impact of FAC

System[1]	High Risk Region						Medium Risk Region				Low Risk Region			
	Category 1		Category 2		Category 3		Category 4		Category 5		Category 6		Category 7	
	Total	Selected	Total	Selected	Total	Selected	Total	Selected	Total	Selected	Total	Selected	Total	Selected
RCS			37	12[2]			221	29[3]	0	0	16	0	74	0
RHRS			21	6			222	23	10	1	130	0	20	0
SIS			33	10[4]			272	38[5]	37	4	622	0	115	0
CVCS			7	2			98	10	39	4	476	0	0	0
MSS			0	0			0	0	0	0	249	0	0	0
FWS			0	0			0	0	20	3	48	0	0	0
CSS			21	6			80	8	8	1	40	0	0	0
AFS			0	0			0	0	24	4	0	0	0	0
SWS			0	0			64	7	0	0	0	0	0	0
Total			119	36			957	115	138	17	1581	0	209	0

Notes

1. Systems are described in Table 3.1-2.
2. 2 of these 12 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
3. 6 of these 29 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
4. 1 of these 10 welds was added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
5. 10 of these 38 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.

Table 3.6-1

Unit 1 - Risk Impact Analysis Results

System[1]	Category	Consequence Rank	Failure Potential		Inspections			CDF Impact[4]		LERF Impact[4]	
			DMs	Rank	SXI[2 and 3]	RI-ISI	Delta	w/ POD	w/o POD	w/ POD	w/o POD
RCS	2	High	TASCS, TT, PWSCC	Medium	1	1	0	no change	no change	no change	no change
RCS	2	High	TASCS, TT	Medium	5	2	-3	-6.00E-09	3.00E-08	-6 00E-10	3.00E-09
RCS	2	High	TT, PWSCC	Medium	1	1	0	no change	no change	no change	no change
RCS	2	High	TT	Medium	0	1	1	-1.80E-08	-1.00E-08	-1.80E-09	-1.00E-09
RCS	2	High	PWSCC	Medium	12	5[5]	-7	7.00E-08	7.00E-08	7.00E-09	7.00E-09
RCS	4	High	None	Low	43	25[6]	-18	9.00E-09	9.00E-09	9.00E-10	9.00E-10
RCS	6a	Medium	None	Low	0	0	0	no change	no change	no change	no change
RCS	6b	Low	IGSCC	Medium	0	0	0	no change	no change	no change	no change
RCS	6b	Low	ECSCC	Medium	0	0	0	no change	no change	no change	no change
RCS	7a	Low	None	Low	4	0	-4	negligible	negligible	negligible	negligible
RCS Total								**5.50E-08**	**9.90E-08**	**5.50E-09**	**9.90E-09**
RHRS	2	High	TASCS	Medium	3	2	-1	-1 80E-08	1.00E-08	-1.80E-09	1.00E-09
RHRS	4	High	None	Low	1	11	10	-5.00E-09	-5.00E-09	-5 00E-10	-5.00E-10
RHRS	5a	Medium	ECSCC	Medium	0	1	1	-1.00E-11	-1.00E-11	-1.00E-12	-1.00E-12
RHRS	6a	Medium	None	Low	12	0	-12	negligible	negligible	negligible	negligible
RHRS	7a	Low	None	Low	0	0	0	no change	no change	no change	no change
RHRS Total								**-2.30E-08**	**4.99E-09**	**-2.30E-09**	**4.99E-10**

Table 3.6-1

Unit 1 - Risk Impact Analysis Results

System[1]	Category	Consequence Rank	Failure Potential		Inspections			CDF Impact[4]		LERF Impact[4]	
			DMs	Rank	SXI[2 and 3]	RI-ISI	Delta	w/ POD	w/o POD	w/ POD	w/o POD
SIS	2	High	TASCS, TT	Medium	0	3	3	-5.40E-08	-3.00E-08	-5.40E-09	-3.00E-09
SIS	2	High	TASCS	Medium	0	0	0	no change	no change	no change	no change
SIS	2	High	TT	Medium	2	5	3	-7.80E-08	-3.00E-08	-7.80E-09	-3.00E-09
SIS	2	High	ECSCC	Medium	7	5	-2	2.00E-08	2.00E-08	2.00E-09	2.00E-09
SIS	4	High	None	Low	29	44[7]	15	-7.50E-09	-7.50E-09	-7.50E-10	-7.50E-10
SIS	5a	Medium	TT, IGSCC	Medium	0	1	1	-1.80E-11	-1.00E-11	-1.80E-12	-1.00E-12
SIS	5a	Medium	IGSCC	Medium	4	4	0	no change	no change	no change	no change
SIS	6a	Medium	None	Low	67	0	-67	negligible	negligible	negligible	negligible
SIS	7a	Low	None	Low	20	0	-20	negligible	negligible	negligible	negligible
SIS Total								**-1.20E-07**	**-4.75E-08**	**-1.20E-08**	**-4.75E-09**
CVCS	2	High	TASCS, TT	Medium	0	1	1	-1.80E-08	-1.00E-08	-1.80E-09	-1.00E-09
CVCS	2	High	TT	Medium	0	1	1	-1.80E-08	-1.00E-08	-1.80E-09	-1.00E-09
CVCS	4	High	None	Low	1	11	10	-5.00E-09	-5 00E-09	-5.00E-10	-5.00E-10
CVCS	5a	Medium	TT	Medium	0	3	3	-5.40E-11	-3.00E-11	-5.40E-12	-3.00E-12
CVCS	5a	Medium	ECSCC	Medium	0	1	1	-1.00E-11	-1.00E-11	-1.00E-12	-1.00E-12
CVCS	6a	Medium	None	Low	21	0	-21	negligible	negligible	negligible	negligible
CVCS Total								**-4.11E-08**	**-2.50E-08**	**-4.11E-09**	**-2.50E-09**
MSS	6a	Medium	None	Low	21	0	-21	negligible	negligible	negligible	negligible
MSS Total								**negligible**	**negligible**	**negligible**	**negligible**
FWS	5a (3)	Medium	TASCS, TT, (FAC)	Medium (High)	2	1	-1	-6.00E-12	1.00E-11	-6 00E-13	1.00E-12
FWS	5a	Medium	TASCS, TT	Medium	1	1	0	-1.20E-11	no change	-1.20E-12	no change
FWS	6a (3)	Medium	None (FAC)	Low (High)	3	0	-3	negligible	negligible	negligible	negligible
FWS	6a	Medium	None	Low	3	0	-3	negligible	negligible	negligible	negligible
FWS Total								**-1.80E-11**	**1.00E-11**	**-1.80E-12**	**1.00E-12**

Table 3.6-1

Unit 1 - Risk Impact Analysis Results

System[1]	Category	Consequence Rank	Failure Potential		Inspections			CDF Impact[4]		LERF Impact[4]	
			DMs	Rank	SXI[2 and 3]	RI-ISI	Delta	w/ POD	w/o POD	w/ POD	w/o POD
CSS	2	High	ECSCC	Medium	0	2	2	-2.00E-08	-2.00E-08	-2.00E-09	-2.00E-09
CSS	4	High	None	Low	0	11	11	-5 50E-09	-5.50E-09	-5.50E-10	-5.50E-10
CSS	5a	Medium	IGSCC, ECSCC	Medium	0	1	1	-1.00E-11	-1.00E-11	-1.00E-12	-1.00E-12
CSS	6a	Medium	None	Low	0	0	0	no change	no change	no change	no change
CSS	7a	Low	None	Low	0	0	0	no change	no change	no change	no change
CSS Total								**-2.55E-08**	**-2.55E-08**	**-2.55E-09**	**-2.55E-09**
AFS	5a (3)	Medium	TT, (FAC)	Medium (High)	0	1	1	-1.80E-11	-1.00E-11	-1.80E-12	-1.00E-12
AFS	5a	Medium	TT	Medium	3	3	0	-3.60E-11	no change	-3.60E-12	no change
AFS Total								**-5.40E-11**	**-1.00E-11**	**-5.40E-12**	**-1.00E-12**
SWS	4	High	None	Low	0	7	7	-3.50E-09	-3.50E-09	-3.50E-10	-3 50E-10
SWS Total								**-3.50E-09**	**-3.50E-09**	**-3.50E-10**	**-3.50E-10**
Grand Total								**-1.58E-07**	**2.43E-09**	**-1.58E-08**	**2.43E-10**

Notes

1. Systems are described in Table 3.1-1.
2. In general, only those ASME Section XI Code inspection locations that received a volumetric examination in addition to a surface examination are included in the count. Inspection locations previously subjected to a surface examination only were not considered in accordance with Section 3.7.1 of EPRI TR-112657, with the exception of those inspection locations considered potentially susceptible to external chloride stress corrosion cracking.
3. Since no third interval piping weld examinations had been performed prior to the development of the RI-ISI Program, second interval selections for Unit 1 made per the 1983 Edition through 1983 Addenda of ASME Code Section XI were used for comparison purposes. In addition, for comparison purposes, Salem elected to project the number of Auxiliary Feedwater system piping welds that would require examination per the 1998 Edition through 2000 Addenda of ASME Code Section XI, since these requirements will be imposed on future inspection intervals.
4. Per Section 3.7.1 of EPRI TR-112657, the contribution of low risk categories 6 and 7 need not be considered in assessing the change in risk. Hence, the word "negligible" is given in these cases in lieu of values for CDF and LERF Impact. For those cases in high, medium or low risk region piping where no impact to CDF or LERF exists, "no change" is listed.
5. 2 of these 5 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3 5 of this submittal for details.
6. 4 of these 25 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.

Notes for Table 3.6-1 (cont'd)

7. 3 of these 44 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.

Table 3.6-2

Unit 2 - Risk Impact Analysis Results

System[1]	Category	Consequence Rank	Failure Potential		Inspections			CDF Impact[4]		LERF Impact[4]	
			DMs	Rank	SXI[2 and 3]	RI-ISI	Delta	w/ POD	w/o POD	w/ POD	w/o POD
RCS	2	High	TASCS, TT, PWSCC	Medium	1	1	0	no change	no change	no change	no change
RCS	2	High	TASCS, TT	Medium	2	3	1	-4.20E-08	-1.00E-08	-4.20E-09	-1.00E-09
RCS	2	High	TT, PWSCC	Medium	1	1	0	no change	no change	no change	no change
RCS	2	High	TT	Medium	1	2	1	-3.00E-08	-1.00E-08	-3.00E-09	-1.00E-09
RCS	2	High	PWSCC	Medium	12	5[5]	-7	7.00E-08	7.00E-08	7.00E-09	7.00E-09
RCS	4	High	None	Low	49	29[6]	-20	1.00E-08	1.00E-08	1.00E-09	1.00E-09
RCS	6a	Medium	None	Low	0	0	0	no change	no change	no change	no change
RCS	6b	Low	IGSCC	Medium	2	0	-2	negligible	negligible	negligible	negligible
RCS	6b	Low	ECSCC	Medium	0	0	0	no change	no change	no change	no change
RCS	7a	Low	None	Low	5	0	-5	negligible	negligible	negligible	negligible
RCS Total								**8.00E-09**	**6.00E-08**	**8.00E-10**	**6.00E-09**
RHRS	2	High	TASCS	Medium	3	5	2	-7.20E-08	-2.00E-08	-7.20E-09	-2.00E-09
RHRS	2	High	ECSCC	Medium	0	1	1	-1.00E-08	-1.00E-08	-1.00E-09	-1.00E-09
RHRS	4	High	None	Low	15	23	8	-4.00E-09	-4.00E-09	-4.00E-10	-4.00E-10
RHRS	5a	Medium	IGSCC	Medium	4	1	-3	3.00E-11	3.00E-11	3.00E-12	3.00E-12
RHRS	5a	Medium	ECSCC	Medium	0	0	0	no change	no change	no change	no change
RHRS	6a	Medium	None	Low	17	0	-17	negligible	negligible	negligible	negligible
RHRS	7a	Low	None	Low	2	0	-2	negligible	negligible	negligible	negligible
RHRS Total								**-8.60E-08**	**-3.40E-08**	**-8.60E-09**	**-3.40E-09**

Table 3.6-2

Unit 2 - Risk Impact Analysis Results

System[1]	Category	Consequence Rank	Failure Potential		Inspections			CDF Impact[4]		LERF Impact[4]	
			DMs	Rank	SXI[2 and 3]	RI-ISI	Delta	w/ POD	w/o POD	w/ POD	w/o POD
SIS	2	High	TASCS, TT	Medium	0	3	3	-5.40E-08	-3.00E-08	-5.40E-09	-3.00E-09
SIS	2	High	TT	Medium	2	3	1	-4.20E-08	-1.00E-08	-4.20E-09	-1.00E-09
SIS	2	High	ECSCC	Medium	1	4[7]	3	-3.00E-08	-3.00E-08	-3.00E-09	-3.00E-09
SIS	4	High	None	Low	33	38[8]	5	-2.50E-09	-2.50E-09	-2.50E-10	-2.50E-10
SIS	5a	Medium	TT, IGSCC	Medium	0	1	1	-1.80E-11	-1.00E-11	-1.80E-12	-1.00E-12
SIS	5a	Medium	IGSCC	Medium	4	3	-1	1.00E-11	1.00E-11	1.00E-12	1.00E-12
SIS	6a	Medium	None	Low	34	0	-34	negligible	negligible	negligible	negligible
SIS	7a	Low	None	Low	15	0	-15	negligible	negligible	negligible	negligible
SIS Total								**-1.29E-07**	**-7.25E-08**	**-1.29E-08**	**-7.25E-09**
CVCS	2	High	TASCS, TT	Medium	0	2	2	-3.60E-08	-2.00E-08	-3.60E-09	-2.00E-09
CVCS	2	High	TT	Medium	0	0	0	no change	no change	no change	no change
CVCS	4	High	None	Low	7	10	3	-1.50E-09	-1.50E-09	-1.50E-10	-1.50E-10
CVCS	5a	Medium	TT	Medium	0	3	3	-5.40E-11	-3.00E-11	-5.40E-12	-3.00E-12
CVCS	5a	Medium	ECSCC	Medium	0	1	1	-1.00E-11	-1.00E-11	-1.00E-12	-1.00E-12
CVCS	6a	Medium	None	Low	16	0	-16	negligible	negligible	negligible	negligible
CVCS Total								**-3.76E-08**	**-2.15E-08**	**-3.76E-09**	**-2.15E-09**
MSS	6a	Medium	None	Low	23	0	-23	negligible	negligible	negligible	negligible
MSS Total								**negligible**	**negligible**	**negligible**	**negligible**
FWS	5a (3)	Medium	TASCS, TT, (FAC)	Medium (High)	0	2	2	-3.60E-11	-2.00E-11	-3.60E-12	-2.00E-12
FWS	5a	Medium	TASCS, TT	Medium	1	1	0	-1.20E-11	no change	-1.20E-12	no change
FWS	6a (3)	Medium	None (FAC)	Low (High)	3	0	-3	negligible	negligible	negligible	negligible
FWS	6a	Medium	None	Low	3	0	-3	negligible	negligible	negligible	negligible
FWS Total								**-4.80E-11**	**-2.00E-11**	**-4.80E-12**	**-2.00E-12**

Table 3.6-2

Unit 2 - Risk Impact Analysis Results

System[1]	Category	Consequence Rank	Failure Potential		Inspections			CDF Impact[4]		LERF Impact[4]	
			DMs	Rank	SXI[2 and 3]	RI-ISI	Delta	w/ POD	w/o POD	w/ POD	w/o POD
CSS	2	High	ECSCC	Medium	0	6	6	-6 00E-08	-6.00E-08	-6.00E-09	-6.00E-09
CSS	4	High	None	Low	0	8	8	-4.00E-09	-4.00E-09	-4.00E-10	-4.00E-10
CSS	5a	Medium	IGSCC, ECSCC	Medium	0	1	1	-1.00E-11	-1.00E-11	-1.00E-12	-1.00E-12
CSS	6a	Medium	None	Low	0	0	0	no change	no change	no change	no change
CSS Total								**-6.40E-08**	**-6.40E-08**	**-6.40E-09**	**-6.40E-09**
AFS	5a (3)	Medium	TT, (FAC)	Medium (High)	0	1	1	-1.80E-11	-1.00E-11	-1.80E-12	-1.00E-12
AFS	5a	Medium	TT	Medium	2	3	1	-4.20E-11	-1.00E-11	-4.20E-12	-1.00E-12
AFS Total								**-6.00E-11**	**-2.00E-11**	**-6.00E-12**	**-2.00E-12**
SWS	4	High	None	Low	0	7	7	-3.50E-09	-3.50E-09	-3.50E-10	-3.50E-10
SWS Total								**-3.50E-09**	**-3.50E-09**	**-3.50E-10**	**-3.50E-10**
Grand Total								**-3.12E-07**	**-1.36E-07**	**-3.12E-08**	**-1.36E-08**

Notes

1. Systems are described in Table 3.1-1.
2. In general, only those ASME Section XI Code inspection locations that received a volumetric examination in addition to a surface examination are included in the count. Inspection locations previously subjected to a surface examination only were not considered in accordance with Section 3.7.1 of EPRI TR-112657, with the exception of those inspection locations considered potentially susceptible to external chloride stress corrosion cracking.
3. Since no third interval piping weld examinations had been performed prior to the development of the RI-ISI Program, second interval selections for Unit 2 made per the 1986 Edition of ASME Code Section XI were used for comparison purposes. In addition, for comparison purposes, Salem elected to project the number of Auxiliary Feedwater system piping welds that would require examination per the 1998 Edition through 2000 Addenda of ASME Code Section XI, since these requirements will be imposed on future inspection intervals.
4. Per Section 3.7.1 of EPRI TR-112657, the contribution of low risk categories 6 and 7 need not be considered in assessing the change in risk. Hence, the word "negligible" is given in these cases in lieu of values for CDF and LERF Impact. For those cases in high, medium or low risk region piping where no impact to CDF or LERF exists, "no change" is listed.
5. 2 of these 5 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
6. 6 of these 29 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
7. 1 of these 4 welds was added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.

Notes for Table 3.6-2 (cont'd)

8. 10 of these 38 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.

Table 5-1-1

Unit 1 - Inspection Location Selection Comparison Between 1983 ASME Section XI Code and EPRI TR-112657 by Risk Region

System[1]	Code Category	High Risk Region					Medium Risk Region					Low Risk Region				
		Weld Count	1983 Section XI[2]		EPRI TR-112657		Weld Count	1983 Section XI[2]		EPRI TR-112657		Weld Count	1983 Section XI[2]		EPRI TR-112657	
			Vol/Sur	Sur Only	RI-ISI	Other[3]		Vol/Sur	Sur Only	RI-ISI	Other[3]		Vol/Sur	Sur Only	RI-ISI	Other[3]
RCS	B-F	14	14	0	7[4]	0	8	8	0	0	0	0	0	0	0	0
	B-J	17	5	0	3	0	200	35	11	25[5]	0	9	0	4	0	0
	C-F-1	0	0	0	0	0	0	0	0	0	0	92	4	1	0	0
RHRS	B-J	6	3	0	2	0	8	1	0	5	0	6	1	0	0	0
	C-F-1	1	0	0	0	0	104	0	0	7	0	83	11	0	0	0
SIS	B-J	41	7	3	13	0	266	28	33	49[6]	0	713	57	105	0	0
	C-F-1	9	1	0	0	0	185	5	0	0	0	256	30	10	0	0
CVCS	B-J	7	0	2	2	0	61	1	16	13	0	39	0	9	0	0
	C-F-1	0	0	0	0	0	80	0	0	2	0	297	21	14	0	0
MSS	C-F-2	0	0	0	0	0	0	0	0	0	0	235	21	2	0	0
FWS	C-F-2	0	0	0	0	0	13	3	0	2	0	85	6	0	0	0
CSS	C-F-1	5	0	0	2	0	103	0	0	12	0	70	0	0	0	0
AFS[7]	C-F-2	0	0	0	0	0	31	3	0	4	0	0	0	0	0	0
SWS	C-F-1	0	0	0	0	0	65	0	0	7	0	0	0	0	0	0
Total	B-F	14	14	0	7	0	8	8	0	0	0	0	0	0	0	0
	B-J	71	15	5	20	0	535	65	60	92	0	767	58	118	0	0
	C-F-1	15	1	0	2	0	537	5	0	28	0	798	66	25	0	0
	C-F-2	0	0	0	0	0	44	6	0	6	0	320	27	2	0	0

Notes

1. Systems are described in Table 3.1-1.
2. Since no examination selections had been made for the third interval ISI Program prior to the development of the RI-ISI Program, the second interval selections were used for comparison purposes. The Code of record for the second interval was the 1983 Edition of ASME Section XI, Summer 1983 Addenda. The Code Categories listed in the table are therefore in accordance with the 1983 Edition of ASME Section XI, Summer 1983 Addenda.

Notes for Table 5-1-1 (cont'd)

3. The column labeled "Other" is generally used to identify augmented inspection program locations that are credited beyond those locations selected per the RI-ISI process, as addressed in Section 3.6.5 of EPRI TR-112657. This option was not applicable for the SGS RI-ISI application. The "Other" column has been retained in this table solely for uniformity purposes with other RI-ISI application template submittals.
4. 2 of these 7 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
5. 4 of these 25 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
6. 3 of these 49 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
7. The 1983 Edition of ASME Section XI did not require examinations on the Auxiliary Feedwater system piping welds listed in this table. However, Salem elected to project the number of Auxiliary Feedwater system piping welds that would require examination per the 1998 Edition through 2000 Addenda of ASME Code Section XI, since these requirements will be imposed on future inspection intervals.

Table 5-1-2

Unit 2 - Inspection Location Selection Comparison Between 1986 Section XI Code and EPRI TR-112657 by Risk Region

System[1]	Code Category	High Risk Region					Medium Risk Region					Low Risk Region				
		Weld Count	1986 Section XI[2]		EPRI TR-112657		Weld Count	1986 Section XI[2]		EPRI TR-112657		Weld Count	1986 Section XI[2]		EPRI TR-112657	
			Vol/Sur	Sur Only	RI-ISI	Other[3]		Vol/Sur	Sur Only	RI-ISI	Other[3]		Vol/Sur	Sur Only	RI-ISI	Other[3]
RCS	B-F	14	14	0	7[4]	0	8	8	0	0	0	0	0	0	0	0
	B-J	23	3	1	5	0	213	41	20	29[5]	0	9	0	0	0	0
	C-F-1	0	0	0	0	0	0	0	0	0	0	81	7	1	0	0
RHRS	B-J	10	3	0	5	0	16	6	0	6	0	30	6	1	0	0
	C-F-1	11	0	0	1	0	216	13	0	18	0	120	13	0	0	0
SIS	B-J	33	3	16	10[6]	0	243	31	39	42[7]	0	664	44	100	0	0
	C-F-1	0	0	0	0	0	66	6	0	0	0	73	5	0	0	0
CVCS	B-J	7	0	4	2	0	63	2	15	13	0	46	0	9	0	0
	C-F-1	0	0	0	0	0	74	5	0	1	0	430	16	18	0	0
MSS	C-F-2	0	0	0	0	0	0	0	0	0	0	249	23	2	0	0
FWS	C-F-2	0	0	0	0	0	20	1	0	3	0	48	6	0	0	0
CSS	C-F-1	21	0	0	6	0	88	0	0	9	0	40	0	0	0	0
AFS[8]	C-F-2	0	0	0	0	0	24	2	0	4	0	0	0	0	0	0
SWS	C-F-1	0	0	0	0	0	64	0	0	7	0	0	0	0	0	0
Total	B-F	14	14	0	7	0	8	8	0	0	0	0	0	0	0	0
	B-J	73	9	21	22	0	535	80	74	90	0	749	50	110	0	0
	C-F-1	32	0	0	7	0	508	24	0	35	0	744	41	19	0	0
	C-F-2	0	0	0	0	0	44	3	0	7	0	297	29	2	0	0

Notes

1. Systems are described in Table 3.1-2.
2. Since no examination selections had been made for the third interval ISI Program prior to the development of the RI-ISI Program, the second interval selections were used for comparison purposes. The Code of record for the second interval was the 1986 Edition of ASME Section XI. The Code Categories listed in the table are therefore in accordance with the 1986 Edition of ASME Section XI.

Notes for Table 5-1-2 (cont'd)

3. The column labeled "Other" is generally used to identify augmented inspection program locations that are credited beyond those locations selected per the RI-ISI process, as addressed in Section 3.6 5 of EPRI TR-112657. This option was not applicable for the SGS RI-ISI application. The "Other" column has been retained in this table solely for uniformity purposes with other RI-ISI application template submittals.
4. 2 of these 7 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details
5. 6 of these 29 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
6. 1 of these 10 welds was added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
7. 10 of these 42 welds were added to address the Class 1 selection percentage criteria described in Section 3 6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
8. The 1986 Edition of ASME Section XI did not require examinations on the Auxiliary Feedwater system piping welds listed in this table. However, Salem elected to project the number of Auxiliary Feedwater system piping welds that would require examination per the 1998 Edition through 2000 Addenda of ASME Code Section XI, since these requirements will be imposed on future inspection intervals.

Table 5-2-1

Unit 1 - Inspection Location Selection Comparison Between 1983 Section XI Code and EPRI TR-112657 by Risk Category

System[1]	Risk		Consequence Rank	Failure Potential		Code Category	Weld Count	1983 Section XI[2]		EPRI TR-112657	
	Category	Rank		DMs	Rank			Vol/Sur	Sur Only	RI-ISI	Other[3]
RCS	2	High	High	TASCS, TT, PWSCC	Medium	B-F	1	1	0	1	
RCS	2	High	High	TASCS, TT	Medium	B-J	14	5	0	2	
RCS	2	High	High	TT, PWSCC	Medium	B-F	1	1	0	1	
RCS	2	High	High	TT	Medium	B-J	3	0	0	1	
RCS	2	High	High	PWSCC	Medium	B-F	12	12	0	5[4]	
RCS	4	Medium	High	None	Low	B-F	8	8	0	0	
						B-J	200	35	11	25[5]	
RCS	6	Low	Medium	None	Low	B-J	9	0	4	0	
RCS	6	Low	Low	IGSCC	Medium	C-F-1	6	0	0	0	
RCS	6	Low	Low	ECSCC	Medium	C-F-1	1	0	0	0	
RCS	7	Low	Low	None	Low	C-F-1	85	4	1	0	
RHRS	2	High	High	TASCS	Medium	B-J	6	3	0	2	
						C-F-1	1	0	0	0	
RHRS	4	Medium	High	None	Low	B-J	8	1	0	5	
						C-F-1	101	0	0	6	
RHRS	5	Medium	Medium	ECSCC	Medium	C-F-1	3	0	0	1	
RHRS	6	Low	Medium	None	Low	B-J	6	1	0	0	
						C-F-1	63	11	0	0	
RHRS	7	Low	Low	None	Low	C-F-1	20	0	0	0	

Table 5-2-1 (cont'd)

Unit 1 - Inspection Location Selection Comparison Between 1983 Section XI Code and EPRI TR-112657 by Risk Category

System[1]	Risk		Consequence Rank	Failure Potential		Code Category	Weld Count	1983 Section XI[2]		EPRI TR-112657	
	Category	Rank		DMs	Rank			Vol/Sur	Sur Only	RI-ISI	Other[3]
SIS	2	High	High	TASCS, TT	Medium	B-J	12	0	0	3	
SIS	2	High	High	TASCS	Medium	C-F-1	6	0	0	0	
SIS	2	High	High	TT	Medium	B-J	19	2	2	5	
SIS	2	High	High	ECSCC	Medium	B-J	10	5	1	5	
						C-F-1	3	1	0	0	
SIS	4	Medium	High	None	Low	B-J	219	24	28	44[6]	
						C-F-1	185	5	0	0	
SIS	5	Medium	Medium	TT, IGSCC	Medium	B-J	16	0	2	1	
SIS	5	Medium	Medium	IGSCC	Medium	B-J	31	4	3	4	
SIS	6	Low	Medium	None	Low	B-J	591	37	91	0	
						C-F-1	256	30	10	0	
SIS	7	Low	Low	None	Low	B-J	122	20	14	0	
CVCS	2	High	High	TASCS, TT	Medium	B-J	5	0	2	1	
CVCS	2	High	High	TT	Medium	B-J	2	0	0	1	
CVCS	4	Medium	High	None	Low	B-J	34	1	10	10	
						C-F-1	68	0	0	1	
CVCS	5	Medium	Medium	TT	Medium	B-J	27	0	6	3	
CVCS	5	Medium	Medium	ECSCC	Medium	C-F-1	12	0	0	1	
CVCS	6	Low	Medium	None	Low	B-J	39	0	9	0	
						C-F-1	297	21	14	0	
MSS	6	Low	Medium	None	Low	C-F-2	235	21	2	0	

Table 5-2-1 (cont'd)

Unit 1 - Inspection Location Selection Comparison Between 1983 Section XI Code and EPRI TR-112657 by Risk Category

System[1]	Risk		Consequence Rank	Failure Potential		Code Category	Weld Count	1983 Section XI[2]		EPRI TR-112657	
	Category	Rank		DMs	Rank			Vol/Sur	Sur Only	RI-ISI	Other[3]
FWS	5 (3)	Medium (High)	Medium	TASCS, TT, (FAC)	Medium (High)	C-F-2	5	2	0	1	
FWS	5	Medium	Medium	TASCS, TT	Medium	C-F-2	8	1	0	1	
FWS	6 (3)	Low (High)	Medium	None (FAC)	Low (High)	C-F-2	38	3	0	0	
FWS	6	Low	Medium	None	Low	C-F-2	47	3	0	0	
CSS	2	High	High	ECSCC	Medium	C-F-1	5	0	0	2	
CSS	4	Medium	High	None	Low	C-F-1	101	0	0	11	
CSS	5	Medium	Medium	IGSCC, ECSCC	Medium	C-F-1	2	0	0	1	
CSS	6	Low	Medium	None	Low	C-F-1	52	0	0	0	
CSS	7	Low	Low	None	Low	C-F-1	18	0	0	0	
AFS[7]	5 (3)	Medium (High)	Medium	TT, (FAC)	Medium (High)	C-F-2	4	0	0	1	
AFS[7]	5	Medium	Medium	TT	Medium	C-F-2	27	3	0	3	
SWS	4	Medium	High	None	Low	C-F-1	65	0	0	7	

Notes

1. Systems are described in Table 3.1-1.
2. Since no examination selections had been made for the third interval ISI Program prior to the development of the RI-ISI Program, the second interval selections were used for comparison purposes. The Code of record for the third interval was the 1983 Edition of ASME Section XI, Summer 1983 Addenda. The Code Categories listed in the table are therefore in accordance with the 1983 Edition of ASME Section XI.
3. The column labeled "Other" is generally used to identify augmented inspection program locations that are credited beyond those locations selected per the RI-ISI process, as addressed in Section 3.6.5 of EPRI TR-112657. This option was not applicable for the SGS RI-ISI application. The "Other" column has been retained in this table solely for uniformity purposes with other RI-ISI application template submittals.
4. 2 of these 5 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
5. 4 of these 25 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details
6. 3 of these 44 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
7. The 1983 Edition of ASME Section XI did not require examinations on the Auxiliary Feedwater system piping welds listed in this table. However, Salem elected to project the number of Auxiliary Feedwater system piping welds that would require examination per the 1998 Edition through 2000 Addenda of ASME Code Section XI, since these requirements will be imposed on future inspection intervals.

Table 5-2-2

Unit 2 - Inspection Location Selection Comparison Between 1986 Section XI Code and EPRI TR-112657 by Risk Category

System[1]	Risk		Consequence Rank	Failure Potential		Code Category	Weld Count	1986 Section XI[2]		EPRI TR-112657	
	Category	Rank		DMs	Rank			Vol/Sur	Sur Only	RI-ISI	Other[3]
RCS	2	High	High	TASCS, TT, PWSCC	Medium	B-F	1	1	0	1	
RCS	2	High	High	TASCS, TT	Medium	B-J	14	2	0	3	
RCS	2	High	High	TT, PWSCC	Medium	B-F	1	1	0	1	
RCS	2	High	High	TT	Medium	B-J	9	1	1	2	
RCS	2	High	High	PWSCC	Medium	B-F	12	12	0	5[4]	
RCS	4	Medium	High	None	Low	B-F	8	8	0	0	
						B-J	213	41	20	29[5]	
RCS	6	Low	Medium	None	Low	B-J	9	0	0	0	
RCS	6	Low	Low	IGSCC	Medium	C-F-1	6	2	0	0	
RCS	6	Low	Low	ECSCC	Medium	C-F-1	1	0	0	0	
RCS	7	Low	Low	None	Low	C-F-1	74	5	1	0	
RHRS	2	High	High	TASCS	Medium	B-J	10	3	0	5	
						C-F-1	8	0	0	0	
RHRS	2	High	High	ECSCC	Medium	C-F-1	3	0	0	1	
RHRS	4	Medium	High	None	Low	B-J	8	2	0	5	
						C-F-1	214	13	0	18	
RHRS	5	Medium	Medium	IGSCC	Medium	B-J	8	4	0	1	
RHRS	5	Medium	Medium	ECSCC	Medium	C-F-1	2	0	0	0	
RHRS	6	Low	Medium	None	Low	B-J	30	6	1	0	
						C-F-1	100	11	0	0	
RHRS	7	Low	Low	None	Low	C-F-1	20	2	0	0	

Table 5-2-2 (cont'd)

Unit 2 - Inspection Location Selection Comparison Between 1986 Section XI Code and EPRI TR-112657 by Risk Category

System[1]	Risk		Consequence Rank	Failure Potential		Code Category	Weld Count	1986 Section XI[2]		EPRI TR-112657	
	Category	Rank		DMs	Rank			Vol/Sur	Sur Only	RI-ISI	Other[3]
SIS	2	High	High	TASCS, TT	Medium	B-J	12	0	12	3	
SIS	2	High	High	TT	Medium	B-J	13	2	4	3	
SIS	2	High	High	ECSCC	Medium	B-J	8	1	0	4[6]	
SIS	4	Medium	High	None	Low	B-J	206	27	36	38[7]	
						C-F-1	66	6	0	0	
SIS	5	Medium	Medium	TT, IGSCC	Medium	B-J	14	0	1	1	
SIS	5	Medium	Medium	IGSCC	Medium	B-J	23	4	2	3	
SIS	6	Low	Medium	None	Low	B-J	549	29	87	0	
						C-F-1	73	5	0	0	
SIS	7	Low	Low	None	Low	B-J	115	15	13	0	
CVCS	2	High	High	TASCS, TT	Medium	B-J	5	0	2	2	
CVCS	2	High	High	TT	Medium	B-J	2	0	2	0	
CVCS	4	Medium	High	None	Low	B-J	36	2	7	10	
						C-F-1	62	5	0	0	
CVCS	5	Medium	Medium	TT	Medium	B-J	27	0	8	3	
CVCS	5	Medium	Medium	ECSCC	Medium	C-F-1	12	0	0	1	
CVCS	6	Low	Medium	None	Low	B-J	46	0	9	0	
						C-F-1	430	16	18	0	
MSS	6	Low	Medium	None	Low	C-F-2	249	23	2	0	
FWS	5 (3)	Medium (High)	Medium	TASCS, TT, (FAC)	Medium (High)	C-F-2	16	0	0	2	
FWS	5	Medium	Medium	TASCS, TT	Medium	C-F-2	4	1	0	1	
FWS	6 (3)	Low (High)	Medium	None (FAC)	Low (High)	C-F-2	25	3	0	0	
FWS	6	Low	Medium	None	Low	C-F-2	23	3	0	0	

Table 5-2-2 (cont'd)

Unit 2 - Inspection Location Selection Comparison Between 1986 Section XI Code and EPRI TR-112657 by Risk Category

System[1]	Risk		Consequence Rank	Failure Potential		Code Category	Weld Count	1986 Section XI[2]		EPRI TR-112657	
	Category	Rank		DMs	Rank			Vol/Sur	Sur Only	RI-ISI	Other[3]
CSS	2	High	High	ECSCC	Medium	C-F-1	21	0	0	6	
CSS	4	Medium	High	None	Low	C-F-1	80	0	0	8	
CSS	5	Medium	Medium	IGSCC, ECSCC	Medium	C-F-1	8	0	0	1	
CSS	6	Low	Medium	None	Low	C-F-1	40	0	0	0	
AFS[8]	5 (3)	Medium (High)	Medium	TT, (FAC)	Medium (High)	C-F-2	1	0	0	1	
AFS[8]	5	Medium	Medium	TT	Medium	C-F-2	23	2	0	3	
SWS	4	Medium	High	None	Low	C-F-1	64	0	0	7	

Notes

1. Systems are described in Table 3.1-2.
2. Since no examination selections had been made for the fourth interval ISI Program prior to the development of the RI-ISI Program, the third interval selections were used for comparison purposes. The Code of record for the third interval was the 1986 Edition of ASME Section XI. The Code Categories listed in the table are therefore in accordance with the 1986 Edition of ASME Section XI.
3. The column labeled "Other" is generally used to identify augmented inspection program locations that are credited beyond those locations selected per the RI-ISI process, as addressed in Section 3.6.5 of EPRI TR-112657. This option was not applicable for the SGS RI-ISI application. The "Other" column has been retained in this table solely for uniformity purposes with other RI-ISI application template submittals.
4. 2 of these 5 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
5. 6 of these 29 welds were added to address the Class 1 selection percentage criteria described in Section 3 6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
6. 1 of these 4 welds was added to address the Class 1 selection percentage criteria described in Section 3 6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
7. 10 of these 38 welds were added to address the Class 1 selection percentage criteria described in Section 3.6.4.2 of EPRI TR-112657. See Section 3.5 of this submittal for details.
8. The 1986 Edition of ASME Section XI did not require examinations on the Auxiliary Feedwater system piping welds listed in this table. However, Salem elected to project the number of Auxiliary Feedwater system piping welds that would require examination per the 1998 Edition through 2000 Addenda of ASME Code Section XI, since these requirements will be imposed on future inspection intervals.