Comanche Peak Steam Electric Station

Risk-Based In-Service Testing Program

Risk Ranking Determination Study

ER-EA-009

Revision 0

Engineering Analysis

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1.0 BACKGROUND

In-service Testing (IST) programs were developed to ensure the reliable operation of safety-related pumps and valves at nuclear power plants. The codes, standards and guides for these tests were developed by the American Society of Mechanical Engineers (ASME) Operations and Maintenance (O&M) Committee. The essential Nuclear Regulatory Commission (NRC) regulation governing this process of testing has been 10CFR50.55 and has been implemented using ASME B&PV Code Section XI (Ref. 1), both for passive component examination (welding, studs, etc.) and for active component testing (pumps and valves).

For the past several years, both the nuclear industry and the NRC have devoted significant attention and resources aimed at improving the performance of pumps and valves. In a letter (Ref. 2) dated September 9, 1991 from James E. Richardson of the NRC to Forrest T. Rhodes of ASME, the NRC requested that the ASME O&M Committee consider revising existing requirements for in-service testing. The letter requested revisions to ensure the ability of certain pumps and valves to perform their intended hydraulic and mechanical safety functions. The revisions requested would:

- Expand the scope to include specific components that are not constructed in accordance with ASME B&PV Code Section III rules for construction or tested in accordance with ASME B&PV Code Section XI;
- Require verification of each safety function for each included component;
- Require such verification be accomplished at design basis conditions, or, where such verification is not possible, a test at less than design basis conditions combined with an analysis may be substituted; and
- Data collected during component testing may be compared with data taken during previous tests to allow determination of the condition of the component.

This request was made in part due to NRC concerns with the ability of some components to perform their safety functions under design basis conditions, such as motor-operated valves and check valves, and concern that the in-service tests required by ASME B&PV Code Section XI and incorporated by reference into 10CFR50.55a(f) do not: a) include each component that has a hydraulic or safety-related function; b) accomplish verification of each safety function of each safety-related component; or c) require that such verification be accomplished at the design basis conditions.

The intent of current IST programs is to include all active safety-related pumps and valves that are credited in the plant design basis safety analysis. In general, the IST equipment lists are developed by review of plant drawings showing ASME Code Class 1, 2 and 3 classification boundaries. All components within the boundaries are then reviewed to determine whether or not they were credited with an active safety function under the plant licensing basis. The FSAR analyses and other design basis documentation are reviewed to make these determinations.

Older plants not initially designed to ASME B&PV Code Section III have applied ANSI Safety Class 1, 2 and 3 classification rules to piping and components for purposes of establishing ASME B&PV Code Section XI test requirements, even though the systems and components were not designed or constructed in accordance with ASME B&PV Code Section III.

As a result of the NRC request for IST program enhancement, there are industry concerns involving the restrictive nature and basis for these requirements and their impact on plant operation. Overly restrictive requirements can complicate plant operation, cause unwarranted operating costs, and most importantly, degrade plant safety through needless component testing and undue burden during plant outages.

Developments in the industry demonstrate an acceptance of the use of risk-based approaches using a plant's probabilistic safety analysis (PSA) to identify prescriptive regulations that have marginal safety benefits. The momentum in this direction is evidenced by recent NRC interest in graded QA and EPRI's applications of risk-based technologies, and most recently, in the issuance of the Nuclear Regulatory Commission's final policy statement on the use of PSA in nuclear regulatory activities (Ref. 3).

Similarly, improvements to IST programs using a risk-based approach can reduce operating costs while maintaining a high level of plant safety. Possible savings from improved IST programs include:

- Reduced costs of engineering analyses tc develop test criteria that adequately demonstrate functional capability at design basis conditions;

- Reduced costs of plant modifications where current configurations do not support testing at or near design basis conditions;
- Reduced costs for development of new test procedures implementing the new test criteria; and
- Reduction of incremental costs associated with performing the new tests, including:
  - Additional time required to perform the tests and analyze results;
  - Costs of specialized test equipment or vendor services;
  - Possible effects on critical path outage duration; and
  - Possible increases in radiation exposure.

For these reasons it is advantageous for utilities to pursue IST program improvements. The impact of changes on plant safety is of primary interest and is the controlling factor in implementing such changes. However, changes that negligibly reduce plant safety should not be ruled out, especially if such changes can lead to significant plant performance improvements in other areas.

2.0 PROJECT SCOPE AND OBJECTIVES

The scope of this project is to perform a review of the Comanche Peak Steam Electric Station IST program that optimizes the safety benefits in assuring pump and valve performance. It uses a methodology for a risk-based approach to IST program review and enhancement that is founded on a blend of probabilistic and deterministic methods and that has as its principal results, recommendations for adjustments to test frequency intervals for these components. Thus, it is not aimed at reducing the number of components within the scope of an IST program, rather at optimizing what is tested and when. In this study, all components within the scope of the IST program were examined. However, only those determined to be less safety significant will be considered for a code exemption. The ASME O&M Committee is reviewing the more safety significant components to ensure that the appropriate tests are identified and performed on those components for their respective failure modes.

The objectives of this project are to apply risk-based technologies to IST components to determine their risk significance; to apply risk-based technologies to risk-significant components identified in the IPE and outside of ASME Code Classes 1, 2 and 3 to determine whether additional compensatory measures are appropriate; and to apply a combination of deterministic and risk-based methods to determine appropriate testing frequencies and/or compensatory measures for IST components. The results of this project will be the basis for the CPSES code exemption submittal to the NRC and will be part of a pilot study for the industry.

Several safety enhancements to a plant IST program can be derived, both directly and indirectly, by using the probabilistic and deterministic approach presented in this report. These safety enhancements are very similar to those attendant with the optimized performance of motor-operated valves discussed in NUMARC 93-05 (Ref. 4), from which elements of the following discussion were taken.

Direct Safety Enhancements

Greater attention and resources devoted to the high priority IST components could translate into many direct safety enhancements. First, this group of components could be subjected to, where practical and meaningful, more frequent periodic tests than the lower priority groups. The timeliness of any problem identification and resolution would be improved. Second, requirements associated with the high priority group of IST components are expected to be more rigorous and demanding in nature than for the other groups. These requirements provide added assurance that any problems that may impact the functionality of the components will be identified and resolved. Third, the resulting risk-based IST program will consider whether some risk-significant components that are outside the scope of ASME Code Classes 1, 2 and 3 should be added to the IST program to improve safety. Finally, because extensive testing can have adverse safety and operational consequences, reduction of testing may reduce component wearout and operator burden. These changes are expected to improve safety.

Indirect Safety Enhancements

There are other indirect safety benefits to this approach that are as important. Risk-based prioritization efforts identify the safety-significant IST components and the impact of their potential failures on plant safety. In addition, these analyses identify important scenarios that provide information with respect to the operational demand that may be placed on a given component. Such information is valuable because it relates the performance of the IST component to the broader context of plant safety. This allows more rational decision making, more efficient use of resources, and is central to optimizing safety benefits.

3.0 PROJECT APPROACH

The TU Electric risk-based IST project was developed and implemented as part of a tailored collaboration (TC) effort with EPRI. The project was conducted under the direction of a Steering Committee that interfaced with the American Society of Mechanical Engineers (ASME) research program funded by the NRC, the Westinghouse Owners Group (WOG), the Nuclear Energy Institute (NEI) and other utilities, and coordinated its activities with other industry efforts such as the WOG check valve program and various NEI activities on risk-based regulation. The TC project was designed to provide plant-specific benefits to TU Electric and, as a pilot project, to provide generic insights and tools that will benefit similar industry projects. In particular, the project developed generic methods for identifying opportunities to reduce those IST-related regu ry requirements and commitments that require significant resources to comply with and/or implement, but contribute insignificantly to safe and reliable operation. This work is being provided to NEI's Risk-Based IST Task Force and ASME B&PV Code Section XI IST Research Task Force to assist them in their formulation of guidelines and in-service testing requirements.

The Steering Committee developed the overall project objectives and milestones and commissioned various work activities and studies in doing this work. The Steering Committee consisted of members with expertise in the areas of licensing, probabilistic safety analysis, ASME B&PV Code Section XI and WOG analysis activities. In addition to providing overall coordination, the Steering Committee served as the central point of decision making for major technical issues and provided technology transfer and guidance to the expert panel in performing its work. These latter activities were accomplished through common membership of several members on the Steering Committee and the expert panel. It was concluded that the strength of this risk-based IST program and the integrity of its results lie both in the robustness of the methodology and in the work of the Steering Committee and expert panel. Further, the robustness of the methodology provides consistency in the results.

The project was divided into two phases. Phase 1 included the development of an implementation guidelines document and actual implementation of the methodology to prioritize components in the IST program. Phase 2 involved the development of tools for evaluating test intervals for the risk-significant IST components. The work activities in each of these phases were reviewed by the Steering Committee and presented to various other peer groups at strategic points in the project. In this way the methodology was refined, and a fairly mature process was arrived at before involvement of the expert panel. The various tasks that support the project are described in more detail in the sections that follow.

3.1 Methodology

The process described above lead to development of the methodology. The methodology was developed consistent with NUMARC Guides 93-01 (Ref. 5)(Maintenance Rule) and 93-05 (Motor Operated Valve(MOV) testing). The system level ranking approach from the Maintenance Rule process was merged with the component level ranking approach used for MOV testing. The merging of the two approaches was designed to ensure that the new IST program would benefit from and be consistent with the Maintenance Rule process and other industry risk-based programs.

The Risk Achievement Worth (RAW) and Risk Reduction Worth (RRW) risk measures of the Maintenance Rule were combined with the Fussell-Vesely (FV) risk measure of MOV testing. Because this initiative was to *reduce* existing regulatory burden rather than focus on new regulatory initiatives, the methodology applies these risk measures in a manner intended to ensure a safety-neutral outcome.

Because RRW and FV provide similar insights, only the FV importance measure was utilized in this analysis. Fussell-Vesely provides a measure of incremental change in total core damage frequency (CDF) that indicates the importance of incremental changes in reliability that might result from changing in-service test intervals. Risk Achievement Worth provides an indicator of the importance of degradations in component reliability. These measures were combined into a decision criteria such as that shown in Figure 3-1.

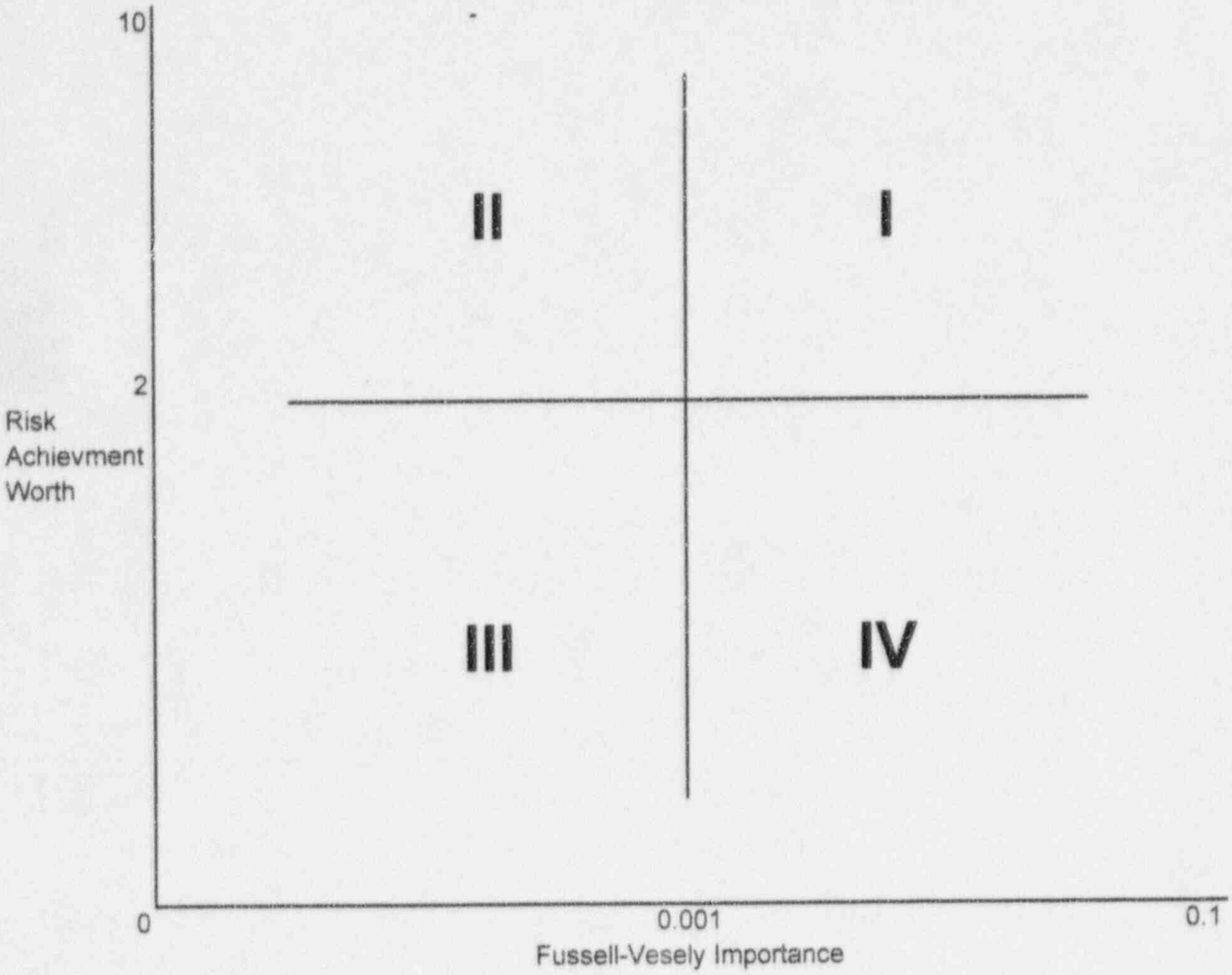
As the figure indicates, components with a significant FV were considered "more risk significant". Components with an insignificant FV were considered "less risk significant". However, it was important to ensure that a reduction in test intervals did not allow unintended consequences, i.e., a compromise in safety resulting from a degradation in reliability.

Figure 3-1

Decision Criteria

<u>Risk Importance Measures</u>

Fussell-Vesely Importance > 0.001
Risk Achievment Worth > 2.0



I: More Safety Significant Component (MSSC)
II: Less Safety Significant Component (LSSC) With Compensatory Measures
III: Less Safety Significant Component (LSSC)
IV: More Safety Significant Component (MSSC)

Not Modeled - Components Reviewed By Expert Panel For Determination Of Ranking

Therefore, if FV was insignificant, it was also required that RAW be insignificant for a component to be classified as "less risk significant". If RAW was significant, the component was considered by the expert panel for placement in the high category. If the panel decided the component could be ranked low, an additional requirement was imposed before a component could be classified as "less risk significant". A compensatory measure was required to be selected by the expert panel to limit degradations in reliability.

During the development of this methodology, EPRI and NEI began working with NRC on the development of the EPRI PSA Applications Guide (Ref. 6). In general, this methodology is consistent with the guide. The guide did provide a specific acceptance criteria for permanent risk increases that was used in this evaluation. A few minor differences between this methodology and the EPRI PSA Applications Guide exit, most of which are more conservative in this study.

The general approach taken included four steps. First, risk importance was determined. This determination was based on the results of the IPE and the IPEEE and other plant operating modes, such as outage modes. In addition to this complete spectrum of core damage accidents, severe accidents leading to large and early fission product releases were also given special attention. Finally, the importance of components not in the IPE and IPEEE models or not in the IST program were evaluated.

The next step addressed the completeness and adequacy of these models through a number of sensitivity analyses to compensate for the limitations of the quantitative models. The third step evaluated the cumulative impact of low risk significant components on plant risk if their in-service test intervals were extended. This step provided technical justification for proposed test intervals for less risk significant components in the existing IST. The fourth and last step was to review the process and results with an expert panel that was knowledgeable of plant risk, plant design, plant operations practices, and plant performance. This process blended deterministic safety insights with quantitative risk insights to ensure that risk significance was appropriately identified.

The following sections further describe the methodology and provide some additional background to this work.

3.2 Risk Importance Determination

In this study, risk importance rankings of the IST components were determined based on the results of the CPSES IPE. These risk rankings were then complemented with rankings based on consideration of other accident initiators and plant operating modes. These other accident initiators are external events such as fires, tornados, and earthquakes. The other plant operating mode is the outage mode. Each of these evaluations considered importance with respect to core damage prevention. Core damage prevention has been found to be a good measure of the spectrum of releases that can result from severe accidents. However, unique risk contributions can occur if severe accident releases are large and early. Hence, risk rankings were also complemented by considering components important to preventing large, early releases. This approach is consistent with the intent of the safety goal and the severe accident policy statement and is a requirement of the EPRI PSA Applications Guide.

In applying the above method, it was found that a significant fraction of IST components are not in the IPE. While it is likely that such components are not risk significant, this study specifically evaluated each component and the design basis functions addressed by the IST program. Most components that are not in the IPE were found to be implicitly modeled by the study. That is, the IPE found that the components either were not required for the system to prevent severe accidents, were in systems that provided a highly redundant function, or performed functions that were extremely unlikely to be required. The systematic review of these components used quantitative and qualitative insights to determine whether components should be considered more or less risk significant and whether risk insights implied that compensatory actions should be considered.

The risk ranking process also identified some IPE components that were more risk significant but which were not in the IST program. These components typically were found to be outside the code class boundary and therefore not subject to IST requirements. These components were considered for compensatory action equivalent to those defined for components in the IST program.

3.3 Completeness Issues

Quantitative risk models have limitations associated with the structure of the models and the assumptions and the input data used. The limitations were compensated for by evaluating truncation limits, identifying IST components masked by the IPE, applying a conservative treatment of common cause failures, requiring an expert panel to identify components with operational concerns, and performing selected sensitivity studies.

The risk ranking process described above used the FV and RAW importance measures. The values for these importance measures are calculated based on cutsets. The cumulative effects analysis described below also is based on cutsets. Cutsets are obtained by solving the model with a truncation limit. Experience has shown that setting the truncation limit arbitrarily low creates inefficiencies such that analysis costs quickly exceed the value of risk insights gained. This project evaluated the truncation limit used in the CPSES IPE and found it to be sufficient for both risk ranking and estimating cumulative effects.

The IPE model may "mask" certain components because they are associated with supercomponents, human events or initiating events but not explicitly identified. The components masked by the IPE model are typically small contributors to the overall probability of the event. However, it was considered appropriate to verify this consideration for this effort. The project evaluated those IST components that were: 1) contained in supercomponents (e.g., some components on the diesel generator skid), 2) required to function as part of a human action, and 3) might cause a significant plant initiator.

Risk ranking results can be strongly affected by the contribution of common cause failure. The approach taken in the project was to conservatively assume that a common cause event in the cutsets should have its entire risk significance assigned to all components represented by the event. This approach lead to the inclusion of a significant number of components in the more risk significant category which otherwise would have been considered less risk significant. The expert panel confirmed that the approach identified potentially important components.

Both risk ranking measures used are influenced by the reliability data assigned to the component. The CPSES IPE uses generic data since an insufficient amount of plant-specific data was available. Generic data (and indeed, most interpretations of plant specific data) considers components in groups. But ranking was done on a component basis. Consequently, the expert panel considered whether or not plant specific operational insights indicated component reliability problems that might affect the ranking of an individual component or small group of components. Components with operational concerns were considered more risk significant by the expert panel.

Finally, the completeness of the models, assumptions and input data were tested by sensitivity studies. In one sensitivity study designed to consider the impact of human event modeling, risk ranking results were compared assuming operator events in the IPE always failed to occur. Another sensitivity study was designed to consider whether changes to in-service testing offered the potential for common-cause-like degradations in components in different systems. Less risk significant components were assumed to be influenced two at a time. Four such components were identified which, together with other components, offered the potential of becoming more risk significant. Appropriate compensatory actions designed to limit reliability degradations were imposed on these components. A similar sensitivity study was performed where less risk significant components were assumed to be influenced three at a time.

3.4 Cumulative Effects of Test Interval Changes

A risk ranking approach based on importance measures such as was used in this project does not necessarily guarantee that acceptable levels of risk will result. Risk importance measures are based on changes to components one at a time. Changes to many components simultaneously may cause unintended increases in risk despite meeting the selected conservative risk ranking measures.

An analysis was performed to determine the potential risk impact of increasing in-service testing intervals simultaneously on all less risk significant components. Consideration was given to available information on how changes in test intervals will change component unavailability. Uncertainty in this information, together with the complexity required to model such an approach, dictated the use of a very conservative approach. That is, risk impact was measured assuming that component unavailability (including both on demand and time dependent failure rates) increased by the same factor that the test interval increased. Despite the use of this conservative assumption, calculations indicate that test intervals could be increased from quarterly to six years or more with acceptable increases in risk. If consideration were given to improvements in performance that are possible to occur from a risk-based IST program, it is plausible that core damage risk may not increase at all.

3.5 Expert Panel Process

For the CPSES Risk-Based In-Service Testing (RBIST) Program, an expert panel (EP) was established to make the final determination of risk ranking for the pumps and valves in the CPSES Unit 1 and 2 IST program. The panel was constituted in part of individuals who were members of the Steering Committee and of others who were members of the expert panel established for the implementation of the Maintenance Rule. The members of the panel were selected based on their nuclear power plant experience which included expertise in the areas of ASME codes and standards, plant operations at the Senior Reactor Operator level, maintenance engineering, systems engineering, design engineering and probabilistic safety assessment (PSA). The chairman had significant technical expertise in PSA applications and project management. The expert panel also utilized the expertise of other consultants and engineers in doing its evaluations.

To prepare for the expert panel review, the risk ranking team developed a set of simplified P&IDs for all the systems modeled in the IPE. The IPE risk category results, component tag numbers, and the location of the components in the systems were all shown on the simplified diagrams. Using this information and the design basis functions addressed by IST as documented in the IST plan, the panel reviewed and validated or adjusted the ranking results.

The panel's principal responsibility was to ensure the risk ranking information was consistent with plant design, operating procedures, and with plant-specific operating experience. The panel made a qualitative assessment of the risk importance categories that were developed for the components using the IPE results and insights discussed in the preceding sections of this report. This assessment was based on deterministic insights, plant-specific history, engineering judgements, regulatory requirements, and probabilistic safety analysis insights. The panel reviewed the IPE component risk rankings, compared the IPE and IST functions to ensure consistency with plant design, analyzed applicable deterministic information and determined the final safety significance categorizations for all the IST components. At the end of the expert panel evaluation process, every component in the CPSES IST program was reviewed and evaluated by the expert panel members. The guideline under which the expert panel performed this work is provided as Appendix A to this report. The results of this evaluation are discussed in the section 4.4.

3.6 Identification of Component Degradation and Feedback Process

At CPSES, various station procedures are used to govern the activities related to the IST program and other areas such as corrective action and root cause programs. These procedures form a consistent means of controlling and integrating site-wide activities. The ASME B&P Code Section XI in-service testing of pumps and valves is implemented by procedure STA-711, "ASME Section XI In-service Testing Program for Pumps and Valves" . This procedure provides guidance to ensure effective, consistent and coordinated implementation of the code requirements. It provides guidance on how the in-service testing program interfaces with other station procedures to perform surveillances, to maintain test records, to assure deficiencies are identified, tracked and resolved, and to assure that corrective actions are performed and documented. These procedures provide the means by which feedback of failures of IST components to the IST program is accomplished. They provide assurance that failures of IST components will be promptly identified and addressed and modifications to the in-service testing program (e.g., change to surveillance intervals) are made in a timely manner.

A failure of an IST component may be identified in the course of doing ordinary maintenance and tests or as part of a surveillance activity. These activities are controlled primarily by STA-606, "Work Requests and Work Orders," and STA-704, "Surveillance Program". When a failure is identified as part of a surveillance test or maintenance activity, a ONE Form is prepared per STA-421, "Operations Notification and Evaluation (ONE FORM)", depending on the nature of the failure. This form is used at CPSES to report potential adverse conditions and resolve issues and to assure that corrective actions are performed and documented. Resolution of a ONE Form is accomplished in accordance with the requirements of STA-422, "Processing of Operations Notification and Evaluation (ONE) Forms". Resolution of a ONE Form includes:

- Assigning a unique identification number and logging in appropriate plant information systems, and initial distribution for trending purposes.

- Reviewing the reported condition to determine the category of correction action required.

- Considering the generic implications of the item, i.e., the potential for the condition to exist elsewhere and initiating works order as required to investigate.

- Determining the probable cause of failure.

- Identifying and performing corrective action.

Depending upon the nature of the adverse condition, the corrective actions may include reporting to outside agencies, performing an engineering evaluation or performing a root cause evaluation. Root cause evaluations are preformed in accordance with STA-515, "Root Cause Analysis." These evaluations include a structured analysis of issues in order to identify causes of and contributing factors to component failure. As appropriate, root cause evaluations consider human performance issues and require failure analysis of components.

In addition to these activities, the implementation of the Maintenance Rule at CPSES requires that failures of components in systems within the scope of the rule be reviewed to determine whether these failures are maintenance preventable functional failures. The IST systems are within the scope of the maintenance rule and thus will come under these provisions. Maintenance preventable failures that result in system functional failures receive root cause analysis and corrective action evaluations, if the Maintenance Rule has been implemented on the system.

For deficiencies arising from surveillance work orders, records of corrective action are documented on work orders per the requirements of STA-606, "Work Requests and Work Orders". Work orders contain details of all corrective actions performed. Records of in-service testing to confirm operational adequacy following corrective actions are documented on post-work test reports per the requirements of STA-623, "Post-Work Test Program." The IST engineer reviews all closed IST-related surveillance work orders and post-work tests. The IST engineer also reviews in-service valve test results during the work order post-work review process and extracts and records any trendable data for early identification of equipment problems that may require modification to the IST program.

Because the IST engineer is a member of the systems engineering group, his activities are closely integrated with those of the system engineers. The pump and valve performance records maintained by the IST engineer are used extensively by systems engineers to determine corrective actions and to monitor system performance. The IST engineer is also a member of the expert panel for implementation of the Maintenance Rule and the risk-based IST program. He participates in periodic reviews of the performance of systems within the scope of these programs, and through these means, he can provide timely feedback of performance of components in the systems.

Thus, the various procedures and programs in place at CPSES provide assurance that failures of IST components will be promptly identified and addressed and modifications to the in-service testing program will be considered and made in a timely manner.

3.7 Quality and Technical Adequacy of CPSES IPE

In general, the IPE study for CPSES fully satisfies the requirements of a full-scope Level-I and Level-II PRA. One of the main objectives of the IPE development was to be able to utilize its results and insights toward the enhancement of plant safety through risk-based applications. With this objective in mind, the IPE elements were developed in detail and integrated in a manner sufficient to satisfy both the NRC Generic Letter 88-20 requirements and support future plant applications.

The CPSES IPE study was performed by developing large fault trees and small event trees. The large fault trees were then linked together according to the event tree logics for quantifying accident sequences. The major elements of the IPE study were developed and reviewed in a manner consistent with and in excess of the good practices of the time. In general, it is believed that the CPSES IPE meets or exceeds the quality standards subsequently suggested by the EPRI PSA Applications Guide. These major elements are briefly described below.

Initiating Event Analysis

A detailed review of plant equipment and operating procedures was performed to identify all the potential plant-specific initiating events as well as those initiating events that were identified in the industry. The loss of support system initiators such as service water, component cooling water, safety chilled water, HVAC, Instrument Air, Electrical Power subsystems were also identified and evaluated in the IPE study. In addition, other special initiators including interfacing systems LOCA, SGTR, ATWS, internal flooding and station blackout were analyzed in detail and documented in the IPE.

Accident Sequence Analysis

A detailed accident sequence analysis was performed and resulted in the development of functional event trees for all the initiating events identified in the IPE study. This also included induced LOCA initiating events such as stuck open primary side safety valves, stuck open PORVs, and most importantly, reactor coolant pump seal LOCA.

The accident sequences were quantified using the fault tree linking methodology. The common concern in the industry is the truncation limit which could potentially impact the importance evaluation. The total core damage frequency for CPSES was estimated to be 5.72 E-05. The truncation limit chosen for the CPSES accident sequence quantification was set at 1.0E-09 which is approximately 2.0E-05 below the total core damage frequency. The recommended truncation limit in the EPRI PSA Application Guide document is 10^{-4} below the baseline IPE core damage frequency. The analysis of truncation limits for this application is described in section 4.2.1. Most assumptions related to IST components were in effect validated by the treatment of not-modeled IST components as described in section 4.1.5. In addition, ATWS mitigating IST components have been ranked appropriately.

Systems Analysis

One of the major elements of the CPSES IPE study was the system analysis task. A total of 15 systems including support systems and front-line systems required for accident mitigation were analyzed. For all 15 systems, detailed system notebooks were developed which are found to be excellent documents for plant support activities. The impact of the loss of room cooling on equipment operability was carefully evaluated by the plant-specific room heat-up calculations and other available information in the industry. As part of this effort, the impact of loss of room cooling on the control room and switchgear room were also evaluated.

Common Cause Failure Analysis

Common Cause Failures (CCF) impacting two or more components in a system were carefully examined and appropriately placed in the system fault tree models. The Multiple Greek Letter (MGL) method described in NUREG/CR-4780, "Procedures for Treating Common Cause Failures in Safety and Reliability Studies," was used to quantify the effect of common cause failure events. The evaluation process is consistent with the NRC and EPRI guidelines. The typical IST-related component types are included in the CCF analysis. These are:

- Motor operated valves
- Air operated valves
- Check valves
- Electro-hydraulic valves
- Solenoid valves
- Operating pumps
- Standby pumps
- Turbine-driven pumps
- Positive displacement pumps

Human Reliability Analysis

TU Electric spent extensive amount of time to review, analyze and document human interactions that were modeled in the IPE study. This analysis is consistent with the guidelines of SHARP methodology developed by EPRI. This analysis included an evaluation of operator timing and emergency operating procedures that might create more demands on the operator. In general, three groups of human interactions were considered, namely, latent human errors, human errors associated with initiating events, and dynamic human errors. In addition, a detailed recovery analysis was performed to properly account for the possible recovery actions. The approach adopted for the CPSES IPE follows the general guidelines in the EPRI recovery analysis (EPRI RP 3206-03, "Modeling of Recovery Actions in PRAs"). The recovery analysis included the interview of operations staff with extensive plant experience, development of decision trees, review of related procedures and drawings, and consideration of the available time for each critical recovery action. The human reliability analysis process and results were all documented in a separate notebook.

IPE Review Process

To ensure a high-quality IPE and to provide quality control to the IPE Process, two types of independent reviews were conducted. One was done internally by TU Electric staff, and the other was done externally by outside PSA experts. In general, both reviews were applied to the entire examination process except when it was not possible due to the availability of resources or required skills. In those few cases, as a minimum, each task was reviewed thoroughly by either an internal or external independent reviewer. Furthermore, a final independent review was performed after the IPE study was completed. A team of PRA experts was selected from the industry to independently review the entire IPE study and its supporting analyses. The review team spent one week at the TU Electric offices where documents, procedures and supporting calculations and analyses were available for use. The results of all independent review activities performed by internal and external reviewers were well documented as part of the IPE documentation requirements.

4.0 IMPLEMENTATION PROCESS

Section 3.0 provides an overview of the process used to develop the risk-based IST plan for CPSES. This section provides a more detailed description of the process with emphasis placed on issues that needed to be addressed to successfully implement the process.

One key aspect of those implementation issues was integration with the Maintenance Rule . The details of this process were anticipated while CPSES was implementing the risk ranking portion of the Maintenance Rule. Consequently, despite some differences in ranking guidance between NUMARC 93-01 for the Maintenance Rule and NUMARC 93-05 for MOV prioritization, the two processes were found to be straight-forward to implement. The process was integrated at a technical level by using basically the same data for importance ranking and at the programmatic level by using basically the same expert panel. The resulting CPSES system ranking for the Maintenance Rule is consistent with the component ranking used in the risk-based IST plan whose development is described in the remainder of this section.

4.1 Risk Importance Determination

The ranking process involved an iterative set of activities for selecting risk categories. Initially, it was anticipated that a high, medium or low categorization based on Fussell-Vesely would be used, i.e., an approach modeled after NUMARC 93-05. NUMARC 93-05 was chosen as a starting point over NUMARC 93-01 because it addressed component level ranking for MOVs, one of the principal components in the IST plan.

Insights gained during the ranking process caused this approach to be modified. Instead, Fussell-Vesely was used as the principal measure with the Risk Achievement Worth measure used to compensate for weaknesses in the FV approach. The criteria developed were found to be practical to implement, generally consistent with the deterministic insights of the expert panel and effective in producing a safety neutral outcome.

Based on the selected categories, two lists were developed. First, the IST components were listed in groups based on: a) whether the component is modeled in the IPE or not, b) which risk sources the component affects, e.g., IPE, IPEEE, and outage, and c) which risk measures the component affects, e.g. core damage frequency (CDF) and large, early release frequency (LERF). Second, a list of pumps and valves not in the IST program that meet the criteria of the high-risk category was created.

Ultimately, these lists were reviewed by the expert panel and found to generate a logical grouping of significant and insignificant components. The expert panel review entailed an expert panel validation of both the technical bases and the individual results. The lists were combined to obtain the final list of more and less risk significant components. The development of the lists and the expert panel process are described in subsequent subsections. This subsection describes the development of the ranking criteria.

Selecting Importance Categories

The purpose of ranking IST components according to their importance to safety was to assign specific testing requirements according to their safety significance. Because there are many components within the scope of ASME Code Classes 1, 2 and 3, it was impractical to develop a different set of requirements for each component. Therefore, once components were ranked according to their safety significance, it was useful to group them into priority or importance categories. Then each category was assigned a number of distinct requirements such as type of test, periodic testing frequency, etc.

The development of risk importance measures for ranking required selecting the measures to be used, selecting the number of categories and ranges for each importance measure, and determining the implication of each category to in-service testing.

Use of Risk Importance Measures The most common risk importance measures, i.e., those identified in NUMARC 93-01 and 93-05 and in the EPRI PSA Applications Guide, are: 1) Risk Achievement Worth (RAW), 2) Fussell-Vesely Importance (FV), 3) Risk Reduction Worth (RRW) and 4) Core Damage Frequency Contribution. RRW and FV measures are related, yielding essentially identical rankings in the range in which most ranking decisions are made. The core damage frequency contribution measure provides the most insight for systems or highly important components. Because RRW offered insufficient resolution for lower ranked components and less insight into the component's role in the plant model, it was eliminated from consideration for component level ranking.

FV was used as the principal measure since it provides the best measure of incremental risk changes in reliability that might result from changing in-service test intervals. RAW also was found to be a very useful measure. RAW provides a measure of functional importance that is independent of the reliability of the component. That is, two components having the same functional role, e.g., in the same "functional train", will have the same RAW. The findings indicated that such functionally similar components could have sufficiently different Fussell-Vesely measures. Often the differences were such that one could be ranked high and another low. This finding implies that the analyst must be relatively certain of a component's failure probability to draw reliable insights from the FV measure.

The ranking process adapted the RAW to compensate for this weakness in the FV measure. That is, the RAW was used when the FV is low to discriminate functionally significant components from those that are insignificant. This distinction was important to ensure the methodology generated a safety-neutral outcome.

Said another way, if in-service testing intervals are to be substantially changed or testing removed entirely, it is possible that degradations in component reliability could occur. Therefore, it was important to establish that functionally important components, i.e., those with significant RAW values, are subject to other plant programs that will ensure their reliability.

<u>Number of Categories</u> The IST components were divided into three importance categories based on the risk importance measures for each risk source, e.g., core-damage frequency. There were no rigorous rules to establish the number of categories. Too few categories can result in a loss of the benefits from grading requirements. Too many categories can make implementation unnecessarily burdensome and little distinction between requirements for different categories could become arbitrary and unimportant. Based on past experience, three or four categories are the optimum for component categorization.

<u>Boundaries Between Categories</u> Category boundaries should be chosen so that completeness issues are addressed, and each category can have distinct test requirements assigned to it. The boundaries between categories is based on engineering judgment. Those individual components

whose failure would significantly increase the potential for core damage should be placed in the high-importance category. Additionally, if the assessment of common-cause events resulted in a group of components having a significant impact on CDF, then those components should be added to the high-importance category as well.

To select the categories, it was useful to start with an explicit criteria related to one or more of the four importance measures discussed earlier. NUMARC 93-05 presents an example criteria used as the starting point for this effort. The criteria were based on a three-category structure using Fussell-Vesely (FV) as the risk importance measure:

Category	Criterion
High:	FV > 0.01
Medium:	0.01 > FV > 0.001
Low:	FV < 0.001

It should be noted that this boundary for the low category is less than 0.005, the value recommended in the EPRI PSA Applications Guide.

When the results were obtained, it was found that only a small fraction of components fell into the high and medium categories. The small number of components meant that the cost of a test effectiveness study for medium components that had been anticipated in the original project plan outweighed the economic benefits that could be gained, and therefore that study was not done. The medium category was retained for future use or use in other ranking projects; however, for this project, the medium category components were essentially grouped with the high category components. (When referring to the results in general, the high and medium category components are often referred to as high and the low category components as low.)

Given the intent to use the RAW to compensate for weaknesses in the FV measure, NUMARC 93-01 was used. This guideline states that the RAW criteria should be:

Category	Criterion
High:	RAW > 2
Low:	RAW < 2

These same values are recommended in the EPRI PSA Applications Guide. These category boundaries seemed to provide a reasonable division of components.

Final detailed results reviewed by the expert panel indicated that a slight decrease in the boundaries for the RAW and FV would provide a logical break in components. A few components were found to have FV and/or RAW combinations near the category boundaries. The expert panel concluded that these components would be ranked as high.

The FV and the RAW were combined into a decision criteria such as that shown in Figure 4-1. As the figure indicates, components with a significant FV were considered "more risk significant". Components with an insignificant FV were potentially "less risk significant". However, it was important to ensure that a reduction in test intervals did not allow unintended consequences, i.e., a compromise in safety resulting from a degradation in reliability. Therefore, if FV was insignificant, it was also required that RAW be insignificant for a component to be classified as "less risk significant". If RAW was significant, the component was considered by the expert panel for placement in the high category. If the panel decided the component could be ranked low, an additional requirement was imposed before a component could be classified as "less risk significant". A compensatory measure was required to be selected by the expert panel to limit degradations in reliability. The final evaluation resulted in the following categorization:

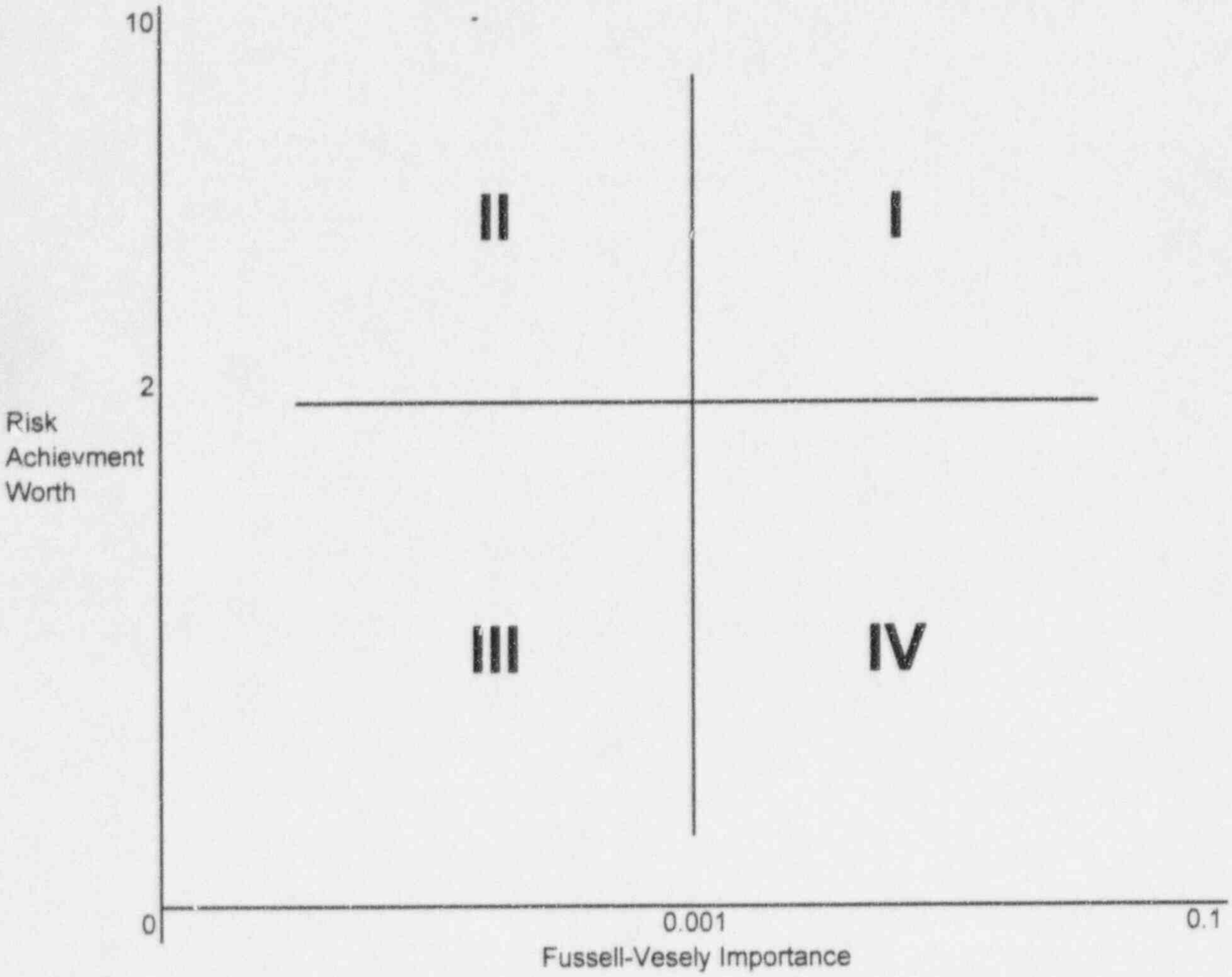
Category	Criterion
High:	FV > 0.001
Potentially high:	FV < 0.001 and RAW > 2
Low:	FV < 0.001 and RAW < 2

This categorization was found to be practical to implement. Its robustness was indicated by the deterministic review of component ranking and safety function that were performed by the PRA analysts and the expert panel. The quantitative analyses of cumulative effects from test interval increases also indicated the robustness of this categorization. For the potentially high category, logical and effective compensatory measures were readily found by the expert panel. Their potential importance to ensuring a safety neutral outcome also was demonstrated by the results of the cumulative effects study.

Figure 4-1

Decision Criteria
<u>Risk Importance Measures</u>

Fussell-Vesely Importance > 0.001
Risk Achievment Worth > 2.0



I: More Safety Significant Component (MSSC)
II: Less Safety Significant Component (LSSC) With Compensatory Measures
III: Less Safety Significant Component (LSSC)
IV: More Safety Significant Component (MSSC)

Not Modeled - Components Reviewed By Expert Panel For Determination Of Ranking

4.1.1 IPE Risk Importance

The initial risk importance determination was performed on the internal events portion of the CPSES IPE (Ref. 7). This work started with a systems level evaluation where the various basic events were mapped into systems. This was followed by a detailed review of the basic events and a mapping of these into components. Following this work, importance categories were defined and final rankings were performed. The system-level ranking was based on NUMARC 93-01 and was performed primarily for the Maintenance Rule. Component-level ranking was based on an enhancement of the guidance in NUMARC 93-05 described above.

Preliminary Ranking Based on IPE Results

In this preliminary ranking, systems were ranked first, then components. A system was considered risk significant if: 1) it contains an SSC whose Risk Reduction Worth (RRW) exceeds 0.5 percent of the overall CDF (RRW > 1.005), 2) it contains an SSC that is included in cut sets that, when ranked in decreasing order, cumulatively account for about 90 percent of the CDF, 3) it contains an SSC whose Risk Achievement Worth (RAW) exceeds 2.0, or 4) it contains an SSC whose Fussell-Vesely (FV) exceeds 0.001. The resulting systems were evaluated by the Maintenance Rule expert panel and a list of risk significant systems were selected.

Regardless of whether a system has been identified as important, the previously-mentioned ranking methods were again used to obtain preliminary component rankings. All IST components that satisfied any of the risk measure criteria were identified. All other pumps and valves not in the IST program but modeled in the IPE that satisfy any of the risk measures were also identified. The IST components were subsequently grouped into the similar importance categories described earlier. In some cases, IST components were categorized high even though the system was categorized low for the Maintenance Rule. In many cases, IST components were ranked low even though the systems were ranked high. The principal reason for these differences was the unique functions performed by individual components in the system.

In determining the importance at the component level, the overall importance of an IST component was determined by considering all pertinent failure modes and assuming all failure modes are changed simultaneously to 1.0 or 0.0 according to the type of importance measure being calculated. The results of the risk measure calculations at the component level are shown in Table 4.1-1. The table provides FV and RAW importance measures for IPE-modeled components found in the IST plan. Each importance measure is accompanied by its associated ranking category. The importance measures shown are based on the IPE study and do not report any additional evaluation or sensitivity study conclusions.

Symmetry Evaluation

When component ranking was performed, the preciseness of the ranking often exposed certain limitations in the IPE that were important to ranking within systems. One such limitation was the asymmetrical nature of the IPE system models. This limitation occasionally caused disparate rankings for similar components in the same system. Consequently, an effort was performed to evaluate the effects of both IPE modeling approaches and plant alignment features on the risk importance of components. The IPE-based ranking is performed on cutsets. These cutsets are a combination of specific accident sequences and functional failures of major components. To examine the effects of IPE modeling approaches and plant alignment on ranking results, components that provide a similar functional role but exhibited different risk importance measures were each checked to determine the cause of these differences.

The differences identified in this evaluation were grouped into three categories. These are: 1) those differences associated with initiating event assumptions, 2) those differences associated with plant alignment, and 3) those differences associated with support systems. For example, the dominant contributor to differences associated with initiating events dealt with the assumed loss of a component due to the initiating event (e.g., the Loss of a DC Bus initiator assumes Train A PORV unavailable) thereby creating a higher importance for the opposite train component (in the example given, the Train B PORV) when all sequences were considered. The second group dealt with the increase in risk ranking due to plant alignment. In this case, the additional failure modes associated with equipment in a standby train (e.g., failing to start) compared to the opposite train assumed to be running created the differences between like components. For the last group, differences in importance measures were attributed to the slight differences in supporting systems. These differences were usually found to be associated with the system alignment (i.e., one train running, the other in stand-by) or in a few cases due to physical plant layout of the support systems.

The symmetry evaluation provided two major insights into the ranking of IPE/IST components. First, the majority of similar components that had differences in importance measures were attributed to the asymmetries in the support systems; and second, the original risk ranking categories of most components did not change as a result of this symmetry evaluation. For those that were affected by the outcome of the symmetry evaluation, it was conservatively assumed that the higher ranking of the similar components would be assigned to the group. This was done even though in some cases the higher ranked component may have been ranked equivalent to the lower component when the asymmetry was removed.

Table 4.1-2 provides a list of the components whose risk rank changed due to the symmetry evaluation (i.e., low to medium, medium to high or low to high). A complete list of all IPE components in the IST program along with the evaluation of all similar components (pairs) and the groupings that form the basis for the revised component ranking is shown in Table 4.1-2a.

Final Risk Ranking From IPE

The final ranking of components was done using the high, medium or low categorization discussed above. Based on the selected categories and using Table 4.1-1, three lists were developed: 1) the list of pumps and valves not in the IST program that meet the criteria of the high-risk category, 2) the IST component list grouped into the anticipated high, medium and low categories based on FV, and 3) the IST component list grouped into the anticipated high/low category based on RAW. Then these lists were reviewed by the Steering Committee, and subsequently reviewed by the CPSES expert panel using guidelines developed by the Steering Committee for this review.

4.1.2 External Events Risk Importance

The previously-mentioned ranking is based upon the front-end IPE (i.e., those systems that can be used to prevent core damage). While the front-end IPE represents the majority of risk-significant components and accident initiators, the model is not complete. Therefore, to ensure an IST component is truly less-risk significant, a careful check was performed of the functions of each IST component in responding to external events. External events such as fires, tornados or earthquakes can cause accidents that require components to perform IST functions.

The IPEEE process produced quantitative and qualitative analyses to measure risk due to these three sources. The quantitative fire and tornado analyses indicated that risk levels were about one-half of that due to internal events, most of which was due to fire. The qualitative seismic analysis demonstrated that even with damage from a significant earthquake, at least two trains must then randomly fail for core damage to occur.

A component's importance in responding to external events was evaluated using these quantitative and qualitative models. The process for generating and interpreting these importance measures is described below.

Fires and tornados

A cutset file was constructed for the risk significant fire and tornado scenarios from the CPSES IPEEE (Ref. 8). Using this cutset file, risk importance measures were calculated. A comparison of these calculated values and the IPE values was made to identify those components which were less risk significant for the IPE but more risk significant for fire and tornado. Twenty such components were submitted to the expert panel for review. These twenty components were associated with fire-induced risk. No additional components were found to be risk significant due to wind that were not risk significant for IPE or fire. These insights are discussed in more detail below. The components and their ranking changes are shown in Table 4.1-3. Table 4.3-1a shows all the IPE components in IST that were evaluated for fire and tornado and the results of the evaluation. The expert panel confirmed that the basis for the ranking and the corresponding risk insights were reasonable (i.e., the risk importance of these components increased because the direct effects of the external event affected the ability of components in the opposite train to perform their intended function). The twenty additional components were ranked as more risk significant.

It should be noted that importance measures calculated in this manner are believed to be conservative. The method for calculating the importance, namely considering each external event risk by itself, is conservative. By generating importance relative only to external events, rather than total CDF which is over two times higher, components uniquely important to external events have an importance which is over two times higher than their importance to total CDF.

In general, the additional importance of most of these components (12/20) is based on the increased importance of the Safety Injection (SI) and Chemical and Volume Control system (CS) systems to provide Reactor Coolant system (RCS) inventory makeup for fire-induced seal LOCAs. Fire scenarios located in the plant electrical rooms as well as the control/cable spreading rooms tend to induce Reactor Coolant Pump (RCP) seal failure and a loss of one train of ECCS equipment (mainly loss of motive/control power). For fires, these two systems are more important than they are in the IPE. Consequently, those components with importance measures just below the IPE ranking threshold meet the ranking criteria for fire mitigation functions.

Eight other components are important, two in the Residual Heat Removal (RHR) system and two in the UPS HVAC system. The RHR components are important for ECCS makeup in recirculation mode. Their increased importance is for similar reasons as for SI and CS. In the case of UPS HVAC, fire induced failures can cause failure of trains in multiple systems and increase the importance of these components. The Main Steam system components are important for decay heat removal.

In general, the risk insights associated with high winds (tornado) are similar to those associated with fire. The results of the tornado analysis indicate that, unlike fire, no major safety systems/ components are lost due to the direct effects of the tornado and therefore, no new components were found to be more significant for wind than for IPE or fire.

Seismic

Comanche Peak Steam Electric Station is located in a region of low seismicity, hence seismic events pose very minimal risk of damage to the plants. [The safe shutdown earthquake for CPSES Units 1 and 2 is 0.12g peak ground acceleration (pga).] For this reason, the Nuclear Regulatory Commission identified CPSES Units 1 and 2 as reduced-scope plants for the IPEEE and approved the use of the seismic margin evaluation to evaluate seismic severe accident risk in lieu of a seismic probabilistic risk assessment. TU Electric chose the reduced-scope seismic margin evaluation (SME) that is based on the EPRI methodology (Ref. 9). Since the seismic margin evaluation is not a PRA method, it does not provide a core damage frequency measure that can be used to rank components for seismic importance. As a result, risk insights from the SME are qualitative in nature. However, for the IST risk based evaluation, the SME provides a list of equipment that is required for safe shutdown following a seismic event. This list, called the safe shutdown equipment list (SSEL), was reviewed for specific risk insights.

In the seismic margin evaluation, the seismic event was assumed to cause a loss of offsite power and a very small break LOCA. The SSEL identifies the equipment that is required to mitigate these events. The SSEL is based only on the equipment modeled in the IPE for these events, and thus, it is comprised only of equipment included in the IPE. The SME included a review of containment systems and those containment systems components are included in this evaluation. The pumps and valves are either on the SSEL or containment systems list and in the IPE and in the IST; or on the SSEL or containment systems list that are in the IPE but not in the IST.

A listing of equipment that is on the SSEL and in the IST program was developed and the rankings of these components from the IPE were reviewed. The rankings show that the active components on the SSEL are included in this list and are typically ranked medium to high. There is no seismic basis for ranking any of these components higher. Pumps and valves have generally performed well in seismic events up to 0.5g pga, and thus, they are considered to be seismically rugged to earthquake levels substantially above the SSE (0.12g) for CPSES. (The SSEL is comprised of components that are seismic category I.) Further, the seismic review team noted that, in general, the response spectra developed for CPSES are conservative. Thus, for IST considerations of the SSEL equipment, there is no reason to assume that the failure rate for these components would be significantly higher in earthquake situations than otherwise. The experience data (Ref. 9, Appendix A) shows that some pumps wear out faster after earthquakes, possibly because of mis-alignment; however, given the relatively short mission time, this is not an important consideration.

The frequency of seismic events at CPSES was also reviewed and found to be quite low. The frequency of occurrence of a seismic event greater than the SSE was determined to be about

1.0E-4 events per year (Ref. 10). It is assumed that for an SSE-type earthquake, a loss of offsite power and a very small break LOCA would result. Ratioing these initiating event frequencies with the earthquake frequencies and using the IPE calculated core damage frequency contributions from these initiating event types shows a seismic contribution to CDF from seismic events greater than the SSE to be less that 5E-08. Thus, seismic events would likely contribute little to overall core damage frequency.

Consideration was also given to whether some components may have a higher importance in a seismic event. For example, for normal plant upsets, steam isolation is assumed to be at the turbine stop and control valves. Since these components are not seismic category I, they were not assumed to function in the seismic event and isolation was assumed to occur at the main steam isolation valves (MSIV), either as a result of the main steam line break (MSLB) and subsequent protection system closure or as the result of operator action to close the valves, an action that is proceduralized. The same is true for feedwater isolation. The IPE modeled the main steam line break initiating event with a frequency of 1.07E-2, and calculated a CDF contribution of 5.48 E-08. That initiating event frequency is 100 times higher than the assumed frequency of the SSE. Based on this, these valves should not be changed from low category.

Components that are on the SSEL and in the IPE, but not in the IST were also reviewed to determine whether any of these components should be evaluated further and on what basis. In general, the components that are in the IPE but not in the IST program have been reviewed and a determination has been made as to their disposition. The results of that review are included in section 4.1.6. For the seismic external events review, these valves were checked for type and function and it was concluded that they are generally those that are not required to be included in the IST program. Most of the components in the SSEL but not in IST are manual valves that are locked in position and/or are in the required position. As noted above, there is no reason to assume that the failure rate for the SSEL components would be significantly higher in earthquake situations than otherwise. Based on the ruggedness of these components and the frequency and magnitude of seismic events at CPSES, none of these valves should be added to the IST program.

Thus, it was concluded that components important to seismic safe shutdown are included in the IST and are typically ranked higher; and given the ruggedness of pumps and valves in seismic events and given the relatively low frequency and magnitude of seismic events at CPSES, no components need to be increased in ranking category for seismic reasons.

4.1.3 Outage Risk Importance

A qualitative assessment of IPE systems modeled for shutdown modes was performed to determine the impact of shutdown modes on IST rankings. To perform this analysis a three step process was used. First, using existing IPE system models as the basis, components and system configurations that are unique to the shutdown modes from the at power IPE were identified. Second, using a qualitative set of rules, components in key trains were ranked into three categories: 1) High Components- Category 1- High FV; 2) Potentially high components- Category 2- Low FV, moderate to high RAW; and 3) Category 3 - Low Importance. Third, supports that are unique to shutdown configurations were identified and ranked accordingly.

There are several safety functions important to shutdown. These are Over-Pressure Protection, Shutdown Cooling, Spent Fuel Pool Cooling, Inventory Control, Reactivity Control, AC Power, and Containment Integrity. Rather than analyzing each function separately, the systems required for the shutdown accident sequences were analyzed and ranked with respect to their shutdown configuration. This provided a comprehensive review of the shutdown systems and their unique configurations. Typical accident sequences for loss of decay heat removal and loss of inventory are given below.

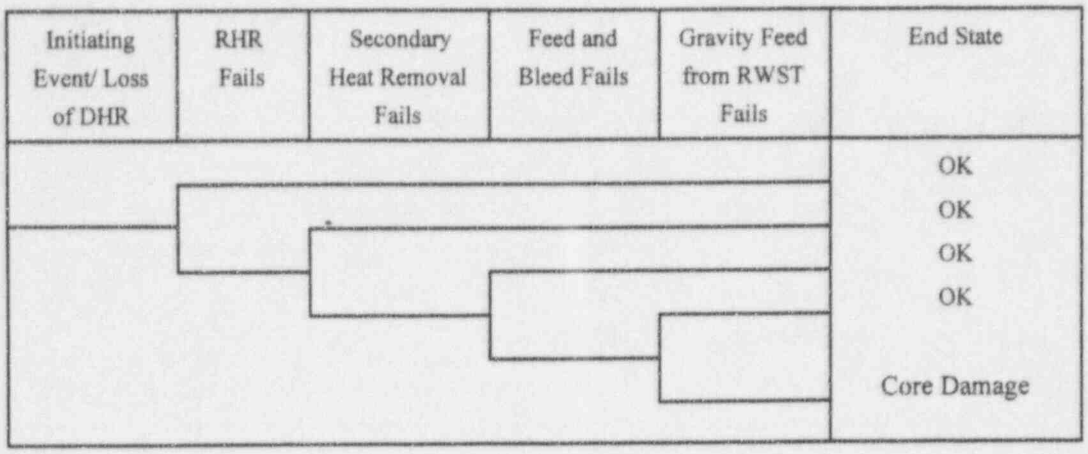


Figure 4.-2: Typical Accident Sequence- Loss of Decay Heat Removal

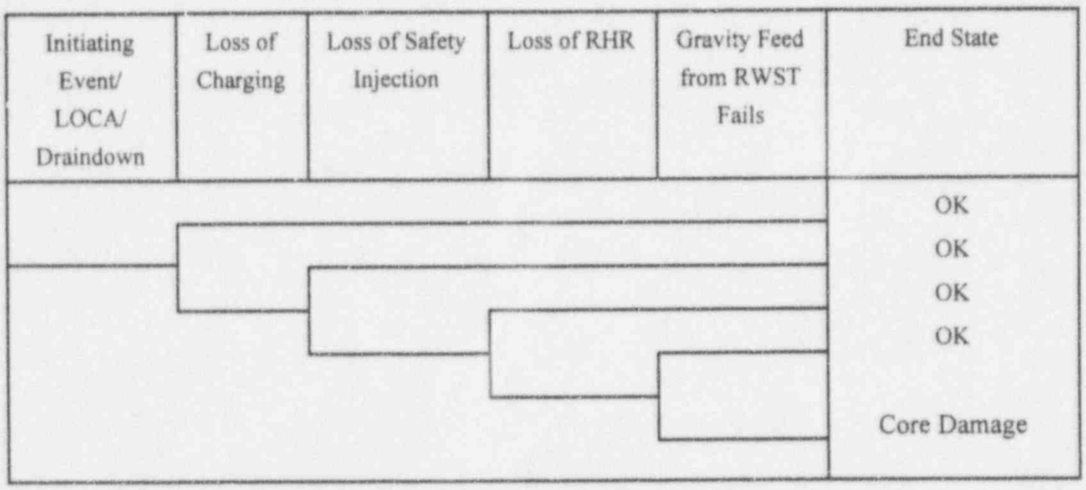


Figure 4-3: Typical Accident Sequence- LOCA Inadvertent Draindown

The risk profile for an outage changes as maintenance activities start and stop and plant states change. Therefore, the importance of components can also change during the outage, depending on the plant configuration as governed by the outage schedule. There can be times when almost any component can become more risk significant depending upon the outage scenario. If the plant is in a configuration of increased risk, and an IST component must operate to respond to an accident, that component will be more risk significant for that time period. If that period of time is extended, then the component on average will be more risk significant.

The use of the Outage Safety Function Guide (Ref. 11), station administrative procedures and the ORAM software (Ref. 12) tend to minimize periods of increased risk with contingency plans and increased awareness. Outage risk evaluations indicate that outage risk is lower than at power risk. Therefore, there should be no time period of increased risk that would cause an unimportant component at power to be important during an outage if the component performs the same function.

A major difference between at power and shutdown is that safety systems are in a standby mode at power and active components must start or reposition automatically for success. Since actuation failure is much more likely than failure to continue to operate, a reliability-oriented risk importance measure like Fussell-Vesely is lower for outage than at power. However, since functional importance is similar, the RAW value is likely to be the same and its FV is correspondingly lower. Also, during shutdown, automatic actuations are blocked and pumps and valves are actuated by manual operation only. Since the failure probability for human action may at times be more likely than automatic actuation, the contribution of equipment failure is relatively less likely. Therefore, in most cases the ranking of components at power is higher than during shutdown, although the system configuration must still be compared to determine if there are unique differences for the shutdown mode. Based upon the insights discussed above, the approach to risk ranking is as follows:

- If a component performs the same function and is in the same initial state as at power, the at power ranking is assumed to bound the outage ranking.

- If a component performs a different function or is in a different initial state than at power, then the outage ranking must be evaluated.

The latter evaluation involves cases where a different system is used, i.e., spent fuel pool cooling, or where a different function is performed by a component in a system "used" at power or during an outage. Additionally the following rules are a guide to risk ranking for shutdown.

High Components- Category 1- High FV:

- Pumps that must start to perform function (assume all pumps in systems that cycle operating trains)(High FV)
- Motor Operated Valve (MOV) or Air Operated Valve (AOV) that must change state to perform function (but not portions with redundant paths, e.g. two supply sources to one pump)(High FV)
- MOV or AOV that must change state to prevent flow diversion that can fail redundant trains (high FV, extremely high RAW)
- Pressure relief valves (safety or power operated) needed to control pressure so that redundant trains of systems can perform function (high FV or low FV, high RAW)

Potentially High Components- Category 2- Low FV, Moderate to High RAW:

- Pumps that must continue running (low FV, moderate RAW)
- Valves in single path portions of redundant systems that are not required to change state (RHR outlet valves)(usually low FV, moderate or high RAW)
- Check valve plus MOV or AOV that must remain as is if they are in the trains only flow path (low FV, moderate RAW)
- Check valves for which reverse flow can fail redundant trains simultaneously (low FV, extremely high RAW)
- MOV or AOV which if they change state can cause flow diversion that can fail

redundant trains (low FV, extremely high RAW)

- Control components that need to function to prevent system degradation (e.g. AFW flow control valves to the Steam Generators that can fail the Turbine Driven AFW pump)(low FV, moderate RAW)

Category 3 - Low Importance:

- All other Components that do not fall into category 1 or 2 were ranked low.

These rules were applied to the systems that support the safety functions described above. What follows is a detailed discussion of the considerations for the systems and functions, provided either at the function level or at the system level or both, depending on the nature of the function and its associated systems. The results of the evaluation are shown in Tables 4.1-4 and 4.1-4a. Table 4.1-4 shows only those components that increased in risk due to outage considerations. Table 4.1-4a shows the results of the outage evaluation for all the IPE in IST components, including the ranking disposition.

Containment Integrity

The shutdown requirements for containment integrity are bounded by the IPE. Therefore, the causes of large, early release (LER) for shutdown are bounded by the IPE. Also the Outage Safety Function Guide (OSF) delineates the requirements for containment closure for modes 5 and 6. The OSF requires that open penetrations and all open hatches must be capable of being closed prior to reaching saturation of the RCS. Pre-approved means of temporarily sealing open penetrations are required and disconnect capability is required for lines routed through open hatches. Activities that require opening of containment during periods of reduced inventory or mid-loop are avoided.

Low Temperature Over Pressure Mitigation

Over pressure mitigation is required by CPSES technical specifications to protect the RCS from pressure transients and possibly causing damage to the RCS. This protection is required in modes 5 and 6 whenever the RCS is not vented through a large vent path. Over pressure mitigation is provided by having a combination of relief paths available. The valves required for this function are 1-8708A and B (RHR suction relief valves) and 1-PCV-0455A and 1-PCV-0456 (Pressurizer PORVs). These four valves would be ranked Category 1 for shutdown. However, since the PORVs are ranked high for IPE and the RHR suction relief valves are ranked high by the expert panel for insurance reasons, no additional evaluation is required.

Auxiliary Feedwater (AFW) System

The AFW system is only required for a short time during refueling outages. Early in the outage, before RHR is placed in service, AFW is used in conjunction with the Atmospheric Relief Valves (ARVs) or the steam dumps to cool down the RCS. Typically after the first day or two of the outage, AFW could not be used because the steam generators have been drained and there is no path for cooling. After the RCS has been depressurized and the reactor head lifted, then even in accident conditions AFW could not function. When shutting down the AFW pumps in accordance with SOP-304A, "AFW System Operating Procedure", section 5.2 pertains to placing the system in shutdown or standby. Therefore, the AFW system will operate the same as at power when used for shutdown cooling except that no automatic actions take place, all actions will be initiated by the operators. While this may change the importance of the operators, the equipment importance should remain about the same unless operator actions were extremely unreliable.

Residual Heat Removal (RHR) System

During shutdown operation the RHR system would normally be operating on a flow path taking a suction from the hot legs and discharging to the cold legs. There are times when the refueling cavity is being filled that the suction path would be from the Refueling Water Storage Tank (RWST) to the cold legs or when the cavity is being drained the discharge would be back to the RWST. For a large part of the outage, the system is operating with one train in service and the other stopped but operable. The RHR system can be in several different configurations during the outage, they are as follows:

- Mode 4 or 5 with the RCS intact, one/both trains in operation to cool down the primary.

- Flooding the refueling cavity from the RWST
- Draining the refueling cavity to the RWST
- Reduced inventory operation/ midloop operation

The RHR IPE system notebook contains a valve alignment chart for the different modes of operation of the system including shutdown cooling. The valves included are the major flow path control valves required for success. SOP-102A, "Residual Heat Removal System" was also reviewed to determine if any unique configurations or components exist for this system when the plant is in shutdown modes. The most significant difference between shutdown and standby configuration of RHR is that the hot leg return valves 1-8701A and B and 1-8702A and B are open for Shut Down Cooling (SDC), while for low pressure injection, high head recirculation and cold and hot leg recirculation these valves remain closed. Valves 1-8701A and B and 1-8702A and B are in the IST program and in the IPE. Because these valves must remain open for shutdown cooling to function, they meet one of the criteria for category 2 ranking. However, since these valves are ranked high for IPE and accident mitigation, no additional evaluation is required.

In IPO-010A "RCS Reduced Inventory Operations," RHR flow is maintained by manually throttling the RHR heat exchanger flow control valves (1-HCV-0606 &0607) and the heat exchanger bypass flow control valve (1-FCV-0618 &0619). The significant difference between shutdown and standby configurations is that these valves must perform a control function for SDC, while for low pressure injection, high head recirculation and cold and hot leg recirculation these valves must only remain as is. Because these valves must operate for shutdown cooling to function, they meet one of the criteria for category 1 ranking. However, valves 1-FCV-0618 &0619 are low importance category. Even if they fail closed, the flow path through the heat exchangers is still available. Excessive cooldown can still occur but this will not fail the function of RHR. If they transfer open, then DHR capability will be reduced but adequate time for operator action would be available.

If RCS level is reduced below 56 inches (midloop) then the cold leg injection valves (MOVs 1-8809A and B) are deenergized and manually throttled to maintain flow to prevent vortexing of the RHR pumps. After the valves are deenergized and throttled they must only remain "as is" for shutdown cooiing to function. Therefore, they meet one of the criteria for category 2 ranking. If this evolution is performed with the core off loaded, then these valves would be ranked low. However, since these valves are ranked high for IPE, no additional evaluation is required. During power operation, these valves are open for low pressure injection. During shutdown cooling, these valves are closed and function as boundary valves for SDC.

Upon loss of SDC, MOVs 1-8812A&B can be opened and used for gravity drain from the RWST to the RCS in accordance with ABN-104A, "Residual Heat Removal System Malfunction". These valves meet one of the criteria for category 1 ranking. However, since these valves are ranked high for IPE, no additional evaluation is required.

Sent Fuel Pool Cooling (SFPC) System

SOP-506, "Spent Fuel Pool Cooling and Cleanup System Operating Procedure," and the IPE system notebook for SFPC were reviewed for this analysis. The SFPC system is somewhat less complex than other systems to analyze because it was designed only for manual operation. The system consist of two independent trains of cooling, each capable of supplying the fuel pool for both units 1 and 2. The SFPC pumps are powered from common 480 VAC motor control centers which can be supplied from either unit 1 or unit 2. If unit 1 is in an outage, the power supplies will be aligned to unit 2 and the reverse is true if unit 2 is in an outage. The SFPC heat exchangers are cooled by non-safeguards CCW. For this analysis, it is assumed that train B SFPC is cooling the fuel pools and train A is available. The SFPC system has other functions, such as cleanup, associated with it but only the safety function of cooling is considered here.

The only time the SFPC system can contribute to core damage is during fuel movement. During these times, the refueling cavity is flooded (ABN-909, " Spent Fuel Pool/Refueling Cavity Malfunction") and time to RCS boiling and core damage is many hours, giving operators time to recover faulted equipment. Therefore, SFPC system components would be ranked low with regard to core damage.

There is also risk associated with boiling and consequently fuel damage in the spent fuel pool. However, the time to boiling for the SFP is typically many hours (approximately 8 hours with newly discharged fuel) and there is much redundancy in the electric power and cooling water supports. Therefore, the components of this system would all be ranked low importance.

Safety Injection (SI) System

When in a shutdown condition, the safety injection pumps will be safety tagged and cold leg injection isolation valve MOV 1-8835 (in IST) will be closed and the power turned off according to IPO-005A, "Plant Cooldown from Hot Standby to Cold Shutdown," and SOP-201A, "Safety Injection System Operating Procedure". If a loss of SDC occurs, the SI pumps could be used to provide injection to the RCS if RHR could not be recovered or if secondary heat removal is not available. The operators would have to manually recover the pumps and then perform the valve alignment in accordance with IPO-0010A, "Reactor Coolant Reduced Inventory Operation," and ABN104A, "Residual Heat Removal System Malfunction," or ABN-108A, "Shutdown Loss of Coolant," (depending upon mode and RCS status). Valve 1-8835 would become a category 1 valve for shutdown but all other components would rank the same as at power (standby condition). However, since these valves are ranked high for fire and accident mitigation, no additional evaluation is required.

The SI accumulators could also be used to mitigate an accident during shutdown if any of the accumulators are not drained for maintenance and the discharge valves (1-8808A,B,C and D) were manually opened. However, since the accumulators will be in various stages of maintenance and there are redundant water supplies, these valves are ranked low.

Chemical and Volume Control System (CS)/ Emergency Boration

When shutting down the plant from hot standby to cold shutdown using IPO-005A, "Plant Cooldown from Hot Standby to Cold Shutdown," step 5.1.40 directs operators to place at least one charging pump in an inoperable status within four hours after entering mode 4. The pump selected for this step could be the positive displacement pump (PDP) or one of the centrifugal charging pumps (CCPs), although it would be more conservative for this study to assume that one of the CCPs is made inoperable. In reviewing the SOP for shutting down the CCPs, it was found that no valves required for high head safety injection are repositioned in this step.

Emergency boration is accomplished by pumping fluid from the boric acid tanks with the boric acid transfer pumps to the suction of the CCPs. This flow path can also be achieved using gravity feed from the boric acid tanks to the CCPs. There are many redundant flow paths for accomplishing emergency boration (ABN-107A,"Emergency Boration") therefore, all components are ranked low for this function.

4.1.4 Back-end Risk Importance

Past ranking calculations have been developed mostly from front-end IPE analysis rather than from back-end IPE analysis. It is equally important to identify those pumps and valves that prevent containment failure or bypass that could result in an unacceptable release. Examples might include the valves that provide the boundary between the reactor coolant system and low-pressure systems located outside containment.

Those IPEs with back-end analyses can be used to establish analogous rankings. Various analyses have sh wn that large releases, though infrequent and of low probability, tend to dominate offsite consequences. Therefore, those IST components identified by back-end analyses may be ranked according to their importance to large-release frequency only.

Containment isolation failures or containment bypass events can, in some accident scenarios, cause a large, early release. The associated valves represent a substantial fraction of components treated by the IST program. However, their importance varies significantly depending on their initial position, their size, the leak path they are in, etc. These factors should be evaluated with a simple model consistent with the IPE back-end analysis.

Risk importances of containment functions were measured by developing quantitative importance measures for accidents contributing to large, early releases (LERs). The CPSES IPE was reviewed and accident scenarios were classified as to whether or not they were large, early releases.

The EPRI PSA Applications Guide was used as a basis for the definition of a LER. However, because of the NRC's concern regarding that definition documented in Appendix D of the Guide, additional consideration was given to certain accident scenarios that may be subject to interpretation. Specifically, compensatory actions were required for large releases that were not classified as early (see below).

The CPSES IPE found that large, early releases are more likely to result from accidents with the following attributes:

- A failure in containment exists at the time of the accident, either because the containment fails to isolate or it is bypassed, or

- A high-pressure core meltdown occurs with containment heat removal (sprays) unavailable at the time of core melting.

One cause of a large, early release is a steam generator tube rupture, with immediate failure of core cooling, and failure of the main steam system to isolate. A large but not early release can also occur if the same scenario occurs except that core cooling fails late in the accident rather than immediately. This latter scenario is the most likely source of a large release. However, because adequate time would be available to implement emergency response measures, this source of a large release was not considered in the importance measure calculation. Instead, the most important sources of main steam isolation failure were considered potentially important and were reviewed by the expert panel to determine if the associated valves should be categorized as high. The expert panel decided to require compensatory measures if the valves were not otherwise ranked high.

Except for the previous scenarios, there are essentially four sources of potential contributors to large, early release. The sources are:

- containment cooling systems

- containment isolation valves

- high-low pressure interface valves, and

- safety systems uniquely important to preventing high pressure core melt scenarios.

The rankings of the components associated with these sources are shown in Table 4.1-5 and 4.1-5a. Table 4.1-5 provides a list of all components that were determined to be high/medium category for large, early release. Table 4.1-5a shows all the components that were evaluated in the study and the results of the evaluation. A description of the evaluation of each source is provided here with emphasis on the specific components important to each source.

Containment sprays

In the case of containment cooling systems, CPSES uses containment spray for heat removal. Because of a few key factors, containment spray is not risk significant at CPSES when LERF is considered. First, CPSES uses a large, dry containment with significant energy retaining capability. As a result, the containment can withstand significant energy releases without heat removal and still reliably remain intact. Therefore, the probability of containment failure does not change significantly for cases where containment spray does not function except in scenarios involving reactor pressure vessel failure at high pressure during core melt down.

Second, containment sprays require support systems, e.g., electric power and component cooling water systems. Failures of these support systems are often the cause of core damage. Hence, the operability of the containment spray system is moot for most dominant sequences. These two factors combine to make containment spray system components rank low for LERF.

It should be noted that despite this risk information, the expert panel decided to rank containment spray pumps high because of past problems with pump vibration. In-service testing was deemed by the panel as an effective means to ensure that such problems have been resolved. Because containment spray pumps were classified as high, many containment spray valves that rank low will be "tested" when the pump IST tests are performed. Many of the other active components, e.g., MOVs, are tested because of technical specification requirements for slave relay testing. Hence, while IST testing would be reduced for the remainder of the containment spray system components, there are adequate compensatory measures to ensure that containment spray will be a reliable system at CPSES.

Containment Isolation Valves (CIV)

The CIV analysis calculation was reviewed by the expert panel with respect to which containment penetrations required detailed evaluations. It was concluded that the analysis assumptions pertaining to important penetration valves was acceptable. The detailed analysis was broken down into two parts, the first CIV and the second main steam line break isolation following a SGTR.

The cutsets were reviewed for each set of CIVs to determine which would have the equivalent of a high FV with respect to LERF. Four lines dominate the contribution of CIVs to LERF. Based on the value of this contribution, any single line would have a FV LERF of about 5.0E-03 or a medium FV ranking. Based on the IPE results for CIV, the following valves contribute greater than 1% to the total cutset CIV and therefore when combined with the FV measure calculated above, would remain above the high/medium-low cutoff. The remaining quantified valves and those valves not explicitly modeled in the IPE would be considered low in ranking.

High/medium	Low
1-HV-5157	1-HV-5548
1-HV-5158	1-HV-5549
1-HV-4725	1-HV-3487
1-HV-4726	1CI-0030
1-8160	
1-8153	
1-7136	
1-LCV-1003	

For SGTR scenarios, isolation was not a significant (i.e., >0.1%) contributor to LERF. The most frequent SGTR and isolation failures were large releases but not early ones. Because these releases were large, the expert panel decided as a precautionary measure to require compensatory measures for steam line isolation valves, or if no appropriate measure was available, to rank them higher. A similar approach was taken to the CIV case and again four lines dominated the IPE results for SGTR isolation. However in this case, valves that contributed greater than 0.1% to the cutsets total probability were considered potentially important for large releases, thus necessitating additional review and expert panel action. The remainder were ranked low.

However, while reviewing the IPE results, the expert panel identified that specific operator actions, namely closing certain valves, to isolate the leak path had not been fully credited. (Leak path isolation is identified in the Emergency Operating Procedures (EOPs) as an operator action for SGTR.) When such actions were determined to be practical for the accident scenario, three of the four sets of valves were found by the expert panel not to require compensatory actions. The remaining valve set was checked for compensatory measures and found to be satisfactory.

Compensatory Action Required	Low	
1-HV-2409	1-HV-2333A	1-HV-2397
	1-HV-2452-1	1-HV-2397A
	1-PV-2325	1CI-0300
	1-HV-3487	1CI-0030

Valves corresponding to steam generators 2,3 & 4 were grouped with their associated valves. The valves presented above are for steam generator 1.

High-Low Pressure Interface

Interfacing Systems LOCA (ISLOCA) sequences were reviewed to determine their significance to large, early release frequency. The following summarizes the results of this review. There are ten (10) ISLOCA initiating events in the IPE. These were reviewed to identify specific valves contributing to each initiator. Only four (4) contribute more than 1% to total LER risk. ISLOCA sequences represent roughly 14% of total LER risk. ISLOCA valves most significant to LER risk involve valves in the RHR suction, low pressure injection (LPI) and intermediate injection (IPI) lines.

Based on the information above, equivalent FV relative to LERF can be determined for each line and the components in the line can then be assigned the appropriate risk ranking. The rankings of the ISLOCA valves is shown below.

High/medium	Low
1-8717	1-8890A
1-8701A	1-8890B
1-8701B	1-8825
1-8702A	1-8809A
1-8702B	1-8809B
1-8818A	1-8841A
1-8818B	1-8841B
1-8818C	1-8949A
1-8818D	1-8949B
1-8948A	1-8949C
1-8948B	1-8949B
1-8948C	1-8802A
1-8948D	1-8802B
1SI-8819A	1-8835
1SI-8819B	1SI-8905A
1SI-8819C	1SI-8905B
1SI-8819D	1SI-8905C
	1SI-8905D

Safety Systems Uniquely Important to Preventing High Pressure Core Melt Scenarios

The evaluation of large, early releases based on the accident sequence cutsets indicated that core damage sequences that resulted in high pressure core melt scenarios were more important than other scenarios. These scenarios tended to involve RCP seal LOCA and transients that resulted from loss of injection. Because of a marginal increase in importance in these scenarios over their contribution to core damage frequency, certain components in SI and CS increased in importance. These components tended to be slightly below the threshold for FV relative to

CDF, but with their elevated importance tended to exceed the threshold. The components ranked high because of LERF are listed below.

High/medium

1-8806	1-8923B
1-8835	1-8926
1-8923A	X-PCV-H116A & B

4.1.5 IST Components Not in the IPE

Just as there may be IPE components that do not appear within the scope of ASME Code Classes 1, 2 and 3, there can be components within the IST scope that do not appear within a plant IPE. While the front-end IPE model represents the majority of risk-significant components, it is not complete. For example, accident scenarios involving passive pipe breaks and ruptures in the RCP thermal barrier heat exchangers were not included. That is, such scenarios were not explicitly modeled by the IPE. (However, in effect they were modeled implicitly.) Therefore, to ensure an IST component is truly low risk, a careful check was performed of the functions of each IST component (e.g., flowpath boundary) that are not explicitly modeled in the IPE.

The unmodeled components and functions were reviewed to determine if they belonged in the IPE. If so, then they were carefully documented and can be added to the IPE as appropriate. Their equivalent importance was determined using insights gained from implementing the ranking methods discussed previously. The method for ranking them was similar to the qualitative component ranking process used for outage risk and described in section 4.1.3. The components that were considered are shown in Table 4.1-6.

The first effort in assuring completeness in the ranking process was to compare the typical IPE "safety functions" to typical IST component functions. After a general understanding of how the two "safety models" compare, a detailed component and function level comparison was performed. This comparison essentially linked the IPE to the design basis, thereby allowing probabilistic and deterministic insights to be integrated in a traceable format.

IST Functions There are two basic types of IST functions. The first is to maintain the integrity of fission product boundaries, and the second is to ensure safety system operability. Table 4.1-6a indicates those IST functions and the systems that perform them. These IST functions ensure the integrity of the primary and secondary systems and provide containment isolation. The table also indicates the IST functions and the systems that require them to ensure system operability, namely the system flowpath and system flowpath boundary functions.

The IPE often implicitly models the integrity of fission product boundaries in a number of ways. Some IST components are represented by high level basic events such as initiating events, whereas other components are excluded because they mitigate highly unlikely scenarios. Initiating events such as small LOCAs and main steam line breaks outside containment implicitly include some contribution from spurious opening of IST relief valves or MOVs, and interfacing system LOCAs include similar contributions plus reverse flow from IST check valves. Also, the IPE often makes assumptions based on the low likelihood of certain scenarios that exclude from explicit models the possibility of IST valves failing to function. Examples of this include:

- system pipe breaks occurring coincidentally with an accident, followed by IST valve failure;
- multiple failure of fail safe valves; and
- failure of multiple relief valves to open, sometimes at substantially elevated pressure, coincidentally with failure of power-operated relief valves.

The IPE explicitly models most safety system operability functions. For example, most if not all components in the system flowpath are modeled by the IPE. Exceptions to this, that is where system flowpath is not modeled, include five IST functions that are assumed to have low significance due to ample opportunity for operator action to recover, restore or establish an alternative, and one function that is considered part of the basic events used to model the Emergency Diesel Generator (EDG). The five that are assumed to have low significance are:

- Boration dilution;
- Spent fuel pool cooling;
- Spent fuel pool emergency makeup;
- Sump discharge (equipment sumps); and
- Surge tank emergency makeup.

The IST safety function that is considered part of the EDG is:

- Pump discharge (lube oil and jacket water for the EDG).

While in most cases, IST functions for system flowpath are modeled in the IPE, the IPE often does not explicitly model IST components that are intended to function to ensure the system flowpath boundary is maintained. Such flowpath boundary valves and pump mini-flow paths are often evaluated implicitly by the IPE but not modeled explicitly.

IPE functions Table 4.1-6b compares the IST and IPE functions looking from the perspective of the IPE. It presents the IPE safety function and the corresponding IST function. As can be seen, the IST safety functions represent most of the IPE safety functions.

Evaluation of IST Components not Explicitly Modeled by the IPE

Given the development of this basic understanding of IST and IPE safety functions, a process was developed for evaluating components not explicitly modeled by the IPE. The process for evaluating such components depended heavily on two sources of information. One of the most important sources was the IPE system notebook documentation of why certain components, primarily flowpath boundary components and pump mini-flow lines, were not needed. The CPSES IPE was particularly strong in this regard. As compared to many PRAs which assume that small flowpaths will not divert sufficient flow to affect system function, the CPSES IPE was supported by a number of thermal-hydraulic calculations. These deterministic calculations which supported the IPE were valuable additions to the engineering judgement available from the expert panel.

The second source of information was the expert panel knowledge of plant operations and design. Plant operations support and engineering support from the panel was used to rank a number of components such as those associated with surge tank emergency makeup. In this case for example, the frequency of use of the system was an important factor in the ranking. In other cases, the expert panel served as an expedient source for understanding system operation and verifying the component failure modes that would have to occur and redundant components required to fail for the IST function to be needed. In these cases, documentation was provided which demonstrated that system failure modes were unlikely enough that components should be ranked low.

The evaluation was documented in two forms. First, expert panel meeting minutes were developed that identified the component, the IST function, the risk ranking, the panel basis, compensatory actions (for potentially high components) and comments that often clarified the technical basis for ranking. The ranking was again performed qualitatively but based on component performance insights drawn from the IPE quantitative risk determination. A summary of the expert panel meeting results is provided in Tables 4.4-1 and 4.4-2.

4.1.6 High-Risk IPE Components Not in the IST Program

The importance of a risk-based approach to component ranking includes identification of other high risk pumps and valves that are not in the IST program but that should have testing commensurate with their importance. An evaluation of such components was done as part of this study. This involved a careful evaluation of the IPE modeling assumptions and conservatisms, component failure modes, operator action, recoveries and any other effects that could substantiate the rankings. These were reviewed by the expert panel. Table 4.1-7 lists the importance ranking of pumps and valves explicitly modeled in the IPE that are not in the IST program. Table 4.4-2a describes the expert panel disposition of these components and any recommended compensatory actions. Generally, the panel felt that additional evaluation was required to determine the appropriate testing requirements. The panel concluded that it was not clear that strict compliance with the ASME code recommendations was the most appropriate means for addressing the IPE failure mode. In the case of manual valves, no ASME code testing requirements applied to these specific cases since the valves in question had no remote position indication. The panel felt that current plant programs to ensure that these valves remain open were commensurate with the importance of these valves. In other cases, the panel determined that the IST test would be the most appropriate (e.g., Instrument Air system relief valves will be bench tested per IST requirements.)

4.2 Completeness Issues

Quantitative risk models have limitations associated with the structure of the models and the assumptions and the input data used. The limitations were compensated for by evaluating truncation limits, identifying IST components masked by the IPE, applying a conservative treatment of common cause failures, requiring the expert panel to identify components with operational concerns, and performing selected sensitivity studies. The details of the evaluations of each of these completeness issues are presented in the sections that follow.

4.2.1 Truncation Limits

The risk ranking process described above used the FV and RAW importance measures. The values for these importance measures were calculated based on cutsets. The process also involved a cumulative effects analysis that determined new risk levels given an increase in the in-service test interval. Cutsets were obtained by solving the model with a truncation limit. Experience has shown that setting the truncation limit arbitrarily low creates inefficiencies such that analysis costs quickly exceed the value of risk insights gained. This project evaluated the truncation limit used in the CPSES IPE and found it to be sufficient for both risk ranking and estimating cumulative effects.

Ideally, IPE models would be solved without a truncation limit so that the cutset file would be an exact representation of the plant model. In the past, technology limits of computers and cutset solution algorithms have made it difficult to use very low truncation limits. These technology limits have often been seen as the reason for selecting truncation limits. For the CPSES IPE, limits of technology were not the overriding constraint. The actual constraint on truncation limits was the ability to review the cutsets and evaluate realistic operator actions that would occur. That is, the actual constraint was performing recovery analysis.

If large numbers of cutsets are found and recovery analyses are not performed, then this set of conservative cutsets can mask other contributors. That is, a large number of marginal, but conservative cutsets will reduce the relative contribution of dominant cutsets. If the contribution of unrecovered cutsets is enough, the importance of a dominant contributor might be reduced below the FV limit. Therefore, a balance must be made when choosing the truncation limit. Creating conservatisms that mask component importance of non-truncated components must be balanced against eliminating components from the cutset list.

The CPSES IPE quantification approach tended to maximize the amount of un-truncated but recovered cutsets. In the CPSES IPE, a number of important efforts were employed to add efficiency and improve understanding of the model so that recovery analysis could be performed both accurately and on as many cutsets as possible. The plant model was structured to make solving the model and performing recovery analysis easier. Segments or modules were developed which represent logical portions of a system flow path. These segments are a group of basic events performing the same "function" in the fault tree. By grouping basic events in this manner, pumps, motor operated valves (MOVs) and check valves performing the same function are considered at the same time. This process results in a recovery analysis for one event rather than three and it prevents truncating the lower probability portion of the train, e.g., the manual valves. As will be seen below this method results in truncation of very few of the IST components modeled in the CPSES IPE.

The models were also built to make recovery analysis easier. Equipment used in most recovery actions were included specifically in the model rather than implicitly in the operator action event. The recovery process also included a rule-based recovery technique that automated simple recoveries and allowed more effort to be placed on complex actions and on additional cutsets. Finally, the CPSES recovery analysis used a program called BROWSER which allowed cutset impacts to be viewed directly for their impact on the plant model. Since analysts spent less time tracing down model links, more time could be spent performing recovery analysis and ensuring operator actions were correctly included. These efficiencies allowed the CPSES IPE to use a relatively low truncation limit and yet perform detailed recovery analysis on a large fraction of the cutsets.

For the IST project, a change to the truncation limit was made to ensure the IPE recovery analysis insights were properly reflected in the IST importance calculations. The internal events portion of the IPE contained cutsets at or above 1E-09. In the course of recovering cutsets in the original IPE effort, some of the cutsets between 1E-08 and 1E-09 were recovered and some were not. The concern was that including the components associated with the unrecovered cutsets would potentially mask the importance of some other components.

Before a change to the truncation limit was made, an analysis was performed to determine whether the truncated model provided a good representation of the full model, i.e., were there any components that were significant from a risk perspective not included as a result of the change in truncation. The analysis looked at components not in the 1E-08 list but in the 1E-09 list. The following findings confirmed the change would provide a complete representation of IST component importance.

- Valves that appear in the risk achievement worth list tend to be those in low probability cutsets that were not recovered.
- The majority of the components on the list have RAW values less than 2.0 and thus are not important with respect to risk ranking.
- Most of the components with RAW values above 2.0 are manual valves
- Those components that are not manual valves have RAW near 2.0.

Finally, those components in the 1E-08 model that were ranked low but were just below the cutoff limit were reviewed with respect to their basic events found in the 1E-09 list. It was concluded that the additional risk associated with these truncated cutsets would not cause these components to change ranking categories. The results of this analysis therefore concluded that all the pumps and valves that should be considered in the risk-based review are included in the cutsets greater than or equal to 1E-08.

The effectiveness of both the truncation limit and the model building process was further confirmed by the expert panel. Occasionally, the panel identified conservatisms in a RAW or FV measure for a component close to the ranking threshold. Their findings caused changes to the component rankings for a few components. But because so few changes were made, the panel review further demonstrated the reasonableness and the completeness of the recovery analysis. This process of model solution and review as discussed above indicated that even though the truncation limit was set relatively low, it was appropriate to avoid masking conservatisms.

In addition to the above effort, three mathematical tests were performed to validate the truncation limit used in the IPE. First, as described above, little change was found in importance ranking from 1E-8 to 1E-9 truncation. This provides indication that lowering the limit would probably not change ranking results.

Second, as a further mathematical test and to better understand the effect of using segments, the cutset list was expanded so that all basic events in the truncated segment file were explicitly represented. The expanded list included cutsets as low as 1E-24. The number of cutsets expands from about 900 to nearly 20,000. Of these, nearly half are below 1E-12. Consequently, while the truncation limit is set at 1E-8, because of the use of segments, the limit is equivalent to a much lower limit in a model containing solely basic events.

As a final test, it was noted that the CPSES truncation limit is comparable to the EPRI PSA Applications Guide recommendation, i.e., a truncation limit of 1E-4 below the total CDF. The CPSES truncation limit of 1E-8 was only slightly higher than that. (The core damage frequency of CPSES due to internal events was estimated to be 5.72 E-05 per year.)

The acceptability of the truncation limit was considered not just with mathematical tests but also based on its impact on the model. It was judged to be important that truncation meet mathematical tests, but it was judged even more important that truncation make sense based on how important truncated components were to system operation. The following provides an overview of this model understanding process by showing how truncation affects one system (AFW) specifically and the plant model in general.

AFW is a three train system. The components not truncated meet the following general characteristics:

- components whose failure can affect more than one train
- components whose failure both causes train failure and prevents its recovery by use of an alternate flowpath, e.g., the pump, and
- components affecting operation of the turbine driven AFW pump

Stated another way, the components retained in the model include all components in third order or above cutsets for system failure and all components in the AFW train important for Station Blackout (SBO) accident scenarios.

Components truncated from the model only included those that were truly insignificant to risk. Specifically, they involved components whose system cutset was fourth order or greater:

- in a path to one of 4 generators
- in a path to one of 8 paths to the generators
- in a recoverable path to one of the pumps (provided it was the motor driven pump) such that both the path and its recovery plus the other two pumps must fail for the system to fail

The truncated model is adequate to measure increases in component probabilities needed to evaluate increases in IST interval. In such calculations, the impact of an increase would be limited for two reasons. First, the truncated components are lower in probability than the un-truncated pumps. Second, the truncated components are contained in fourth order cutsets rather than third order cutsets as for pumps. As an example, consider a combination of check valves and/or normally open MOVs that have failure probabilities on the order of or less than a percent of a pump's failure probability. Increasing them by a factor of 100 would make each component's failure probability comparable to the pump, but as a whole their cutsets would still be small contributors (e.g., less than a few percent) because their truncated cutsets were still one order higher. By examining the model in this manner, it was concluded that the truncation limit for this study is clearly sufficient to support cumulative effects analyses where component failure rates increase by large factors.

Table 4.2-1 provides a list of truncated components for CPSES systems. Some systems are not included because they do not contain truncated components. Reviewing the modeling insights as a whole, the following conclusions can be drawn:

- Truncated components are often in fourth order cutsets of systems that in turn are redundant to at least one other system, e.g., AFW redundant to CS and to SI
- Truncated components are sometimes instrument air related, e.g., components in AFW and main steam system boundaries that connect to instrument air. These components involve redundant check valves which must fail together with the entire air system to in turn fail a single air operator.
- Truncated components are often either not IST components or the IST function was not explicitly modeled because it was extremely low probability. Examples include normally open valves, such as MOVs and AOVs, that do not have to function for the system to perform its IST design basis functions. Another example is manual valves without remote position indication.

In conclusion, the CPSES model was prepared with avoiding truncation problems in mind. The use of the cutset results places the proper balance between ensuring all components are included and avoiding masking real contributors with large numbers of unrecovered cutsets. When evaluating the truncation limit from a mathematical perspective, the truncation seems sound. When considering directly the components that are truncated and the role they play in system operation, truncated components are clearly risk insignificant components even if one assumed that failure probabilities were increased by large magnitudes. Therefore, the CPSES cutset model is sufficiently robust to support ranking as well as evaluate increases in component failure probability.

4.2.2 Supercomponents, Human Events, and Initiators

Because there are several mechanisms by which the true importance of an IST component may be affected, the IST components that may be "masked" within supercomponents, human errors or initiating events were identified and accounted for in ranking IST components. Initiating events may include certain IST component failures, therefore the linking of the initiating event importance to CDF was examined to extract the role of an IST component from the safety-significant initiating event.

Supercomponents

Where groups of component failures were modularized (i.e., supercomponents or segments) and treated as basic events in the IPE analyses, such as pumps and certain associated valves, the IPE was reviewed to identify any IST components included in such modules so that their importance could be evaluated. This was important in power block supercomponents for two reasons, first because of latent human error (discussed below), and second multiple IST components in one module. In general, these supercomponents were expanded to their basic events and importance were either calculated directly or were apportioned to the components within them.

Another use of the supercomponent was where a component such as the diesel generators, which is composed of multiple components, was modeled as a single supercomponent. A number of components in the diesel generator auxiliary systems were modeled in this way. In these cases, the importances of these sub-components were evaluated based on the ranking of the diesel generator and qualitative insights about risk ranking. For example, if a sub-component caused failure of the diesel, the subcomponent's RAW is the same as the diesel since they have the same functional impact.

Human Events

For most operator actions in the CPSES IPE, associated components were modeled explicitly. In selected recovery events, human error dominated the event. The associated IST component(s) failure was not explicitly modeled. These components were evaluated to determine effects on

IST component importance. Where operator recovery actions were modeled in the IPE and these enhance the importance of an IST component or introduce an IST component not explicitly modeled, this effect was considered and reflected in the IST component's ranking.

For the CPSES IPE, two sets of operator actions are important contributors. Both actions deal with the action to replenish and/or supply alternate sources of water. Specifically the Reactor Make-up and Demineralized Water systems are those required to function in support of these actions but were not always explicitly modeled in the IPE.

The importances of these systems and their components were determined based on the importance measure for the recovery and the configuration and redundancy of the equipment. Since the failure probability of the human is significantly higher than the failure probability of these highly reliable dual train systems, the hardware contribution to failure of the systems and their implied contribution to core damage frequency are small. The small hardware contribution guarantees a low FV. The redundancy provided by the systems, each with redundant trains, guarantees a low RAW even when intra-system common cause failures are considered.

Another example of human actions that could influence the importance of an IST components are those that deal with latent human errors associated with inadvertent alignment of power block components following test and maintenance. For these cases in the IPE, the error probability was assigned to the pump in the power block (this is also an example of a supercomponent issue). If the error probability were distributed to all the components in the block, the FV could increase for the other components in the block that were manipulated in the test. Because of its relatively high failure probability, the latent human error accounts for a significant portion of the FV for the power block. However, because the latent human error failure probability is a conservative screening value, when these screening values were reviewed in greater detail as part of the IPE study, the latent error failure probability was reduced at least one order of magnitude and therefore, any potential increase of FV from apportioning the latent error to all power block components would be commensurately decreased. Additionally, these components are normally tested and their operation verified following test and maintenance.

Evaluation of Initiators

The evaluation of accident initiators for IST purposes presents some unique considerations. Initiators generally deal with events at a system level rather than with mitigation functions at the IST component level. An evaluation was performed to determine if there are systems associated with these initiating events that require some additional component level evaluation beyond that already done. The process is not necessarily straight forward since risk measures for initiating events can be misleading since setting the event probability to one is not meaningful for frequencies.

For this study, it was determined that the conditional core damage probability (CCDP) is an appropriate measure of risk importance for an initiator. CCDP provides a measure of available defense in depth assuming the initiator has occurred. For initiators with a high CCDP, little mitigation capability remains. Therefore, component failures that can cause the initiator are probably important. To establish the criteria for the CCDP, consideration was given to plant programs for controlling plant trips. TU Electric uses INPO plant trip criteria of approximately once per year to control the performance of trip-critical systems. Using the INPO criteria assumes that once an initiator occurs at the rate of once per year, significant efforts will be made to significantly reduce the likelihood of plant trips within that system. Since the CPSES IPE core damage frequency is about 5 E-05, once per year implies a CCDP of 5 E-05. This value serves as a quantitative measure for initiator insights.

The systems with high conditional core damage probability (CCDP), i.e., those with CCDP greater than 5.0E-05, are the Reactor Coolant system, Station Service Water system, and the Component Cooling Water system. These high CCDP systems can be characterized as sources of LOCAs and Interfacing Systems LOCAs for the RCS and special or common cause initiators for the Station Service Water and Component Cooling Water systems. This quantitative insight matches the qualitative insight that both the RCS pressure boundary and systems that both cause trips and mitigate them are important. In this regard, it was noted that Safety Chilled Water is a system that meets the qualitative definition of initiator importance but not the quantitative one. To be conservative, this system was added to the list of important initiators.

Certain components and sub-systems can be associated with special initiating events that have a high conditional core damage probability. Examples of such components are those associated with Interfacing Systems LOCA. For these systems, the IST components were examined in considerable detail. For these special initiators, the cumulative effects of increasing the test frequencies of IST components on both the initiating event frequency and the CCDP were evaluated. Table 4.2-2 shows the initiators and the associated initiating event frequency and the CCDP.

IST components that are important to core damage mitigation subsequent to a plant trip and also to initiating event frequency for initiators with high CCDPs are typically ranked high due to their core damage mitigation function. This was judged to be the case for the Component Cooling Water system, the Station Service Water system and the Safety Chilled Water system.

The initiators are typically represented in the IPE model as point estimates at the system level derived from reliable data sources. However, for the three special initiator systems, namely the Component Cooling Water system, Safety Chilled Water system and the Station Service Water system, system fault trees were used to determine initiating event frequencies for loss of these systems. As noted above, the IST components that are important to core damage frequency are also contributors to initiating event frequency and are typically ranked high. The potential effect of proposed interval changes increasing the failure rates of other system components was evaluated for the initiating event frequencies and determined to be low. Because these three systems cumulatively contribute less than 6 percent to total CDF, the small change in initiating event frequency (due to the relatively small number of components affected) ensures that the cumulative effects on the CDF and LERF due to IST test interval changes is insignificant.

In general, this evaluation concluded that those components of systems that are associated both with initiators and with significant mitigating functions are important for both, and have been adequately treated in the IPE importance rankings based on mitigation. These initiator systems are characterized by a high CCDP. The other systems associated with initiators are not used for mitigation, have low CCDPs and have been appropriately ranked. Any evaluations of the increase in event frequencies due to component failures in these systems is best considered as they are now in other evaluation programs, such as the Maintenance Rule or trip reduction programs, and not by requirements in the IST plan.

4.2.3 Common Cause Failures

In a large system such as a nuclear power plant, most but not all component failures can be assumed to be independent of one another. Common cause failure events are defined as a subset of dependent events in which two or more component fault states exist at the same time, or in a short time interval, and are a direct result of a shared cause. Multiple component failures due to a single shared cause are clearly an important hazard in complex, highly redundant systems such as a nuclear power plant. For a realistic estimate of risk (CDF or LERF), they merit careful analysis.

There are many models for common cause failures. In general, the probabilities of two, three, or more component failures are assumed to be some function of the failure rate for a single component. Since they have a shared cause, the probability of two component failures is somewhat smaller than that for a single failure but if they occur in two redundant trains, the consequences would be much more serious.

The CPSES IPE followed the EPRI/NRC approved guidelines for treating common cause failure. Therefore, the FV and RAW importances reported in section 4.1.1 for individual components reflect their potential for common cause failures. In order to gauge the influence of common cause failures on a component's relative importance, the importance measures were recalculated without common cause failure effects. As presented in Table 4.2-3, the importance measures for many components were lower without consideration of common cause failures. The importance values for all components both with and without common cause failures were provided to the expert panel. In each case, the panel felt that all the components that were high solely due to common cause failure should be ranked high regardless of common cause failure.

4.2.4 IPE Data Sources

For the IPE and the IPEEE evaluations, a comprehensive data analysis was done to develop the CPSES IPE Generic Database. This analysis relied heavily of the work of Pickard, Lowe and Garrick, Inc. (PLG) for both a consistent methodology and a comprehensive database. The PLG data is generally recognized as being among the most comprehensive, complete, and accepted data bases for use in probabilistic safety analysis work. The PLG methodology and database were used to determine initiating event frequencies, component failure data, common cause failure data, and portions of the maintenance unavailability data. The maintenance data is restricted to operating and/or hot shutdown conditions. Separate calculations were used to develop human reliability data and other maintenance unavailability data.

The component failure data for the CPSES IPE was generally based on the generic data since not enough plant operating data was available at the time of the IPE project on which to base adjustments. However, the maintenance data does reflect considerable plant specific information. Surveillance and test intervals and preventive maintenance frequencies and durations are based on the plant procedures in place at the time of the IPE freeze date. For a typical IST system, a component was considered unavailable due to testing or maintenance if the component is required to be functional if the system is demanded during the test or maintenance and the function of the component is unavailable during the test or maintenance activity. Further, the maintenance duration is based on a combination of generic and plant-specific data. The frequency of corrective maintenance activities is based on generic data, while typically the durations of these activities are based on component-specific technical specification allowed outage times, adjusted for generic data. Some initiating events, such as loss of HVAC, loss of service water, or loss of component cooling water, were quantified based on evaluations of the system fault trees using a combination of generic and plant-specific data as discussed above.

4.2.5 Sensitivity Studies

This task included performing sensitivity analyses to confirm the ranking results using NUMARC 93-01 and 93-05 importance measures. Sensitivity studies were performed to test certain assumptions that might be significant to the importance ranking results.

Risk Measures for Components Taken Two at a Time

To further test the sensitivity of the results, risk importance measures, RAW and FV, were calculated assuming two components fail at the same time. This sensitivity study measure provides insight into the potential for intersystem common cause failure in a risk-based IST plan. In general, the IPE considered only intra-system common cause failures.

The sensitivity study was performed for low components. High components were not evaluated. Each low component in the cutset model was evaluated in conjunction with the other low components. In every case, FV measures remained low, i.e., below 1E-3, even given two component failures. For this reason, RAW was evaluated for important insights.

The calculation performed for the RAW identified a large number of combinations with RAWs greater than 2. However, most of these cases involved at least one component whose individual RAW was greater than 2. For this reason, it was necessary to evaluate the results from the perspective of a change in RAW rather than a total RAW.

The RAW of two events can be approximated by RAW2 = RAWA + RAWB -1. That is, the increase in risk, RAWB-1, is the contribution from the second event. This approximation was discovered in the review of component results involving more than one basic event. This relationship is true only if the events are neither under the same AND gate nor do they create some synergistic risk condition. In the first case, the RAW will be less than the approximation. For example, two components in the same train (segment or module for the CPSES IPE) will have the same functional impact resulting in RAW2 = RAWA = RAWB. These cases are of little concern.

The case of concern is the synergistic effect. Component combinations whose RAW is greater than the approximation are the ones of concern. Therefore, for each combination of low components, the RAW was calculated directly from the cutsets and from it, the RAW based on the approximation was subtracted. This indicator identified the RAW contribution to the synergistic risk effect. In performing this calculation, a number of component combinations yielded high RAW values. When these combinations were evaluated, the results indicated that combinations each included one of four components. That is, four components when combined with other components frequently yielded high RAWs.

These four components were considered to have high RAW sensitivity to components taken two at a time. Of the four components, two had high individual RAWs, namely 1CC-0031 and 1-8481B. (The sister valves to these, namely 1CC-0061 and 1-8481A, were assigned high RAW based on the symmetry evaluation and thus, they were also assumed to have high RAW sensitivity to components taken two at a time. With these additions, there are six valves that have high RAW sensitivity fo components taken two at a time.) For the remaining two components with low individual RAWs, it was decided to require compensatory measures, i.e., to treat them as if they had high individual RAW values. The two components were valves 1-8922A and 1-8922B. These valves are the discharge check valves for the SI pumps. Since the four valves all were discharge check valves on pumps in Component Cooling Water, Safety Injection, and Chemical and Volume Control systems, this risk measure appears to be giving a consistent result. Further, since these three systems also all had elevated importance for fire and large early releases, the sensitivity study seems to confirm a pattern of underlying importance for selected components in these systems despite the fact that they did not meet the original importance thresholds.

A similar RAW evaluation was performed for components taken three at a time. Components were selected from the Component Cooling Water, Safety Injection, and Chemical and Volume Control systems. The components were selected because they were ranked low and had no compensatory measures applied. Since the focus of the sensitivity study was inter-system common cause failure, in general, the combinations included one component from each system. (The inter-system common cause failure evaluations already performed would have measured the importance of the three components in a single system.) The cases evaluated consistently indicated no sensitivity using the RAW measure. That is, no synergistic effect was found as it was for the two-at-a-time case. Hence, no change in ranking or consideration of compensatory measures was required.

<u>Component Importance to Human Error Values</u>

The risk rankings, FV and RAW, were re-quantified without any human recovery actions to determine if the results were overly or uniquely sensitive to human error values. This was done with the following cases being run:

- case 1 - set both recovery actions and dynamic actions to 1
- case 2 - set recovery actions only to 1
- case 3 - set dynamic actions only to 1

All the dynamic and recovery actions were identified and listed to a separate file. These are the human recovery actions (HRAs) in the cutsets in the IST model and not all the HRAs that were developed for the IPE. From this listing, two separate lists were developed, one for dynamic actions and one for recovery actions. For this purpose a dynamic action was defined as an operator action performed in the ordinary course of controlling a system; a recovery was defined as an operator action performed to restore failed equipment or functions. This is somewhat subjective. Basic event (BE) reports with the importances for each of the cases were developed. The BE reports for the cases had importances for the modules and for a few individual BEs. It was necessary to partition the importances (done only for Fussell-Vesely) to the components in the modules. This was done by using the component-to-module ratios developed for the fire-IST work. The resulting file was then reduced to include only pumps and valves. The components were then sorted according to FV and the resulting values compared to the values determined previously, i.e., including recoveries.

The results indicate that there is no increase in risk ranking category compared to the IPE/IST risk rankings. In other words, human recovery/dynamic actions did not mask the importance of any IST components.

4.3 Analysis of Cumulative Effects from Possible Increases in IST interval

The purpose of this analysis was to evaluate the potential impact of various test intervals for less safety-significant components (LSSCs) on total plant risk (i.e., total core damage frequency). This analysis was only performed for those IST components that were determined to be in the less safety-significant category.

A risk ranking approach based on importance measures such as was used in this project does not necessarily guarantee that acceptable levels of risk will result. Risk importance measures are based on changes to components one at a time. Changes to many components simultaneously may cause unintended increases in risk despite meeting the conservative risk ranking measures selected.

An analysis was performed to determine the potential risk impact of increasing in-service testing intervals simultaneously on all less risk significant components. Consideration was given to available information on how changes in test intervals will change component unreliability. Uncertainty in this information, together with the complexity required to model such an approach, dictated the use of a number of conservative assumptions:

- It was assumed that any increase in test intervals would simultaneously impact the reliability of all IST components in the less safety-significant (LSS) category.

- The component unavailability was assumed to be:

  $Q = \lambda_{OD} + \lambda(T/2)$

  Q = total component unavailability

Where: λ_{OD} = Component unavailability on demand

λ = Component failure rate per hour

T = Interval between tests that verify operability of the component

- The component unavailability was assumed to increase by the same factor as the increase in the test interval. For example, a change in the test interval from quarterly to semi-annually would increase the total component unavailability by a factor of two. This is a very conservative assumption because it assumes that not only the $\lambda(T/2)$ term would be increased by a factor of two, but also the failure on demand term (λ_{OD}) would be increased by the same factor. In other words, the (λ_{OD}) term is assumed to be directly impacted by the change in the test interval.

- Decrease in wearout due to less frequent testing was assumed to be negligible although frequent testing has been seen to cause components to be less available due to wearout.

- Component unavailable hours due to testing were not adjusted for change in the test interval. If a component is tested less frequently, the component unavailability due to testing should also be reduced. However, the component unavailabilities due to testing were kept at the higher value in this analysis.

- It was conservatively assumed that all IST tests are completely effective in finding the causes of component unavailabilities.

Despite the use of these conservative assumptions, calculations indicate that test intervals could be increased from quarterly to six years or more with acceptable increases in risk. If consideration is given to improvements in performance that are possible to occur from a risk-based IST program, it is plausible that core damage risk may not increase at all. These calculations are discussed below.

Eight cases were included in this analysis. The unavailabilities of the IST components in the low-risk category were increased by factors of 2, 3, 5, 10, 20, 30, 40 and 100. These factors correspond to changes of the test interval from the current quarterly test interval to a new test interval ranging from semi-annual to 25 years. For each case, the IPE cutset results were requantified using the adjusted component unavailabilities due to assumed test intervals. The new total core-damage frequency for each case was then obtained. In addition, component risk importances were recalculated for selected cases. Two groups of IST components were evaluated:

Group 1: Low FV, high RAW with credit taken for compensatory measures identified by the expert panel (i.e., other surveillance tests on the same piece of equipment).

Group 2: Low FV, low RAW with no credit taken for compensatory measures because this category implies that increases in component unavailabilities are not expected to impact risk significantly.

Two sensitivity studies were conducted. The first one assumed that no other compensatory measures exist and, therefore, all IST components in Groups 1 & 2 would experience higher unavailabilities according to their corresponding test intervals. The second sensitivity study assumed that Group 1 (low FV, high RAW) would experience no increase in unavailability because other compensatory measures were available. In the second study, Group 2 (low FV, low RAW) would still experience increased unavailabilities.

Figure 4-4 presents the results of the first sensitivity study. This figure shows the CDF and percent CDF increase for Group 1 & 2 components. The results indicate that even with a factor of 100 increase, which is equivalent to virtually no further in-service testing, the CDF increases by only about sixty-six percent.

Figure 4-5 presents the results for the second sensitivity study, which assumes that the compensatory programs are as effective as an IST program. The risk increase is about 6 percent for a factor of 100 increase in component unavailability.

Figure 4-6 presents the results of the first sensitivity study except for large early release frequency (LERF) instead of CDF. The results indicate that even with a factor of 100 increase, which is equivalent to virtually no further in-service testing, the LERF increases by only about seventy percent.

Figure 4-7 presents the results for the second sensitivity study, but again using LERF. This sensitivity assumes that the compensatory programs are as effective as an IST program. The risk increase is less than 17 percent for a factor of 100 increase in component unavailability.

Based on these results, it was concluded that both the CDF and LERF risk increases are much less than any reasonable acceptance criteria for classifying something as safety neutral. These conclusions hold even with the very conservative set of assumptions about the impact of testing on component unavailability.

First, the increases are much less than the uncertainty in the original estimate even when worst case uncertainties are considered in this evaluation. That is, the increase is less than a factor of two when very conservative assumptions are used and testing is in effect considered to be eliminated, i.e., quarterly testing increased to 25 years.

Second, the EPRI PSA Applications Guide criteria for cumulative effects are satisfied by these calculations. Using the CPSES baseline CDF and Figure 4-1 in the EPRI PSA Applications Guide indicates that approximately a 13% increase in CDF is acceptable for a permanent charge without considering further evaluation. This criteria is met for the second sensitivity study for a factor of 100 increase, i.e., when compensatory measures are credited. For the first sensitivity study, a 13% increase occurs at a factor increase of about 24. Hence, the desired extension to 6 years (i.e., a factor of 24 for quarterly tested components) is considered acceptable even with these assumptions.

Using the CPSES baseline LERF and Figure 4-2 in the Guide indicates that approximately a 37% increase in LERF is acceptable for a permanent change without considering further evaluation. Again, this criteria is met for the second sensitivity study for a factor of 100 increase, i.e., when compensatory measures are credited. For the first sensitivity study, a 37% increase occurs well beyond a factor increase of 40. Hence, once again the desired extension to 6 years is considered acceptable even with these assumptions.

Further, examination of the results provides additional insight. The increase in CDF versus various test interval factors shows a small but linear increase until the factor reaches a value somewhere below 100 for CDF. For LERF, the non-linearity begins to be perceptible earlier. (Please note that the scale in the graph appears to overemphasize this point, i.e., individual sensitivity calculations are separated equally rather than by an amount proportional to the factor.)

After a point then, the percentage increase grows faster than the factor. The results in this region of the graph become non-linear with the percent CDF increasing faster than the factor increase. This behavior indicates that accident scenarios involving more than one low risk-significant component are becoming risk significant. It is expected that the non-linearity will grow rapidly for factors beyond 100. The results suggest that a factor of 40 increase in test interval may be more prudent than 100 since the risk becomes more non-linear beyond a factor of 40.

When these results were examined in more detail, it was found that check valve unavailability is much more important than other component types. This result reflects the fact that check valves are ranked low more often because of their unavailability rather than their function. Hence, as a component unavailability increases, check valves will become more important. This results supports the application of compensatory measures which is in turn reflected in the results of the sensitivity studies.

The last step in evaluating the sensitivity study results involved examining component importance measures assuming factor increases in unavailabilities. If check valve unavailability increased by a factor of thirty, many of the originally low ranked check valves would then have medium rankings. That is, for a new IST plan with increased test intervals, some more valves might become more risk significant. However, their importance would be in balance with the other components tested more frequently. In this sense, the IST program would be optimized.

It is important to note that many valves would still have very low rankings, even with substantial factor increases. These valves include those that were truncated from the IPE cutsets and those not modeled in the original IPE. Both were shown to be very low risk contributors, generally requiring a large number of components to fail simultaneously just to fail a single system.

The results of this analysis indicate that the risk increase is acceptable even with the very conservative assumptions used in the study. The total risk may in fact decrease for one of two reasons. First, high ranked valves not in the IST program are being considered for increased testing. The total importance of these few high ranked components is greater than the total importance of all the low ranked components. If improved testing, i.e., the addition of selected in-service tests, eventually improves the reliability of these components in an amount comparable to possible reductions in reliability caused by increased intervals, total risk would decrease.

Second, the overall IST program may become more efficient by focusing on the more important components. Each of those important components are represented more than once in nearly all of the cutsets containing pumps and valves. A small improvement in the unavailabilities of important components would likely translate into a corresponding reduction in risk. This reduction in risk is probably larger than the increase that might result from increased test intervals since it is expected that the risk increase would be even less than the amounts calculated here.

In conclusion, modifying the test frequencies of the IST components in the low safety significance category to every 6 years is reasonable and at worst would result in an insignificant increase in total plant risk. By every indication from both engineering judgment and risk insights, the selected test interval increase for less safety significant components is prudent and the overall change to the IST program is believed to be safety neutral.

FIG 4-4. Change in Core Damage Frequency versus Factor Change in Equipment Unavailability (Compensatory Measures not Credited)

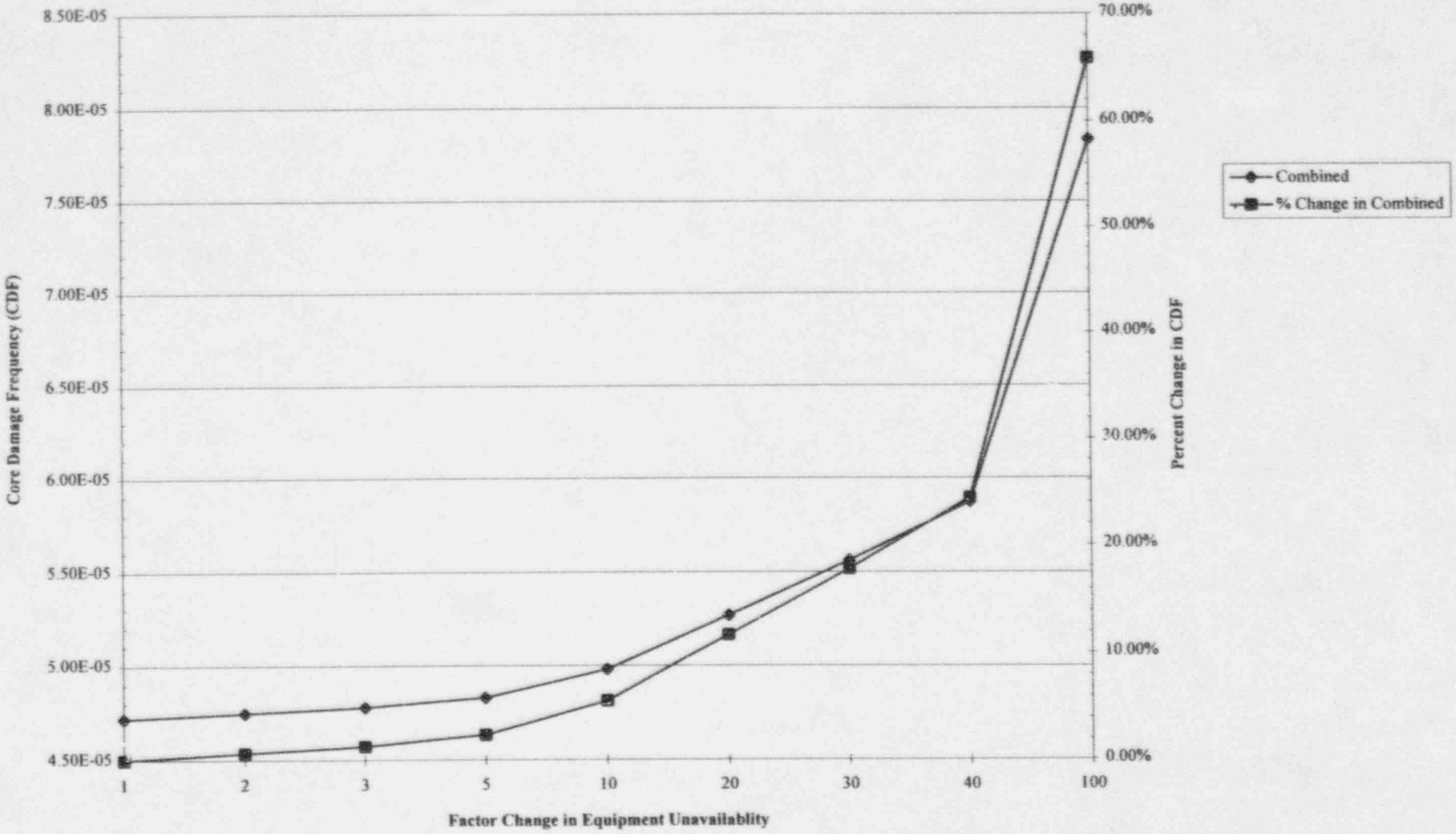


FIG 4-5. Change in Core Damage Frequency versus Factor Change in Equipment Unavailability
(Compensatory Measures Credited)

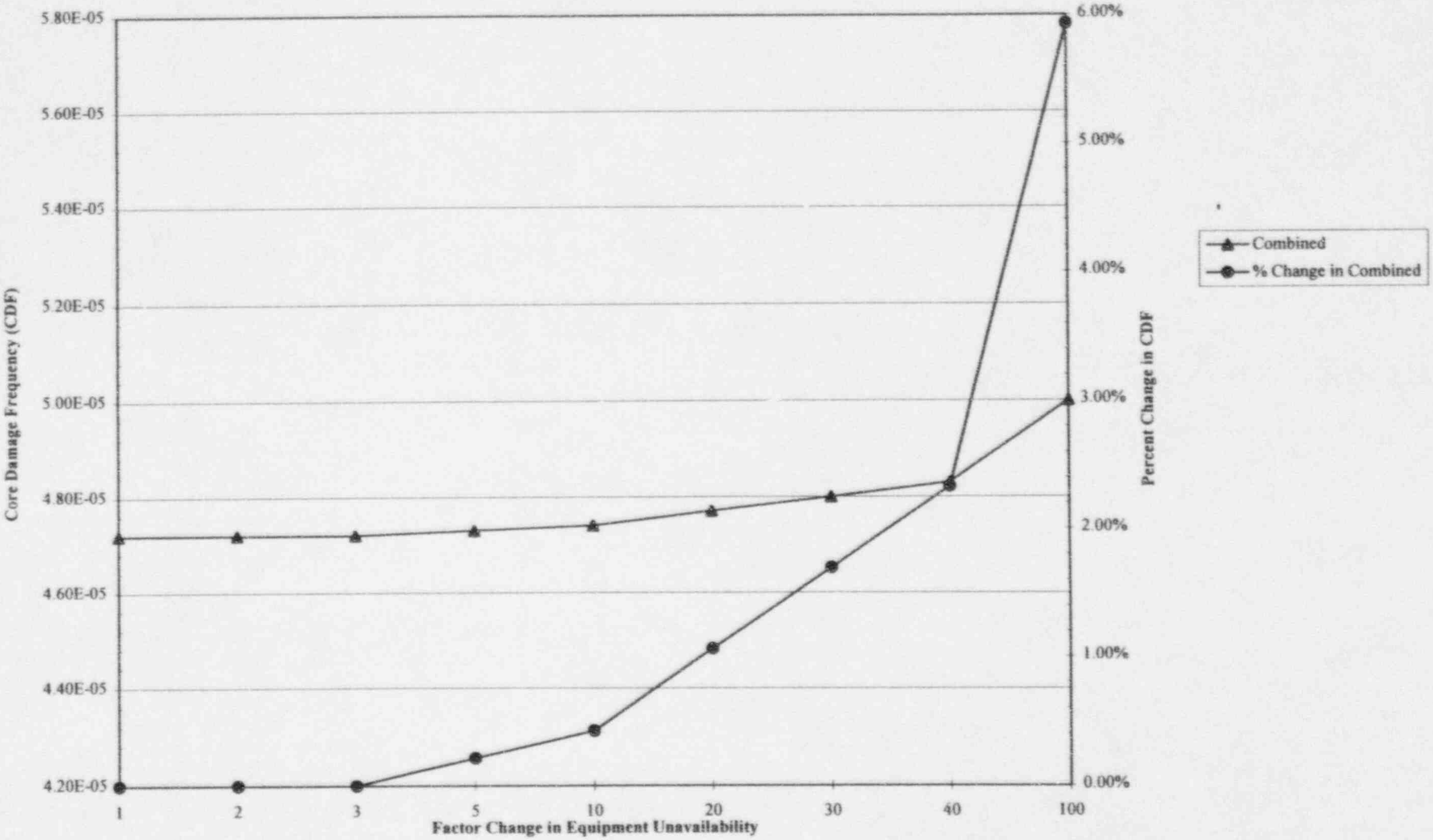


FIG 4-6. Change in Large Early Release Frequency versus Factor Change in Equipment Unavailability (Compensatory Measures not Credited)

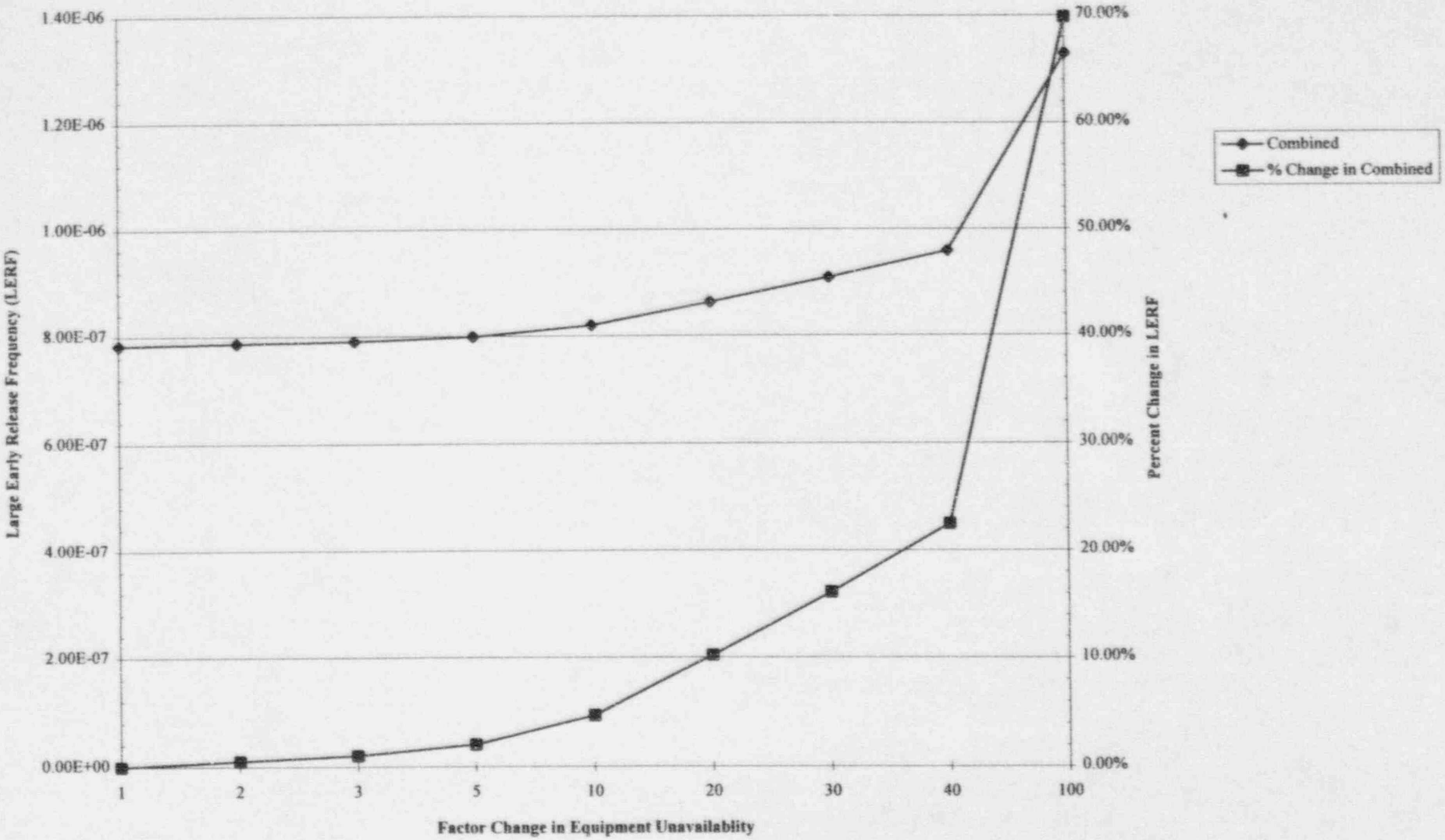
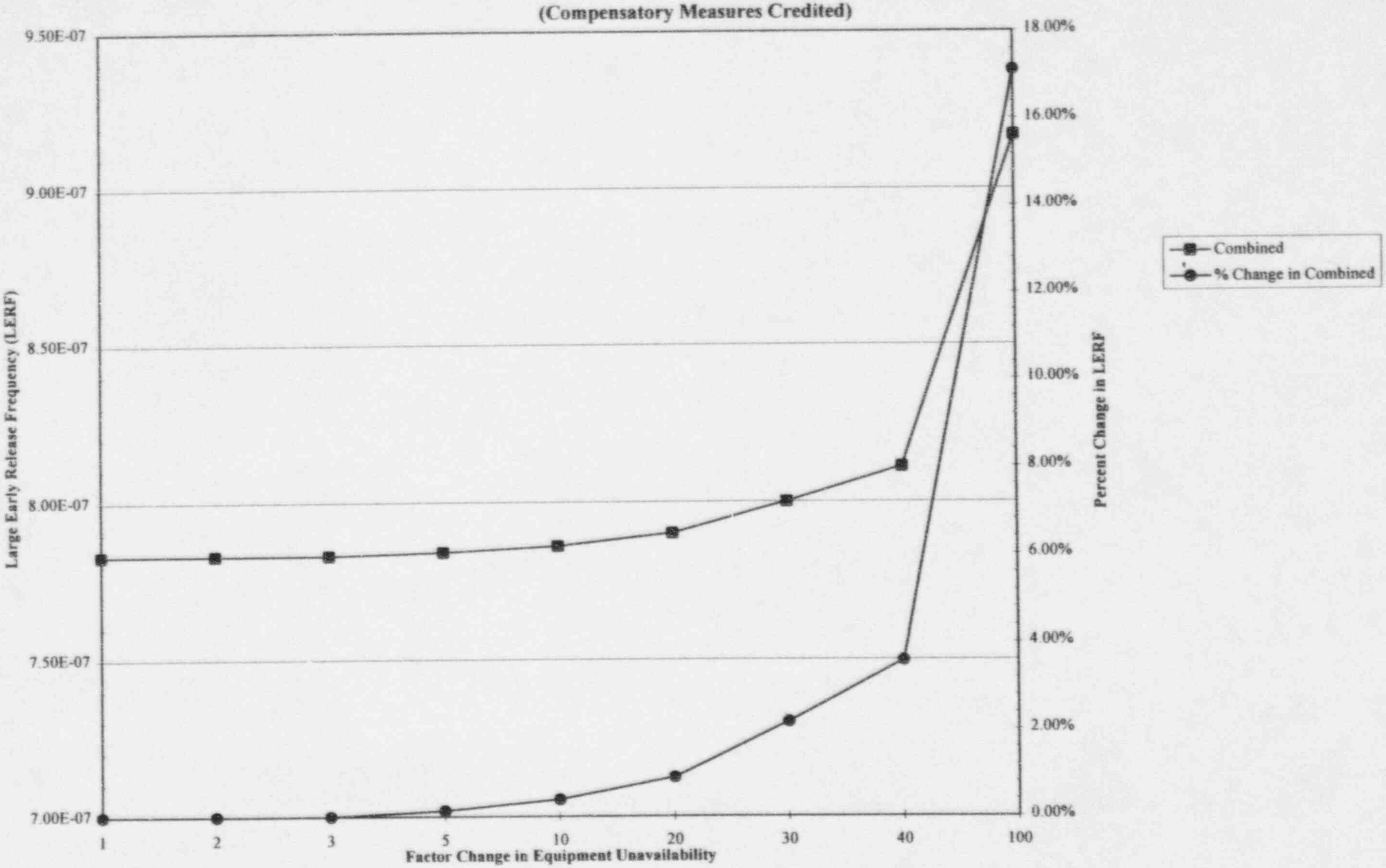


FIG 4-7. Large Early Release Frequency versus Factor Change in Equipment Unavailability (Compensatory Measures Credited)



4.4 Expert Panel

The expert panel (EP) process for the CPSES Risk-Based IST Program had the distinct advantage of occurring after much experience regarding the operation of such a panel had been gained by both the industry and TU Electric. Most of the experience had been gained through the Maintenance Rule (MR) process. Industry-wide lessons learned from that project that influenced the TU process included:

- variations in emphasis and interest among panels at different plants which in turn lead to concerns about reproducibility of the results,
- significant use of the panel for specific technical bases, e.g., ranking for outage conditions or containment performance, which in turn lead to much dependence on the panel for documentation to ensure the process was scrutable,
- significant variations in the types of technical bases available, e.g., quantitative IPEs versus qualitative or no external event analyses, which made it difficult for the panel to employ a systematic decision process, and
- variations in scope of the panels activities, varying from ranking only to ranking application of it, the former of which requiring more assumptions by the panel about how the ranking results would be used.

Because the EP process was important to ensure limitations of the PRA are addressed and because it is so crucial to obtaining ownership from the plant and NRC staff, the CPSES project goal was to overcome these aforementioned potential pitfalls.

Fortunately, a number of positive developments were occurring both at TU Electric and in the industry to help facilitating this goal. First, TU Electric has recently completed its CPSES IPEEE submittal for external events and it has begun a risk management program for outages. Also, EPRI has initiated is risk and reliability workstation program that has provided TU Electric with tools for ease in calculation and interpretation of risk importance measures and for performing sensitivity studied to test their robustness.

Lastly, the industry began to move forward on applications of PRA beyond the MR. These applications ranged from graded quality assurance, often implemented as a broader form of risk ranking than IST, and graded MOV testing, which in many ways is more limited scope that IST. As a result of these initiatives, NUMARC 93-05 for MOV testing, NEI's guidelines for the graded QA pilot project, and the EPRI PSA Applications Guide were developed. These initiative lead to dialogue between the NRC staff and the industry which provided valuable insight to the CPSES program on the expert panel process.

Goals and Objective for Expert Panel Process

Two goals of the CPSES project paid significant dividends during the expert panel process. One goal was to make ranking results more understandable. That is, it was desireable to take a process which was time consuming for PRA practitioners but made it more understandable for others such as expert panel members. By improving the understanding of the expert panel, it was felt that the process would be more scrutable and reproducible and the limitations of PRA would be better reflected in the final ranking results. Another project goal was to "merge" the design basis and the PRA information and insights into a single integrated framework. By more clearly describing what was in both "models" and what was only in one of the two, it was felt that the process would be improved and, because of improved consistency in the models, the process could be more systematic.

The specific objectives of the expert panel process were to be scrutable, reproducible, and systematic. Additionally, it was decided that the scope of the EP activities, would be both determining and applying the ranking. These objective follow directly from the lessons learned discussed earlier.

Role of Expert Panel

The following describes the role of the expert panel in terms of its structure and makeup, scope and process for decision-making. As described earlier, the expert panel acted in concert with a Steering Committee which in turn coordinated with other industry activities such as the ASME research program and the WOG check valve program. The expert panel was drawn almost entirely from the Maintenance Rule (MR) expert panel. Two individuals familiar with CPSES codes and standards and in-service testing program were added to ensure IST related issues could be discussed and evaluated in detail. The EP chairperson was the chairperson of the MR expert panel and had a background of technical experience as well as project management skills in order to be able to facilitate the discussion and obtain end results. The membership qualification for the EP members consisted of a mixture of education and work experience. The required functional disciplines for the panel are:

- Codes and Standards
- Operations with a Senior Reactor Operator license
- Maintenance Engineering
- System Engineering/In-Service Test Engineering
- Probabilistic Risk Assessment
- Design Engineering

The minimal education and experience requirements for panel members were a BS in an engineering discipline and eight years in nuclear power. The operations representative currently holds a USNRC Senior Reactor Operator License and has held it for at least two years. The minimum quorum necessary for the EP to conduct business was four (4) members consisting of the representatives from Operations, Probabilistic Risk Assessment, System Engineering/In-Service Test Engineering, and Codes and Standards.

It was also decided that the panel would be living and it would participate in periodic updates to the ranking whenever the IPE study is updated.

The scope of the expert panel activities included both risk ranking and application of it. For risk ranking, four types of data were considered in various roles by the panel. The panel's principal responsibility was to provide deterministic insights which might influence ranking. Its second responsibility was to identify cases where a component's poor performance justified changing its ranking from low to high. The panel of course played an important role in evaluating risk ranking information. However, the panel did not play a significant role in reviewing sensitivity calculations. While the panel was made aware of these calculations and the EP chairman was familiar with them in detail, the panel did not independently review or question these results. The reason for this was that the sensitivity calculations were often of a specialty nature. However, if the sensitivity sfudies provided different insights that would impact the expert panel's ranking results, they would be discussed with the EP in detail.

Basically, the panel participated in validating the component level ranking. The panel had previously approved the system level ranking during the MR process and re-validated the results at the beginning of this project. The panel also played a significant role in determining the appropriate changes to test frequencies. The panel identified compensatory measures for potentially important components, selected the test interval for less-safety significant components , and determined the test strategies for more-safety significant components not currently in the IST program. This latter step is still ongoing. The criteria for decision making were reviewed and/or adjusted by the expert panel.

The Ranking Process

To prepare for the expert panel review, the risk ranking team developed a set of simplified P&IDs for all the systems modeled in the IPE. The IPE risk category results, component tag numbers, and the locations of the components in the systems were all shown on the simplified diagrams. Using this information and the design basis functions addressed by IST as documented in the IST plan, the panel reviewed and validated or adjusted the ranking results.

PRA results were used to provide insights to start the ranking process. Three categories of components were input to the panel:

- high-risk significant
- low-risk significant
- not-modeled

These results were considered with their associated limitations, and used together with sources of deterministic information and operating experience insights that the EP felt were appropriate. The deterministic sources included the IST plan information which contained component functions from the design basis documents and references to relevant plant licensing commitments for IST. Occasionally, design issues generic to Westinghouse plants were discussed by the cognizant EP member. Plant procedures were used when considering operator actions not modeled in the IPE and in identifying tests that could serve as compensatory actions. The operating experience insights used to complement the validated generic database upon which the IPE study is based included plant-specific experience for both functional failures and in-service testing performance and Westinghouse plant experience for selected rare events, e.g., thermal barrier heat exchanger rupture events.

The panel considered a range of limitations in the IPE, examples of which are described below:

- Because the IPE assumed the reverse flow failure mode could not occur, the panel evaluated the importance of reverse flow in each check valves and in one case elevated an unmolded mini-flow valve to high because it might degrade the performance of more than one pump.

- To address the sensitivity of the results to common cause failures, the panel evaluated the risk ranking measures two ways, one assuming all CCF importance assigned to the associated basic event and one assuming none.

- To evaluate the sensitivity due to human action modeling, the panel noted that sensitivity studies had shown the ranking to be unchanged. In addition, the panel occasionally identified operator actions omitted by the IPE. These actions were omitted recovery actions not credited because they were not important to the CDF.

- To ensure that assumed alignments of systems in the IPE did not affect the ranking, the panel checked similar components in the system assigned the higher ranking.

- To compensate for use of generic data, the panel considered plant specific performance for each low ranked component. For those that were potentially high, the panel ensured that other compensatory measures were available to maintain the reliability of the component.

- To ensure that safety margins were maintained, the panel retained in-service tests of some check valves that had experienced failures that caused plant entry into LCO conditions.

In summary, to blend deterministic and probabilistic information, the panel deliberated on the limitations of IPE when it applied and made use of both plant-specific and generic information and industry operating experience.

During the review of the risk categories for components modeled in the IPE, the panel performed the following tasks:

- locate the component on the simplified P&ID,
- review the IPE modeled function, i.e., component failure mode and accident scenario,
- determine if that function is an IST function,
- if not, the result was documented, but the IST function was evaluated with the not modeled components,
- identify similar components and validate the consistency of ranking,
- understand the ranking in the context of other components in the flowpath, train, or system,
- determine, if practical that whether or not mitigating operator actions were included in the IPE,
- validate or change the IPE-based ranking, as appropriate

- if the validated IPE ranking was high, the component was ranked high,

- if the IPE ranking was low, the other previously mentioned factors were checked to validate the ranking, e.g., the operating performance of the component.

All the high-risk components not in the IST program were confirmed by the expert panel. In general, the importance of instrument air and the decay heat removal related portions of main steam were the principal focus of the panel's considerations. Evaluations were performed to determine how to use existing in-service testing techniques most effectively to address the more safety significant failure modes modeled in the IPE. The following three questions were normally asked for these evaluations:

- Does in-service testing apply to the failure modes that are risk significant?

- What testing is currently being done?

- Does ranking justify an improvement in testing to an IST-type testing program?

For IST components or IST functions not modeled in the IPE, the same systematic approach was taken as for modeled components. In this case, a qualitative ranking process was used that was based upon the insights from the IPE ranking. That is, based on the type of component, the function it performed, and the effect of its failure on the system, the component was ranked as high, potentially high or low. The criteria used is similar to the one described for outage risk in section 4.

Once the IPE evaluation was completed, other sources of risk were considered. Because the containment performance analysis, IPEEE study and risk management models for outage mode were developed in sufficient detail for CPSES, risk ranking evaluations due to these factors were performed in much the same systematic manner. The principal difference was that the evaluation focused on low ranked IPE components whose ranking could increase to high due to other risk factors. That is, not each and every component was separately evaluated by the expert panel, but rather only the ones which had increased were evaluated.

The panel also reviewed the sensitivity of the component rankings to common cause failures.

Many of these components were valves in the lower half of the FV medium category (i.e., from 0.005 to 0.001). The panel felt that these were important components and that they should be retained as is in the IST program.

It is worthwhile to note that the panel addressed the containment performance in some detail as it had for the MR evaluation. In particular, the panel reviewed components important to certain steam generator tube rupture scenarios. While these components were ranked low, the ranking was based, in part, on the PSA Application Guide definition of large, early releases. Because this was an important assumption to the risk significance determination, the panel required compensatory measures for containment isolation components important to these scenarios. As described in section 4, these scenarios have the possibility of causing a large, but late release.

The results of the expert panel review and determination of risk ranking are provided in Tables 4.4-1, 4.4-2 and 4.4-2a. Table 4.4-1 provides the minutes of the expert panel deliberations on a system basis. This table includes components in systems modeled in the IPE that are in the IST program. The table shows the panel's disposition of the components and includes information regarding compensatory actions.

Table 4.4-2 provides a similar rendering of the disposition of components by the expert panel in the IST that are not explicitly modeled in the IPE. These components are also shown on a system basis. Table 4.4-2a provides the expert panel disposition of the high risk IPE components that are not included in the IST. This evaluation is discussed in detail in section 4.1.6.

Testing Requirements

The panel considered testing requirements for three levels of ranking, namely high, potentially high, and low.

For high ranked components in the IST, the panel decided to maintain all in-service testing as is, regardless of whether some failure modes (and therefore some tests) were not risk significant. This conservative approach was adopted for ease of implementation and administrative consistency. For low ranked components in the IST, the panel discussed the technical basis for extending test intervals and yet maintaining plant safety. In addition, the panel considered implementation insues associated with particular test intervals. The panel concluded that, generally, a staggered test implementation over 6 years would be the best implementation strategy.

In the event that the panel found a component to be potentially high (low FV, but high RAW), the panel selected a compensatory measure to ensure that component functionality would still be evaluated on a regular basis by other plant programs. Because pumps were often ranked high and potentially high components were often in the flow path for the IST pump test, the quarterly pump test was often found to be an effective compensatory measure for suction and discharge check valves. Potentially high MOVs were often "tested" by other technical specification requirements, namely slave relay test.

<u>Summary</u>

The expert panel process was judged to meet its objectives of being scrutable, reproducible and systematic as much as technically achievable. The process was scrutable because the panel was provided simplified P&IDs which clearly documented the ranking. It is scrutable to others because written technical bases were provided to the panel and detailed expert panel notes were developed.

The process was believed to be reproducible by another panel of similar technical knowledge because of the availability of detailed technical bases for all sources of risk and the use of consistent ranking criteria for modeled and unmodeled components. Also, many of the other limitations that could affect the IPE results, such as components masked by supercomponents and initiators, were rectified by the PRA team before presentation to the expert panel.

Finally, the process was believed to be systematic. A similar process was applied for all sources of risk as well as for unmodeled components. For each component, a systematic means of evaluating the risk insights was performed and a consistent set of criteria was used.

5.0 SUMMARY OF RESULTS AND CONCLUSIONS

In this study, all components within the scope of the IST program were examined. In all, a total of 687 components were examined and ranked as either High-more safety significant or Low-less safety significant. Of this total, 654 valves were evaluated, 117 (17.9%) of which were ranked high and 537 (82.1%) of which were ranked low. Thirty-three (33) pumps were evaluated, 21 (63.6%) of which were ranked high and 12 (36.4%) of which were ranked low. Of the total components, 375 (54.6%) were modeled in the IPE and 312 (45.4%) were in IST only, most (285) of the latter being low ranked valves. Only those determined to be less safety significant (low) will be considered for a code exemption.

Table 5-1 lists all the components by tag number that were examined in this evaluation. This table shows the entire spectrum of the review and the results of the expert panel evaluations. The risk ranking process was concluded to be robust. It generated results that were consistent with deterministic insights from the expert panel and found to be safety neutral. The following spectrum of risk and deterministic insights demonstrates this conclusion:

- a spectrum of risk sources were considered, i.e., IPE, external *and* outage,
- multiple risk measures were considered, i.e., CDF *and* LERF,
- diverse importance measures were used, i.e., FV *and* RAW,
- sensitivity studies *consistently* demonstrated that the risk significant components had been identified,
- both IPE *and* IST functions were compared and evaluated and considered in an integrated manner, and
- both PRA *and* deterministic insights from the expert panel were incorporated into both the ranking results and the resulting IST plan.

The scope and level of detail of the results review by the expert panel, the emphasis placed on understanding why components were ranked high or low, the careful comparison of the IPE and the IST functions, and the sensitivity studies performed all demonstrated the technical adequacy of the IPE to serve as the basis for this and other risk based applications. The resulting risk based IST program is considered by the expert panel to have the appropriate changes (both increases as well as decreases in scope) and the appropriate checks and balances to ensure burden reduction can be achieved while maintaining or even improving plant safety.

The results of this analysis indicate that the risk increase associated with the proposed interval changes is acceptable even with the very conservative assumptions used in the study. The total risk may in fact decrease if the overall IST program becomes more efficient by focusing on the more important components. Each of the important components are represented more than once in nearly all of the cutsets containing pumps and valves. A small improvement in the unavailabilities of important components would likely translate into a corresponding reduction in risk. This reduction in risk is probably larger than the increase that might result from increased test intervals since it is expected that the risk increase would be even less than the amounts calculated here.

In conclusion, modifying the test frequencies of the IST components in the low safety significance category to every 6 years is reasonable and at worst would result in an insignificant increase in total plant risk. By every indication from both engineering judgment and risk insights, the selected test interval increase for less safety significant components is prudent and the overall change to the IST program is believed to be safety neutral.

6.0 TABLES

List of Tables

Table 4.1-1
Preliminary Importance Rankings of IST Components in the IPE

Raw Data W/Out Symmetry or Expert Panel Considerations

Sorted by Tag					
Component Tag Number	Component Description	Fussell-Vesely Importance Measure	Initial Risk Ranking Based On F-V	Risk Achievement Worth Importance Measure	Initial Risk Ranking Based On RAW
1-7136	Rcdt Pump Discharge Control Valve	n/a	Low	n/a	Low
1-8000A	Przr 1-01 Porv 0455A Blk Vlv	0.0028	Medium	1.3049	Low
1-8000B	Przr 1-01 Porv 0456 Blk Vlv	0.0110	High	2.6299	Potentially High
1-8010A	Przr 1-01 Sfty Vlv A	0.0057	Medium	3.8695	Potentially High
1-8010B	Przr 1-01 Sfty Vlv B	0.0057	Medium	3.8695	Potentially High
1-8010C	Przr 1-01 Sfty Vlv C	0.0057	Medium	3.8695	Potentially High
1-8100	U1 Rcp SI Wtr Ret Isol Vlv	n/a	Low	n/a	Low
1-8104	U1 Emer Borate Vlv	n/a	Low	n/a	Low
1-8105	U1 Chrg Pmp To RCS Cntmt Isol Vlv	0.0002	Low	1.7840	Low
1-8106	U1 Chrg Pmp To RCS Cntmt Isol Vlv	0.0002	Low	1.7840	Low
1-8110	Ccp 1-01/1-02 Dnstrm Miniflow Vlv	0.0002	Low	1.7840	Low
1-8111	Ccp 1-01/1-02 Upstrm Miniflow Vlv	0.0009	Low	1.9458	Low
1-8112	U1 RC Pmp Seal Wtr Ret Isol Vlv	n/a	Low	n/a	Low
1-8145	U1 Przr Aux Spr Vlv	n/a	Low	n/a	Low
1-8146	U1 RCS Loop 4 Chrg Vlv	n/a	Low	n/a	Low
1-8152	U1 Ltdn Cntmt Orc Isol Vlv	n/a	Low	n/a	Low
1-8160	U1 Ltdn Cntmt Irc Isol Vlv	n/a	Low	n/a	Low
1-8351A	RC Pmp 1-01 SI Wtr Inj Vlv	n/a	Low	n/a	Low
1-8351B	RC Pmp 1-02 SI Wtr Inj Vlv	n/a	Low	n/a	Low
1-8351C	RC Pmp 1-03 SI Wtr Inj Vlv	n/a	Low	n/a	Low
1-8351D	RC Pmp 1-04 SI Wtr Inj Vlv	n/a	Low	n/a	Low
1-8378A	RCS Loop 1-04 Chrg Dnstrm Chk Vlv	n/a	Low	n/a	Low
1-8378B	RCS Loop 1-04 Chrg Upstrm Chk Vlv	n/a	Low	n/a	Low
1-8381	Chrg Ln Irc Chk Vlv	n/a	Low	n/a	Low
1-8481A	Ccp 1-01 Disch Chk Vlv	0.0001	Low	1.5050	Low
1-8481B	Ccp 1-02 Disch Chk Vlv	0.0003	Low	2.0913	Potentially High
1-8497	Pd Pmp 1-01 Disch Chk Vlv	n/a	Low	n/a	Low
1-8511A	Ccp 1-01 Alt Miniflo Isol Vlv	0.0012	Medium	4.8723	Potentially High
1-8511B	Ccp 1-02 Alt Miniflo Isol Vlv	0.0012	Medium	4.8723	Potentially High
1-8512A	Ccp 1-02 Alt Miniflo Isol Vlv	0.0012	Medium	4.8723	Potentially High
1-8512B	Ccp 1-01 Alt Miniflo Isol Vlv	0.0012	Medium	4.8723	Potentially High
1-8546	Rwst 1-01 To Chrg Pmp Suct Chk Vlv	0.0002	Low	1.7840	Low
1-8701A	RHR Pmp 1-01 Hl 1-01 Recirc Omb Isol Vlv	n/a	Low	n/a	Low
1-8701B	RHR Pmp 1-02 Hl 1-04 Recirc Omb Isol Vlv	n/a	Low	n/a	Low
1-8702A	RHR Pmp 1-01 Hl 1-01 Reicrc Imb Isol Vlv	n/a	Low	n/a	Low
1-8702B	RHR Pmp 1-02 Hl 1-04 Recirc Imb Isol Vlv	n/a	Low	n/a	Low
1-8708A	RHR Pmp 1-01 Suct Rlf Vlv	n/a	Low	n/a	Low
1-8708B	RHR Pmp 1-02 Suct Rlf Vlv	n/a	Low	n/a	Low
1-8716A	RHR Pmp 1-01 Xtie Vlv	0.0034	Medium	5.3279	Potentially High
1-8716B	RHR Pmp 1-02 Xtie Vlv	0.0037	Medium	5.3988	Potentially High
1-8717	U1 RHR Pmps Disch To Rwst Isol Vlv	0.0002	Low	5.2624	Potentially High
1-8730A	RHR Hx 1-01 Disch Chk Vlv	n/a	Low	n/a	Low
1-8730B	RHR Hx 1-02 Disch Chk Vlv	n/a	Low	n/a	Low
1-8801A	Ccp 1-01/1-02 SI Isol Vlv 8801A	0.0002	Low	1.7840	Low
1-8801B	Ccp 1-01/1-02 SI Isol Vlv 8801B	0.0002	Low	1.7840	Low
1-8802A	SI Pmp 1-01 To Hl 2 & 3 Inj Isol Vlv	n/a	Low	n/a	Low
1-8802B	SI Pmp 1-02 To Hl 1 & 4 Inj Isol Vlv	n/a	Low	n/a	Low
1-8804A	RHR Pmp 1-01 To Ccp Suct Vlv	n/a	Low	n/a	Low
1-8804B	RHR Pmp 1-02 To SI Pmps Suct Vlv	0.0011	Medium	1.1151	Low

Table 4.1-1
Preliminary Importance Rankings of IST Components in the IPE

Raw Data W/Out Symmetry or Expert Panel Considerations

Sorted by Tag					
Component Tag Number	**Component Description**	**Fussell-Vesely Importance Measure**	**Initial Risk Ranking Based On F-V**	**Risk Achievement Worth Importance Measure**	**Initial Risk Ranking Based On RAW**
1-8806	Rwst 1-01 To SI Pmps Suct Vlv	0.0005	Low	1.4773	Low
1-8807A	U1 SIP/CCP Suct Hdr Xtie Vlv 8807A	n/a	Low	n/a	Low
1-8807B	U1 SIP/CCP Suct Hdr Xtie Vlv 8807B	n/a	Low	n/a	Low
1-8808A	SI Accum 1-01 Inj Vlv	n/a	Low	n/a	Low
1-8808B	SI Accum 1-02 Inj Vlv	n/a	Low	n/a	Low
1-8808C	SI Accum 1-03 Inj Vlv	n/a	Low	n/a	Low
1-8808D	SI Accum 1-04 Inj Vlv	n/a	Low	n/a	Low
1-8809A	RHR To Cl 1-01/1-02 Inj Isol Vlv	0.0034	Medium	5.3279	Potentially High
1-8809B	RHR To Cl 1-03/1-04 Inj Isol Vlv	0.0037	Medium	5.3988	Potentially High
1-8811A	Cntmt Smp To RHR Pmp 1-01 Suct Isol Vlv	0.0045	Medium	5.0741	Potentially High
1-8811B	Cntmt Smp To RHR Pmp 1-02 Suct Isol Vlv	0.0072	Medium	9.4595	Potentially High
1-8812A	Rwst 1-01 To RHR Pmp 1-01 Suct Vlv	0.0028	Medium	4.9150	Potentially High
1-8812B	Rwst 1-01 To RHR Pmp 1-02 Suct Vlv	0.0031	Medium	4.9650	Potentially High
1-8813	SI Pmp 1-01/1-02 Miniflo Ret Vlv	0.0021	Medium	5.3732	Potentially High
1-8814A	SI Pmp 1-01 Miniflo Vlv	0.0016	Medium	4.8719	Potentially High
1-8814B	SI Pmp 1-02 Miniflo Vlv	0.0016	Medium	4.8719	Potentially High
1-8815	Ccp 1-01/1-02 Inj Chk Vlv	0.0002	Low	1.7870	Low
1-8818A	RHR Cl 1-01 Inj Chk Vlv	n/a	Low	n/a	Low
1-8818B	RHR Cl 1-02 Inj Chk Vlv	n/a	Low	n/a	Low
1-8818C	RHR Cl 1-03 Inj Chk Vlv	n/a	Low	n/a	Low
1-8818D	RHR Cl 1-04 Inj Chk Vlv	n/a	Low	n/a	Low
1-8821A	SI Pmp 1-01 Xtie Vlv	n/a	Low	n/a	Low
1-8821B	SI Pmp 1-02 Xtie Vlv	n/a	Low	n/a	Low
1-8835	SI Pmp 1-01/1-02 To Cl Inj Isol Vlv	0.0006	Low	1.4773	Low
1-8840	RHR To Hl 1-02/1-03 Inj Isol Vlv	0.0247	High	13.9685	Potentially High
1-8841A	RHR To RCS Hl 1-02 Upstrm Chk Vlv	n/a	Low	n/a	Low
1-8841B	RHR To RCS Hl 1-03 Upstrm Chk Vlv	n/a	Low	n/a	Low
1-8875A	SI Accum 1-01 N2 SPLY/VENT Vlv	n/a	Low	n/a	Low
1-8875B	SI Accum 1-02 N2 SPLY/VENT Vlv	n/a	Low	n/a	Low
1-8875C	SI Accum 1-03 N2 SPLY/VENT Vlv	n/a	Low	n/a	Low
1-8875D	SI Accum 1-04 N2 SPLY/VENT Vlv	n/a	Low	n/a	Low
1-8877A	SI Accum 1-01 Tst Ln Isol Vlv	n/a	Low	n/a	Low
1-8877B	SI Accum 1-02 Tst Ln Isol Vlv	n/a	Low	n/a	Low
1-8877C	SI Accum 1-03 Tst Ln Isol Vlv	n/a	Low	n/a	Low
1-8877D	SI Accum 1-04 Tst Ln Isol Vlv	n/a	Low	n/a	Low
1-8878A	SI Accum 1-01 Fill Vlv	n/a	Low	n/a	Low
1-8878B	SI Accum 1-02 Fill Vlv	n/a	Low	n/a	Low
1-8878C	SI Accum 1-03 Fill Vlv	n/a	Low	n/a	Low
1-8878D	SI Accum 1-04 Fill Vlv	n/a	Low	n/a	Low
1-8922A	SI Pmp 1-01 Disch Chk Vlv	0.0001	Low	1.2558	Low
1-8922B	SI Pmp 1-02 Disch Chk Vlv	0.0001	Low	1.4509	Low
1-8923A	SI Pmp 1-01 Suct Vlv	0.0000	Low	1.0061	Low
1-8923B	SI Pmp 1-02 Suct Vlv	0.0000	Low	1.0061	Low
1-8924	U1 SIP/CCP Suct Hdr Xtie Isol Vlv	0.0000	Low	1.0002	Low
1-8926	SI Pmp 1-01/1-02 Suct Chk Vlv	0.0001	Low	1.4773	Low
1-8948A	SI Accum 1-01 Dnstrm Inj Chk Vlv	n/a	Low	n/a	Low
1-8948B	SI Accum 1-02 Dnstrm Inj Chk Vlv	n/a	Low	n/a	Low
1-8948C	SI Accum 1-03 Dnstrm Inj Chk Vlv	n/a	Low	n/a	Low
1-8948D	SI Accum 1-04 Dnstrm Inj Chk Vlv	n/a	Low	n/a	Low

Table 4.1-1
Preliminary Importance Rankings of IST Components in the IPE

Raw Data W/Out Symmetry or Expert Panel Considerations

Sorted by Tag					
Component Tag Number	**Component Description**	**Fussell-Vesely Importance Measure**	**Initial Risk Ranking Based On F-V**	**Risk Achievement Worth Importance Measure**	**Initial Risk Ranking Based On RAW**
1-8949A	RHR To Rcp HI 1-01 Dnstrm Chk Vlv	n/a	Low	n/a	Low
1-8949B	RHR To Rcp HI 1-02 Dnstrm Chk Vlv	n/a	Low	n/a	Low
1-8949C	RHR To Rcp HI 1-03 Dnstrm Chk Vlv	n/a	Low	n/a	Low
1-8949D	RHR To Rcp HI 1-04 Dnstrm Chk Vlv	n/a	Low	n/a	Low
1-8956A	SI Accum 1-01 Upstrm Inj Chk Vlv	n/a	Low	n/a	Low
1-8956B	SI Accum 1-02 Upstrm Inj Chk Vlv	n/a	Low	n/a	Low
1-8956C	SI Accum 1-03 Upstrm Inj Chk Vlv	n/a	Low	n/a	Low
1-8956D	SI Accum 1-04 Upstrm Inj Chk Vlv	n/a	Low	n/a	Low
1-8958A	Rwst 1-01 To RHR Pmp 1-01 Chk Vlv	n/a	Low	n/a	Low
1-8958B	Rwst 1-01 To RHR Pmp 1-02 Chk Vlv	n/a	Low	n/a	Low
1-8969A	RHR To Ccp 1-01/1-02 Suct Chk Vlv	n/a	Low	n/a	Low
1-8969B	RHR To SI Pmp 1-01/1-02 Suct Chk Vlv	0.0000	Low	1.1151	Low
1-FCV-0610	RHR Pmp 1-01 Miniflo Vlv	0.0000	Low	1.3467	Low
1-FCV-0611	RHR Pmp 1-02 Miniflo Vlv	0.0001	Low	1.6200	Low
1-FCV-0618	RHR Hx 1-01 Byp Flo Ctrl Vlv	n/a	Low	n/a	Low
1-FCV-0619	RHR Hx 1-02 Byp Flo Ctrl Vlv	n/a	Low	n/a	Low
1-FV-2193	SG 1-01 Fw Prehtr Byp Vlv	n/a	Low	n/a	Low
1-FV-2196	SG 1-04 Fw Prehtr Byp Vlv	n/a	Low	n/a	Low
1-FV-4772-1	Cs Pmp 1-01 Recirc Vlv	n/a	Low	n/a	Low
1-FV-4772-2	Cs Pmp 1-03 Recirc Vlv	n/a	Low	n/a	Low
1-FV-4773-1	Cs Pmp 1-02 Recirc Vlv	n/a	Low	n/a	Low
1-FV-4773-2	Cs Pmp 1-04 Recirc Vlv	n/a	Low	n/a	Low
1-HCV-0606	RHR Hx 1-01 Flo Ctrl Vlv	n/a	Low	n/a	Low
1-HCV-0607	RHR Hx 1-02 Flo Ctrl Vlv	n/a	Low	n/a	Low
1-HV-2134	SG 1-01 FW ISOL VLV	n/a	Low	n/a	Low
1-HV-2135	SG 1-02 FW ISOL VLV	n/a	Low	n/a	Low
1-HV-2136	SG 1-03 FW ISOL VLV	n/a	Low	n/a	Low
1-HV-2137	SG 1-04 FW ISOL VLV	n/a	Low	n/a	Low
1-HV-2333A	MSIV 1-01	0.0004	Low	6.9592	Potentially High
1-HV-2334A	MSIV 1-02	0.0004	Low	6.9592	Potentially High
1-HV-2335A	MSIV 1-03	0.0004	Low	6.9592	Potentially High
1-HV-2336A	MSIV 1-04	0.0004	Low	6.9592	Potentially High
1-HV-2397	SG 1-01 BLDN ISOL VLV	n/a	Low	n/a	Low
1-HV-2397A	SG 1-01 BLDN HELB ISOL VLV	n/a	Low	n/a	Low
1-HV-2409	MSL 1-01 BEF MSIV D\POT 1-25 ISOL VLV	n/a	Low	n/a	Low
1-HV-2410	MSL 1-02 BEF MSIV D\POT ISOL VLV	n/a	Low	n/a	Low
1-HV-2411	MSL 1-03 BEF MSIV D\POT ISOL VLV	n/a	Low	n/a	Low
1-HV-2412	MSL 1-04 BEF MSIV D\POT ISOL VLV	n/a	Low	n/a	Low
1-HV-2452-1	MSL 1-01 TO AFWPT STM SPLY VLV	0.0000	Low	1.0083	Low
1-HV-2452-2	MSL 1-04 TO AFWPT STM SPLY VLV	0.0000	Low	1.0083	Low
1-HV-2459	TD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	n/a	Low	n/a	Low
1-HV-2460	TD AFW PMP 1-01 DISCH TO SG 1-02 FCV	n/a	Low	n/a	Low
1-HV-2461	TD AFW PMP 1-01 DISCH TO SG 1-03 FLO CTRL VLV	n/a	Low	n/a	Low
1-HV-2462	TD AFW PMP 1-01 DISCH TO SG 1-04 FLO CTRL VLV	0.0000	Low	1.9356	Low
1-HV-2491A	TD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	n/a	Low	n/a	Low

Table 4.1-1
Preliminary Importance Rankings of IST Components in the IPE

Raw Data W/Out Symmetry or Expert Panel Considerations

Sorted by Tag					
Component Tag Number	**Component Description**	**Fussell-Vesely Importance Measure**	**Initial Risk Ranking Based On F-V**	**Risk Achievement Worth Importance Measure**	**Initial Risk Ranking Based On RAW**
1-HV-2491B	MD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	n/a	Low	n/a	Low
1-HV-2492A	TD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	n/a	Low	n/a	Low
1-HV-2492B	MD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	n/a	Low	n/a	Low
1-HV-2493A	MD AFW PMP 1-02 DISCH TO SG 1-03 ISOL VLV	n/a	Low	n/a	Low
1-HV-2493B	TD AFW PMP 1-01 DISCH TO SG 1-03 ISOL VLV	n/a	Low	n/a	Low
1-HV-2494A	MD AFW PMP 1-02 DISCH TO SG 1-04 ISOL VLV	n/a	Low	n/a	Low
1-HV-2494B	TD AFW PMP 1-01 DISCH TO SG 1-04 ISOL VLV	n/a	Low	n/a	Low
1-HV-3487	U1 CNTMT INST AIR HDR ISOL VLV	n/a	Low	n/a	Low
1-HV-4171	ACCUM 1-01 LIQ SPACE SMPL LN IRC ISOL VLV	n/a	Low	n/a	Low
1-HV-4172	ACCUM 1-02 LIQ SPACE SMPL LN IRC ISOL VLV	n/a	Low	n/a	Low
1-HV-4173	ACCUM 1-03 LIQ SPACE SMPL LN IRC ISOL VLV	n/a	Low	n/a	Low
1-HV-4174	ACCUM 1-04 LIQ SPACE SMPL LN IRC ISOL VLV	n/a	Low	n/a	Low
1-HV-4286	SSW PMP 1-01 DISCH VLV	0.0061	Medium	9.0386	Potentially High
1-HV-4287	SSW PMP 1-02 DISCH VLV	0.0001	Low	37.1754	Potentially High
1-HV-4393	DG 1-01 JKT WTR CLR SSW RET VLV	n/a	Low	n/a	Low
1-HV-4394	DG 1-02 JKT WTR CLR SSW RET VLV	n/a	Low	n/a	Low
1-HV-4512	U1 SFGD LOOP A CCW RET VLV	0.0028	Medium	23.7844	Potentially High
1-HV-4513	U1 SFGD LOOP B CCW RET VLV	0.0018	Medium	30.9018	Potentially High
1-HV-4514	U1 SFGD LOOP A CCW SPLY VLV	0.0050	Medium	23.7844	Potentially High
1-HV-4515	U1 SFGD LOOP B CCW SPLY VLV	0.0018	Medium	30.9018	Potentially High
1-HV-4524	U1 NON-SFGD LOOP CCW DNSTRM RET VLV	0.0019	Medium	40.9779	Potentially High
1-HV-4525	U1 NON-SFGD LOOP CCW UPSTRM RET VLV	0.0019	Medium	40.9779	Potentially High
1-HV-4526	U1 NON-SFGD LOOP CCW UPSTRM SPLY VLV	0.0019	Medium	40.9779	Potentially High
1-HV-4527	U1 NON-SFGD LOOP CCW DNSTRM SPLY VLV	0.0019	Medium	40.9779	Potentially High
1-HV-4572	RHR HX 1-01 CCW RET VLV	0.0045	Medium	9.2011	Potentially High
1-HV-4573	RHR HX 1-02 CCW RET VLV	0.0048	Medium	9.2781	Potentially High
1-HV-4574	CS HX 1-01 CCW RET VLV	n/a	Low	n/a	Low
1-HV-4575	CS HX 1-02 CCW RET VLV	n/a	Low	n/a	Low
1-HV-4696	U1 THBR CLR CCW RET IRC ISOL VLV	0.0000	Low	5.9646	Potentially High
1-HV-4699	U1 RCP/THBR CLR CCW SPLY ORC UPSTRM ISOL VLV	0.0000	Low	19.2050	Potentially High
1-HV-4700	U1 RCP/THBR CLR CCW SPLY ORC DNSTRM ISOL VLV	0.0000	Low	19.2050	Potentially High
1-HV-4701	U1 RCP CLR CCW RET IRC ISOL VLV	n/a	Low	n/a	Low
1-HV-4708	U1 RCP CLR CCW RET ORC ISOL VLV	n/a	Low	n/a	Low
1-HV-4709	U1 THBR CLR CCW RET ORC ISOL VLV	0.0000	Low	5.9646	Potentially High

Table 4.1-1
Preliminary Importance Rankings of IST Components in the IPE

Raw Data W/Out Symmetry or Expert Panel Considerations

Sorted by Tag					
Component Tag Number	Component Description	Fussell-Vesely Importance Measure	Initial Risk Ranking Based On F-V	Risk Achievement Worth Importance Measure	Initial Risk Ranking Based On RAW
1-HV-4725	CNTMT CCW DRN TK 1-02 IRC ISOL VLV	n/a	Low	n/a	Low
1-HV-4726	CNTMT CCW DRN TK 1-02 ORC ISOL VLV	n/a	Low	n/a	Low
1-HV-4758	RWST TO CS PMP 1-01/1-03 SUCT VLV	n/a	Low	n/a	Low
1-HV-4759	RWST TO CS PMP 1-02/1-04 SUCT VLV	n/a	Low	n/a	Low
1-HV-4776	CS HX 1-01 OUT VLV	n/a	Low	n/a	Low
1-HV-4777	CS HX 1-02 OUT VLV	n/a	Low	n/a	Low
1-HV-4782	CNTMT SMP TO CS PMP 1-01/1-03 SUCT ISOL VLV	n/a	Low	n/a	Low
1-HV-4783	CNTMT SMP TO CS PMP 1-02/1-04 SUCT ISOL VLV	n/a	Low	n/a	Low
1-HV-5157	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR ORC ISOL VLV	n/a	Low	n/a	Low
1-HV-5158	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR IRC ISOL VLV	n/a	Low	n/a	Low
1-HV-5548	U1 CNTMT PRESS RLF SYS ORC ISOL VLV	n/a	Low	n/a	Low
1-HV-5549	U1 CNTMT PRESS RLF SYS IRC ISOL VLV	n/a	Low	n/a	Low
1-HV-8220	U1 CHARGE PMP SUCT HI PNT VNT VLV 8220	n/a	Low	n/a	Low
1-HV-8221	U1 CHARGE PMP HI PNT VNT VLV 8221	n/a	Low	n/a	Low
1-LCV-0112B	VCT 1-01 TO CHRG PMP SUCT VLV 0112B	0.0002	Low	1.7841	Low
1-LCV-0112C	VCT 1-01 TO CHRG PMP SUCT VLV 0112C	0.0009	Low	1.9459	Low
1-LCV-0112D	RWST 1-01 TO CHRG PMP SUCT VLV 0112D	0.0002	Low	1.7841	Low
1-LCV-0112E	RWST 1-01 TO CHRG PMP SUCT VLV 0112E	0.0009	Low	1.9459	Low
1-LCV-1003	RCDT LEVEL CONTROL VALVE	n/a	Low	n/a	Low
1-PCV-0455A	PRZR 1-01 PORV 0455A	0.0128	High	1.5130	Low
1-PCV-0456	PRZR PWR OPERATED RELIEF VLV	0.0167	High	2.6291	Potentially High
1-PV-2325	SG 1-01 ATMOS RLF VLV	0.0008	Low	1.0329	Low
1-PV-2326	SG 1-02 ATMOS RLF VLV	n/a	Low	n/a	Low
1-PV-2327	SG 1-03 ATMOS RLF VLV	n/a	Low	n/a	Low
1-PV-2328	SG 1-04 ATMOS RLF VLV	0.0006	Low	1.0248	Low
1-PV-2453A	MD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	n/a	Low	n/a	Low
1-PV-2453B	MD AFW PMP 1-01 DISCH TO SG 1-02 CTRL VLV	n/a	Low	n/a	Low
1-PV-2454A	MD AFW PMP 1-02 DISCH TO SG 1-03 CTRL VLV	n/a	Low	n/a	Low
1-PV-2454B	MD AFW PMP 1-02 DISCH TO SG 1-04 CTRL VLV	0.0000	Low	2.8715	Potentially High
1-PV-4552	SFTY CHLR 1-05 CCW RET PCV	n/a	Low	n/a	Low
1-PV-4553	SFTY CHLR 1-06 CCW RET PCV	0.0000	Low	1.1249	Low
1AF-0014	CST TO MD AFW PMP 1-01 SUCT CHK VLV	0.0003	Low	2.0232	Low
1AF-0024	CST TO MD AFW PMP 1-02 SUCT CHK VLV	0.0004	Low	2.4741	Low

Table 4.1-1
Preliminary Importance Rankings of IST Components in the IPE

Raw Data W/Out Symmetry or Expert Panel Considerations

Sorted by Tag					
Component Tag Number	Component Description	Fussell-Vesely Importance Measure	Initial Risk Ranking Based On F-V	Risk Achievement Worth Importance Measure	Initial Risk Ranking Based On RAW
1AF-0032	CST 1-01 TO TD AFW PMP CHK VLV	0.0003	Low	2.0581	Potentially High
1AF-0038	TD AFW PMP 1-01 DISCH CHK VLV	0.0003	Low	2.0581	Potentially High
1AF-0041	TD AFW PMP 1-01 DISCH ISOL VLV	0.0002	Low	2.0582	Potentially High
1AF-0051	MD AFW PMP 1-02 DISCH CHK VLV	0.0004	Low	2.4741	Potentially High
1AF-0054	MD AFW PMP 1-02 DISCH ISOL VLV	0.0003	Low	2.4741	Potentially High
1AF-0065	MD AFW PMP 1-01 DISCH CHK VLV	0.0003	Low	2.0232	Potentially High
1AF-0066	MD AFW PMP 1-01 DISCH ISOL VLV	0.0002	Low	2.0232	Potentially High
1AF-0075	MD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	n/a	Low	n/a	Low
1AF-0078	TD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	n/a	Low	n/a	Low
1AF-0083	MD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	n/a	Low	n/a	Low
1AF-0086	TD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	n/a	Low	n/a	Low
1AF-0093	MD AFW PMP 1-02 DISCH TO SG 1-03 CHK VLV	n/a	Low	n/a	Low
1AF-0098	TD AFW PMP 1-01 DISCH TO SG 1-03 CHK VLV	n/a	Low	n/a	Low
1AF-0101	MD AFW PMP 1-02 DISCH TO SG 1-04 CHK VLV	n/a	Low	n/a	Low
1AF-0106	TD AFW PMP 1-01 DISCH TO SG 1-04 CHK VLV	n/a	Low	n/a	Low
1AF-0215	MD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY UPSTRM CHK VLV	0.0003	Low	1.9358	Low
1AF-0216	MD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY DNSTRM CHK VLV	0.0003	Low	1.9358	Low
1AF-0217	MD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY UPSTRM CHK VLV	n/a	Low	n/a	Low
1AF-0218	MD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY DNSTRM CHK VLV	n/a	Low	n/a	Low
1AF-0219	MD AFW PMP 1-02 FCV TO SG 1-03 AIR SPLY UPSTRM CHK VLV	n/a	Low	n/a	Low
1AF-0220	MD AFW PMP 1-02 FCV TO SG 1-03 AIR SPLY DNSTRM CHK VLV	n/a	Low	n/a	Low
1AF-0221	MD AFW PMP 1-02 FCV TO SG 1-04 AIR SPLY UPSTRM CHK VLV	0.0003	Low	1.9358	Low
1AF-0222	MD AFW PMP 1-02 FCV TO SG 1-04 AIR SPLY DNSTRM CHK VLV	0.0003	Low	1.9358	Low
1AF-0223	TD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY DNSTRM CHK VLV	0.0003	Low	1.9358	Low
1AF-0224	TD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY UPSTRM CHK VLV	0.0003	Low	1.9358	Low
1AF-0226	TD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY UPSTRM CHK VLV	n/a	Low	n/a	Low
1AF-0227	TD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY DNSTRM CHK VLV	n/a	Low	n/a	Low
1AF-0228	TD AFW PMP 1-01 FCV TO SG 1-03 AIR SPLY UPSTRM CHK VLV	n/a	Low	n/a	Low
1AF-0229	TD AFW PMP 1-01 FCV TO SG 1-03 AIR SPLY DNSTRM CHK VLV	n/a	Low	n/a	Low

Table 4.1-1
Preliminary Importance Rankings of IST Components in the IPE

Raw Data W/Out Symmetry or Expert Panel Considerations

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Component Tag Number	Component Description	Fussell-Vesely Importance Measure	Initial Risk Ranking Based On F-V	Risk Achievement Worth Importance Measure	Initial Risk Ranking Based On RAW
1AF-0230	TD AFW PMP 1-01 FCV TO SG 1-04 AIR SPLY UPSTRM CHK VLV	0.0003	Low	1.9358	Low
1AF-0231	TD AFW PMP 1-01 FCV TO SG 1-04 AIR SPLY DNSTRM CHK VLV	0.0003	Low	1.9358	Low
1CC-0031	CCW PMP 1-01 DISCH CHK VLV	0.0005	Low	3.0208	Potentially High
1CC-0061	CCW PMP 1-02 DISCH CHK VLV	0.0000	Low	38.5415	Potentially High
1CC-0646	RC PMP 1-04 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	0.0000	Low	6.1735	Potentially High
1CC-0657	RC PMP 1-03 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	0.0000	Low	6.1735	Potentially High
1CC-0687	RC PMP 1-02 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	0.0000	Low	6.1735	Potentially High
1CC-0694	RC PMP 1-01 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	0.0000	Low	6.1735	Potentially High
1CC-0713	U1 RCP CLR CCW SPLY HDR CHK VLV	0.0000	Low	19.2052	Potentially High
1CC-1075	RC PMP 1-01 THBR CLR CCW SPLY STOP CHK VLV	0.0000	Low	6.1735	Potentially High
1CC-1076	RC PMP 1-02 THBR CLR CCW SPLY STOP CHK VLV	0.0000	Low	6.1735	Potentially High
1CC-1077	RC PMP 1-03 THBR CLR CCW SPLY STOP CHK VLV	0.0000	Low	6.1735	Potentially High
1CC-1078	RC PMP 1-04 THBR CLR CCW SPLY STOP CHK VLV	0.0000	Low	6.1735	Potentially High
1CC-1079	CIRCLE SEAL CHECK VALVE 1/2" FNPT	n/a	Low	n/a	Low
1CC-1080	CIRCLE SEAL CHECK VALVE 1/2" FNPT	n/a	Low	n/a	Low
1CC-1081	CIRCLE SEAL CHECK VALVE 1/2" FNPT	n/a	Low	n/a	Low
1CC-1082	CIRCEL SEAL CHECK VALVE 1/2 FNPT	n/a	Low	n/a	Low
1CI-0030	U1 INST AIR HDR TO U1 CNTMT CHK VLV	n/a	Low	n/a	Low
1CS-8180	U1 IRC SL WTR RET CNMT ISOL BYP CHK VLV	n/a	Low	n/a	Low
1CS-8350A	RC PMP 1-01 SL WTR INJ CHK VLV	n/a	Low	n/a	Low
1CS-8350B	RC PMP 1-02 SL WTR INJ CHK VLV	n/a	Low	n/a	Low
1CS-8350C	RC PMP 1-03 SL WTR INJ CHK VLV	n/a	Low	n/a	Low
1CS-8350D	RC PMP 1-04 SL WTR INJ CHK VLV	n/a	Low	n/a	Low
1CS-8367A	RC PMP 1-01 SL INJ IMB CHK VLV	n/a	Low	n/a	Low
1CS-8367B	RC PMP 1-02 SL INJ IMB CHK VLV	n/a	Low	n/a	Low
1CS-8367C	RC PMP 1-03 SL INJ IMB CHK VLV	n/a	Low	n/a	Low
1CS-8367D	RC PMP 1-04 SL INJ IMB CHK VLV	n/a	Low	n/a	Low
1CS-8368A	RC PMP 1-01 SL INJ IRC CHK VLV	n/a	Low	n/a	Low
1CS-8368B	RC PMP 1-02 SL INJ IRC CHK VLV	n/a	Low	n/a	Low
1CS-8368C	RC PMP 1-03 SL INJ IRC CHK VLV	n/a	Low	n/a	Low
1CS-8368D	RC PMP 1-04 SL INJ IRC CHK VLV	n/a	Low	n/a	Low
1CS-8442	U1 EMER BORATE LN CHK VLV	n/a	Low	n/a	Low
1CS-8473	BA PMP 1-02 DISCH CHK VLV	n/a	Low	n/a	Low
1CS-8487	BA PMP 1-01 DISCH CHK VLV	n/a	Low	n/a	Low
1CT-0025	RWST TO CS PMP 1-02/1-04 SUCT CHK VLV	n/a	Low	n/a	Low
1CT-0042	CS PMP 1-02 DISCH CHK VLV	n/a	Low	n/a	Low
1CT-0047	CS PMP 1-04 MINIFLO LN CHK VLV	n/a	Low	n/a	Low
1CT-0048	CS PMP 1-02 MINIFLO LN CHK VLV	n/a	Low	n/a	Low

Table 4.1-1
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1CT-0063	CS PMP 1-03 MINIFLO LN CHK VLV	n/a	Low	n/a	Low
1CT-0064	CS PMP 1-01 MINIFLO LN CHK VLV	n/a	Low	n/a	Low
1CT-0065	CS PMP 1-03 DISCH CHK VLV	n/a	Low	n/a	Low
1CT-0077	RWST TO CSP 1-01/1-03 SUCT CHK VLV	n/a	Low	n/a	Low
1CT-0094	CS PMP 1-01 DISCH CHK VLV	n/a	Low	n/a	Low
1CT-0142	U1 CS TRN A HDR IRC CHK VLV	n/a	Low	n/a	Low
1CT-0145	U1 CS TRN B HDR IRC CHK VLV	n/a	Low	n/a	Low
1CT-0148	CNTMT SMP TO CS PMP 1-02/1-04 CHK VLV	n/a	Low	n/a	Low
1CT-0149	CNTMT SMP TO CS PMP 1-01/1-03 CHK VLV	n/a	Low	n/a	Low
1DO-0004	DG 1-01 FO XREF PMP 1-01 DISCH CHK VLV	n/a	Low	n/a	Low
1DO-0005	DG 1-01 FO XREF PMP 1-02 DISCH CHK VLV	n/a	Low	n/a	Low
1DO-0016	DG 1-02 FO XFER PMP 1-03 DISCH CHK VLV	n/a	Low	n/a	Low
1DO-0017	DG 1-02 FO XFER PMP 1-04 DISCH CHK VLV	n/a	Low	n/a	Low
1DO-0049	DG 1-01 FO DAY TK 1-01 XFER HDR CHK VLV	0.0003	Low	1.9795	Low
1DO-0050	DG 1-02 FO DAY TK 1-02 XFER HDR CHK VLV	0.0005	Low	3.0296	Potentially High
1FW-0076	SG 1-02 FW HDR CHK VLV	n/a	Low	n/a	Low
1FW-0082	SG 1-01 FW HDR CHK VLV	n/a	Low	n/a	Low
1FW-0088	SG 1-04 FW HDR CHK VLV	n/a	Low	n/a	Low
1FW-0195	SG 1-04 FW PREHTR BYP IRC CHK VLV	n/a	Low	n/a	Low
1FW-0196	SG 1-01 FW PREHTR BYP IRC CHK VLV	n/a	Low	n/a	Low
1FW-0197	SG 1-02 FW PREHTR BYP IRC CHK VLV	n/a	Low	n/a	Low
1FW-0198	SG 1-03 FW PREHTR BYP IRC CHK VLV	n/a	Low	n/a	Low
1FW-0199	SG 1-04 AFW NZL CHK VLV	n/a	Low	n/a	Low
1FW-0200	SG 1-01 AFW NZL CHK VLV	n/a	Low	n/a	Low
1FW-0201	SG 1-02 AFW NZL CHK VLV	n/a	Low	n/a	Low
1FW-0202	SG 1-03 AFW NZL CHK VLV	n/a	Low	n/a	Low
1MS-0026	SG 1-01 ATMOS RLF VLV UPSTRM ISOL VLV	n/a	Low	n/a	Low
1MS-0063	SG 1-02 ATMOS RLF VLV UPSTRM ISOL VLV	n/a	Low	n/a	Low
1MS-0098	SG 1-03 ATMOS RLF VLV UPSTRM ISOL VLV	n/a	Low	n/a	Low
1MS-0134	SG 1-04 ATMOS RLF VLV UPSTRM ISOL VLV	n/a	Low	n/a	Low
1MS-0142	MSL 1-04 TO AFWPT SPLY VLV DNSTRM CHK VLV	0.0000	Low	1.0083	Low
1MS-0143	MSL 1-01 TO AFWPT SPLY VLV DNSTRM CHK VLV	0.0000	Low	1.0083	Low
1MS-0680	SG 1-01 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	n/a	Low	n/a	Low
1MS-0681	SG 1-01 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	n/a	Low	n/a	Low

Table 4.1-1
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1MS-0682	SG 1-02 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	n/a	Low	n/a	Low
1MS-0683	SG 1-02 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	n/a	Low	n/a	Low
1MS-0684	SG 1-03 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	n/a	Low	n/a	Low
1MS-0685	SG 1-03 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	n/a	Low	n/a	Low
1MS-0686	SG 1-04 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	n/a	Low	n/a	Low
1MS-0687	SG 1-04 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	n/a	Low	n/a	Low
1SI-0047	RWST 1-01 TO SI ISOL VLV	0.0050	Medium	5.7600	Potentially High
1SI-8819A	SI TO CL 1-01 CHK VLV	n/a	Low	n/a	Low
1SI-8819B	SI TO CL 1-02 CHK VLV	n/a	Low	n/a	Low
1SI-8819C	SI TO CL 1-03 CHK VLV	n/a	Low	n/a	Low
1SI-8819D	SI TO CL 1-04 CHK VLV	n/a	Low	n/a	Low
1SI-8900A	CCP 1-01/1-02 TO CL 1-01 CHK VLV	n/a	Low	n/a	Low
1SI-8900B	CCP 1-01/1-02 TO CL 1-02 CHK VLV	n/a	Low	n/a	Low
1SI-8900C	CCP 1-01/1-02 TO CL 1-03 CHK VLV	n/a	Low	n/a	Low
1SI-8900D	CCP 1-01/1-02 TO CL 1-04 CHK VLV	n/a	Low	n/a	Low
1SI-8905A	SI TO HL 1-01 INJ UPSTRM CHK VLV	n/a	Low	n/a	Low
1SI-8905B	SI TO HL 1-02 INJ UPSTRM CHK VLV	n/a	Low	n/a	Low
1SI-8905C	SI TO HL 1-03 INJ UPSTRM CHK VLV	n/a	Low	n/a	Low
1SI-8905D	SI TO HL 1-04 INJ UPSTRM CHK VLV	n/a	Low	n/a	Low
1SI-8919A	SI PMP 1-01 TO RWST CHK VLV	n/a	Low	n/a	Low
1SI-8919B	SI PMP 1-02 TO RWST CHK VLV	n/a	Low	n/a	Low
1SW-0016	U1 SSW TRN B SPLY HDR IN CHK VLV	0.0005	Low	3.0296	Potentially High
1SW-0017	U1 SSW TRN A SPLY HDR IN CHK VLV	0.0003	Low	1.9796	Low
1SW-0373	SSW PMP 1-02 DISCH CHK VLV	0.0015	Medium	70.7025	Potentially High
1SW-0374	SSW PMP 1-01 DISCH CHK VLV	0.0012	Medium	71.8633	Potentially High
CP1-AFAPMD-01	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-01	0.0282	High	2.8296	Potentially High
CP1-AFAPMD-02	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-02	0.0394	High	3.3020	Potentially High
CP1-AFAPTD-01	TURBINE DRIVEN AUXILIARY FEEDWATER PUMP 1-01	0.2351	High	12.9035	Potentially High
CP1-CCAPCC-01	COMPONENT COOLING WATER PUMP 1-01	0.0366	High	4.8323	Potentially High
CP1-CCAPCC-02	COMPONENT COOLING WATER PUMP 1-02	0.0303	High	38.5384	Potentially High
CP1-CHAPCP-05	SAFETY CHILLED WATER RECIRC PUMP 1-05	0.0080	Medium	1.7278	Low
CP1-CHAPCP-06	SAFETY CHILLED WATER RECIRC PUMP 1-06	0.0003	Low	1.3459	Low
CP1-CTAPCS-01	CONTAINMENT SPRAY PUMP 1-01	n/a	Low	n/a	Low
CP1-CTAPCS-02	CONTAINMENT SPRAY PUMP 1-02	n/a	Low	n/a	Low
CP1-CTAPCS-03	CONTAINMENT SPRAY PUMP 1-03	n/a	Low	n/a	Low
CP1-CTAPCS-04	CONTAINMENT SPRAY PUMP 1-04	n/a	Low	n/a	Low
CP1-DOAPFT-01	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-01	0.0478	High	140.0000	Potentially High

Table 4.1-1
Preliminary Importance Rankings of IST Components in the IPE

Raw Data W/Out Symmetry or Expert Panel Considerations

Sorted by Tag					
Component Tag Number	**Component Description**	**Fussell-Vesely Importance Measure**	**Initial Risk Ranking Based On F-V**	**Risk Achievement Worth Importance Measure**	**Initial Risk Ranking Based On RAW**
CP1-DOAPFT-02	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-02	0.0478	High	140.0000	Potentially High
CP1-DOAPFT-03	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-03	0.0478	High	140.0000	Potentially High
CP1-DOAPFT-04	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-04	0.0478	High	140.0000	Potentially High
CP1-SWAPSW-01	STATION SERVICE WATER PUMP 1-01	0.0969	High	77.6709	Potentially High
CP1-SWAPSW-02	STATION SERVICE WATER PUMP 1-02	0.0386	High	107.0000	Potentially High
TBX-CSAPBA-01	BORIC ACID TRANSFER PUMP 1-01	n/a	Low	n/a	Low
TBX-CSAPBA-02	BORIC ACID TRANSFER PUMP 1-02	n/a	Low	n/a	Low
TBX-CSAPCH-01	CENTRIFUGAL CHARGING PUMP 1-01	0.0125	High	1.5301	Low
TBX-CSAPCH-02	CENTRIFUGAL CHARGING PUMP 1-02	0.0271	High	2.1861	Potentially High
TBX-RHAPRH-01	RESIDUAL HEAT REMOVAL PUMP 1-01	0.0050	Medium	1.3468	Low
TBX-RHAPRH-02	RESIDUAL HEAT REMOVAL PUMP 1-02	0.0088	Medium	1.6201	Low
TBX-SIAPSI-01	SAFETY INJECTION PUMP 1-01	0.0146	High	1.2559	Low
TBX-SIAPSI-02	SAFETY INJECTION PUMP 1-02	0.0257	High	1.4509	Low
X-PCV-H116A	UPS A\C UNIT X-01 CCW RET PCV	0.0000	Low	1.0132	Low
X-PCV-H116B	UPS A\C UNIT X-02 CCW RET PCV	0.0002	Low	1.1610	Low
X-PV-3583	CR A\C UNIT X-01 CCW RET PCV	n/a	Low	n/a	Low
X-PV-3585	CR A\C UNIT X-03 CCW RET PCV	n/a	Low	n/a	Low
FV = Fussell-Vesely (Prob = 0) Hi > .01, Med > .001, Low > .0001 Negl < .0001					
RAW = Risk Achievement Worth (Prob = 1.0) Hi >= 2.0					
n/a = component either truncated in PRA or not in RMQS 1E-8 cutsets					

Table 4.1-2
IPE Components That Changed Risk Categories Due To Symmetry Evaluation

Component Tag Number	Component Description	Original Risk Importance Category	Revised Risk Importance Category Based on Symmetery Evaluation
1-8000A	PRZR 1-01 PORV 0455A BLK VLV	MEDIUM	HIGH
1-8804	RHR PUMP 1-01 TO CCP SUCTION VALVE	LOW	MEDIUM
CP1-CHAPCP-06	SAFETY CHILLED WATER RECIRC PUMP	LOW	MEDIUM
1-HV-4287	SSW PMP 1-02 DISCH VLV	LOW	MEDIUM
1SW-0016	SSW TRN B SPLY HDR IN CHK VLV	LOW	N/A (1)
1SW-0017	SSW TRN A SPLY HDR IN CHK VLV	LOW	N/A (1)
(1) These components have been removed from the Service Water system.			

Table 4.1-2a
IPE Component Symmetry Evaluation

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Change Due To Symmetry**
1-7136	Rcdt Pump Discharge Control Valve	N/A
1-8000A (2)	Przr 1-01 Porv 0455A Blk Vlv	Increased
1-8000B	Przr 1-01 Porv 0456 Blk Vlv	No Change
1-8010A	Przr 1-01 Sfty Vlv A	N/A
1-8010B	Przr 1-01 Sfty Vlv B	N/A
1-8010C	Przr 1-01 Sfty Vlv C	N/A
1-8100	U1 Rcp Sl Wtr Ret Isol Vlv	N/A
1-8104	U1 Emer Borate Vlv	N/A
1-8105	U1 Chrg Pmp To RCS Cntmt Isol Vlv	N/A
1-8106	U1 Chrg Pmp To RCS Cntmt Isol Vlv	N/A
1-8110 (1)	Ccp 1-01/1-02 Dnstrm Miniflow Vlv	No Change
1-8111	Ccp 1-01/1-02 Upstrm Miniflow Vlv	No Change
1-8112	U1 RC Pmp Seal Wtr Ret Isol Vlv	N/A
1-8145	U1 Przr Aux Spr Vlv	N/A
1-8146	U1 RCS Loop 4 Chrg Vlv	N/A
1-8152	U1 LTDN CNTMT ORC ISOL VLV	N/A
1-8160	U1 LTDN CNTMT IRC ISOL VLV	N/A
1-8351A	RC Pmp 1-01 Sl Wtr Inj Vlv	N/A
1-8351B	RC Pmp 1-02 Sl Wtr Inj Vlv	N/A
1-8351C	RC Pmp 1-03 Sl Wtr Inj Vlv	N/A
1-8351D	RC Pmp 1-04 Sl Wtr Inj Vlv	N/A
1-8378A	RCS Loop 1-04 Chrg Dnstrm Chk Vlv	N/A
1-8378B	RCS Loop 1-04 Chrg Upstrm Chk Vlv	N/A
1-8381	Chrg Ln Irc Chk Vlv	N/A
1-8481A (1)	Ccp 1-01 Disch Chk Vlv	No Change
1-8481B	Ccp 1-02 Disch Chk Vlv	No Change
1-8497	Pd Pmp 1-01 Disch Chk Vlv	N/A
1-8511A	Ccp 1-01 Alt Miniflo Isol Vlv	N/A
1-8511B	Ccp 1-02 Alt Miniflo Isol Vlv	N/A
1-8512A	Ccp 1-02 Alt Miniflo Isol Vlv	N/A
1-8512B	Ccp 1-01 Alt Miniflo Isol Vlv	N/A
1-8546	Rwst 1-01 To Chrg Pmp Suct Chk Vlv	N/A
1-8701A	RHR Pmp 1-01 Hl 1-01 Recirc Omb Isol Vlv	N/A
1-8701B	RHR Pmp 1-02 Hl 1-04 Recirc Omb Isol Vlv	N/A
1-8702A	RHR Pmp 1-01 Hl 1-01 Reicrc Imb Isol Vlv	N/A
1-8702B	RHR Pmp 1-02 Hl 1-04 Recirc Imb Isol Vlv	N/A
1-8708A	RHR Pmp 1-01 Suct Rlf Vlv	N/A
1-8708B	RHR Pmp 1-02 Suct Rlf Vlv	N/A
1-8716A (1)	RHR Pmp 1-01 Xtie Vlv	No Change
1-8716B	RHR Pmp 1-02 Xtie Vlv	No Change
1-8717	U1 RHR Pmps Disch To Rwst Isol Vlv	N/A
1-8730A	RHR Hx 1-01 Disch Chk Vlv	N/A
1-8730B	RHR Hx 1-02 Disch Chk Vlv	N/A
1-8801A	Ccp 1-01/1-02 Sl Isol Vlv 8801A	N/A
1-8801B	Ccp 1-01/1-02 Sl Isol Vlv 8801B	N/A
1-8802A	Sl Pmp 1-01 To Hl 2 & 3 Inj Isol Vlv	N/A
1-8802B	Sl Pmp 1-02 To Hl 1 & 4 Inj Isol Vlv	N/A

N/A - Indicates Symmetry Evaluation Was Not Required

Table 4.1-2a
IPE Component Symmetry Evaluation

Sorted By Tag		
Component Tag Number	Component Description	Risk Rank Change Due To Symmetry
1-8804A (2)	RHR Pmp 1-01 To Ccp Suct Vlv	Increased
1-8804B	RHR Pmp 1-02 To SI Pmps Suct Vlv	No Change
1-8806	Rwst 1-01 To SI Pmps Suct Vlv	N/A
1-8807A	U1 SIP/CCP Suct Hdr Xtie Vlv 8807A	N/A
1-8807B	U1 SIP/CCP Suct Hdr Xtie Vlv 8807B	N/A
1-8808A	SI Accum 1-01 Inj Vlv	N/A
1-8808B	SI Accum 1-02 Inj Vlv	N/A
1-8808C	SI Accum 1-03 Inj Vlv	N/A
1-8808D	SI Accum 1-04 Inj Vlv	N/A
1-8809A (1)	RHR To Cl 1-01/1-02 Inj Isol Vlv	No Change
1-8809B	RHR To Cl 1-03/1-04 Inj Isol Vlv	No Change
1-8811A (1)	Cntmt Smp To RHR Pmp 1-01 Suct Isol Vlv	No Change
1-8811B	Cntmt Smp To RHR Pmp 1-02 Suct Isol Vlv	No Change
1-8812A (1)	Rwst 1-01 To RHR Pmp 1-01 Suct Vlv	No Change
1-8812B	Rwst 1-01 To RHR Pmp 1-02 Suct Vlv	No Change
1-8813	SI Pmp 1-01/1-02 Miniflo Ret Vlv	N/A
1-8814A	SI Pmp 1-01 Miniflo Vlv	N/A
1-8814B	SI Pmp 1-02 Miniflo Vlv	N/A
1-8815	Ccp 1-01/1-02 Inj Chk Vlv	N/A
1-8818A	RHR Cl 1-01 Inj Chk Vlv	N/A
1-8818B	RHR Cl 1-02 Inj Chk Vlv	N/A
1-8818C	RHR Cl 1-03 Inj Chk Vlv	N/A
1-8818D	RHR Cl 1-04 Inj Chk Vlv	N/A
1-8821A	SI Pmp 1-01 Xtie Vlv	N/A
1-8821B	SI Pmp 1-02 Xtie Vlv	N/A
1-8835	SI Pmp 1-01/1-02 To Cl Inj Isol Vlv	N/A
1-8840	RHR To Hl 1-02/1-03 Inj Isol Vlv	N/A
1-8841A	RHR To RCS Hl 1-02 Upstrm Chk Vlv	N/A
1-8841B	RHR To RCS Hl 1-03 Upstrm Chk Vlv	N/A
1-8875A	SI Accum 1-01 N2 SPLY/VENT Vlv	N/A
1-8875B	SI Accum 1-02 N2 SPLY/VENT Vlv	N/A
1-8875C	SI Accum 1-03 N2 SPLY/VENT Vlv	N/A
1-8875D	SI Accum 1-04 N2 SPLY/VENT Vlv	N/A
1-8877A	SI Accum 1-01 Tst Ln Isol Vlv	N/A
1-8877B	SI Accum 1-02 Tst Ln Isol Vlv	N/A
1-8877C	SI Accum 1-03 Tst Ln Isol Vlv	N/A
1-8877D	SI Accum 1-04 Tst Ln Isol Vlv	N/A
1-8878A	SI Accum 1-01 Fill Vlv	N/A
1-8878B	SI Accum 1-02 Fill Vlv	N/A
1-8878C	SI Accum 1-03 Fill Vlv	N/A
1-8878D	SI Accum 1-04 Fill Vlv	N/A
1-8922A	SI Pmp 1-01 Disch Chk Vlv	N/A
1-8922B	SI Pmp 1-02 Disch Chk Vlv	N/A
1-8923A	SI Pmp 1-01 Suct Vlv	N/A
1-8923B	SI Pmp 1-02 Suct Vlv	N/A
1-8924	U1 SIP/CCP Suct Hdr Xtie Isol Vlv	N/A
1-8926	SI Pmp 1-01/1-02 Suct Chk Vlv	N/A

N/A - Indicates Symmetry Evaluation Was Not Required

Table 4.1-2a
IPE Component Symmetry Evaluation

Sorted By Tag		
Component Tag Number	Component Description	Risk Rank Change Due To Symmetry
1-8948A	SI Accum 1-01 Dnstrm Inj Chk Vlv	N/A
1-8948B	SI Accum 1-02 Dnstrm Inj Chk Vlv	N/A
1-8948C	SI Accum 1-03 Dnstrm Inj Chk Vlv	N/A
1-8948D	SI Accum 1-04 Dnstrm Inj Chk Vlv	N/A
1-8949A	RHR To Rcp Hl 1-01 Dnstrm Chk Vlv	N/A
1-8949B	RHR To Rcp Hl 1-02 Dnstrm Chk Vlv	N/A
1-8949C	RHR To Rcp Hl 1-03 Dnstrm Chk Vlv	N/A
1-8949D	RHR To Rcp Hl 1-04 Dnstrm Chk Vlv	N/A
1-8956A	SI Accum 1-01 Upstrm Inj Chk Vlv	N/A
1-8956B	SI Accum 1-02 Upstrm Inj Chk Vlv	N/A
1-8956C	SI Accum 1-03 Upstrm Inj Chk Vlv	N/A
1-8956D	SI Accum 1-04 Upstrm Inj Chk Vlv	N/A
1-8958A	Rwst 1-01 To RHR Pmp 1-01 Chk Vlv	N/A
1-8958B	Rwst 1-01 To RHR Pmp 1-02 Chk Vlv	N/A
1-8969A (1)	RHR To Ccp 1-01/1-02 Suct Chk Vlv	No Change
1-8969B	RHR To SI Pmp 1-01/1-02 Suct Chk Vlv	No Change
1-FCV-0610 (1)	RHR Pmp 1-01 Miniflo Vlv	No Change
1-FCV-0611	RHR Pmp 1-02 Miniflo Vlv	No Change
1-FCV-0618	RHR Hx 1-01 Byp Flo Ctrl Vlv	N/A
1-FCV-0619	RHR Hx 1-02 Byp Flo Ctrl Vlv	N/A
1-FV-2193	SG 1-01 Fw Prehtr Byp Vlv	N/A
1-FV-2196	SG 1-04 Fw Prehtr Byp Vlv	N/A
1-FV-4772-1	Cs Pmp 1-01 Recirc Vlv	N/A
1-FV-4772-2	Cs Pmp 1-03 Recirc Vlv	N/A
1-FV-4773-1	Cs Pmp 1-02 Recirc Vlv	N/A
1-FV-4773-2	Cs Pmp 1-04 Recirc Vlv	N/A
1-HCV-0606	RHR Hx 1-01 Flo Ctrl Vlv	N/A
1-HCV-0607	RHR Hx 1-02 Flo Ctrl Vlv	N/A
1-HV-2134	SG 1-01 FW ISOL VLV	N/A
1-HV-2135	SG 1-02 FW ISOL VLV	N/A
1-HV-2136	SG 1-03 FW ISOL VLV	N/A
1-HV-2137	SG 1-04 FW ISOL VLV	N/A
1-HV-2333A	MSIV 1-01	N/A
1-HV-2334A	MSIV 1-02	N/A
1-HV-2335A	MSIV 1-03	N/A
1-HV-2336A	MSIV 1-04	N/A
1-HV-2397	SG 1-01 BLDN ISOL VLV	N/A
1-HV-2397A	SG 1-01 BLDN HELB ISOL VLV	N/A
1-HV-2409	MSL 1-01 BEF MSIV D\POT 1-25 ISOL VLV	N/A
1-HV-2410	MSL 1-02 BEF MSIV D\POT ISOL VLV	N/A
1-HV-2411	MSL 1-03 BEF MSIV D\POT ISOL VLV	N/A
1-HV-2412	MSL 1-04 BEF MSIV D\POT ISOL VLV	N/A
1-HV-2452-1	MSL 1-01 TO AFWPT STM SPLY VLV	N/A
1-HV-2452-2	MSL 1-04 TO AFWPT STM SPLY VLV	N/A
1-HV-2459	TD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	No Change
1-HV-2460	TD AFW PMP 1-01 DISCH TO SG 1-02 FCV	No Change
1-HV-2461 (1)	TD AFW PMP 1-01 DISCH TO SG 1-03 FLO CTRL VLV	No Change

N/A - Indicates Symmetry Evaluation Was Not Required

Table 4.1-2a
IPE Component Symmetry Evaluation

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Change Due To Symmetry**
1-HV-2462	TD AFW PMP 1-01 DISCH TO SG 1-04 FLO CTRL VLV	No Change
1-HV-2491A	TD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	N/A
1-HV-2491B	MD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	N/A
1-HV-2492A	TD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	N/A
1-HV-2492B	MD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	N/A
1-HV-2493A	MD AFW PMP 1-02 DISCH TO SG 1-03 ISOL VLV	N/A
1-HV-2493B	TD AFW PMP 1-01 DISCH TO SG 1-03 ISOL VLV	N/A
1-HV-2494A	MD AFW PMP 1-02 DISCH TO SG 1-04 ISOL VLV	N/A
1-HV-2494B	TD AFW PMP 1-01 DISCH TO SG 1-04 ISOL VLV	N/A
1-HV-3487	U1 CNTMT INST AIR HDR ISOL VLV	N/A
1-HV-4171	ACCUM 1-01 LIQ SPACE SMPL LN IRC ISOL VLV	N/A
1-HV-4172	ACCUM 1-02 LIQ SPACE SMPL LN IRC ISOL VLV	N/A
1-HV-4173	ACCUM 1-03 LIQ SPACE SMPL LN IRC ISOL VLV	N/A
1-HV-4174	ACCUM 1-04 LIQ SPACE SMPL LN IRC ISOL VLV	N/A
1-HV-4286	SSW PMP 1-01 DISCH VLV	No Change
1-HV-4287 (2)	SSW PMP 1-02 DISCH VLV	Increased
1-HV-4393	DG 1-01 JKT WTR CLR SSW RET VLV	N/A
1-HV-4394	DG 1-02 JKT WTR CLR SSW RET VLV	N/A
1-HV-4512 (1)	U1 SFGD LOOP A CCW RET VLV	No Change
1-HV-4513	U1 SFGD LOOP B CCW RET VLV	No Change
1-HV-4514 (1)	U1 SFGD LOOP A CCW SPLY VLV	No Change
1-HV-4515	U1 SFGD LOOP B CCW SPLY VLV	No Change
1-HV-4524	U1 NON-SFGD LOOP CCW DNSTRM RET VLV	N/A
1-HV-4525	U1 NON-SFGD LOOP CCW UPSTRM RET VLV	N/A
1-HV-4526	U1 NON-SFGD LOOP CCW UPSTRM SPLY VLV	N/A
1-HV-4527	U1 NON-SFGD LOOP CCW DNSTRM SPLY VLV	N/A
1-HV-4572	RHR HX 1-01 CCW RET VLV	N/A
1-HV-4573	RHR HX 1-02 CCW RET VLV	N/A
1-HV-4574	CS HX 1-01 CCW RET VLV	N/A
1-HV-4575	CS HX 1-02 CCW RET VLV	N/A
1-HV-4696	U1 THBR CLR CCW RET IRC ISOL VLV	N/A
1-HV-4699	U1 RCP/THBR CLR CCW SPLY ORC UPSTRM ISOL VLV	N/A
1-HV-4700	U1 RCP/THBR CLR CCW SPLY ORC DNSTRM ISOL VLV	N/A
1-HV-4701	U1 RCP CLR CCW RET IRC ISOL VLV	N/A
1-HV-4708	U1 RCP CLR CCW RET ORC ISOL VLV	N/A
1-HV-4709	U1 THBR CLR CCW RET ORC ISOL VLV	N/A
1-HV-4725	CNTMT CCW DRN TK 1-02 IRC ISOL VLV	N/A
1-HV-4726	CNTMT CCW DRN TK 1-02 ORC ISOL VLV	N/A
1-HV-4758	RWST TO CS PMP 1-01/1-03 SUCT VLV	N/A
1-HV-4759	RWST TO CS PMP 1-02/1-04 SUCT VLV	N/A
1-HV-4776	CS HX 1-01 OUT VLV	N/A
1-HV-4777	CS HX 1-02 OUT VLV	N/A
1-HV-4782	CNTMT SMP TO CS PMP 1-01/1-03 SUCT ISOL VLV	N/A
1-HV-4783	CNTMT SMP TO CS PMP 1-02/1-04 SUCT ISOL VLV	N/A
1-HV-5157	VLV	N/A
1-HV-5158	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR IRC ISOL	N/A
1-HV-5548	U1 CNTMT PRESS RLF SYS ORC ISOL VLV	N/A

N/A - Indicates Symmetry Evaluation Was Not Required

Table 4.1-2a
IPE Component Symmetry Evaluation

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Change Due To Symmetry**
1-HV-5549	U1 CNTMT PRESS RLF SYS IRC ISOL VLV	N/A
1-HV-8220	U1 CHARGE PMP SUCT HI PNT VNT VLV 8220	N/A
1-HV-8221	U1 CHARGE PMP HI PNT VNT VLV 8221	N/A
1-LCV-0112B (1)	VCT 1-01 TO CHRG PMP SUCT VLV 0112B	No Change
1-LCV-0112C	VCT 1-01 TO CHRG PMP SUCT VLV 0112C	No Change
1-LCV-0112D (1)	RWST 1-01 TO CHRG PMP SUCT VLV 0112D	No Change
1-LCV-0112E	RWST 1-01 TO CHRG PMP SUCT VLV 0112E	No Change
1-LCV-1003	LWPS RCDT 1-01 LVL CTRL VLV	N/A
1-PCV-0455A	PRZR 1-01 PORV 0455A	N/A
1-PCV-0456	PRZR PWR OPERATED RELIEF VLV	N/A
1-PV-2325	SG 1-01 ATMOS RLF VLV	N/A
1-PV-2326	SG 1-02 ATMOS RLF VLV	N/A
1-PV-2327	SG 1-02 ATMOS RLF VLV	N/A
1-PV-2328	SG 1-04 ATMOS RLF VLV	N/A
1-PV-2453A	MD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	N/A
1-PV-2453B	MD AFW PMP 1-01 DISCH TO SG 1-02 CTRL VLV	N/A
1-PV-2454A (1)	MD AFW PMP 1-02 DISCH TO SG 1-03 CTRL VLV	No Change
1-PV-2454B	MD AFW PMP 1-02 DISCH TO SG 1-04 CTRL VLV	No Change
1-PV-4552 (1)	SFTY CHLR 1-05 CCW RET PCV	No Change
1-PV-4553	SFTY CHLR 1-06 CCW RET PCV	No Change
1AF-0014	CST TO MD AFW PMP 1-01 SUCT CHK VLV	N/A
1AF-0024	CST TO MD AFW PMP 1-02 SUCT CHK VLV	N/A
1AF-0032	CST 1-01 TO TD AFW PMP CHK VLV	N/A
1AF-0038	TD AFW PMP 1-01 DISCH CHK VLV	N/A
1AF-0041	TD AFW PMP 1-01 DISCH ISOL VLV	N/A
1AF-0051	MD AFW PMP 1-02 DISCH CHK VLV	No Change
1AF-0054	MD AFW PMP 1-02 DISCH ISOL VLV	No Change
1AF-0065 (1)	MD AFW PMP 1-01 DISCH CHK VLV	No Change
1AF-0066 (1)	MD AFW PMP 1-01 DISCH ISOL VLV	No Change
1AF-0075	MD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	N/A
1AF-0078	TD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	N/A
1AF-0083	MD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	N/A
1AF-0086	TD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	N/A
1AF-0093	MD AFW PMP 1-02 DISCH TO SG 1-03 CHK VLV	N/A
1AF-0098	TD AFW PMP 1-01 DISCH TO SG 1-03 CHK VLV	N/A
1AF-0101	MD AFW PMP 1-02 DISCH TO SG 1-04 CHK VLV	N/A
1AF-0106	TD AFW PMP 1-01 DISCH TO SG 1-04 CHK VLV	N/A
1AF-0215	VLV	N/A
1AF-0216	VLV	N/A
1AF-0217	VLV	N/A
1AF-0218	VLV	N/A
1AF-0219	VLV	N/A
1AF-0220	VLV	N/A
1AF-0221	VLV	N/A
1AF-0222	VLV	N/A
1AF-0223	VLV	N/A
1AF-0224	VLV	N/A

Sorted By Tag		
Component Tag Number	Component Description	Risk Rank Change Due To Symmetry
1AF-0226	VLV	N/A
1AF-0227	VLV	N/A
1AF-0228	VLV	N/A
1AF-0229	VLV	N/A
1AF-0230	VLV	N/A
1AF-0231	VLV	N/A
1CC-0031	CCW PMP 1-01 DISCH CHK VLV	No Change
1CC-0061 (1)	CCW PMP 1-02 DISCH CHK VLV	No Change
1CC-0646	RC PMP 1-04 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	N/A
1CC-0657	RC PMP 1-03 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	N/A
1CC-0687	RC PMP 1-02 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	N/A
1CC-0694	RC PMP 1-01 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	N/A
1CC-0713	U1 RCP CLR CCW SPLY HDR CHK VLV	N/A
1CC-1075	RC PMP 1-01 THBR CLR CCW SPLY STOP CHK VLV	N/A
1CC-1076	RC PMP 1-02 THBR CLR CCW SPLY STOP CHK VLV	N/A
1CC-1077	RC PMP 1-03 THBR CLR CCW SPLY STOP CHK VLV	N/A
1CC-1078	RC PMP 1-04 THBR CLR CCW SPLY STOP CHK VLV	N/A
1CC-1079	CIRCLE SEAL CHECK VALVE 1/2" FNPT	N/A
1CC-1080	CIRCLE SEAL CHECK VALVE 1/2" FNPT	N/A
1CC-1081	CIRCLE SEAL CHECK VALVE 1/2" FNPT	N/A
1CC-1082	CIRCEL SEAL CHECK VALVE 1/2 FNPT	N/A
1CI-0030	U1 INST AIR HDR TO U1 CNTMT CHK VLV	N/A
1CS-8180	U1 IRC SL WTR RET CNMT ISOL BYP CHK VLV	N/A
1CS-8350A	RC PMP 1-01 SL WTR INJ CHK VLV	N/A
1CS-8350B	RC PMP 1-02 SL WTR INJ CHK VLV	N/A
1CS-8350C	RC PMP 1-03 SL WTR INJ CHK VLV	N/A
1CS-8350D	RC PMP 1-04 SL WTR INJ CHK VLV	N/A
1CS-8367A	RC PMP 1-01 SL INJ IMB CHK VLV	N/A
1CS-8367B	RC PMP 1-02 SL INJ IMB CHK VLV	N/A
1CS-8367C	RC PMP 1-03 SL INJ IMB CHK VLV	N/A
1CS-8367D	RC PMP 1-04 SL INJ IMB CHK VLV	N/A
1CS-8368A	RC PMP 1-01 SL INJ IRC CHK VLV	N/A
1CS-8368B	RC PMP 1-02 SL INJ IRC CHK VLV	N/A
1CS-8368C	RC PMP 1-03 SL INJ IRC CHK VLV	N/A
1CS-8368D	RC PMP 1-04 SL INJ IRC CHK VLV	N/A
1CS-8442	U1 EMER BORATE LN CHK VLV	N/A
1CS-8473	BA PMP 1-02 DISCH CHK VLV	N/A
1CS-8487	BA PMP 1-01 DISCH CHK VLV	N/A
1CT-0025	RWST TO CS PMP 1-02/1-04 SUCT CHK VLV	N/A
1CT-0042	CS PMP 1-02 DISCH CHK VLV	N/A
1CT-0047	CS PMP 1-04 MINIFLO LN CHK VLV	N/A
1CT-0048	CS PMP 1-02 MINIFLO LN CHK VLV	N/A
1CT-0063	CS PMP 1-03 MINIFLO LN CHK VLV	N/A
1CT-0064	CS PMP 1-01 MINIFLO LN CHK VLV	N/A
1CT-0065	CS PMP 1-03 DISCH CHK VLV	N/A
1CT-0077	RWST TO CSP 1-01/1-03 SUCT CHK VLV	N/A
1CT-0094	CS PMP 1-01 DISCH CHK VLV	N/A

N/A - Indicates Symmetry Evaluation Was Not Required

Table 4.1-2a
IPE Component Symmetry Evaluation

Sorted By Tag		
Component Tag Number	Component Description	Risk Rank Change Due To Symmetry
1CT-0142	U1 CS TRN A HDR IRC CHK VLV	N/A
1CT-0145	U1 CS TRN B HDR IRC CHK VLV	N/A
1CT-0148	CNTMT SMP TO CS PMP 1-02/1-04 CHK VLV	N/A
1CT-0149	CNTMT SMP TO CS PMP 1-01/1-03 CHK VLV	N/A
1DO-0004	DG 1-01 FO XREF PMP 1-01 DISCH CHK VLV	N/A
1DO-0005	DG 1-01 FO XREF PMP 1-02 DISCH CHK VLV	N/A
1DO-0016	DG 1-02 FO XFER PMP 1-03 DISCH CHK VLV	N/A
1DO-0017	DG 1-02 FO XFER PMP 1-04 DISCH CHK VLV	N/A
1DO-0049 (1)	DG 1-01 FO DAY TK 1-01 XFER HDR CHK VLV	No Change
1DO-0050	DG 1-02 FO DAY TK 1-02 XFER HDR CHK VLV	No Change
1FW-0076	SG 1-02 FW HDR CHK VLV	N/A
1FW-0082	SG 1-01 FW HDR CHK VLV	N/A
1FW-0088	SG 1-04 FW HDR CHK VLV	N/A
1FW-0195	SG 1-04 FW PREHTR BYP IRC CHK VLV	N/A
1FW-0196	SG 1-01 FW PREHTR BYP IRC CHK VLV	N/A
1FW-0197	SG 1-02 FW PREHTR BYP IRC CHK VLV	N/A
1FW-0198	SG 1-03 FW PREHTR BYP IRC CHK VLV	N/A
1FW-0199	SG 1-04 AFW NZL CHK VLV	N/A
1FW-0200	SG 1-01 AFW NZL CHK VLV	N/A
1FW-0201	SG 1-02 AFW NZL CHK VLV	N/A
1FW-0202	SG 1-03 AFW NZL CHK VLV	N/A
1MS-0026	SG 1-01 ATMOS RLF VLV UPSTRM ISOL VLV	N/A
1MS-0063	SG 1-02 ATMOS RLF VLV UPSTRM ISOL VLV	N/A
1MS-0098	SG 1-03 ATMOS RLF VLV UPSTRM ISOL VLV	N/A
1MS-0134	SG 1-04 ATMOS RLF VLV UPSTRM ISOL VLV	N/A
1MS-0142	MSL 1-04 TO AFWPT SPLY VLV DNSTRM CHK VLV	N/A
1MS-0143	MSL 1-01 TO AFWPT SPLY VLV DNSTRM CHK VLV	N/A
1MS-0680	SG 1-01 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	N/A
1MS-0681	SG 1-01 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	N/A
1MS-0682	SG 1-02 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	N/A
1MS-0683	SG 1-02 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	N/A
1MS-0684	SG 1-03 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	N/A
1MS-0685	SG 1-03 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	N/A
1MS-0686	SG 1-04 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	N/A
1MS-0687	SG 1-04 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	N/A
1SI-0047	RWST 1-01 TO SI ISOL VLV	N/A
1SI-8819A	SI TO CL 1-01 CHK VLV	N/A
1SI-8819B	SI TO CL 1-02 CHK VLV	N/A
1SI-8819C	SI TO CL 1-03 CHK VLV	N/A
1SI-8819D	SI TO CL 1-04 CHK VLV	N/A
1SI-8900A	CCP 1-01/1-02 TO CL 1-01 CHK VLV	N/A
1SI-8900B	CCP 1-01/1-02 TO CL 1-02 CHK VLV	N/A
1SI-8900C	CCP 1-01/1-02 TO CL 1-03 CHK VLV	N/A
1SI-8900D	CCP 1-01/1-02 TO CL 1-04 CHK VLV	N/A
1SI-8905A	SI TO HL 1-01 INJ UPSTRM CHK VLV	N/A
1SI-8905B	SI TO HL 1-02 INJ UPSTRM CHK VLV	N/A
1SI-8905C	SI TO HL 1-03 INJ UPSTRM CHK VLV	N/A

N/A - Indicates Symmetry Evaluation Was Not Required

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Change Due To Symmetry**
1SI-8905D	SI TO HL 1-04 INJ UPSTRM CHK VLV	N/A
1SI-8919A	SI PMP 1-01 TO RWST CHK VLV	N/A
1SI-8919B	SI PMP 1-02 TO RWST CHK VLV	N/A
1SW-0016 (3)	U1 SSW TRN B SPLY HDR IN CHK VLV	Decreased
1SW-0017 (3)	U1 SSW TRN A SPLY HDR IN CHK VLV	Decreased
1SW-0373	SSW PMP 1-02 DISCH CHK VLV	N/A
1SW-0374	SSW PMP 1-01 DISCH CHK VLV	N/A
CP1-AFAPMD-01 (1)	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-01	No Change
CP1-AFAPMD-02	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-02	No Change
CP1-AFAPTD-01	TURBINE DRIVEN AUXILIARY FEEDWATER PUMP 1-01	N/A
CP1-CCAPCC-01	COMPONENT COOLING WATER PUMP 1-01	N/A
CP1-CCAPCC-02	COMPONENT COOLING WATER PUMP 1-02	N/A
CP1-CHAPCP-05	SAFETY CHILLED WATER RECIRC PUMP 1-05	No Change
CP1-CHAPCP-06 (2)	SAFETY CHILLED WATER RECIRC PUMP 1-06	Increased
CP1-CTAPCS-01	CONTAINMENT SPRAY PUMP 1-01	N/A
CP1-CTAPCS-02	CONTAINMENT SPRAY PUMP 1-02	N/A
CP1-CTAPCS-03	CONTAINMENT SPRAY PUMP 1-03	N/A
CP1-CTAPCS-04	CONTAINMENT SPRAY PUMP 1-04	N/A
CP1-DOAPFT-01	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-01	N/A
CP1-DOAPFT-02	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-02	N/A
CP1-DOAPFT-03	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-03	N/A
CP1-DOAPFT-04	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-04	N/A
CP1-SWAPSW-01	STATION SERVICE WATER PUMP 1-01	No Change
CP1-SWAPSW-02 (1)	STATION SERVICE WATER PUMP 1-02	No Change
TBX-CSAPBA-01	BORIC ACID TRANSFER PUMP 1-01	N/A
TBX-CSAPBA-02	BORIC ACID TRANSFER PUMP 1-02	N/A
TBX-CSAPCH-01 (1)	CENTRIFUGAL CHARGING PUMP 1-01	No Change
TBX-CSAPCH-02	CENTRIFUGAL CHARGING PUMP 1-02	No Change
TBX-RHAPRH-01 (1)	RESIDUAL HEAT REMOVAL PUMP 1-01	No Change
TBX-RHAPRH-02	RESIDUAL HEAT REMOVAL PUMP 1-02	No Change
TBX-SIAPSI-01 (1)	SAFETY INJECTION PUMP 1-01	No Change
TBX-SIAPSI-02	SAFETY INJECTION PUMP 1-02	No Change
X-PCV-H116A (1)	UPS A\C UNIT X-01 CCW RET PCV	No Change
X-PCV-H116B	UPS A\C UNIT X-02 CCW RET PCV	No Change
X-PV-3583	CR A\C UNIT X-01 CCW RET PCV	N/A
X-PV-3585	CR A\C UNIT X-03 CCW RET PCV	N/A

(1) Component F-V/RAW values have been assessed and should be associated with its sister valve.
CDF risk catergory does not change

(2) Component F-V/RAW values have been assessed and should be associated with its sister valve.
CDF risk catergory for the component increases to match sister valve

(3) Component F-V/RAW values have been assessed and should be revised to
CDF risk catergory "None" as valves internals removed

Table 4.1-3
Risk Ranking Changes For IST Componenets Considering Fire And Tornado External Events

Component Tag Number	Component Description	Risk Rank Change Due To IPEEE Fire And Tornado
1-8110	Ccp 1-01/1-02 Dnstrm Miniflow Vlv	Increased -Medium
1-8111	Ccp 1-01/1-02 Upstrm Miniflow Vlv	Increased -Medium
1-8546	Rwst 1-01 To Chrg Pmp Suct Chk Vlv	Increased -Medium
1-8806	Rwst 1-01 To SI Pmps Suct Vlv	Increased -Medium
1-8815	Ccp 1-01/1-02 Inj Chk Vlv	Increased -Medium
1-8835	SI Pmp 1-01/1-02 To Cl Inj Isol Vlv	Increased -Medium
1-8923A	SI Pmp 1-01 Suct Vlv	Increased -Medium
1-8923B	SI Pmp 1-02 Suct Vlv	Increased -Medium
1-FCV-0610	RHR Pmp 1-01 Miniflo Vlv	Increased -Medium
1-FCV-0611	RHR Pmp 1-02 Miniflo Vlv	Increased -Medium
1-LCV-0112B	VCT 1-01 TO CHRG PMP SUCT VLV 0112B	Increased -Medium
1-LCV-0112C	VCT 1-01 TO CHRG PMP SUCT VLV 0112C	Increased -Medium
1-LCV-0112D	RWST 1-01 TO CHRG PMP SUCT VLV 0112D	Increased -Medium
1-LCV-0112E	RWST 1-01 TO CHRG PMP SUCT VLV 0112E	Increased -Medium
1-PV-2325	SG 1-01 ATMOS RLF VLV	Increased -Medium
1-PV-2326	SG 1-02 ATMOS RLF VLV	Increased -Medium
1-PV-2327	SG 1-03 ATMOS RLF VLV	Increased -Medium
1-PV-2328	SG 1-04 ATMOS RLF VLV	Increased -Medium
X-PCV-H116A	UPS A\C UNIT X-01 CCW RET PCV	Increased -Medium
X-PCV-H116B	UPS A\C UNIT X-02 CCW RET PCV	Increased -Medium

Table 4.1-3a
IPEEE Fire And Tornado IST Component Evaluation

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Change Due To IPEEE Fire And Tornado**
1-7136	Rcdt Pump Discharge Control Valve	No change
1-8000A	Przr 1-01 Porv 0455A Blk Vlv	No change
1-8000B	Przr 1-01 Porv 0456 Blk Vlv	No change
1-8010A	Przr 1-01 Sfty Vlv A	No change
1-8010B	Przr 1-01 Sfty Vlv B	No change
1-8010C	Przr 1-01 Sfty Vlv C	No change
1-8100	U1 Rcp Sl Wtr Ret Isol Vlv	No change
1-8104	U1 Emer Borate Vlv	No change
1-8105	U1 Chrg Pmp To RCS Cntmt Isol Vlv	No change
1-8106	U1 Chrg Pmp To RCS Cntmt Isol Vlv	No change
1-8110	Ccp 1-01/1-02 Dnstrm Miniflow Vlv	Increased -Medium
1-8111	Ccp 1-01/1-02 Upstrm Miniflow Vlv	Increased -Medium
1-8112	U1 RC Pmp Seal Wtr Ret Isol Vlv	No change
1-8145	U1 Przr Aux Spr Vlv	No change
1-8146	U1 RCS Loop 4 Chrg Vlv	No change
1-8152	U1 LTDN CNTMT ORC ISOL VLV	No change
1-8160	U1 LTDN CNTMT IRC ISOL VLV	No change
1-8351A	RC Pmp 1-01 Sl Wtr Inj Vlv	No change
1-8351B	RC Pmp 1-02 Sl Wtr Inj Vlv	No change
1-8351C	RC Pmp 1-03 Sl Wtr Inj Vlv	No change
1-8351D	RC Pmp 1-04 Sl Wtr Inj Vlv	No change
1-8378A	RCS Loop 1-04 Chrg Dnstrm Chk Vlv	No change
1-8378B	RCS Loop 1-04 Chrg Upstrm Chk Vlv	No change
1-8381	Chrg Ln Irc Chk Vlv	No change
1-8481A	Ccp 1-01 Disch Chk Vlv	No change
1-8481B	Ccp 1-02 Disch Chk Vlv	No change
1-8497	Pd Pmp 1-01 Disch Chk Vlv	No change
1-8511A	Ccp 1-01 Alt Miniflo Isol Vlv	No change
1-8511B	Ccp 1-02 Alt Miniflo Isol Vlv	No change
1-8512A	Ccp 1-02 Alt Miniflo Isol Vlv	No change
1-8512B	Ccp 1-01 Alt Miniflo Isol Vlv	No change
1-8546	Rwst 1-01 To Chrg Pmp Suct Chk Vlv	Increased -Medium
1-8701A	RHR Pmp 1-01 Hl 1-01 Recirc Omb Isol Vlv	No change
1-8701B	RHR Pmp 1-02 Hl 1-04 Recirc Omb Isol Vlv	No change
1-8702A	RHR Pmp 1-01 Hl 1-01 Reicrc Imb Isol Vlv	No change
1-8702B	RHR Pmp 1-02 Hl 1-04 Recirc Imb Isol Vlv	No change
1-8708A	RHR Pmp 1-01 Suct Rlf Vlv	No change
1-8708B	RHR Pmp 1-02 Suct Rlf Vlv	No change
1-8716A	RHR Pmp 1-01 Xtie Vlv	No change
1-8716B	RHR Pmp 1-02 Xtie Vlv	No change
1-8717	U1 RHR Pmps Disch To Rwst Isol Vlv	No change
1-8730A	RHR Hx 1-01 Disch Chk Vlv	No change
1-8730B	RHR Hx 1-02 Disch Chk Vlv	No change
1-8801A	Ccp 1-01/1-02 Sl Isol Vlv 8801A	No change
1-8801B	Ccp 1-01/1-02 Sl Isol Vlv 8801B	No change

Table 4.1-3a
IPEEE Fire And Tornado IST Component Evaluation

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Change Due To IPEEE Fire And Tornado**
1-8802A	SI Pmp 1-01 To Hl 2 & 3 Inj Isol Vlv	No change
1-8802B	SI Pmp 1-02 To Hl 1 & 4 Inj Isol Vlv	No change
1-8804A	RHR Pmp 1-01 To Ccp Suct Vlv	No change
1-8804B	RHR Pmp 1-02 To SI Pmps Suct Vlv	No change
1-8806	Rwst 1-01 To SI Pmps Suct Vlv	Increased -Medium
1-8807A	U1 SIP/CCP Suct Hdr Xtie Vlv 8807A	No change
1-8807B	U1 SIP/CCP Suct Hdr Xtie Vlv 8807B	No change
1-8808A	SI Accum 1-01 Inj Vlv	No change
1-8808B	SI Accum 1-02 Inj Vlv	No change
1-8808C	SI Accum 1-03 Inj Vlv	No change
1-8808D	SI Accum 1-04 Inj Vlv	No change
1-8809A	RHR To Cl 1-01/1-02 Inj Isol Vlv	No change
1-8809B	RHR To Cl 1-03/1-04 Inj Isol Vlv	No change
1-8811A	Cntmt Smp To RHR Pmp 1-01 Suct Isol Vlv	No change
1-8811B	Cntmt Smp To RHR Pmp 1-02 Suct Isol Vlv	No change
1-8812A	Rwst 1-01 To RHR Pmp 1-01 Suct Vlv	No change
1-8812B	Rwst 1-01 To RHR Pmp 1-02 Suct Vlv	No change
1-8813	SI Pmp 1-01/1-02 Miniflo Ret Vlv	No change
1-8814A	SI Pmp 1-01 Miniflo Vlv	No change
1-8814B	SI Pmp 1-02 Miniflo Vlv	No change
1-8815	Ccp 1-01/1-02 Inj Chk Vlv	Increased -Medium
1-8818A	RHR Cl 1-01 Inj Chk Vlv	No change
1-8818B	RHR Cl 1-02 Inj Chk Vlv	No change
1-8818C	RHR Cl 1-03 Inj Chk Vlv	No change
1-8818D	RHR Cl 1-04 Inj Chk Vlv	No change
1-8821A	SI Pmp 1-01 Xtie Vlv	No change
1-8821B	SI Pmp 1-02 Xtie Vlv	No change
1-8835	SI Pmp 1-01/1-02 To Cl Inj Isol Vlv	Increased -Medium
1-8840	RHR To Hl 1-02/1-03 Inj Isol Vlv	No change
1-8841A	RHR To RCS Hl 1-02 Upstrm Chk Vlv	No change
1-8841B	RHR To RCS Hl 1-03 Upstrm Chk Vlv	No change
1-8875A	SI Accum 1-01 N2 SPLY/VENT Vlv	No change
1-8875B	SI Accum 1-02 N2 SPLY/VENT Vlv	No change
1-8875C	SI Accum 1-03 N2 SPLY/VENT Vlv	No change
1-8875D	SI Accum 1-04 N2 SPLY/VENT Vlv	No change
1-8877A	SI Accum 1-01 Tst Ln Isol Vlv	No change
1-8877B	SI Accum 1-02 Tst Ln Isol Vlv	No change
1-8877C	SI Accum 1-03 Tst Ln Isol Vlv	No change
1-8877D	SI Accum 1-04 Tst Ln Isol Vlv	No change
1-8878A	SI Accum 1-01 Fill Vlv	No change
1-8878B	SI Accum 1-02 Fill Vlv	No change
1-8878C	SI Accum 1-03 Fill Vlv	No change
1-8878D	SI Accum 1-04 Fill Vlv	No change
1-8922A	SI Pmp 1-01 Disch Chk Vlv	No change
1-8922B	SI Pmp 1-02 Disch Chk Vlv	No change
1-8923A	SI Pmp 1-01 Suct Vlv	Increased -Medium

Table 4.1-3a
IPEEE Fire And Tornado IST Component Evaluation

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Change Due To IPEEE Fire And Tornado**
1-8923B	SI Pmp 1-02 Suct Vlv	Increased -Medium
1-8924	U1 SIP/CCP Suct Hdr Xtie Isol Vlv	No change
1-8926	SI Pmp 1-01/1-02 Suct Chk Vlv	No change
1-8948A	SI Accum 1-01 Dnstrm Inj Chk Vlv	No change
1-8948B	SI Accum 1-02 Dnstrm Inj Chk Vlv	No change
1-8948C	SI Accum 1-03 Dnstrm Inj Chk Vlv	No change
1-8948D	SI Accum 1-04 Dnstrm Inj Chk Vlv	No change
1-8949A	RHR To Rcp Hl 1-01 Dnstrm Chk Vlv	No change
1-8949B	RHR To Rcp Hl 1-02 Dnstrm Chk Vlv	No change
1-8949C	RHR To Rcp Hl 1-03 Dnstrm Chk Vlv	No change
1-8949D	RHR To Rcp Hl 1-04 Dnstrm Chk Vlv	No change
1-8956A	SI Accum 1-01 Upstrm Inj Chk Vlv	No change
1-8956B	SI Accum 1-02 Upstrm Inj Chk Vlv	No change
1-8956C	SI Accum 1-03 Upstrm Inj Chk Vlv	No change
1-8956D	SI Accum 1-04 Upstrm Inj Chk Vlv	No change
1-8958A	Rwst 1-01 To RHR Pmp 1-01 Chk Vlv	No change
1-8958B	Rwst 1-01 To RHR Pmp 1-02 Chk Vlv	No change
1-8969A	RHR To Ccp 1-01/1-02 Suct Chk Vlv	No change
1-8969B	RHR To SI Pmp 1-01/1-02 Suct Chk Vlv	No change
1-FCV-0610	RHR Pmp 1-01 Miniflo Vlv	Increased -Medium
1-FCV-0611	RHR Pmp 1-02 Miniflo Vlv	Increased -Medium
1-FCV-0618	RHR Hx 1-01 Byp Flo Ctrl Vlv	No change
1-FCV-0619	RHR Hx 1-02 Byp Flo Ctrl Vlv	No change
1-FV-2193	SG 1-01 Fw Prehtr Byp Vlv	No change
1-FV-2196	SG 1-04 Fw Prehtr Byp Vlv	No change
1-FV-4772-1	Cs Pmp 1-01 Recirc Vlv	No change
1-FV-4772-2	Cs Pmp 1-03 Recirc Vlv	No change
1-FV-4773-1	Cs Pmp 1-02 Recirc Vlv	No change
1-FV-4773-2	Cs Pmp 1-04 Recirc Vlv	No change
1-HCV-0606	RHR Hx 1-01 Flo Ctrl Vlv	No change
1-HCV-0607	RHR Hx 1-02 Flo Ctrl Vlv	No change
1-HV-2134	SG 1-01 FW ISOL VLV	No change
1-HV-2135	SG 1-02 FW ISOL VLV	No change
1-HV-2136	SG 1-03 FW ISOL VLV	No change
1-HV-2137	SG 1-04 FW ISOL VLV	No change
1-HV-2333A	MSIV 1-01	No change
1-HV-2334A	MSIV 1-02	No change
1-HV-2335A	MSIV 1-03	No change
1-HV-2336A	MSIV 1-04	No change
1-HV-2397	SG 1-01 BLDN ISOL VLV	No change
1-HV-2397A	SG 1-01 BLDN HELB ISOL VLV	No change
1-HV-2409	MSL 1-01 BEF MSIV D\POT 1-25 ISOL VLV	No change
1-HV-2410	MSL 1-02 BEF MSIV D\POT ISOL VLV	No change
1-HV-2411	MSL 1-03 BEF MSIV D\POT ISOL VLV	No change
1-HV-2412	MSL 1-04 BEF MSIV D\POT ISOL VLV	No change
1-HV-2452-1	MSL 1-01 TO AFWPT STM SPLY VLV	No change

Table 4.1-3a
IPEEE Fire And Tornado IST Component Evaluation

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Change Due To IPEEE Fire And Tornado**
1-HV-2452-2	MSL 1-04 TO AFWPT STM SPLY VLV	No change
1-HV-2459	TD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	No change
1-HV-2460	TD AFW PMP 1-01 DISCH TO SG 1-02 FCV	No change
1-HV-2461	TD AFW PMP 1-01 DISCH TO SG 1-03 FLO CTRL VLV	No change
1-HV-2462	TD AFW PMP 1-01 DISCH TO SG 1-04 FLO CTRL VLV	No change
1-HV-2491A	TD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	No change
1-HV-2491B	MD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	No change
1-HV-2492A	TD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	No change
1-HV-2492B	MD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	No change
1-HV-2493A	MD AFW PMP 1-02 DISCH TO SG 1-03 ISOL VLV	No change
1-HV-2493B	TD AFW PMP 1-01 DISCH TO SG 1-03 ISOL VLV	No change
1-HV-2494A	MD AFW PMP 1-02 DISCH TO SG 1-04 ISOL VLV	No change
1-HV-2494B	TD AFW PMP 1-01 DISCH TO SG 1-04 ISOL VLV	No change
1-HV-3487	U1 CNTMT INST AIR HDR ISOL VLV	No change
1-HV-4171	ACCUM 1-01 LIQ SPACE SMPL LN IRC ISOL VLV	No change
1-HV-4172	ACCUM 1-02 LIQ SPACE SMPL LN IRC ISOL VLV	No change
1-HV-4173	ACCUM 1-03 LIQ SPACE SMPL LN IRC ISOL VLV	No change
1-HV-4174	ACCUM 1-04 LIQ SPACE SMPL LN IRC ISOL VLV	No change
1-HV-4286	SSW PMP 1-01 DISCH VLV	No change
1-HV-4287	SSW PMP 1-02 DISCH VLV	No change
1-HV-4393	DG 1-01 JKT WTR CLR SSW RET VLV	No change
1-HV-4394	DG 1-02 JKT WTR CLR SSW RET VLV	No change
1-HV-4512	U1 SFGD LOOP A CCW RET VLV	No change
1-HV-4513	U1 SFGD LOOP B CCW RET VLV	No change
1-HV-4514	U1 SFGD LOOP A CCW SPLY VLV	No change
1-HV-4515	U1 SFGD LOOP B CCW SPLY VLV	No change
1-HV-4524	U1 NON-SFGD LOOP CCW DNSTRM RET VLV	No change
1-HV-4525	U1 NON-SFGD LOOP CCW UPSTRM RET VLV	No change
1-HV-4526	U1 NON-SFGD LOOP CCW UPSTRM SPLY VLV	No change
1-HV-4527	U1 NON-SFGD LOOP CCW DNSTRM SPLY VLV	No change
1-HV-4572	RHR HX 1-01 CCW RET VLV	No change
1-HV-4573	RHR HX 1-02 CCW RET VLV	No change
1-HV-4574	CS HX 1-01 CCW RET VLV	No change
1-HV-4575	CS HX 1-02 CCW RET VLV	No change
1-HV-4696	U1 THBR CLR CCW RET IRC ISOL VLV	No change
1-HV-4699	U1 RCP/THBR CLR CCW SPLY ORC UPSTRM ISOL VLV	No change
1-HV-4700	U1 RCP/THBR CLR CCW SPLY ORC DNSTRM ISOL VLV	No change
1-HV-4701	U1 RCP CLR CCW RET IRC ISOL VLV	No change
1-HV-4708	U1 RCP CLR CCW RET ORC ISOL VLV	No change
1-HV-4709	U1 THBR CLR CCW RET ORC ISOL VLV	No change
1-HV-4725	CNTMT CCW DRN TK 1-02 IRC ISOL VLV	No change
1-HV-4726	CNTMT CCW DRN TK 1-02 ORC ISOL VLV	No change
1-HV-4758	RWST TO CS PMP 1-01/1-03 SUCT VLV	No change
1-HV-4759	RWST TO CS PMP 1-02/1-04 SUCT VLV	No change
1-HV-4776	CS HX 1-01 OUT VLV	No change
1-HV-4777	CS HX 1-02 OUT VLV	No change

Table 4.1-3a
IPEEE Fire And Tornado IST Component Evaluation

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Change Due To IPEEE Fire And Tornado**
1-HV-4782	CNTMT SMP TO CS PMP 1-01/1-03 SUCT ISOL VLV	No change
1-HV-4783	CNTMT SMP TO CS PMP 1-02/1-04 SUCT ISOL VLV	No change
1-HV-5157	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR ORC ISOL VLV	No change
1-HV-5158	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR IRC ISOL VLV	No change
1-HV-5548	U1 CNTMT PRESS RLF SYS ORC ISOL VLV	No change
1-HV-5549	U1 CNTMT PRESS RLF SYS IRC ISOL VLV	No change
1-HV-8220	U1 CHARGE PMP SUCT HI PNT VNT VLV 8220	No change
1-HV-8221	U1 CHARGE PMP HI PNT VNT VLV 8221	No change
1-LCV-0112B	VCT 1-01 TO CHRG PMP SUCT VLV 0112B	Increased -Medium
1-LCV-0112C	VCT 1-01 TO CHRG PMP SUCT VLV 0112C	Increased -Medium
1-LCV-0112D	RWST 1-01 TO CHRG PMP SUCT VLV 0112D	Increased -Medium
1-LCV-0112E	RWST 1-01 TO CHRG PMP SUCT VLV 0112E	Increased -Medium
1-LCV-1003	LWPS RCDT 1-01 LVL CTRL VLV	No change
1-PCV-0455A	PRZR 1-01 PORV 0455A	No change
1-PCV-0456	PRZR PWR OPERATED RELIEF VLV	No change
1-PV-2325	SG 1-01 ATMOS RLF VLV	Increased -Medium
1-PV-2326	SG 1-02 ATMOS RLF VLV	Increased -Medium
1-PV-2327	SG 1-02 ATMOS RLF VLV	Increased -Medium
1-PV-2328	SG 1-04 ATMOS RLF VLV	Increased -Medium
1-PV-2453A	MD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	No change
1-PV-2453B	MD AFW PMP 1-01 DISCH TO SG 1-02 CTRL VLV	No change
1-PV-2454A	MD AFW PMP 1-02 DISCH TO SG 1-03 CTRL VLV	No change
1-PV-2454B	MD AFW PMP 1-02 DISCH TO SG 1-04 CTRL VLV	No change
1-PV-4552	SFTY CHLR 1-05 CCW RET PCV	No change
1-PV-4553	SFTY CHLR 1-06 CCW RET PCV	No change
1AF-0014	CST TO MD AFW PMP 1-01 SUCT CHK VLV	No change
1AF-0024	CST TO MD AFW PMP 1-02 SUCT CHK VLV	No change
1AF-0032	CST 1-01 TO TD AFW PMP CHK VLV	No change
1AF-0038	TD AFW PMP 1-01 DISCH CHK VLV	No change
1AF-0041	TD AFW PMP 1-01 DISCH ISOL VLV	No change
1AF-0051	MD AFW PMP 1-02 DISCH CHK VLV	No change
1AF-0054	MD AFW PMP 1-02 DISCH ISOL VLV	No change
1AF-0065	MD AFW PMP 1-01 DISCH CHK VLV	No change
1AF-0066	MD AFW PMP 1-01 DISCH ISOL VLV	No change
1AF-0075	MD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	No change
1AF-0078	TD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	No change
1AF-0083	MD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	No change
1AF-0086	TD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	No change
1AF-0093	MD AFW PMP 1-02 DISCH TO SG 1-03 CHK VLV	No change
1AF-0098	TD AFW PMP 1-01 DISCH TO SG 1-03 CHK VLV	No change
1AF-0101	MD AFW PMP 1-02 DISCH TO SG 1-04 CHK VLV	No change
1AF-0106	TD AFW PMP 1-01 DISCH TO SG 1-04 CHK VLV	No change
1AF-0215	MD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY UPSTRM CHK VLV	No change
1AF-0216	MD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY DNSTRM CHK VLV	No change
1AF-0217	MD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY UPSTRM CHK VLV	No change

Table 4.1-3a
IPEEE Fire And Tornado IST Component Evaluation

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Change Due To IPEEE Fire And Tornado**
1AF-0218	MD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY DNSTRM CHK VLV	No change
1AF-0219	MD AFW PMP 1-02 FCV TO SG 1-03 AIR SPLY UPSTRM CHK VLV	No change
1AF-0220	MD AFW PMP 1-02 FCV TO SG 1-03 AIR SPLY DNSTRM CHK VLV	No change
1AF-0221	MD AFW PMP 1-02 FCV TO SG 1-04 AIR SPLY UPSTRM CHK VLV	No change
1AF-0222	MD AFW PMP 1-02 FCV TO SG 1-04 AIR SPLY DNSTRM CHK VLV	No change
1AF-0223	TD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY DNSTRM CHK VLV	No change
1AF-0224	TD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY UPSTRM CHK VLV	No change
1AF-0226	TD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY UPSTRM CHK VLV	No change
1AF-0227	TD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY DNSTRM CHK VLV	No change
1AF-0228	TD AFW PMP 1-01 FCV TO SG 1-03 AIR SPLY UPSTRM CHK VLV	No change
1AF-0229	TD AFW PMP 1-01 FCV TO SG 1-03 AIR SPLY DNSTRM CHK VLV	No change
1AF-0230	TD AFW PMP 1-01 FCV TO SG 1-04 AIR SPLY UPSTRM CHK VLV	No change
1AF-0231	TD AFW PMP 1-01 FCV TO SG 1-04 AIR SPLY DNSTRM CHK VLV	No change
1CC-0031	CCW PMP 1-01 DISCH CHK VLV	No change
1CC-0061	CCW PMP 1-02 DISCH CHK VLV	No change
1CC-0646	RC PMP 1-04 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No change
1CC-0657	RC PMP 1-03 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No change
1CC-0687	RC PMP 1-02 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No change
1CC-0694	RC PMP 1-01 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No change
1CC-0713	U1 RCP CLR CCW SPLY HDR CHK VLV	No change
1CC-1075	RC PMP 1-01 THBR CLR CCW SPLY STOP CHK VLV	No change
1CC-1076	RC PMP 1-02 THBR CLR CCW SPLY STOP CHK VLV	No change
1CC-1077	RC PMP 1-03 THBR CLR CCW SPLY STOP CHK VLV	No change
1CC-1078	RC PMP 1-04 THBR CLR CCW SPLY STOP CHK VLV	No change
1CC-1079	CIRCLE SEAL CHECK VALVE 1/2" FNPT	No change
1CC-1080	CIRCLE SEAL CHECK VALVE 1/2" FNPT	No change
1CC-1081	CIRCLE SEAL CHECK VALVE 1/2" FNPT	No change
1CC-1082	CIRCEL SEAL CHECK VALVE 1/2 FNPT	No change
1CI-0030	U1 INST AIR HDR TO U1 CNTMT CHK VLV	No change
1CS-8180	U1 IRC SL WTR RET CNMT ISOL BYP CHK VLV	No change
1CS-8350A	RC PMP 1-01 SL WTR INJ CHK VLV	No change
1CS-8350B	RC PMP 1-02 SL WTR INJ CHK VLV	No change
1CS-8350C	RC PMP 1-03 SL WTR INJ CHK VLV	No change
1CS-8350D	RC PMP 1-04 SL WTR INJ CHK VLV	No change
1CS-8367A	RC PMP 1-01 SL INJ IMB CHK VLV	No change
1CS-8367B	RC PMP 1-02 SL INJ IMB CHK VLV	No change
1CS-8367C	RC PMP 1-03 SL INJ IMB CHK VLV	No change
1CS-8367D	RC PMP 1-04 SL INJ IMB CHK VLV	No change
1CS-8368A	RC PMP 1-01 SL INJ IRC CHK VLV	No change
1CS-8368B	RC PMP 1-02 SL INJ IRC CHK VLV	No change
1CS-8368C	RC PMP 1-03 SL INJ IRC CHK VLV	No change
1CS-8368D	RC PMP 1-04 SL INJ IRC CHK VLV	No change
1CS-8442	U1 EMER BORATE LN CHK VLV	No change
1CS-8473	BA PMP 1-02 DISCH CHK VLV	No change
1CS-8487	BA PMP 1-01 DISCH CHK VLV	No change

Table 4.1-3a
IPEEE Fire And Tornado IST Component Evaluation

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Change Due To IPEEE Fire And Tornado**
1CT-0025	RWST TO CS PMP 1-02/1-04 SUCT CHK VLV	No change
1CT-0042	CS PMP 1-02 DISCH CHK VLV	No change
1CT-0047	CS PMP 1-04 MINIFLO LN CHK VLV	No change
1CT-0048	CS PMP 1-02 MINIFLO LN CHK VLV	No change
1CT-0063	CS PMP 1-03 MINIFLO LN CHK VLV	No change
1CT-0064	CS PMP 1-01 MINIFLO LN CHK VLV	No change
1CT-0065	CS PMP 1-03 DISCH CHK VLV	No change
1CT-0077	RWST TO CSP 1-01/1-03 SUCT CHK VLV	No change
1CT-0094	CS PMP 1-01 DISCH CHK VLV	No change
1CT-0142	U1 CS TRN A HDR IRC CHK VLV	No change
1CT-0145	U1 CS TRN B HDR IRC CHK VLV	No change
1CT-0148	CNTMT SMP TO CS PMP 1-02/1-04 CHK VLV	No change
1CT-0149	CNTMT SMP TO CS PMP 1-01/1-03 CHK VLV	No change
1DO-0004	DG 1-01 FO XREF PMP 1-01 DISCH CHK VLV	No change
1DO-0005	DG 1-01 FO XREF PMP 1-02 DISCH CHK VLV	No change
1DO-0016	DG 1-02 FO XFER PMP 1-03 DISCH CHK VLV	No change
1DO-0017	DG 1-02 FO XFER PMP 1-04 DISCH CHK VLV	No change
1DO-0049	DG 1-01 FO DAY TK 1-01 XFER HDR CHK VLV	No change
1DO-0050	DG 1-02 FO DAY TK 1-02 XFER HDR CHK VLV	No change
1FW-0076	SG 1-02 FW HDR CHK VLV	No change
1FW-0082	SG 1-01 FW HDR CHK VLV	No change
1FW-0088	SG 1-04 FW HDR CHK VLV	No change
1FW-0195	SG 1-04 FW PREHTR BYP IRC CHK VLV	No change
1FW-0196	SG 1-01 FW PREHTR BYP IRC CHK VLV	No change
1FW-0197	SG 1-02 FW PREHTR BYP IRC CHK VLV	No change
1FW-0198	SG 1-03 FW PREHTR BYP IRC CHK VLV	No change
1FW-0199	SG 1-04 AFW NZL CHK VLV	No change
1FW-0200	SG 1-01 AFW NZL CHK VLV	No change
1FW-0201	SG 1-02 AFW NZL CHK VLV	No change
1FW-0202	SG 1-03 AFW NZL CHK VLV	No change
1MS-0026	SG 1-01 ATMOS RLF VLV UPSTRM ISOL VLV	No change
1MS-0063	SG 1-02 ATMOS RLF VLV UPSTRM ISOL VLV	No change
1MS-0098	SG 1-03 ATMOS RLF VLV UPSTRM ISOL VLV	No change
1MS-0134	SG 1-04 ATMOS RLF VLV UPSTRM ISOL VLV	No change
1MS-0142	MSL 1-04 TO AFWPT SPLY VLV DNSTRM CHK VLV	No change
1MS-0143	MSL 1-01 TO AFWPT SPLY VLV DNSTRM CHK VLV	No change
1MS-0680	SG 1-01 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No change
1MS-0681	SG 1-01 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No change
1MS-0682	SG 1-02 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No change
1MS-0683	SG 1-02 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No change
1MS-0684	SG 1-03 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No change
1MS-0685	SG 1-03 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No change
1MS-0686	SG 1-04 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No change
1MS-0687	SG 1-04 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No change
1SI-0047	RWST 1-01 TO SI ISOL VLV	No change
1SI-8819A	SI TO CL 1-01 CHK VLV	No change

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Change Due To IPEEE Fire And Tornado**
1SI-8819B	SI TO CL 1-02 CHK VLV	No change
1SI-8819C	SI TO CL 1-03 CHK VLV	No change
1SI-8819D	SI TO CL 1-04 CHK VLV	No change
1SI-8900A	CCP 1-01/1-02 TO CL 1-01 CHK VLV	No change
1SI-8900B	CCP 1-01/1-02 TO CL 1-02 CHK VLV	No change
1SI-8900C	CCP 1-01/1-02 TO CL 1-03 CHK VLV	No change
1SI-8900D	CCP 1-01/1-02 TO CL 1-04 CHK VLV	No change
1SI-8905A	SI TO HL 1-01 INJ UPSTRM CHK VLV	No change
1SI-8905B	SI TO HL 1-02 INJ UPSTRM CHK VLV	No change
1SI-8905C	SI TO HL 1-03 INJ UPSTRM CHK VLV	No change
1SI-8905D	SI TO HL 1-04 INJ UPSTRM CHK VLV	No change
1SI-8919A	SI PMP 1-01 TO RWST CHK VLV	No change
1SI-8919B	SI PMP 1-02 TO RWST CHK VLV	No change
1SW-0016	U1 SSW TRN B SPLY HDR IN CHK VLV	No change
1SW-0017	U1 SSW TRN A SPLY HDR IN CHK VLV	No change
1SW-0373	SSW PMP 1-02 DISCH CHK VLV	No change
1SW-0374	SSW PMP 1-01 DISCH CHK VLV	No change
CP1-AFAPMD-01	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-01	No change
CP1-AFAPMD-02	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-02	No change
CP1-AFAPTD-01	TURBINE DRIVEN AUXILIARY FEEDWATER PUMP 1-01	No change
CP1-CCAPCC-01	COMPONENT COOLING WATER PUMP 1-01	No change
CP1-CCAPCC-02	COMPONENT COOLING WATER PUMP 1-02	No change
CP1-CHAPCP-05	SAFETY CHILLED WATER RECIRC PUMP 1-05	No change
CP1-CHAPCP-06	SAFETY CHILLED WATER RECIRC PUMP 1-06	No change
CP1-CTAPCS-01	CONTAINMENT SPRAY PUMP 1-01	No change
CP1-CTAPCS-02	CONTAINMENT SPRAY PUMP 1-02	No change
CP1-CTAPCS-03	CONTAINMENT SPRAY PUMP 1-03	No change
CP1-CTAPCS-04	CONTAINMENT SPRAY PUMP 1-04	No change
CP1-DOAPFT-01	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-01	No change
CP1-DOAPFT-02	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-02	No change
CP1-DOAPFT-03	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-03	No change
CP1-DOAPFT-04	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-04	No change
CP1-SWAPSW-01	STATION SERVICE WATER PUMP 1-01	No change
CP1-SWAPSW-02	STATION SERVICE WATER PUMP 1-02	No change
TBX-CSAPBA-01	BORIC ACID TRANSFER PUMP 1-01	No change
TBX-CSAPBA-02	BORIC ACID TRANSFER PUMP 1-02	No change
TBX-CSAPCH-01	CENTRIFUGAL CHARGING PUMP 1-01	No change
TBX-CSAPCH-02	CENTRIFUGAL CHARGING PUMP 1-02	No change
TBX-RHAPRH-01	RESIDUAL HEAT REMOVAL PUMP 1-01	No change
TBX-RHAPRH-02	RESIDUAL HEAT REMOVAL PUMP 1-02	No change
TBX-SIAPSI-01	SAFETY INJECTION PUMP 1-01	No change
TBX-SIAPSI-02	SAFETY INJECTION PUMP 1-02	No change
X-PCV-H116A	UPS A\C UNIT X-01 CCW RET PCV	Increased -Medium
X-PCV-H116B	UPS A\C UNIT X-02 CCW RET PCV	Increased -Medium
X-PV-3583	CR A\C UNIT X-01 CCW RET PCV	No change
X-PV-3585	CR A\C UNIT X-03 CCW RET PCV	No change

Table 4.1-4

IPE/IST Component Ranking Changes Due To Evaluation Of Shutdown Considerations

Component Tag Number	Component Description	Risk Rank Changes Due To Shutdown Considerations
1-8701A	RHR Pmp 1-01 Hl 1-01 Recirc Omb Isol Vlv	Category 2
1-8701B	RHR Pmp 1-02 Hl 1-04 Recirc Omb Isol Vlv	Category 2
1-8702A	RHR Pmp 1-01 Hl 1-01 Reicrc Imb Isol Vlv	Category 2
1-8702B	RHR Pmp 1-02 Hl 1-04 Recirc Imb Isol Vlv	Category 2
1-8708A	RHR Pmp 1-01 Suct Rlf Vlv	Category 1
1-8708B	RHR Pmp 1-02 Suct Rlf Vlv	Category 1
1-8809A	RHR To Cl 1-01/1-02 Inj Isol Vlv	Category 1
1-8809B	RHR To Cl 1-03/1-04 Inj Isol Vlv	Category 1
1-8812A	Rwst 1-01 To RHR Pmp 1-01 Suct Vlv	Category 1
1-8812B	Rwst 1-01 To RHR Pmp 1-02 Suct Vlv	Category 1
1-8835	SI Pmp 1-01/1-02 To Cl Inj Isol Vlv	Category 1
1-HCV-0606	RHR Hx 1-01 Flo Ctrl Vlv	Category 1
1-HCV-0607	RHR Hx 1-02 Flo Ctrl Vlv	Category 1
1-PCV-0455A	PRZR 1-01 PORV 0455A	Category 1
1-PCV-0456	PRZR PWR OPERATED RELIEF VLV	Category 1

Table 4.1-4a
IPE/IST Component Evaluation For Shutdown Considerations

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Due To Shutdown Considerations**
1-7136	Rcdt Pump Discharge Control Valve	No change
1-8000A	Przr 1-01 Porv 0455A Blk Vlv	No change
1-8000B	Przr 1-01 Porv 0456 Blk Vlv	No change
1-8010A	Przr 1-01 Sfty Vlv A	No change
1-8010B	Przr 1-01 Sfty Vlv B	No change
1-8010C	Przr 1-01 Sfty Vlv C	No change
1-8100	U1 Rcp Sl Wtr Ret Isol Vlv	No change
1-8104	U1 Emer Borate Vlv	No change
1-8105	U1 Chrg Pmp To RCS Cntmt Isol Vlv	No change
1-8106	U1 Chrg Pmp To RCS Cntmt Isol Vlv	No change
1-8110	Ccp 1-01/1-02 Dnstrm Miniflow Vlv	No change
1-8111	Ccp 1-01/1-02 Upstrm Miniflow Vlv	No change
1-8112	U1 RC Pmp Seal Wtr Ret Isol Vlv	No change
1-8145	U1 Przr Aux Spr Vlv	No change
1-8146	U1 RCS Loop 4 Chrg Vlv	No change
1-8152	U1 LTDN CNTMT ORC ISOL VLV	No change
1-8160	U1 LTDN CNTMT IRC ISOL VLV	No change
1-8351A	RC Pmp 1-01 Sl Wtr Inj Vlv	No change
1-8351B	RC Pmp 1-02 Sl Wtr Inj Vlv	No change
1-8351C	RC Pmp 1-03 Sl Wtr Inj Vlv	No change
1-8351D	RC Pmp 1-04 Sl Wtr Inj Vlv	No change
1-8378A	RCS Loop 1-04 Chrg Dnstrm Chk Vlv	No change
1-8378B	RCS Loop 1-04 Chrg Upstrm Chk Vlv	No change
1-8381	Chrg Ln Irc Chk Vlv	No change
1-8481A	Ccp 1-01 Disch Chk Vlv	No change
1-8481B	Ccp 1-02 Disch Chk Vlv	No change
1-8497	Pd Pmp 1-01 Disch Chk Vlv	No change
1-8511A	Ccp 1-01 Alt Miniflo Isol Vlv	No change
1-8511B	Ccp 1-02 Alt Miniflo Isol Vlv	No change
1-8512A	Ccp 1-02 Alt Miniflo Isol Vlv	No change
1-8512B	Ccp 1-01 Alt Miniflo Isol Vlv	No change
1-8546	Rwst 1-01 To Chrg Pmp Suct Chk Vlv	No change
1-8701A	RHR Pmp 1-01 Hl 1-01 Recirc Omb Isol Vlv	Category 2
1-8701B	RHR Pmp 1-02 Hl 1-04 Recirc Omb Isol Vlv	Category 2
1-8702A	RHR Pmp 1-01 Hl 1-01 Reicrc Imb Isol Vlv	Category 2
1-8702B	RHR Pmp 1-02 Hl 1-04 Recirc Imb Isol Vlv	Category 2
1-8708A	RHR Pmp 1-01 Suct Rlf Vlv	Category 1
1-8708B	RHR Pmp 1-02 Suct Rlf Vlv	Category 1
1-8716A	RHR Pmp 1-01 Xtie Vlv	No change
1-8716B	RHR Pmp 1-02 Xtie Vlv	No change
1-8717	U1 RHR Pmps Disch To Rwst Isol Vlv	No change
1-8730A	RHR Hx 1-01 Disch Chk Vlv	No change
1-8730B	RHR Hx 1-02 Disch Chk Vlv	No change
1-8801A	Ccp 1-01/1-02 Sl Isol Vlv 8801A	No change
1-8801B	Ccp 1-01/1-02 Sl Isol Vlv 8801B	No change

Table 4.1-4a
IPE/IST Component Evaluation For Shutdown Considerations

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Due To Shutdown Considerations**
1-8802A	SI Pmp 1-01 To HI 2 & 3 Inj Isol Vlv	No change
1-8802B	SI Pmp 1-02 To HI 1 & 4 Inj Isol Vlv	No change
1-8804A	RHR Pmp 1-01 To Ccp Suct Vlv	No change
1-8804B	RHR Pmp 1-02 To SI Pmps Suct Vlv	No change
1-8806	Rwst 1-01 To SI Pmps Suct Vlv	No change
1-8807A	U1 SIP/CCP Suct Hdr Xtie Vlv 8807A	No change
1-8807B	U1 SIP/CCP Suct Hdr Xtie Vlv 8807B	No change
1-8808A	SI Accum 1-01 Inj Vlv	Low
1-8808B	SI Accum 1-02 Inj Vlv	Low
1-8808C	SI Accum 1-03 Inj Vlv	Low
1-8808D	SI Accum 1-04 Inj Vlv	Low
1-8809A	RHR To Cl 1-01/1-02 Inj Isol Vlv	Category 1
1-8809B	RHR To Cl 1-03/1-04 Inj Isol Vlv	Category 1
1-8811A	Cntmt Smp To RHR Pmp 1-01 Suct Isol Vlv	No change
1-8811B	Cntmt Smp To RHR Pmp 1-02 Suct Isol Vlv	No change
1-8812A	Rwst 1-01 To RHR Pmp 1-01 Suct Vlv	Category 1
1-8812B	Rwst 1-01 To RHR Pmp 1-02 Suct Vlv	Category 1
1-8813	SI Pmp 1-01/1-02 Miniflo Ret Vlv	No change
1-8814A	SI Pmp 1-01 Miniflo Vlv	No change
1-8814B	SI Pmp 1-02 Miniflo Vlv	No change
1-8815	Ccp 1-01/1-02 Inj Chk Vlv	No change
1-8818A	RHR Cl 1-01 Inj Chk Vlv	No change
1-8818B	RHR Cl 1-02 Inj Chk Vlv	No change
1-8818C	RHR Cl 1-03 Inj Chk Vlv	No change
1-8818D	RHR Cl 1-04 Inj Chk Vlv	No change
1-8821A	SI Pmp 1-01 Xtie Vlv	No change
1-8821B	SI Pmp 1-02 Xtie Vlv	No change
1-8835	SI Pmp 1-01/1-02 To Cl Inj Isol Vlv	Category 1
1-8840	RHR To HI 1-02/1-03 Inj Isol Vlv	No change
1-8841A	RHR To RCS HI 1-02 Upstrm Chk Vlv	No change
1-8841B	RHR To RCS HI 1-03 Upstrm Chk Vlv	No change
1-8875A	SI Accum 1-01 N2 SPLY/VENT Vlv	No change
1-8875B	SI Accum 1-02 N2 SPLY/VENT Vlv	No change
1-8875C	SI Accum 1-03 N2 SPLY/VENT Vlv	No change
1-8875D	SI Accum 1-04 N2 SPLY/VENT Vlv	No change
1-8877A	SI Accum 1-01 Tst Ln Isol Vlv	No change
1-8877B	SI Accum 1-02 Tst Ln Isol Vlv	No change
1-8877C	SI Accum 1-03 Tst Ln Isol Vlv	No change
1-8877D	SI Accum 1-04 Tst Ln Isol Vlv	No change
1-8878A	SI Accum 1-01 Fill Vlv	No change
1-8878B	SI Accum 1-02 Fill Vlv	No change
1-8878C	SI Accum 1-03 Fill Vlv	No change
1-8878D	SI Accum 1-04 Fill Vlv	No change
1-8922A	SI Pmp 1-01 Disch Chk Vlv	No change
1-8922B	SI Pmp 1-02 Disch Chk Vlv	No change
1-8923A	SI Pmp 1-01 Suct Vlv	No change

Table 4.1-4a
IPE/IST Component Evaluation For Shutdown Considerations

Sorted By Tag		
Component Tag Number	Component Description	Risk Rank Due To Shutdown Considerations
1-8923B	SI Pmp 1-02 Suct Vlv	No change
1-8924	U1 SIP/CCP Suct Hdr Xtie Isol Vlv	No change
1-8926	SI Pmp 1-01/1-02 Suct Chk Vlv	No change
1-8948A	SI Accum 1-01 Dnstrm Inj Chk Vlv	No change
1-8948B	SI Accum 1-02 Dnstrm Inj Chk Vlv	No change
1-8948C	SI Accum 1-03 Dnstrm Inj Chk Vlv	No change
1-8948D	SI Accum 1-04 Dnstrm Inj Chk Vlv	No change
1-8949A	RHR To Rcp Hl 1-01 Dnstrm Chk Vlv	No change
1-8949B	RHR To Rcp Hl 1-02 Dnstrm Chk Vlv	No change
1-8949C	RHR To Rcp Hl 1-03 Dnstrm Chk Vlv	No change
1-8949D	RHR To Rcp Hl 1-04 Dnstrm Chk Vlv	No change
1-8956A	SI Accum 1-01 Upstrm Inj Chk Vlv	No change
1-8956B	SI Accum 1-02 Upstrm Inj Chk Vlv	No change
1-8956C	SI Accum 1-03 Upstrm Inj Chk Vlv	No change
1-8956D	SI Accum 1-04 Upstrm Inj Chk Vlv	No change
1-8958A	Rwst 1-01 To RHR Pmp 1-01 Chk Vlv	No change
1-8958B	Rwst 1-01 To RHR Pmp 1-02 Chk Vlv	No change
1-8969A	RHR To Ccp 1-01/1-02 Suct Chk Vlv	No change
1-8969B	RHR To SI Pmp 1-01/1-02 Suct Chk Vlv	No change
1-FCV-0610	RHR Pmp 1-01 Miniflo Vlv	No change
1-FCV-0611	RHR Pmp 1-02 Miniflo Vlv	No change
1-FCV-0618	RHR Hx 1-01 Byp Flo Ctrl Vlv	Low
1-FCV-0619	RHR Hx 1-02 Byp Flo Ctrl Vlv	Low
1-FV-2193	SG 1-01 Fw Prehtr Byp Vlv	No change
1-FV-2196	SG 1-04 Fw Prehtr Byp Vlv	No change
1-FV-4772-1	Cs Pmp 1-01 Recirc Vlv	No change
1-FV-4772-2	Cs Pmp 1-03 Recirc Vlv	No change
1-FV-4773-1	Cs Pmp 1-02 Recirc Vlv	No change
1-FV-4773-2	Cs Pmp 1-04 Recirc Vlv	No change
1-HCV-0606	RHR Hx 1-01 Flo Ctrl Vlv	Category 1
1-HCV-0607	RHR Hx 1-02 Flo Ctrl Vlv	Category 1
1-HV-2134	SG 1-01 FW ISOL VLV	No change
1-HV-2135	SG 1-02 FW ISOL VLV	No change
1-HV-2136	SG 1-03 FW ISOL VLV	No change
1-HV-2137	SG 1-04 FW ISOL VLV	No change
1-HV-2333A	MSIV 1-01	No change
1-HV-2334A	MSIV 1-02	No change
1-HV-2335A	MSIV 1-03	No change
1-HV-2336A	MSIV 1-04	No change
1-HV-2397	SG 1-01 BLDN ISOL VLV	No change
1-HV-2397A	SG 1-01 BLDN HELB ISOL VLV	No change
1-HV-2409	MSL 1-01 BEF MSIV D\POT 1-25 ISOL VLV	No change
1-HV-2410	MSL 1-02 BEF MSIV D\POT ISOL VLV	No change
1-HV-2411	MSL 1-03 BEF MSIV D\POT ISOL VLV	No change
1-HV-2412	MSL 1-04 BEF MSIV D\POT ISOL VLV	No change
1-HV-2452-1	MSL 1-01 TO AFWPT STM SPLY VLV	No change

Table 4.1-4a
IPE/IST Component Evaluation For Shutdown Considerations

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Due To Shutdown Considerations**
1-HV-2452-2	MSL 1-04 TO AFWPT STM SPLY VLV	No change
1-HV-2459	TD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	Low
1-HV-2460	TD AFW PMP 1-01 DISCH TO SG 1-02 FCV	Low
1-HV-2461	TD AFW PMP 1-01 DISCH TO SG 1-03 FLO CTRL VLV	Low
1-HV-2462	TD AFW PMP 1-01 DISCH TO SG 1-04 FLO CTRL VLV	Low
1-HV-2491A	TD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	No change
1-HV-2491B	MD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	No change
1-HV-2492A	TD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	No change
1-HV-2492B	MD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	No change
1-HV-2493A	MD AFW PMP 1-02 DISCH TO SG 1-03 ISOL VLV	No change
1-HV-2493B	TD AFW PMP 1-01 DISCH TO SG 1-03 ISOL VLV	No change
1-HV-2494A	MD AFW PMP 1-02 DISCH TO SG 1-04 ISOL VLV	No change
1-HV-2494B	TD AFW PMP 1-01 DISCH TO SG 1-04 ISOL VLV	No change
1-HV-3487	U1 CNTMT INST AIR HDR ISOL VLV	No change
1-HV-4171	ACCUM 1-01 LIQ SPACE SMPL LN IRC ISOL VLV	No change
1-HV-4172	ACCUM 1-02 LIQ SPACE SMPL LN IRC ISOL VLV	No change
1-HV-4173	ACCUM 1-03 LIQ SPACE SMPL LN IRC ISOL VLV	No change
1-HV-4174	ACCUM 1-04 LIQ SPACE SMPL LN IRC ISOL VLV	No change
1-HV-4286	SSW PMP 1-01 DISCH VLV	No change
1-HV-4287	SSW PMP 1-02 DISCH VLV	No change
1-HV-4393	DG 1-01 JKT WTR CLR SSW RET VLV	No change
1-HV-4394	DG 1-02 JKT WTR CLR SSW RET VLV	No change
1-HV-4512	U1 SFGD LOOP A CCW RET VLV	No change
1-HV-4513	U1 SFGD LOOP B CCW RET VLV	No change
1-HV-4514	U1 SFGD LOOP A CCW SPLY VLV	No change
1-HV-4515	U1 SFGD LOOP B CCW SPLY VLV	No change
1-HV-4524	U1 NON-SFGD LOOP CCW DNSTRM RET VLV	No change
1-HV-4525	U1 NON-SFGD LOOP CCW UPSTRM RET VLV	No change
1-HV-4526	U1 NON-SFGD LOOP CCW UPSTRM SPLY VLV	No change
1-HV-4527	U1 NON-SFGD LOOP CCW DNSTRM SPLY VLV	No change
1-HV-4572	RHR HX 1-01 CCW RET VLV	No change
1-HV-4573	RHR HX 1-02 CCW RET VLV	No change
1-HV-4574	CS HX 1-01 CCW RET VLV	No change
1-HV-4575	CS HX 1-02 CCW RET VLV	No change
1-HV-4696	U1 THBR CLR CCW RET IRC ISOL VLV	No change
1-HV-4699	U1 RCP/THBR CLR CCW SPLY ORC UPSTRM ISOL VLV	No change
1-HV-4700	U1 RCP/THBR CLR CCW SPLY ORC DNSTRM ISOL VLV	No change
1-HV-4701	U1 RCP CLR CCW RET IRC ISOL VLV	No change
1-HV-4708	U1 RCP CLR CCW RET ORC ISOL VLV	No change
1-HV-4709	U1 THBR CLR CCW RET ORC ISOL VLV	No change
1-HV-4725	CNTMT CCW DRN TK 1-02 IRC ISOL VLV	No change
1-HV-4726	CNTMT CCW DRN TK 1-02 ORC ISOL VLV	No change
1-HV-4758	RWST TO CS PMP 1-01/1-03 SUCT VLV	No change
1-HV-4759	RWST TO CS PMP 1-02/1-04 SUCT VLV	No change
1-HV-4776	CS HX 1-01 OUT VLV	No change
1-HV-4777	CS HX 1-02 OUT VLV	No change

Table 4.1-4a

IPE/IST Component Evaluation For Shutdown Considerations

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Due To Shutdown Considerations**
1-HV-4782	CNTMT SMP TO CS PMP 1-01/1-03 SUCT ISOL VLV	No change
1-HV-4783	CNTMT SMP TO CS PMP 1-02/1-04 SUCT ISOL VLV	No change
1-HV-5157	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR ORC ISOL VLV	No change
1-HV-5158	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR IRC ISOL VLV	No change
1-HV-5548	U1 CNTMT PRESS RLF SYS ORC ISOL VLV	No change
1-HV-5549	U1 CNTMT PRESS RLF SYS IRC ISOL VLV	No change
1-HV-8220	U1 CHARGE PMP SUCT HI PNT VNT VLV 8220	No change
1-HV-8221	U1 CHARGE PMP HI PNT VNT VLV 8221	No change
1-LCV-0112B	VCT 1-01 TO CHRG PMP SUCT VLV 0112B	No change
1-LCV-0112C	VCT 1-01 TO CHRG PMP SUCT VLV 0112C	No change
1-LCV-0112D	RWST 1-01 TO CHRG PMP SUCT VLV 0112D	No change
1-LCV-0112E	RWST 1-01 TO CHRG PMP SUCT VLV 0112E	No change
1-LCV-1003	LWPS RCDT 1-01 LVL CTRL VLV	No change
1-PCV-0455A	PRZR 1-01 PORV 0455A	Category 1
1-PCV-0456	PRZR PWR OPERATED RELIEF VLV	Category 1
1-PV-2325	SG 1-01 ATMOS RLF VLV	No change
1-PV-2326	SG 1-02 ATMOS RLF VLV	No change
1-PV-2327	SG 1-02 ATMOS RLF VLV	No change
1-PV-2328	SG 1-04 ATMOS RLF VLV	No change
1-PV-2453A	MD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	Low
1-PV-2453B	MD AFW PMP 1-01 DISCH TO SG 1-02 CTRL VLV	Low
1-PV-2454A	MD AFW PMP 1-02 DISCH TO SG 1-03 CTRL VLV	Low
1-PV-2454B	MD AFW PMP 1-02 DISCH TO SG 1-04 CTRL VLV	Low
1-PV-4552	SFTY CHLR 1-05 CCW RET PCV	No change
1-PV-4553	SFTY CHLR 1-06 CCW RET PCV	No change
1AF-0014	CST TO MD AFW PMP 1-01 SUCT CHK VLV	No change
1AF-0024	CST TO MD AFW PMP 1-02 SUCT CHK VLV	No change
1AF-0032	CST 1-01 TO TD AFW PMP CHK VLV	No change
1AF-0038	TD AFW PMP 1-01 DISCH CHK VLV	No change
1AF-0041	TD AFW PMP 1-01 DISCH ISOL VLV	No change
1AF-0051	MD AFW PMP 1-02 DISCH CHK VLV	No change
1AF-0054	MD AFW PMP 1-02 DISCH ISOL VLV	No change
1AF-0065	MD AFW PMP 1-01 DISCH CHK VLV	No change
1AF-0066	MD AFW PMP 1-01 DISCH ISOL VLV	No change
1AF-0075	MD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	No change
1AF-0078	TD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	No change
1AF-0083	MD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	No change
1AF-0086	TD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	No change
1AF-0093	MD AFW PMP 1-02 DISCH TO SG 1-03 CHK VLV	No change
1AF-0098	TD AFW PMP 1-01 DISCH TO SG 1-03 CHK VLV	No change
1AF-0101	MD AFW PMP 1-02 DISCH TO SG 1-04 CHK VLV	No change
1AF-0106	TD AFW PMP 1-01 DISCH TO SG 1-04 CHK VLV	No change
1AF-0215	MD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY UPSTRM CHK VLV	No change
1AF-0216	MD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY DNSTRM CHK VLV	No change
1AF-0217	MD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY UPSTRM CHK VLV	No change
1AF-0218	MD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY DNSTRM CHK VLV	No change

Table 4.1-4a
IPE/IST Component Evaluation For Shutdown Considerations

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Rank Due To Shutdown Considerations**
1AF-0219	MD AFW PMP 1-02 FCV TO SG 1-03 AIR SPLY UPSTRM CHK VLV	No change
1AF-0220	MD AFW PMP 1-02 FCV TO SG 1-03 AIR SPLY DNSTRM CHK VLV	No change
1AF-0221	MD AFW PMP 1-02 FCV TO SG 1-04 AIR SPLY UPSTRM CHK VLV	No change
1AF-0222	MD AFW PMP 1-02 FCV TO SG 1-04 AIR SPLY DNSTRM CHK VLV	No change
1AF-0223	TD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY DNSTRM CHK VLV	No change
1AF-0224	TD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY UPSTRM CHK VLV	No change
1AF-0226	TD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY UPSTRM CHK VLV	No change
1AF-0227	TD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY DNSTRM CHK VLV	No change
1AF-0228	TD AFW PMP 1-01 FCV TO SG 1-03 AIR SPLY UPSTRM CHK VLV	No change
1AF-0229	TD AFW PMP 1-01 FCV TO SG 1-03 AIR SPLY DNSTRM CHK VLV	No change
1AF-0230	TD AFW PMP 1-01 FCV TO SG 1-04 AIR SPLY UPSTRM CHK VLV	No change
1AF-0231	TD AFW PMP 1-01 FCV TO SG 1-04 AIR SPLY DNSTRM CHK VLV	No change
1CC-0031	CCW PMP 1-01 DISCH CHK VLV	No change
1CC-0061	CCW PMP 1-02 DISCH CHK VLV	No change
1CC-0646	RC PMP 1-04 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No change
1CC-0657	RC PMP 1-03 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No change
1CC-0687	RC PMP 1-02 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No change
1CC-0694	RC PMP 1-01 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No change
1CC-0713	U1 RCP CLR CCW SPLY HDR CHK VLV	No change
1CC-1075	RC PMP 1-01 THBR CLR CCW SPLY STOP CHK VLV	No change
1CC-1076	RC PMP 1-02 THBR CLR CCW SPLY STOP CHK VLV	No change
1CC-1077	RC PMP 1-03 THBR CLR CCW SPLY STOP CHK VLV	No change
1CC-1078	RC PMP 1-04 THBR CLR CCW SPLY STOP CHK VLV	No change
1CC-1079	CIRCLE SEAL CHECK VALVE 1/2" FNPT	No change
1CC-1080	CIRCLE SEAL CHECK VALVE 1/2" FNPT	No change
1CC-1081	CIRCLE SEAL CHECK VALVE 1/2" FNPT	No change
1CC-1082	CIRCEL SEAL CHECK VALVE 1/2 FNPT	No change
1CI-0030	U1 INST AIR HDR TO U1 CNTMT CHK VLV	No change
1CS-8180	U1 IRC SL WTR RET CNMT ISOL BYP CHK VLV	No change
1CS-8350A	RC PMP 1-01 SL WTR INJ CHK VLV	No change
1CS-8350B	RC PMP 1-02 SL WTR INJ CHK VLV	No change
1CS-8350C	RC PMP 1-03 SL WTR INJ CHK VLV	No change
1CS-8350D	RC PMP 1-04 SL WTR INJ CHK VLV	No change
1CS-8367A	RC PMP 1-01 SL INJ IMB CHK VLV	No change
1CS-8367B	RC PMP 1-02 SL INJ IMB CHK VLV	No change
1CS-8367C	RC PMP 1-03 SL INJ IMB CHK VLV	No change
1CS-8367D	RC PMP 1-04 SL INJ IMB CHK VLV	No change
1CS-8368A	RC PMP 1-01 SL INJ IRC CHK VLV	No change
1CS-8368B	RC PMP 1-02 SL INJ IRC CHK VLV	No change
1CS-8368C	RC PMP 1-03 SL INJ IRC CHK VLV	No change
1CS-8368D	RC PMP 1-04 SL INJ IRC CHK VLV	No change
1CS-8442	U1 EMER BORATE LN CHK VLV	No change
1CS-8473	BA PMP 1-02 DISCH CHK VLV	No change
1CS-8487	BA PMP 1-01 DISCH CHK VLV	No change
1CT-0025	RWST TO CS PMP 1-02/1-04 SUCT CHK VLV	No change
1CT-0042	CS PMP 1-02 DISCH CHK VLV	No change

Table 4.1-4a
IPE/IST Component Evaluation For Shutdown Considerations

Sorted By Tag		
Component Tag Number	Component Description	Risk Rank Due To Shutdown Considerations
1CT-0047	CS PMP 1-04 MINIFLO LN CHK VLV	No change
1CT-0048	CS PMP 1-02 MINIFLO LN CHK VLV	No change
1CT-0063	CS PMP 1-03 MINIFLO LN CHK VLV	No change
1CT-0064	CS PMP 1-01 MINIFLO LN CHK VLV	No change
1CT-0065	CS PMP 1-03 DISCH CHK VLV	No change
1CT-0077	RWST TO CSP 1-01/1-03 SUCT CHK VLV	No change
1CT-0094	CS PMP 1-01 DISCH CHK VLV	No change
1CT-0142	U1 CS TRN A HDR IRC CHK VLV	No change
1CT-0145	U1 CS TRN B HDR IRC CHK VLV	No change
1CT-0148	CNTMT SMP TO CS PMP 1-02/1-04 CHK VLV	No change
1CT-0149	CNTMT SMP TO CS PMP 1-01/1-03 CHK VLV	No change
1DO-0004	DG 1-01 FO XREF PMP 1-01 DISCH CHK VLV	No change
1DO-0005	DG 1-01 FO XREF PMP 1-02 DISCH CHK VLV	No change
1DO-0016	DG 1-02 FO XFER PMP 1-03 DISCH CHK VLV	No change
1DO-0017	DG 1-02 FO XFER PMP 1-04 DISCH CHK VLV	No change
1DO-0049	DG 1-01 FO DAY TK 1-01 XFER HDR CHK VLV	No change
1DO-0050	DG 1-02 FO DAY TK 1-02 XFER HDR CHK VLV	No change
1FW-0076	SG 1-02 FW HDR CHK VLV	No change
1FW-0082	SG 1-01 FW HDR CHK VLV	No change
1FW-0088	SG 1-04 FW HDR CHK VLV	No change
1FW-0195	SG 1-04 FW PREHTR BYP IRC CHK VLV	No change
1FW-0196	SG 1-01 FW PREHTR BYP IRC CHK VLV	No change
1FW-0197	SG 1-02 FW PREHTR BYP IRC CHK VLV	No change
1FW-0198	SG 1-03 FW PREHTR BYP IRC CHK VLV	No change
1FW-0199	SG 1-04 AFW NZL CHK VLV	No change
1FW-0200	SG 1-01 AFW NZL CHK VLV	No change
1FW-0201	SG 1-02 AFW NZL CHK VLV	No change
1FW-0202	SG 1-03 AFW NZL CHK VLV	No change
1MS-0026	SG 1-01 ATMOS RLF VLV UPSTRM ISOL VLV	No change
1MS-0063	SG 1-02 ATMOS RLF VLV UPSTRM ISOL VLV	No change
1MS-0098	SG 1-03 ATMOS RLF VLV UPSTRM ISOL VLV	No change
1MS-0134	SG 1-04 ATMOS RLF VLV UPSTRM ISOL VLV	No change
1MS-0142	MSL 1-04 TO AFWPT SPLY VLV DNSTRM CHK VLV	No change
1MS-0143	MSL 1-01 TO AFWPT SPLY VLV DNSTRM CHK VLV	No change
1MS-0680	SG 1-01 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No change
1MS-0681	SG 1-01 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No change
1MS-0682	SG 1-02 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No change
1MS-0683	SG 1-02 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No change
1MS-0684	SG 1-03 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No change
1MS-0685	SG 1-03 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No change
1MS-0686	SG 1-04 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No change
1MS-0687	SG 1-04 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No change
1SI-0047	RWST 1-01 TO SI ISOL VLV	No change
1SI-8819A	SI TO CL 1-01 CHK VLV	No change
1SI-8819B	SI TO CL 1-02 CHK VLV	No change
1SI-8819C	SI TO CL 1-03 CHK VLV	No change

Table 4.1-4a
IPE/IST Component Evaluation For Shutdown Considerations

Sorted By Tag		
Component Tag Number	Component Description	Risk Rank Due To Shutdown Considerations
1SI-8819D	SI TO CL 1-04 CHK VLV	No change
1SI-8900A	CCP 1-01/1-02 TO CL 1-01 CHK VLV	No change
1SI-8900B	CCP 1-01/1-02 TO CL 1-02 CHK VLV	No change
1SI-8900C	CCP 1-01/1-02 TO CL 1-03 CHK VLV	No change
1SI-8900D	CCP 1-01/1-02 TO CL 1-04 CHK VLV	No change
1SI-8905A	SI TO HL 1-01 INJ UPSTRM CHK VLV	No change
1SI-8905B	SI TO HL 1-02 INJ UPSTRM CHK VLV	No change
1SI-8905C	SI TO HL 1-03 INJ UPSTRM CHK VLV	No change
1SI-8905D	SI TO HL 1-04 INJ UPSTRM CHK VLV	No change
1SI-8919A	SI PMP 1-01 TO RWST CHK VLV	No change
1SI-8919B	SI PMP 1-02 TO RWST CHK VLV	No change
1SW-0016	U1 SSW TRN B SPLY HDR IN CHK VLV	No change
1SW-0017	U1 SSW TRN A SPLY HDR IN CHK VLV	No change
1SW-0373	SSW PMP 1-02 DISCH CHK VLV	No change
1SW-0374	SSW PMP 1-01 DISCH CHK VLV	No change
CP1-AFAPMD-01	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-01	No change
CP1-AFAPMD-02	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-02	No change
CP1-AFAPTD-01	TURBINE DRIVEN AUXILIARY FEEDWATER PUMP 1-01	No change
CP1-CCAPCC-01	COMPONENT COOLING WATER PUMP 1-01	No change
CP1-CCAPCC-02	COMPONENT COOLING WATER PUMP 1-02	No change
CP1-CHAPCP-05	SAFETY CHILLED WATER RECIRC PUMP 1-05	No change
CP1-CHAPCP-06	SAFETY CHILLED WATER RECIRC PUMP 1-06	No change
CP1-CTAPCS-01	CONTAINMENT SPRAY PUMP 1-01	No change
CP1-CTAPCS-02	CONTAINMENT SPRAY PUMP 1-02	No change
CP1-CTAPCS-03	CONTAINMENT SPRAY PUMP 1-03	No change
CP1-CTAPCS-04	CONTAINMENT SPRAY PUMP 1-04	No change
CP1-DOAPFT-01	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-01	No change
CP1-DOAPFT-02	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-02	No change
CP1-DOAPFT-03	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-03	No change
CP1-DOAPFT-04	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-04	No change
CP1-SWAPSW-01	STATION SERVICE WATER PUMP 1-01	No change
CP1-SWAPSW-02	STATION SERVICE WATER PUMP 1-02	No change
TBX-CSAPBA-01	BORIC ACID TRANSFER PUMP 1-01	No change
TBX-CSAPBA-02	BORIC ACID TRANSFER PUMP 1-02	No change
TBX-CSAPCH-01	CENTRIFUGAL CHARGING PUMP 1-01	No change
TBX-CSAPCH-02	CENTRIFUGAL CHARGING PUMP 1-02	No change
TBX-RHAPRH-01	RESIDUAL HEAT REMOVAL PUMP 1-01	No change
TBX-RHAPRH-02	RESIDUAL HEAT REMOVAL PUMP 1-02	No change
TBX-SIAPSI-01	SAFETY INJECTION PUMP 1-01	No change
TBX-SIAPSI-02	SAFETY INJECTION PUMP 1-02	No change
X-PCV-H116A	UPS A\C UNIT X-01 CCW RET PCV	No change
X-PCV-H116B	UPS A\C UNIT X-02 CCW RET PCV	No change
X-PV-3583	CR A\C UNIT X-01 CCW RET PCV	No change
X-PV-3585	CR A\C UNIT X-03 CCW RET PCV	No change

Table 4.1-5
List of High/Medium Risk Components Due to Back-End Considerations

Changes Only		
Component Tag Number	Component Description	Risk Ranking Due To Large, Early Release Evaluations
1-7136	Rcdt Pump Discharge Control Valve	Medium CIV
1-8152	U1 LTDN CNTMT ORC ISOL VLV	Medium CIV
1-8160	U1 LTDN CNTMT IRC ISOL VLV	Medium CIV
1-8701A	RHR Pmp 1-01 Hl 1-01 Recirc Omb Isol Vlv	Medium ISLOCA
1-8701B	RHR Pmp 1-02 Hl 1-04 Recirc Omb Isol Vlv	Medium ISLOCA
1-8702A	RHR Pmp 1-01 Hl 1-01 Reicrc Imb Isol Vlv	Medium ISLOCA
1-8702B	RHR Pmp 1-02 Hl 1-04 Recirc Imb Isol Vlv	Medium ISLOCA
1-8717	U1 RHR Pmps Disch To Rwst Isol Vlv	Medium ISLOCA
1-8806	Rwst 1-01 To SI Pmps Suct Vlv	Medium LER
1-8818A	RHR Cl 1-01 Inj Chk Vlv	Medium ISLOCA
1-8818B	RHR Cl 1-02 Inj Chk Vlv	Medium ISLOCA
1-8818C	RHR Cl 1-03 Inj Chk Vlv	Medium ISLOCA
1-8818D	RHR Cl 1-04 Inj Chk Vlv	Medium ISLOCA
1-8835	SI Pmp 1-01/1-02 To Cl Inj Isol Vlv	Medium LER
1-8923A	SI Pmp 1-01 Suct Vlv	Medium LER
1-8923B	SI Pmp 1-02 Suct Vlv	Medium LER
1-8926	SI Pmp 1-01/1-02 Suct Chk Vlv	Medium LER
1-8948A	SI Accum 1-01 Dnstrm Inj Chk Vlv	Medium ISLOCA
1-8948B	SI Accum 1-02 Dnstrm Inj Chk Vlv	Medium ISLOCA
1-8948C	SI Accum 1-03 Dnstrm Inj Chk Vlv	Medium ISLOCA
1-8948D	SI Accum 1-04 Dnstrm Inj Chk Vlv	Medium ISLOCA
1-HV-4725	CNTMT CCW DRN TK 1-02 IRC ISOL VLV	Medium CIV
1-HV-4726	CNTMT CCW DRN TK 1-02 ORC ISOL VLV	Medium CIV
1-HV-5157	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR ORC ISOL VLV	Medium CIV
1-HV-5158	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR IRC ISOL VLV	Medium CIV
1-LCV-1003	LWPS RCDT 1-01 LVL CTRL VLV	Medium CIV
1SI-8819A	SI TO CL 1-01 CHK VLV	Medium ISLOCA
1SI-8819B	SI TO CL 1-02 CHK VLV	Medium ISLOCA
1SI-8819C	SI TO CL 1-03 CHK VLV	Medium ISLOCA
1SI-8819D	SI TO CL 1-04 CHK VLV	Medium ISLOCA
X-PCV-H116A	UPS A\C UNIT X-01 CCW RET PCV	Medium LER
X-PCV-H116B	UPS A\C UNIT X-02 CCW RET PCV	Medium LER

Table 4.1-5a

IPE/IST Component Evaluation for Risk Importance Due to Back-end Considerations

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Ranking Due To Large, Early Release Evaluations**
1-7136	Rcdt Pump Discharge Control Valve	Medium CIV
1-8000A	Przr 1-01 Porv 0455A Blk Vlv	No change
1-8000B	Przr 1-01 Porv 0456 Blk Vlv	No change
1-8010A	Przr 1-01 Sfty Vlv A	No change
1-8010B	Przr 1-01 Sfty Vlv B	No change
1-8010C	Przr 1-01 Sfty Vlv C	No change
1-8100	U1 Rcp SI Wtr Ret Isol Vlv	No change
1-8104	U1 Emer Borate Vlv	No change
1-8105	U1 Chrg Pmp To RCS Cntmt Isol Vlv	No change
1-8106	U1 Chrg Pmp To RCS Cntmt Isol Vlv	No change
1-8110	Ccp 1-01/1-02 Dnstrm Miniflow Vlv	No change
1-8111	Ccp 1-01/1-02 Upstrm Miniflow Vlv	No change
1-8112	U1 RC Pmp Seal Wtr Ret Isol Vlv	No change
1-8145	U1 Przr Aux Spr Vlv	No change
1-8146	U1 RCS Loop 4 Chrg Vlv	No change
1-8152	U1 LTDN CNTMT ORC ISOL VLV	Medium CIV
1-8160	U1 LTDN CNTMT IRC ISOL [illegible]	Medium CIV
1-8351A	RC Pmp 1-01 SI Wtr Inj Vlv	No change
1-8351B	RC Pmp 1-02 SI Wtr Inj Vlv	No change
1-8351C	RC Pmp 1-03 SI Wtr Inj Vlv	No change
1-8351D	RC Pmp 1-04 SI Wtr Inj Vlv	No change
1-8378A	RCS Loop 1-04 Chrg Dnstrm Chk Vlv	No change
1-8378B	RCS Loop 1-04 Chrg Upstrm Chk Vlv	No change
1-8381	Chrg Ln Irc Chk Vlv	No change
1-8481A	Ccp 1-01 Disch Chk Vlv	No change
1-8481B	Ccp 1-02 Disch Chk Vlv	No change
1-8[illegible]97	Pd Pmp 1-01 Disch Chk Vlv	No change
1-8511A	Ccp 1-01 Alt Miniflo Isol Vlv	No change
1-8511B	Ccp 1-02 Alt Miniflo Isol Vlv	No change
1-8512A	Ccp 1-02 Alt Miniflo Isol Vlv	No change
1-8512B	Ccp 1-01 Alt Miniflo Isol Vlv	No change
1-8546	Rwst 1-01 To Chrg Pmp Suct Chk Vlv	Medium LER
1-8701A	RHR Pmp 1-01 Hl 1-01 Recirc Omb Isol Vlv	Medium ISLOCA
1-8701B	RHR Pmp 1-02 Hl 1-04 Recirc Omb Isol Vlv	Medium ISLOCA
1-8702A	RHR Pmp 1-01 Hl 1-01 Reicrc Imb Isol Vlv	Medium ISLOCA
1-8702B	RHR Pmp 1-02 Hl 1-04 Recirc Imb Isol Vlv	Medium ISLOCA
1-8708A	RHR Pmp 1-01 Suct Rlf Vlv	No change
1-8708B	RHR Pmp 1-02 Suct Rlf Vlv	No change
1-8716A	RHR Pmp 1-01 Xtie Vlv	No change
1-8716B	RHR Pmp 1-02 Xtie Vlv	No change
1-8717	U1 RHR Pmps Disch To Rwst Isol Vlv	Medium ISLOCA

Table 4.1-5a

IPE/IST Component Evaluation for Risk Importance Due to Back-end Considerations

Sorted By Tag		
Component Tag Number	Component Description	Risk Ranking Due To Large, Early Release Evaluations
1-8730A	RHR Hx 1-01 Disch Chk Vlv	No change
1-8730B	RHR Hx 1-02 Disch Chk Vlv	No change
1-8801A	Ccp 1-01/1-02 SI Isol Vlv 8801A	No change
1-8801B	Ccp 1-01/1-02 SI Isol Vlv 8801B	No change
1-8802A	SI Pmp 1-01 To Hl 2 & 3 Inj Isol Vlv	No change
1-8802B	SI Pmp 1-02 To Hl 1 & 4 Inj Isol Vlv	No change
1-8804A	RHR Pmp 1-01 To Ccp Suct Vlv	No change
1-8804B	RHR Pmp 1-02 To SI Pmps Suct Vlv	No change
1-8806	Rwst 1-01 To SI Pmps Suct Vlv	Medium LER
1-8807A	U1 SIP/CCP Suct Hdr Xtie Vlv 8807A	No change
1-8807B	U1 SIP/CCP Suct Hdr Xtie Vlv 8807B	No change
1-8808A	SI Accum 1-01 Inj Vlv	No change
1-8808B	SI Accum 1-02 Inj Vlv	No change
1-8808C	SI Accum 1-03 Inj Vlv	No change
1-8808D	SI Accum 1-04 Inj Vlv	No change
1-8809A	RHR To Cl 1-01/1-02 Inj Isol Vlv	No change
1-8809B	RHR To Cl 1-03/1-04 Inj Isol Vlv	No change
1-8811A	Cntmt Smp To RHR Pmp 1-01 Suct Isol Vlv	No change
1-8811B	Cntmt Smp To RHR Pmp 1-02 Suct Isol Vlv	No change
1-8812A	Rwst 1-01 To RHR Pmp 1-01 Suct Vlv	No change
1-8812B	Rwst 1-01 To RHR Pmp 1-02 Suct Vlv	No change
1-8813	SI Pmp 1-01/1-02 Miniflo Ret Vlv	No change
1-8814A	SI Pmp 1-01 Miniflo Vlv	No change
1-8814B	SI Pmp 1-02 Miniflo Vlv	No change
1-8815	Ccp 1-01/1-02 Inj Chk Vlv	Medium LER
1-8818A	RHR Cl 1-01 Inj Chk Vlv	Medium ISLOCA
1-8818B	RHR Cl 1-02 Inj Chk Vlv	Medium ISLOCA
1-8818C	RHR Cl 1-03 Inj Chk Vlv	Medium ISLOCA
1-8818D	RHR Cl 1-04 Inj Chk Vlv	Medium ISLOCA
1-8821A	SI Pmp 1-01 Xtie Vlv	No change
1-8821B	SI Pmp 1-02 Xtie Vlv	No change
1-8835	SI Pmp 1-01/1-02 To Cl Inj Isol Vlv	Medium LER
1-8840	RHR To Hl 1-02/1-03 Inj Isol Vlv	No change
1-8841A	RHR To RCS Hl 1-02 Upstrm Chk Vlv	No change
1-8841B	RHR To RCS Hl 1-03 Upstrm Chk Vlv	No change
1-8875A	SI Accum 1-01 N2 SPLY/VENT Vlv	No change
1-8875B	SI Accum 1-02 N2 SPLY/VENT Vlv	No change
1-8875C	SI Accum 1-03 N2 SPLY/VENT Vlv	No change
1-8875D	SI Accum 1-04 N2 SPLY/VENT Vlv	No change
1-8877A	SI Accum 1-01 Tst Ln Isol Vlv	No change
1-8877B	SI Accum 1-02 Tst Ln Isol Vlv	No change
1-8877C	SI Accum 1-03 Tst Ln Isol Vlv	No change
1-8877D	SI Accum 1-04 Tst Ln Isol Vlv	No change
1-8878A	SI Accum 1-01 Fill Vlv	No change

Table 4.1-5a

IPE/IST Component Evaluation for Risk Importance Due to Back-end Considerations

Sorted By Tag		
Component Tag Number	Component Description	Risk Ranking Due To Large, Early Release Evaluations
1-8878B	SI Accum 1-02 Fill Vlv	No change
1-8878C	SI Accum 1-03 Fill Vlv	No change
1-8878D	SI Accum 1-04 Fill Vlv	No change
1-8922A	SI Pmp 1-01 Disch Chk Vlv	No change
1-8922B	SI Pmp 1-02 Disch Chk Vlv	No change
1-8923A	SI Pmp 1-01 Suct Vlv	Medium LER
1-8923B	SI Pmp 1-02 Suct Vlv	Medium LER
1-8924	U1 SIP/CCP Suct Hdr Xtie Isol Vlv	No change
1-8926	SI Pmp 1-01/1-02 Suct Chk Vlv	Medium LER
1-8948A	SI Accum 1-01 Dnstrm Inj Chk Vlv	Medium ISLOCA
1-8948B	SI Accum 1-02 Dnstrm Inj Chk Vlv	Medium ISLOCA
1-8948C	SI Accum 1-03 Dnstrm Inj Chk Vlv	Medium ISLOCA
1-8948D	SI Accum 1-04 Dnstrm Inj Chk Vlv	Medium ISLOCA
1-8949A	RHR To Rcp Hl 1-01 Dnstrm Chk Vlv	No change
1-8949B	RHR To Rcp Hl 1-02 Dnstrm Chk Vlv	No change
1-8949C	RHR To Rcp Hl 1-03 Dnstrm Chk Vlv	No change
1-8949D	RHR To Rcp Hl 1-04 Dnstrm Chk Vlv	No change
1-8956A	SI Accum 1-01 Upstrm Inj Chk Vlv	No change
1-8956B	SI Accum 1-02 Upstrm Inj Chk Vlv	No change
1-8956C	SI Accum 1-03 Upstrm Inj Chk Vlv	No change
1-8956D	SI Accum 1-04 Upstrm Inj Chk Vlv	No change
1-8958A	Rwst 1-01 To RHR Pmp 1-01 Chk Vlv	No change
1-8958B	Rwst 1-01 To RHR Pmp 1-02 Chk Vlv	No change
1-8969A	RHR To Ccp 1-01/1-02 Suct Chk Vlv	No change
1-8969B	RHR To SI Pmp 1-01/1-02 Suct Chk Vlv	No change
1-FCV-0610	RHR Pmp 1-01 Miniflo Vlv	No change
1-FCV-0611	RHR Pmp 1-02 Miniflo Vlv	No change
1-FCV-0618	RHR Hx 1-01 Byp Flo Ctrl Vlv	No change
1-FCV-0619	RHR Hx 1-02 Byp Flo Ctrl Vlv	No change
1-FV-2193	SG 1-01 Fw Prehtr Byp Vlv	No change
1-FV-2196	SG 1-04 Fw Prehtr Byp Vlv	No change
1-FV-4772-1	Cs Pmp 1-01 Recirc Vlv	No change
1-FV-4772-2	Cs Pmp 1-03 Recirc Vlv	No change
1-FV-4773-1	Cs Pmp 1-02 Recirc Vlv	No change
1-FV-4773-2	Cs Pmp 1-04 Recirc Vlv	No change
1-HCV-0606	RHR Hx 1-01 Flo Ctrl Vlv	No change
1-HCV-0607	RHR Hx 1-02 Flo Ctrl Vlv	No change
1-HV-2134	SG 1-01 FW ISOL VLV	No change
1-HV-2135	SG 1-02 FW ISOL VLV	No change
1-HV-2136	SG 1-03 FW ISOL VLV	No change
1-HV-2137	SG 1-04 FW ISOL VLV	No change
1-HV-2333A	MSIV 1-01	Low SGTR-CIV
1-HV-2334A	MSIV 1-02	Low SGTR-CIV

Table 4.1-5a

IPE/IST Component Evaluation for Risk Importance Due to Back-end Considerations

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Ranking Due To Large, Early Release Evaluations**
1-HV-2335A	MSIV 1-03	Low SGTR-CIV
1-HV-2336A	MSIV 1-04	Low SGTR-CIV
1-HV-2397	SG 1-01 BLDN ISOL VLV	Low SGTR-CIV
1-HV-2397A	SG 1-01 BLDN HELB ISOL VLV	Low SGTR-CIV
1-HV-2409	MSL 1-01 BEF MSIV D\POT 1-25 ISOL VLV	Low SGTR-CIV
1-HV-2410	MSL 1-02 BEF MSIV D\POT ISOL VLV	Low SGTR-CIV
1-HV-2411	MSL 1-03 BEF MSIV D\POT ISOL VLV	Low SGTR-CIV
1-HV-2412	MSL 1-04 BEF MSIV D\POT ISOL VLV	Low SGTR-CIV
1-HV-2452-1	MSL 1-01 TO AFWPT STM SPLY VLV	Low SGTR-CIV
1-HV-2452-2	MSL 1-04 TO AFWPT STM SPLY VLV	Low SGTR-CIV
1-HV-2459	TD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	No change
1-HV-2460	TD AFW PMP 1-01 DISCH TO SG 1-02 FCV	No change
1-HV-2461	TD AFW PMP 1-01 DISCH TO SG 1-03 FLO CTRL VLV	No change
1-HV-2462	TD AFW PMP 1-01 DISCH TO SG 1-04 FLO CTRL VLV	No change
1-HV-2491A	TD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	No change
1-HV-2491B	MD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	No change
1-HV-2492A	TD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	No change
1-HV-2492B	MD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	No change
1-HV-2493A	MD AFW PMP 1-02 DISCH TO SG 1-03 ISOL VLV	No change
1-HV-2493B	TD AFW PMP 1-01 DISCH TO SG 1-03 ISOL VLV	No change
1-HV-2494A	MD AFW PMP 1-02 DISCH TO SG 1-04 ISOL VLV	No change
1-HV-2494B	TD AFW PMP 1-01 DISCH TO SG 1-04 ISOL VLV	No change
1-HV-3487	U1 CNTMT INST AIR HDR ISOL VLV	Low SGTR-CIV
1-HV-4171	ACCUM 1-01 LIQ SPACE SMPL LN IRC ISOL VLV	No change
1-HV-4172	ACCUM 1-02 LIQ SPACE SMPL LN IRC ISOL VLV	No change
1-HV-4173	ACCUM 1-03 LIQ SPACE SMPL LN IRC ISOL VLV	No change
1-HV-4174	ACCUM 1-04 LIQ SPACE SMPL LN IRC ISOL VLV	No change
1-HV-4286	SSW PMP 1-01 DISCH VLV	No change
1-HV-4287	SSW PMP 1-02 DISCH VLV	No change
1-HV-4393	DG 1-01 JKT WTR CLR SSW RET VLV	No change
1-HV-4394	DG 1-02 JKT WTR CLR SSW RET VLV	No change
1-HV-4512	U1 SFGD LOOP A CCW RET VLV	No change
1-HV-4513	U1 SFGD LOOP B CCW RET VLV	No change
1-HV-4514	U1 SFGD LOOP A CCW SPLY VLV	No change
1-HV-4515	U1 SFGD LOOP B CCW SPLY VLV	No change
1-HV-4524	U1 NON-SFGD LOOP CCW DNSTRM RET VLV	No change
1-HV-4525	U1 NON-SFGD LOOP CCW UPSTRM RET VLV	No change
1-HV-4526	U1 NON-SFGD LOOP CCW UPSTRM SPLY VLV	No change
1-HV-4527	U1 NON-SFGD LOOP CCW DNSTRM SPLY VLV	No change
1-HV-4572	RHR HX 1-01 CCW RET VLV	No change
1-HV-4573	RHR HX 1-02 CCW RET VLV	No change
1-HV-4574	CS HX 1-01 CCW RET VLV	No change
1-HV-4575	CS HX 1-02 CCW RET VLV	No change

Table 4.1-5a
IPE/IST Component Evaluation for Risk Importance Due to Back-end Considerations

Sorted By Tag		
Component Tag Number	Component Description	Risk Ranking Due To Large, Early Release Evaluations
1-HV-4696	U1 THBR CLR CCW RET IRC ISOL VLV	No change
1-HV-4699	U1 RCP/THBR CLR CCW SPLY ORC UPSTRM ISOL VLV	No change
1-HV-4700	U1 RCP/THBR CLR CCW SPLY ORC DNSTRM ISOL VLV	No change
1-HV-4701	U1 RCP CLR CCW RET IRC ISOL VLV	No change
1-HV-4708	U1 RCP CLR CCW RET ORC ISOL VLV	No change
1-HV-4709	U1 THBR CLR CCW RET ORC ISOL VLV	No change
1-HV-4725	CNTMT CCW DRN TK 1-02 IRC ISOL VLV	Medium CIV
1-HV-4726	CNTMT CCW DRN TK 1-02 ORC ISOL VLV	Medium CIV
1-HV-4758	RWST TO CS PMP 1-01/1-03 SUCT VLV	No change
1-HV-4759	RWST TO CS PMP 1-02/1-04 SUCT VLV	No change
1-HV-4776	CS HX 1-01 OUT VLV	No change
1-HV-4777	CS HX 1-02 OUT VLV	No change
1-HV-4782	CNTMT SMP TO CS PMP 1-01/1-03 SUCT ISOL VLV	No change
1-HV-4783	CNTMT SMP TO CS PMP 1-02/1-04 SUCT ISOL VLV	No change
1-HV-5157	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR ORC ISOL VLV	Medium CIV
1-HV-5158	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR IRC ISOL VLV	Medium CIV
1-HV-5548	U1 CNTMT PRESS RLF SYS ORC ISOL VLV	Low CIV
1-HV-5549	U1 CNTMT PRESS RLF SYS IRC ISOL VLV	Low CIV
1-HV-8220	U1 CHARGE PMP SUCT HI PNT VNT VLV 8220	No change
1-HV-8221	U1 CHARGE PMP HI PNT VNT VLV 8221	No change
1-LCV-0112B	VCT 1-01 TO CHRG PMP SUCT VLV 0112B	No change
1-LCV-0112C	VCT 1-01 TO CHRG PMP SUCT VLV 0112C	No change
1-LCV-0112D	RWST 1-01 TO CHRG PMP SUCT VLV 0112D	No change
1-LCV-0112E	RWST 1-01 TO CHRG PMP SUCT VLV 0112E	No change
1-LCV-1003	LWPS RCDT 1-01 LVL CTRL VLV	Medium CIV
1-PCV-0455A	PRZR 1-01 PORV 0455A	No change
1-PCV-0456	PRZR PWR OPERATED RELIEF VLV	No change
1-PV-2325	SG 1-01 ATMOS RLF VLV	Low SGTR-CIV
1-PV-2326	SG 1-02 ATMOS RLF VLV	Low SGTR-CIV
1-PV-2327	SG 1-02 ATMOS RLF VLV	Low SGTR-CIV
1-PV-2328	SG 1-04 ATMOS RLF VLV	Low SGTR-CIV
1-PV-2453A	MD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	No change
1-PV-2453B	MD AFW PMP 1-01 DISCH TO SG 1-02 CTRL VLV	No change
1-PV-2454A	MD AFW PMP 1-02 DISCH TO SG 1-03 CTRL VLV	No change
1-PV-2454B	MD AFW PMP 1-02 DISCH TO SG 1-04 CTRL VLV	No change
1-PV-4552	SFTY CHLR 1-05 CCW RET PCV	No change
1-PV-4553	SFTY CHLR 1-06 CCW RET PCV	No change
1AF-0014	CST TO MD AFW PMP 1-01 SUCT CHK VLV	No change
1AF-0024	CST TO MD AFW PMP 1-02 SUCT CHK VLV	No change
1AF-0032	CST 1-01 TO TD AFW PMP CHK VLV	No change
1AF-0038	TD AFW PMP 1-01 DISCH CHK VLV	No change
1AF-0041	TD AFW PMP 1-01 DISCH ISOL VLV	No change
1AF-0051	MD AFW PMP 1-02 DISCH CHK VLV	No change
1AF-0054	MD AFW PMP 1-02 DISCH ISOL VLV	No change

Table 4.1-5a

IPE/IST Component Evaluation for Risk Importance Due to Back-end Considerations

Sorted By Tag		
Component Tag Number	Component Description	Risk Ranking Due To Large, Early Release Evaluations
1AF-0065	MD AFW PMP 1-01 DISCH CHK VLV	No change
1AF-0066	MD AFW PMP 1-01 DISCH ISOL VLV	No change
1AF-0075	MD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	No change
1AF-0078	TD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	No change
1AF-0083	MD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	No change
1AF-0086	TD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	No change
1AF-0093	MD AFW PMP 1-02 DISCH TO SG 1-03 CHK VLV	No change
1AF-0098	TD AFW PMP 1-01 DISCH TO SG 1-03 CHK VLV	No change
1AF-0101	MD AFW PMP 1-02 DISCH TO SG 1-04 CHK VLV	No change
1AF-0106	TD AFW PMP 1-01 DISCH TO SG 1-04 CHK VLV	No change
1AF-0215	MD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY UPSTRM CHK VLV	No change
1AF-0216	MD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY DNSTRM CHK VLV	No change
1AF-0217	MD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY UPSTRM CHK VLV	No change
1AF-0218	MD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY DNSTRM CHK VLV	No change
1AF-0219	MD AFW PMP 1-02 FCV TO SG 1-03 AIR SPLY UPSTRM CHK VLV	No change
1AF-0220	MD AFW PMP 1-02 FCV TO SG 1-03 AIR SPLY DNSTRM CHK VLV	No change
1AF-0221	MD AFW PMP 1-02 FCV TO SG 1-04 AIR SPLY UPSTRM CHK VLV	No change
1AF-0222	MD AFW PMP 1-02 FCV TO SG 1-04 AIR SPLY DNSTRM CHK VLV	No change
1AF-0223	TD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY DNSTRM CHK VLV	No change
1AF-0224	TD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY UPSTRM CHK VLV	No change
1AF-0226	TD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY UPSTRM CHK VLV	No change
1AF-0227	TD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY DNSTRM CHK VLV	No change
1AF-0228	TD AFW PMP 1-01 FCV TO SG 1-03 AIR SPLY UPSTRM CHK VLV	No change
1AF-0229	TD AFW PMP 1-01 FCV TO SG 1-03 AIR SPLY DNSTRM CHK VLV	No change
1AF-0230	TD AFW PMP 1-01 FCV TO SG 1-04 AIR SPLY UPSTRM CHK VLV	No change
1AF-0231	TD AFW PMP 1-01 FCV TO SG 1-04 AIR SPLY DNSTRM CHK VLV	No change
1CC-0031	CCW PMP 1-01 DISCH CHK VLV	No change
1CC-0061	CCW PMP 1-02 DISCH CHK VLV	No change
1CC-0646	RC PMP 1-04 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No change
1CC-0657	RC PMP 1-03 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No change
1CC-0687	RC PMP 1-02 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No change
1CC-0694	RC PMP 1-01 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No change
1CC-0713	U1 RCP CLR CCW SPLY HDR CHK VLV	No change
1CC-1075	RC PMP 1-01 THBR CLR CCW SPLY STOP CHK VLV	No change
1CC-1076	RC PMP 1-02 THBR CLR CCW SPLY STOP CHK VLV	No change
1CC-1077	RC PMP 1-03 THBR CLR CCW SPLY STOP CHK VLV	No change
1CC-1078	RC PMP 1-04 THBR CLR CCW SPLY STOP CHK VLV	No change
1CC-1079	CIRCLE SEAL CHECK VALVE 1/2" FNPT	No change
1CC-1080	CIRCLE SEAL CHECK VALVE 1/2" FNPT	No change
1CC-1081	CIRCLE SEAL CHECK VALVE 1/2" FNPT	No change
1CC-1082	CIRCEL SEAL CHECK VALVE 1/2 FNPT	No change
1CI-0030	U1 INST AIR HDR TO U1 CNTMT CHK VLV	Low SGTR-CIV
1CS-8180	U1 IRC SL WTR RET CNMT ISOL BYP CHK VLV	No change
1CS-8350A	RC PMP 1-01 SL WTR INJ CHK VLV	No change

Table 4.1-5a

IPE/IST Component Evaluation for Risk Importance Due to Back-end Considerations

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Ranking Due To Large, Early Release Evaluations**
1CS-8350B	RC PMP 1-02 SL WTR INJ CHK VLV	No change
1CS-8350C	RC PMP 1-03 SL WTR INJ CHK VLV	No change
1CS-8350D	RC PMP 1-04 SL WTR INJ CHK VLV	No change
1CS-8367A	RC PMP 1-01 SL INJ IMB CHK VLV	No change
1CS-8367B	RC PMP 1-02 SL INJ IMB CHK VLV	No change
1CS-8367C	RC PMP 1-03 SL INJ IMB CHK VLV	No change
1CS-8367D	RC PMP 1-04 SL INJ IMB CHK VLV	No change
1CS-8368A	RC PMP 1-01 SL INJ IRC CHK VLV	No change
1CS-8368B	RC PMP 1-02 SL INJ IRC CHK VLV	No change
1CS-8368C	RC PMP 1-03 SL INJ IRC CHK VLV	No change
1CS-8368D	RC PMP 1-04 SL INJ IRC CHK VLV	No change
1CS-8442	U1 EMER BORATE LN CHK VLV	No change
1CS-8473	BA PMP 1-02 DISCH CHK VLV	No change
1CS-8487	BA PMP 1-01 DISCH CHK VLV	No change
1CT-0025	RWST TO CS PMP 1-02/1-04 SUCT CHK VLV	No change
1CT-0042	CS PMP 1-02 DISCH CHK VLV	No change
1CT-0047	CS PMP 1-04 MINIFLO LN CHK VLV	No change
1CT-0048	CS PMP 1-02 MINIFLO LN CHK VLV	No change
1CT-0063	CS PMP 1-03 MINIFLO LN CHK VLV	No change
1CT-0064	CS PMP 1-01 MINIFLO LN CHK VLV	No change
1CT-0065	CS PMP 1-03 DISCH CHK VLV	No change
1CT-0077	RWST TO CSP 1-01/1-03 SUCT CHK VLV	No change
1CT-0094	CS PMP 1-01 DISCH CHK VLV	No change
1CT-0142	U1 CS TRN A HDR IRC CHK VLV	No change
1CT-0145	U1 CS TRN B HDR IRC CHK VLV	No change
1CT-0148	CNTMT SMP TO CS PMP 1-02/1-04 CHK VLV	No change
1CT-0149	CNTMT SMP TO CS PMP 1-01/1-03 CHK VLV	No change
1DO-0004	DG 1-01 FO XREF PMP 1-01 DISCH CHK VLV	No change
1DO-0005	DG 1-01 FO XREF PMP 1-02 DISCH CHK VLV	No change
1DO-0016	DG 1-02 FO XFER PMP 1-03 DISCH CHK VLV	No change
1DO-0017	DG 1-02 FO XFER PMP 1-04 DISCH CHK VLV	No change
1DO-0049	DG 1-01 FO DAY TK 1-01 XFER HDR CHK VLV	No change
1DO-0050	DG 1-02 FO DAY TK 1-02 XFER HDR CHK VLV	No change
1FW-0076	SG 1-02 FW HDR CHK VLV	No change
1FW-0082	SG 1-01 FW HDR CHK VLV	No change
1FW-0088	SG 1-04 FW HDR CHK VLV	No change
1FW-0195	SG 1-04 FW PREHTR BYP IRC CHK VLV	No change
1FW-0196	SG 1-01 FW PREHTR BYP IRC CHK VLV	No change
1FW-0197	SG 1-02 FW PREHTR BYP IRC CHK VLV	No change
1FW-0198	SG 1-03 FW PREHTR BYP IRC CHK VLV	No change
1FW-0199	SG 1-04 AFW NZL CHK VLV	No change
1FW-0200	SG 1-01 AFW NZL CHK VLV	No change
1FW-0201	SG 1-02 AFW NZL CHK VLV	No change
1FW-0202	SG 1-03 AFW NZL CHK VLV	No change

Table 4.1-5a
IPE/IST Component Evaluation for Risk Importance Due to Back-end Considerations

Sorted By Tag		
Component Tag Number	Component Description	Risk Ranking Due To Large, Early Release Evaluations
1MS-0026	SG 1-01 ATMOS RLF VLV UPSTRM ISOL VLV	No change
1MS-0063	SG 1-02 ATMOS RLF VLV UPSTRM ISOL VLV	No change
1MS-0098	SG 1-03 ATMOS RLF VLV UPSTRM ISOL VLV	No change
1MS-0134	SG 1-04 ATMOS RLF VLV UPSTRM ISOL VLV	No change
1MS-0142	MSL 1-04 TO AFWPT SPLY VLV DNSTRM CHK VLV	No change
1MS-0143	MSL 1-01 TO AFWPT SPLY VLV DNSTRM CHK VLV	No change
1MS-0680	SG 1-01 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No change
1MS-0681	SG 1-01 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No change
1MS-0682	SG 1-02 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No change
1MS-0683	SG 1-02 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No change
1MS-0684	SG 1-03 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No change
1MS-0685	SG 1-03 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No change
1MS-0686	SG 1-04 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No change
1MS-0687	SG 1-04 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No change
1SI-0047	RWST 1-01 TO SI ISOL VLV	No change
1SI-8819A	SI TO CL 1-01 CHK VLV	Medium ISLOCA
1SI-8819B	SI TO CL 1-02 CHK VLV	Medium ISLOCA
1SI-8819C	SI TO CL 1-03 CHK VLV	Medium ISLOCA
1SI-8819D	SI TO CL 1-04 CHK VLV	Medium ISLOCA
1SI-8900A	CCP 1-01/1-02 TO CL 1-01 CHK VLV	No change
1SI-8900B	CCP 1-01/1-02 TO CL 1-02 CHK VLV	No change
1SI-8900C	CCP 1-01/1-02 TO CL 1-03 CHK VLV	No change
1SI-8900D	CCP 1-01/1-02 TO CL 1-04 CHK VLV	No change
1SI-8905A	SI TO HL 1-01 INJ UPSTRM CHK VLV	No change
1SI-8905B	SI TO HL 1-02 INJ UPSTRM CHK VLV	No change
1SI-8905C	SI TO HL 1-03 INJ UPSTRM CHK VLV	No change
1SI-8905D	SI TO HL 1-04 INJ UPSTRM CHK VLV	No change
1SI-8919A	SI PMP 1-01 TO RWST CHK VLV	No change
1SI-8919B	SI PMP 1-02 TO RWST CHK VLV	No change
1SW-0016	U1 SSW TRN B SPLY HDR IN CHK VLV	No change
1SW-0017	U1 SSW TRN A SPLY HDR IN CHK VLV	No change
1SW-0373	SSW PMP 1-02 DISCH CHK VLV	No change
1SW-0374	SSW PMP 1-01 DISCH CHK VLV	No change
CP1-AFAPMD-01	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-01	No change
CP1-AFAPMD-02	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-02	No change
CP1-AFAPTD-01	TURBINE DRIVEN AUXILIARY FEEDWATER PUMP 1-01	No change
CP1-CCAPCC-01	COMPONENT COOLING WATER PUMP 1-01	No change
CP1-CCAPCC-02	COMPONENT COOLING WATER PUMP 1-02	No change
CP1-CHAPCP-05	SAFETY CHILLED WATER RECIRC PUMP 1-05	No change
CP1-CHAPCP-06	SAFETY CHILLED WATER RECIRC PUMP 1-06	No change
CP1-CTAPCS-01	CONTAINMENT SPRAY PUMP 1-01	No change
CP1-CTAPCS-02	CONTAINMENT SPRAY PUMP 1-02	No change
CP1-CTAPCS-03	CONTAINMENT SPRAY PUMP 1-03	No change
CP1-CTAPCS-04	CONTAINMENT SPRAY PUMP 1-04	No change

Table 4.1-5a

IPE/IST Component Evaluation for Risk Importance Due to Back-end Considerations

Sorted By Tag		
Component Tag Number	**Component Description**	**Risk Ranking Due To Large, Early Release Evaluations**
CP1-DOAPFT-01	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-01	No change
CP1-DOAPFT-02	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-02	No change
CP1-DOAPFT-03	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-03	No change
CP1-DOAPFT-04	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-04	No change
CP1-SWAPSW-01	STATION SERVICE WATER PUMP 1-01	No change
CP1-SWAPSW-02	STATION SERVICE WATER PUMP 1-02	No change
TBX-CSAPBA-01	BORIC ACID TRANSFER PUMP 1-01	No change
TBX-CSAPBA-02	BORIC ACID TRANSFER PUMP 1-02	No change
TBX-CSAPCH-01	CENTRIFUGAL CHARGING PUMP 1-01	No change
TBX-CSAPCH-02	CENTRIFUGAL CHARGING PUMP 1-02	No change
TBX-RHAPRH-01	RESIDUAL HEAT REMOVAL PUMP 1-01	No change
TBX-RHAPRH-02	RESIDUAL HEAT REMOVAL PUMP 1-02	No change
TBX-SIAPSI-01	SAFETY INJECTION PUMP 1-01	No change
TBX-SIAPSI-02	SAFETY INJECTION PUMP 1-02	No change
X-PCV-H116A	UPS A\C UNIT X-01 CCW RET PCV	Medium LER
X-PCV-H116B	UPS A\C UNIT X-02 CCW RET PCV	Medium LER
X-PV-3583	CR A\C UNIT X-01 CCW RET PCV	No change
X-PV-3585	CR A\C UNIT X-03 CCW RET PCV	No change

Table 4.1-6
List of IST Components Not In IPE

Sorted By Tag		
Component Tag Number	**Component Description**	**Expert Panel Disposition**
1-7126	LWPS RCDT 1-01 VNT HDR IRC DNSTRM ISOL VLV	Low
1-7135	LWPS RCDT 1-01 LVL CTRL VLV BYP VLV	Low
1-7150	LWPS RCDT 1-01 VNT HDR ORC ISOL VLV	Low
1-8026	PRT 1-01 VNT IRC ISOL VLV	Low
1-8027	PRT 1-01 VNT ORC ISOL VLV	Low
1-8046	RMUW TO PRT 1-01 SPLY IRC CHK VLV	Low
1-8047	RMUW TO PRT 1-01/CNTMT SPLY ORC ISOL VLV	Low
1-8109	PD CHRG PMP 1-01 RECIRC VLV	Low
1-8147	U1 RCS LOOP 1 CHRG VLV	Low
1-8153	U1 XS LTDN ISOL VLV 8153	Low
1-8154	U1 XS LTDN ISOL VLV 8154	Low
1-8202A	PD CHRG PMP 1-01 SUCT STAB DNSTRM VNT VLV	Low
1-8202B	PD CHRG PMP 1-01 SUCT STAB UPSTRM VNT VLV	Low
1-8210A	PD CHRG PMP 1-01 SUCT STAB H2/N2 SPLY VLV 8210A	Low
1-8210B	PD CHRG PMP 1-01 SUCT STAB H2/N2 SPLY VLV 8210B	Low
1-8379A	RCS LOOP 1-01 CHRG LN DNSTRM CHK VLV	Low
1-8379B	RCS LOOP 1-01 CHRG LN UPSTRM CHK VLV	Low
1-8510A	CCP 1-01 ALT MINIFLO RLF VLV	Low
1-8510B	CCP 1-02 ALT MINIFLO RLF VLV	Low
1-8800A	RWST 1-01 TO SFPCS PMP DNSTRM DRN VLV	Low
1-8800B	RWST 1-01 TO SFPCS PMP UPSTRM DRN VLV	Low
1-8823	U1 SI TO CL TST ISOL VLV	Low
1-8824	SI TO HL 1-01/1-04 TST ISOL VLV	Low
1-8825	RHR TO HL 1-02/1-03 TST ISOL VLV	Low
1-8843	CCP 1-01/1-02 INJ HDR CHK VLV UPSTRM TST VLV	Low
1-8871	U1 SI TST HDR RET IRC ISOL VLV	Low
1-8879A	RHR TO CL 1-01 TST VLV	Low
1-8879B	RHR TO CL 1-02 TST VLV	Low
1-8879C	RHR TO CL 1-03 TST VLV	Low
1-8879D	RHR TO CL 1-04 TST VLV	Low
1-8880	U1 SI/PORV ACCUM N2 SPLY ORC ISOL VLV	Low
1-8881	SI TO HL 1-02/1-03 TST ISOL VLV	Low
1-8882	CCP 1-01/1-02 INJ HDR CHK VLV DNSTRM TST VLV	Low
1-8888	U1 SI ACCUM FILL LN ISOL VLV	Low
1-8889A	SI TO HL 1-01 TST LN VLV	Low
1-8889B	SI TO HL 1-02 TST LN VLV	Low
1-8889C	SI TO HL 1-03 TST LN VLV	Low
1-8889D	SI TO HL 1-04 TST LN VLV	Low
1-8890A	RHR TO CL 1-01/1-02 TST VLV	Low
1-8890B	RHR TO CL 1-03/1-04 TST VLV	Low
1-8964	U1 SI TEST HDR RET ORC ISOL VLV	Low
1-FCV-0110B	U1 RCS MU TO CHRG PMP FLO CTRL VLV	Low
1-FCV-0111A	RMUW TO CVCS BA BLNDR 1-01 FLO CTRL VLV	Low
1-FCV-0111B	RCS MU TO VCT 1-01 ISOL VLV	Low
1-FV-2181	SG 1-01 FW SPLIT FLO BYP VLV	Low
1-FV-2182	SG 1-02 FW SPLIT FLO BYP VLV	Low
1-FV-2183	SG 1-03 FW SPLIT FLO BYP VLV	Low
1-FV-2184	SG 1-04 FW SPLIT FLO BYP VLV	Low
1-FV-2194	SG 1-02 FW PREHTR BYP VLV	Low
1-FV-2195	SG 1-03 FW PREHTR BYP VLV	Low

Table 4.1-6
List of IST Components Not In IPE

Sorted By Tag		
Component Tag Number	**Component Description**	**Expert Panel Disposition**
1-FV-2456	MD AFW PMP 1-01 TO CST RECIRC FLO VLV	Low
1-FV-2457	MD AFW PMP 1-02 TO CST RECIRC FLO VLV	Low
1-FV-4536	CCW PMP 1-01 RECIRC FLO VLV	High
1-FV-4537	CCW PMP 1-02 RECIRC FLO VLV	High
1-FV-4650A	VENT CHLR U1 CCW SPLY VLV	Low
1-FV-4650B	VENT CHLR U1 CCW RET VLV	Low
1-HV-2154	FW LN 1-01 SEC SMPL VLV	Low
1-HV-2155	FW LN 1-02 SEC SMPL VLV	Low
1-HV-2185	SG 1-01 FW ISOL BYP VLV	Low
1-HV-2186	SG 1-02 FW ISOL BYP VLV	Low
1-HV-2187	SG 1-03 FW ISOL BYP VLV	Low
1-HV-2188	SG 1-04 FW ISOL BYP VLV	Low
1-HV-2333B	MSIV 1-01 BYP VLV	Low
1-HV-2334B	MSIV 1-02 BYP VLV	Low
1-HV-2335B	MSIV 1-03 BYP VLV	Low
1-HV-2336B	MSIV 1-04 BYP VLV	Low
1-HV-2398	SG 1-02 BLDN ISOL VLV	Low
1-HV-2398A	SG 1-02 BLDN HELB ISOL VLV	Low
1-HV-2399	SG 1-03 BLDN ISOL VLV	Low
1-HV-2399A	SG 1-03 BLDN HELB ISOL VLV	Low
1-HV-2400	SG 1-04 BLDN ISOL VLV	Low
1-HV-2400A	SG 1-04 BLDN HELB ISOL VLV	Low
1-HV-2401A	SG 1-01 DRUM SMPL ISOL VLV	Low
1-HV-2401B	SG 1-01 BLDN SMPL ISOL VLV	Low
1-HV-2402A	SG 1-02 DRUM SMPL ISOL VLV	Low
1-HV-2402B	SG 1-02 BLDN SMPL ISOL VLV	Low
1-HV-2403A	SG 1-03 DRUM SMPL ISOL VLV	Low
1-HV-2403B	SG 1-03 BLDN SMPL ISOL VLV	Low
1-HV-2404A	SG 1-04 DRUM SMPL ISOL VLV	Low
1-HV-2404B	SG 1-04 BLDN SMPL ISOL VLV	Low
1-HV-2405	SG 1-01 SMPL ISOL VLV	Low
1-HV-2406	SG 1-02 SMPL ISOL VLV	Low
1-HV-2407	SG 1-03 SMPL ISOL VLV	Low
1-HV-2408	SG 1-04 SMPL ISOL VLV	Low
1-HV-2410	MSL 1-02 BEF MSIV D\POT 1-24 ISOL VLV	Low
1-HV-2411	MSL 1-03 BEF MSIV D\POT 1-23 ISOL VLV	Low
1-HV-2412	MSL 1-04 BEF MSIV D\POT 1-26 ISOL VLV	Low
1-HV-2480	MD AFW PMP 1-01 SSW SUCT ISOL VLV	Low
1-HV-2481	MD AFW PMP 1-02 SSW SUCT ISOL VLV	Low
1-HV-2482	TD AFW PMP 1-01 SSW SUCT ISOL VLV	Low
1-HV-2484	CST 1-01 DISCH VLV 2484	Low
1-HV-2485	CST 1-01 DISCH VLV 2485	Low
1-HV-3486	U1 CNTMT SERV AIR ISOL VLV	Low
1-HV-3607	RV 1-01 HEAD UPSTRM VNT VLV	Low
1-HV-3608	RV 1-01 HEAD DNSTRM VNT VLV	Low
1-HV-3609	PRZR 1-01 UPSTRM VNT VLV	Low
1-HV-3610	PRZR 1-01 DNSTRM VNT VLV	Low
1-HV-4075B	U1 CNTMT FP HDR ORC ISOL VLV	Low
1-HV-4075C	U1 CNTMT FP HDR IRC ISOL VLV	Low
1-HV-4165	PRZR 1-01 STM SPACE SMPL LN IRC ISOL VLV	Low

Table 4.1-6
List of IST Components Not In IPE

Sorted By Tag		
Component Tag Number	**Component Description**	**Expert Panel Disposition**
1-HV-4166	PRZR 1-01 LIQ SPACE SMPL LN IRC ISOL VLV	Low
1-HV-4167	PRZR 1-01 LIQ SPACE SMPL LN ORC ISOL VLV	Low
1-HV-4168	RC LOOP 1-01 HOT LEG SMPL LN IRC ISOL VLV	Low
1-HV-4169	RC LOOP 1-04 HOT LEG SMPL LN IRC ISOL VLV	Low
1-HV-4170	RC LOOP 1-01 & 1-04 HOT LEG SMPL LN ORC ISOL VLV	Low
1-HV-4175	U1 ACCUM LIQ SPACE SMPL LN ORC ISOL VLV	Low
1-HV-4176	PRZR 1-01 STM SPACE SMPL LN ORC ISOL VLV	Low
1-HV-4178	U1 RHR TRN A SMPL LN ORC ISOL VLV	Low
1-HV-4179	U1 RHR TRN B SMPL LN ORC ISOL VLV	Low
1-HV-4182	RHR TO RC PASS FLSH AND DIVERT MNFLD 1-07A LN ISOL VLV	Low
1-HV-4395	SSW TRN A TO U1 AFW PMP SUCT VLV	Low
1-HV-4396	SSW TRN B TO U1 AFW PMP SUCT VLV	Low
1-HV-4631A	U1 PSS CCW SPLY HDR ISOL VLV	Low
1-HV-4631B	U1 PSS CCW RET HDR ISOL VLV	Low
1-HV-4710	U1 XS LTDN/RCDT HX CCW SPLY ORC ISOL VLV	Low
1-HV-4711	U1 XS LTDN/RCDT HX CCW RET ORC ISOL VLV	Low
1-HV-5365	U1 CNTMT DEMIN/RMUW SPLY ORC ISOL VLV	Low
1-HV-5366	U1 CNTMT DEMIN/RMUW SPLY IRC ISOL VLV	Low
1-HV-5536	U1 CNTMT AIR PRG SPLY ORC ISOL DMPR AO	Low
1-HV-5537	U1 CNTMT AIR PRG SPLY IRC ISOL DMPR AO	Low
1-HV-5538	U1 CNTMT AIR PRG EXH ORC ISOL DMPR AO	Low
1-HV-5539	U1 CNTMT AIR PRG EXH IRC ISOL DMPR AO	Low
1-HV-5540	U1 CNTMT H2 PRG EXH ORC ISOL DMPR	Low
1-HV-5541	U1 CNTMT H2 PRG EXH IRC ISOL DMPR	Low
1-HV-5542	U1 CNTMT H2 PRG SPLY ORC ISOL DMPR	Low
1-HV-5543	U1 CNTMT H2 PRG SPLY IRC ISOL DMPR	Low
1-HV-5544	U1 CNTMT AIR PIG RAD DET UNIT 5502/03/66 SMPL IN ORC ISOL VLV	Low
1-HV-5545	U1 CNTMT AIR PIG RAD DET UNIT 5502/03/66 SMPL IN IRC ISOL VLV	Low
1-HV-5546	U1 CNTMT AIR PIG RAD DET UNIT 5502/03/66 SMPL OUT ORC ISOL VL	Low
1-HV-5547	U1 CNTMT AIR PIG RAD DET UNIT 5502/03/66 SMPL OUT IRC ISOL VL	Low
1-HV-5556	U1 CNTMT AIR PASS SMPL RET LN ORC ISOL VLV	Low
1-HV-5557	U1 CNTMT AIR PASS SMPL RET LN IRC ISOL VLV	Low
1-HV-5558	U1 CNTMT AIR PASS SMPL SPLY LN ORC ISOL VLV 5558	Low
1-HV-5559	U1 CNTMT AIR PASS SMPL SPLY LN IRC ISOL VLV 5559	Low
1-HV-5560	U1 CNTMT AIR PASS SMPL SPLY LN ORC ISOL VLV 5560	Low
1-HV-5561	U1 CNTMT AIR PASS SMPL SPLY LN IRC ISOL VLV 5561	Low
1-HV-5562	U1 CNTMT PRG EXH IRC ISOL DMPR BYP DMPR	Low
1-HV-5563	U1 CNTMT H2 PRG SPLY IRC ISOL DMPR	Low
1-HV-6082	U1 VENT CH WTR SPLY ORC UPSTRM ISOL VLV	Low
1-HV-6083	U1 VENT CH WTR RET IRC DNSTRM ISOL VLV	Low
1-HV-6084	U1 VENT CH WTR SPLY ORC DNSTRM ISOL VLV	Low
1-HV-6720	SFTY CH WTR SRG TK 1-01 RMUW SPLY VLV	Low
1-HV-7311	RC PASS SMPL MODULE 1-04 TO RCDT 1-01 RET LN ORC ISOL VLV	Low
1-HV-7312	RC PASS SMPL MODULE 1-04 TO RCDT 1-01 RET LN IRC ISOL VLV	Low
1-LCV-0459	U1 LTDN ISOL VLV 0459	High
1-LCV-0460	U1 LTDN ISOL VLV 0460	High
1-LV-2478	DEMIN WTR TO CST 1-01 MU VLV	Low
1-LV-4500	CCW SRG TK 1-01 MU VLV 4500	Low
1-LV-4500-1	CCW SRG TK 1-01 RMUW SPLY VLV	Low
1-LV-4501	CCW SRG TK 1-01 MU VLV 4501	Low

Table 4.1-6
List of IST Components Not In IPE

Sorted By Tag		
Component Tag Number	**Component Description**	**Expert Panel Disposition**
1-LV-4754	CS CHEM ADD TK 1-01 DISCH VLV 4754	Low
1-LV-4755	CS CHEM ADD TK 1-01 DISCH VLV 4755	Low
1AF-0009	DEMIN WTR TO CST 1-01 MU LN CHK VLV	Low
1AF-0042	TD AFW PMP 1-01 DISCH TST ISOL VLV	Low
1AF-0045	TD AFW PMP 1-01 DISCH RECIRC CHK VLV	Low
1AF-0055	MD AFW PMP 1-02 DISCH TST ISOL VLV	Low
1AF-0057	MD AFW PMP 1-02 DISCH RECIRC CHK VLV	Low
1AF-0067	MD AFW PMP 1-01 DISCH TST ISOL VLV	Low
1AF-0069	MD AFW PMP 1-01 DISCH RECIRC CHK VLV	Low
1AF-0167	U1 AFW PMPS DISCH RECIRC TO CST CHK VLV	High
1AF-0232	AFWPT 1-01 STM SPLY VLV 2452-1 AIR SPLY DNSTRM CHK VLV	Low
1AF-0233	AFWPT 1-01 STM SPLY VLV 2452-1 AIR SPLY UPSTRM CHK VLV	Low
1AF-0234	AFWPT 1-04 STM SPLY VLV 2452-2 AIR SPLY DNSTRM CHK VLV	Low
1AF-0235	AFWPT 1-01 STM SPLY VLV 2452-2 AIR SPLY UPSTRM CHK VLV	Low
1BS-0015	CNTMT PERS AIRLOCK 1-01 EXT DOOR MAN EQUAL VLV 0015	Low
1BS-0025	CNTMT PERS AIRLOCK 1-01 EXT DOOR AUTO EQUAL VLV	Low
1BS-0029	CNTMT PERS AIRLOCK 1-01 EXT DOOR MAN EQUAL VLV 0029	Low
1BS-0030	CNTMT PERS AIRLOCK 1-01 INT DOOR AUTO EQUAL VLV	Low
1BS-0044	CNTMT PERS AIRLOCK 1-01 INT DOOR MAN EQUAL VLV 0044	Low
1BS-0056	CNTMT PERS AIRLOCK 1-01 INT DOOR MAN EQUAL VLV 0056	Low
1BS-0202	U1 CNTMT PERS EMER AIRLOCK INT DOOR MAN EQUAL VLV	Low
1BS-0203	U1 CNTMT PERS EMER AIRLOCK EXT DOOR MAN EQUAL VLV	Low
1CA-0016	U1 CNTMT SERV AIR HDR CHK VLV	Low
1CC-0003	CCW SRG TK 1-01 RMUW SPLY CHK VLV	Low
1CC-0004	CCW SRG TK 1-01 DEMIN WTR SPLY CHK VLV	Low
1CC-0611	XS LTDN HX 1-01 CCW SPLY RLF VLV	Low
1CC-0618	RCDT HX 1-01 CCW SPLY RLF VLV	Low
1CC-0629	U1 RCP CLR CCW RET HDR CHK VLV	Low
1CC-0831	U1 RC PMP THBR CLR CCW RET HDR RLF CHK VLV	Low
1CC-1067	CNTMT CCW DRN TK 1-02 RET HDR RLF VLV	Low
1CH-0024	U1 VENT CH WTR SPLY IRC CHK VLV	Low
1CH-0271	U1 CNTMT VENT CH WTR SPLY HDR ORC PRESS RLF VLV	Low
1CH-0272	U1 CNTMT VENT CH WTR RET HDR ORC PRESS RLF VLV	Low
1CH-0300	SFTY CH WTR SRG TK 1-01 RMUW SPLY CHK VLV	Low
1CH-0301	SFTY CH WTR SRG TK 1-01 DEMIN WTR SPLY CHK VLV	Low
1CH-0302	SFTY CH WTR SRG TK 1-01 MU LVL VLV 6712 BYP VLV	Low
1CH-0305	SFTY CH WTR SRG TK 1-01 MU LVL VLV 6713 BYP VLV	Low
1CI-0644	CR A\C ACCUM X-01 INST AIR SPLY UPSTRM CHK VLV	High
1CI-0645	CR A\C ACCUM X-01 INST AIR SPLY DNSTRM CHK VLV	High
1CI-0646	CR A\C ACCUM X-02 INST AIR SPLY UPSTRM CHK VLV	High
1CI-0647	CR A\C ACCUM X-02 INST AIR SPLY DNSTRM CHK VLV	High
1CS-8377	U1 RCS AUX SPR LN TO PRZR 1-01 CHK VLV	Low
1CS-8480A	CCP 1-01 RECIRC CHK VLV	Low
1CS-8480B	CCP 1-02 RECIRC CHK VLV	Low
1CT-0013	CS PMP 1-04 DISCH CHK VLV	Low
1CT-0020	CS PMP 1-04 EDUCT SUCT CHK VLV	Low
1CT-0031	CS PMP 1-02 EDUCT SUCT CHK VLV	Low
1CT-0072	CS PMP 1-03 EDUCT SUCT CHK VLV	Low
1CT-0082	CS PMP 1-01 EDUCT SUCT CHK VLV	Low
1CT-0309	CNTMT SMP TO CS PMP 1-01/1-03 SUCT ISOL VLV BONNET RLF VLV	Low

Table 4.1-6
List of IST Components Not In IPE

Sorted By Tag		
Component Tag Number	**Component Description**	**Expert Panel Disposition**
1CT-0310	CNTMT SMP TO CS PMP 1-02/1-04 SUCT ISOL VLV BONNET RLF VLV	Low
1DD-0006	RMUWST 1-01 IN UPSTRM CHK VLV	Low
1DD-0016	RMUW PMP 1-01 RECIRC CHK VLV	Low
1DD-0018	RMUW PMP 1-01 DISCH CHK VLV	Low
1DD-0020	RMUW PMP 1-01 TO RMUW HDR ISOL VLV	Low
1DD-0064	RMUWST 1-01 RET UPSTRM CHK VLV	Low
1DD-0065	RMUWST 1-01 IN DNSTRM CHK VLV	Low
1DD-0066	RMUWST 1-01 RET DNSTRM CHK VLV	Low
1DD-0430	U1 DEMIN/RMUW CNTMT PENET ORC RLF VLV	Low
1DO-0058	DG 1-01 START AIR RCVR 1-01 IN CHK VLV	Low
1DO-0059	DG 1-01 START AIR RCVR 1-02 IN CHK VLV	Low
1DO-0060	DG 1-02 START AIR RCVR 1-03 IN CHK VLV	Low
1DO-0061	DG 1-02 START AIR RCVR 1-04 IN CHK VLV	Low
1DO-0062	DG 1-01 AIR DRYR 1-02 OUT DNSTRM CHK VLV	Low
1DO-0063	DG 1-01 AIR DRYR 1-01 OUT DNSTRM CHK VLV	Low
1DO-0064	DG 1-02 AIR DRYR 1-04 OUT DNSTRM CHK VLV	Low
1DO-0065	DG 1-02 AIR DRYR 1-03 OUT DNSTRM CHK VLV	Low
1DO-0104	DG 1-01 JKT WTR KWP 1-01 DISCH CHK VLV	Low
1DO-0107	DG 1-01 JKT WTR TEMP CTRL VLV	Low
1DO-0157	DG 1-01 ENGN L\O PMP 1-01 SUCT CHK VLV	Low
1DO-0158	DG 1-01 AUX L\O PMP 1-02 SUCT CHK VLV	Low
1DO-0204	DG 1-02 JW KWP 1-02 DISCH CHK VLV	Low
1DO-0207	DG 1-02 JW TEMP CTRL VLV	Low
1DO-0257	DG 1-02 ENGN L\O PMP 1-03 SUCT CHK VLV	Low
1DO-0258	DG 1-02 AUX L\O PMP 1-04 SUCT CHK VLV	Low
1FW-0070	SG 1-03 FW HDR CHK VLV	Low
1FW-0076	SG 1-02 FW HDR CHK VLV	Low
1FW-0082	SG 1-01 FW HDR CHK VLV	Low
1FW-0088	SG 1-04 FW HDR CHK VLV	Low
1FW-0191	SG 1-04 FW PREHTR BYP ORC CHK VLV	Low
1FW-0192	SG 1-01 FW PREHTR BYP ORC CHK VLV	Low
1FW-0193	SG 1-02 FW PREHTR BYP ORC CHK VLV	Low
1FW-0194	SG 1-03 FW PREHTR BYP ORC CHK VLV	Low
1MS-0021	SG 1-01 SFTY VLV 0021	Low
1MS-0022	SG 1-01 SFTY VLV 0022	Low
1MS-0023	SG 1-01 SFTY VLV 0023	Low
1MS-0024	SG 1-01 SFTY VLV 0024	Low
1MS-0025	SG 1-01 SFTY VLV 0025	Low
1MS-0058	SG 1-02 SFTY VLV 0058	Low
1MS-0059	SG 1-02 SFTY VLV 0059	Low
1MS-0060	SG 1-02 SFTY VLV 0060	Low
1MS-0061	SG 1-02 SFTY VLV 0061	Low
1MS-0062	SG 1-02 SFTY VLV 0062	Low
1MS-0093	SG 1-03 SFTY VLV 0093	Low
1MS-0094	SG 1-03 SFTY VLV 0094	Low
1MS-0095	SG 1-03 SFTY VLV 0095	Low
1MS-0096	SG 1-03 SFTY VLV 0096	Low
1MS-0097	SG 1-03 SFTY VLV 0097	Low
1MS-0129	SG 1-04 SFTY VLV 0129	Low
1MS-0130	SG 1-04 SFTY VLV 0130	Low

Table 4.1-6
List of IST Components Not In IPE

Sorted By Tag		
Component Tag Number	**Component Description**	**Expert Panel Disposition**
1MS-0131	SG 1-04 SFTY VLV 0131	Low
1MS-0132	SG 1-04 SFTY VLV 0132	Low
1MS-0133	SG 1-04 SFTY VLV 0133	Low
1RC-0036	RMUW TO PRT 1-01/CNTMT ORC RLF VLV	Low
1-PS-0500	U1 ACCUM LIQ SPACE SMPL LN ORC RLF VLV	Low
1-PS-0501	PRZR 1-01 LIQ SPACE SMPL LN ORC RLF VLV	Low
1-PS-0502	PRZR 1-01 STM SPACE SMPL LN ORC RLF VLV	Low
1-PS-0503	RC LOOP 1-01/1-04 HL SMPL LN ORC RLF VLV	Low
1SF-0011	U1 REFUEL CAV PURIF LOOP HDR UPSTRM ISOL VLV	Low
1SF-0012	U1 REFUEL CAV PURIF LOOP HDR DNSTRM ISOL VLV	Low
1SF-0021	U1 REFUEL CAV DRN TO REFUEL WTR PURIF PMP HDR UPSTRM ISOL VLV	Low
1SF-0022	U1 REFUEL CAV DRN TO REFUEL WTR PURIF PMP HDR DNSTRM ISOL VLV	Low
1SF-0053	REFUEL CAV SKM PMP 1-01 IRC DISCH VLV	Low
1SF-0054	REFUEL CAV SKM PMP 1-01 ORC DISCH VLV	Low
1SI-0166	PRZR 1-01 PORV 0455A N2 ACCUM 1-02 UPSTRM IN CHK VLV	High
1SI-0167	PRZR 1-01 PORV 0455A N2 ACCUM 1-02 DNSTRM IN CHK VLV	High
1SI-0168	PRZR 1-01 PORV 0456 N2 ACCUM 1-01 UPSTRM IN CHK VLV	High
1SI-0169	PRZR 1-01 PORV 0456 N2 ACCUM 1-01 DNSTRM IN CHK VLV	High
1SI-0182	BONNET RELIEF VALVE FOR CONTAINMENT ISOLATION VALVE 1-8811A	High
1SI-0183	BONNET RELIEF VALVE FOR CONTAINMENT ISOLATION VALVE 1-8811B	High
1SI-8968	SI N2 SPLY HDR 1-01/1-02 CHK VLV	Low
1SI-8972	U1 SI TST HDR RLF VLV	Low
1VD-0907	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR PRESS RLF VLV	Low
VD-0003	SFGD BLDG SMP 1-01 PMP 1-01 DISCH CHK VLV	Low
VD-0004	SFGD BLDG SMP 1-01 PMP 1-02 DISCH CHK VLV	Low
VD-0011	SFGD BLDG SMP 1-02 PMP 1-03 DISCH CHK VLV	Low
VD-0012	SFGD BLDG SMP 1-02 PMP 1-04 DISCH CHK VLV	Low
1WP-7176	LWPS RCDT 1-01 DRN HDR RLF VLV	Low
1WP-7177	RC PASS SMPL RET TO RCDT 1-01 RLF VLV	Low
X-PV-3584	CTRL RM A\C UNIT X-02 REFRIG CNDSR CCW RET PRESS CTRL VLV	Low
X-PV-3586	CTRL RM A\C UNIT X-04 REFRIG CNDSR CCW RET PRESS CTRL VLV	Low
XCS-0037	BA PMP 1-01 MINIFLO CHK VLV	Low
XCS-0039	BA PMP 2-01 MINIFLO CHK VLV	Low
XCS-0041	BA PMP 1-02 MINIFLO CHK VLV	Low
XCS-0044	BA PMP 2-02 MINIFLO CHK VLV	Low
XDD-0044	RMUW PMP X-01 MINIFLO RECIRC CHK VLV	Low
XDD-0048	RMUW PMP X-01 DISCH CHK VLV	Low
XDD-0103	RMUW PMP 2-01 TO RMUW HDR ISOL VLV	Low
XSF-0003	SFP CLG WTR PMP X-01 DISCH CHK VLV	Low
XSF-0004	SFP CLG WTR PMP X-02 DISCH CHK VLV	Low
XSF-0160	U1 RMUW TO SFPCS CHK VLV	Low
XSF-0161	U1 RMUW TO SFPCS ISOL VLV	Low
XSF-0179	U2 RMUW TO SFPCS ISOL VLV	Low
XSF-0180	U2 RMUW TO SFPCS CHK VLV	Low
CP1-DDAPRM-01	REACTOR MAKEUP WATER PUMP 1-01	Low
CP1-WPAPSS-01	SAFEGUARD BUILDING SUMP 1-01 PUMP 1-01	Low
CP1-WPAPSS-02	SAFEGUARD BUILDING SUMP 1-01 PUMP 1-02	Low
CP1-WPAPSS-03	SAFEGUARD BUILDING SUMP 1-02 PUMP 1-03	Low
CP1-WPAPSS-04	SAFEGUARD BUILDING SUMP 1-02 PUMP 1-04	Low
CPX-DDAPRM-01	REACTOR MAKEUP WATER PUMP X-01	Low

Table 4.1-6
List of IST Components Not In IPE

Sorted By Tag		
Component Tag Number	**Component Description**	**Expert Panel Disposition**
CPX-SFAPSF-01	SPENT FUEL POOL COOLING WATER PUMP X-01	Low
CPX-SFAPSF-02	SPENT FUEL POOL COOLING WATER PUMP X-02	Low
CTVBCA-01	CHEMICAL ADDITIVE TANK VENTPATH	Low
CTVBCA-02	CHEMICAL ADDITIVE TANK VENTPATH	Low
SWVAVB-01	VENT PATH FORWATER HAMMER PROTECTION	High
SWVAVB-02	VENT PATH FORWATER HAMMER PROTECTION	High
SWVAVB-03	VENT PATH FORWATER HAMMER PROTECTION	High
SWVAVB-04	VENT PATH FORWATER HAMMER PROTECTION	High

Table 4.1-6a
IST Function Table

IST Function Type	IST Function Description (System)
Primary Integrity	Reactor Coolant Pressure Boundary (RC, RHR, SI, CS)
	Vent Path Isolation
	Passive Pipe Break Isolation (SI, CC)
	RCP Thermal Barrier Rupture Isolation (CC)
	Overpressure Protection (RHR)
Secondary Integrity	Steam Line Isolation (MS)
	Main Feedline Break Isolation (FW)
	Feedwater Isolation (FW)
	Steam Generator Tube Rupture Isolation (MS)
	HELB Isolation (MS)
	Overpressure Protection (MS)
	AFW Line Break Mitigation (AFW)
Containment Isolation	Containment Isolation (CS, CT, DD, FW, MS, RHR, SF, SI, VD, AF)
	Containment Penetration Thermal Relief (DD, SI, VD)
System Flowpath Boundary	Sump Recirculation (CS, SI,RHR,CT)
	Containment Spray (CT)
	Chemical Additive (CT)
	Containment Spray Injection (CT)
	ECCS from accumulators to Cold Legs (SI)
	ECCS (SI, RHR, CS)
	ECCS Recirculation (SI)
	ECCS Injection (SI, CS)
	ECCS to Cold Legs (SI)
	ECCS to Hot Legs (SI)
	Boration (SI, CS)
	RHR (RHR)
	Shutdown Cooling (SI)
	RHR Heat Exchanger Cooling (CC)

Table 4.1-6a
IST Function Table

IST Function Type	IST Function Description (System)
	Steam Vent Flowpath (for RHR) (CC)
	AFW to Steam Generator (AFW, FW, CC)
	Post-Accident Vent Path (CC)
	Service Water (CC)
	CCW (CC)
	Safety-Chilled Water Condenser Cooling (CC)
	Fuel Oil (DG)
	UPS A/C Condenser Cooling Flow (CC)
	Control Room A/C Condenser Cooling Flow (VA)
	Containment Spray Heat Exchanger Cooling (CC)
	Pump Discharge (DD)
	Spent Fuel Pooling Cooling (SF)
	Spent Fuel Pool Emergency Makeup
	Sump Discharge
	Surge Tank Emergency Makeup
System Flowpath Failure	Non-Safety Flowpath Isolation (CC)
	Boron Dilution Flowpath Isolation (CCS)
	Isolation of VCT from Charging Pumps' Suction Header (CS)
	Isolation of PD Pump Suction Stabilizer Supply from Charging Pumps' Suction Header (CS)
	Flowpath Boundary (CS, CT, DO, FW, MS (AF), RHR, SI, SW, VD, CH, AF, CC)
	Pump Miniflow Path (CT, DD, RHR, SI, AF, CS)
	Throttling During Pump Start (SW)
	HV-4782(3) Bonnet Overpressure Relief (CT)
	Chemical Additive Tank Vent Path (CT)
	Non-Safety Makeup Line Isolation (DD, AF)
	Non-Safety Flowpath Isolation (DD, CC)
	Safety-Related Air Receiver to Non-Safety Air Supply Isolation (DO)
	Jacket Water Flowpath Boundary (DO)
	Jacket Water Temperature Control (DO)
	Lube Oil Flowpath (DO)

Table 4.1-6a
IST Function Table

IST Function Type	IST Function Description (System)
	Lube Oil Flowpath Boundary (DO)
	TDAFW Pump Steam Supply Flowpath (MS)
	TDAFW Pump Steam Supply Flowpath Boundary (MS)
	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation (CC, MS, CI, AF)
	RHR System to Non-Safety Process (Post-Accident) Sampling System Isolation (RHR,PS)
	Spent Fuel Pool Emergency Makeup Isolation (SF)
	8811A(B) Bonnet Overpressure Relief (SI)
	RWST to Non-Safety Purification System Isolation (SI)
	ECCS Flowpath Boundary (during Recirculation with Loss of RHR A(B)) (SI)
	Backflow Prevention (to facilitate pump restart (SW)
	AFW Pump Emergency Supply Flowpath (SW, AF)
	Vent Path (for water hammer prevention (SW)
	AFW to Faulted SG Flow Isolation (AF)
	Condensate System to CST Isolation to Preclude Over-pressurization Tank (AF)
	Surge Tank Emergency Makeup Isolation (CC, CH)
	Train A to Train B Crosstie Isolation (CC)

Table 4.1-6 b
Comparison of IPE and IST Functions

System	IPE Function (IST Function)	IPE Success Criteria Applicable to IST
AF	Provide 300 GPM to Steam Generators (AFW to SG)	Operation of one of three AF pumps delivering flow to at least one steam generator
	Provide 900 GPM to the Steam Generators (None)	N/A
	Provide full AF flow to the Steam Generators (None)	N/A
CC	Provide CCW flow (CCW, RHR Heat Exchanger Cooling Containment Spray, Heat Exchanger Cooling, Safety-Chilled Water Condenser Cooling, UPS A/C Condenser Cooling Flow, Control Room A/C Condenser Cooling	Provide cooling via CCW safeguards Loops A and B Provide cooling via CCW non-safeguards loop
	Provide RCP Thermal Barrier Cooling (None)	N/A
CHS	Provide CHS flow (Safety Chilled Water Condenser Cooling)	Provide cooling via safety-chilled water trains A and B
CI	Provide CI air flow (None)	N/A
CO/FW	Main Feedwater system restored after loss of AF (None)	N/A
	Main Feedwater system provides flow during ATWS (None)	N/A
CS	Provide RCP Seal Injection (None)	N\A
	Provide High Head Injection flow to the RCS Cold Legs (ECCS, ECCS Injection)	Operation of one of two CCPs delivering flow to two of four RCS cold legs
	Provide High Head Recirculation flow to the RCS Cold Legs (ECCS)	Operation of one of two CCPs delivering flow to two of four RCS cold legs
	Provide emergency boration of the RCS (Boration)	Operation of one of two BATPs delivering flow to the charging pump header and then one of two charging pumps delivering flow to the RCS via the normal charging flowpath

Table 4.1-6 b
Comparison of IPE and IST Functions

System	IPE Function (IST Function)	IPE Success Criteria Applicable to IST
CT	Containment pressure is maintained within its design limit during the injection and recirculation of ECCS (CS, CSI, Sump Recirculation, Chemical Additive)	Operation of one of two trains of two CT pumps delivering flow to the containment spray nozzles
EPA	Provide 6.9 kV power (Fuel Oil, Pump Discharge)	Provide power at 6.9 kV Bus 1EA1
	Provide 6.9 kV power (Fuel Oil, Pump Discharge)	Provide power at 6.9 kV Bus 1EA2
EPB	Provide 480V power (None)	N/A
EPD	Provide DC power (None)	N\A
EPI	Provide Instrument power (None)	N\A
ES	Breakers Open on Manual Remote Trip, both switches (None)	N/A
MS	Provide main turbine trip (None)	N/A
	Provide Controlled Depressurization via the ARVs (None)	N/A
	Steam Dump System Available (None)	N/A
RC	PORVs provide automatic pressure relief on high RCS pressure (Overpressure Protection, Steam Vent Flowpath for RHR)	Operation of one of two PORVs or two of three SRVs. Operation is defined as opening when RCS pressure reaches the valves' respective setpoint and closing when pressure is less than setpoint.
	PORVs open on manual actuation (Post-Accident Vent Path)	One of two PORVs opens on manual open signal
	PORV recloses after opening (RCS Pressure Boundary)	Both PORVs close after both have been demanded open
	SRVs open on high pressure (Overpressure Protection)	Two safety valves open on high RCS pressure

Table 4.1-6 b
Comparison of IPE and IST Functions

System	IPE Function (IST Function)	IPE Success Criteria Applicable to IST
RC	Any safety relief valve opens on high pressure (Overpressure Protection)	One of three safety valves opens on high RCS pressure
	SRVs close after pressure relief (RCS Pressure Boundary)	All RCS safety relief valves close after opening on high RCS pressure
	1 of 2 PORVs opens on manual actuation for SGTR	One of two PORVs opens on manual actuation from the control room
RH	Provide adequate RHR flow to RCS cold legs - injection (ECCS)	Operation of one of two RH pump trains providing injection flow to one of four RCS cold legs during injection
	Provide adequate cooling from RHR to RCS cold legs - recirculation (ECCS)	Operation of one of two RH pump trains providing cold leg recirculation to one intact loop
	Provide adequate cooling from RHR to RCS hot legs - recirculation (ECCS)	Operation of one of two RH pump trains providing injection flow to one of four hot legs during hot leg recirculation
RP	Provide ESFAS actuation (None)	N\A
SI	Provide Intermediate Head Safety Injection flow to the RCS cold legs (ECCS, ECCS Injection, ECCS to Cold Legs)	Operation of one of two SI pumps providing injection flow to two of four RCS cold legs
	Provide Intermediate Head recirculation flow to the RC cold legs (ECCS Recirculation)	Operation of one of two SI pumps providing cold leg recirculation to two of four RCS loops
	Provide Intermediate Head recirculation flow to the RCS hot legs (ECCS to Hot Legs)	Operation of one of two SI pumps to provide intermediate head RCS hot leg injection flow
	2 Accumulators provide discharge on demand (ECCS from accumulators to cold legs)	Two of four accumulators discharge to the RCS when RCS pressure falls below accumulator pressure
SW	Provide SSW flow (Service Water)	Provide flow to SW Train 1A Group 1 loads

Table 4.1-6 b
Comparison of IPE and IST Functions

System	IPE Function (IST Function)	IPE Success Criteria Applicable to IST
SW	Provide SSW flow (Service Water)	Provide flow to SW Train 1A Group 2 loads
	Provide SSW flow (Service Water)	Provide flow to SW Train 1A Group 3 loads
	Provide SSW flow (Service Water)	Provide flow to SW Train 1B Group 1 loads
	Provide SSW flow (Service Water)	Provide flow to SW Train 1B Group 2 loads
	Provide SSW flow (Service Water)	Provide flow to SW Train 1B Group 3 loads

Table 4.1-7
High - Risk IPE Components Not In The IST

Component Tag Number	Component Description	Fussell-Vesely	Equivelent Risk Ranking of Non-IST Components
XCI-0681 (1)	INST AIR DRYR X-01 RLF VLV	0.01000	High
XCI-0683 (1)	INST AIR DRYR X-01 RLF VLV	0.01000	High
1AF-0006	CST 1-01 TO TD AFW PMP 1-01 ISOL VLV	0.00138	Medium
1AF-0007	CST 1-01 TO MD AFW PMP 1-01/1-02 ISOL VLV	0.00166	Medium
1-TV-2370A	MAIN STM DMP TO CNDSR 1-01 VLV 2370A	0.00153	Medium
1-TV-2370B	MAIN STM DMP TO CNDSR 1-01 VLV 2370B	0.00153	Medium
1-TV-2370C	MAIN STM DMP TO CNDSR 1-01 VLV 2370C	0.00153	Medium
1-TV-2370D	MAIN STM DMP TO CNDSR 1-01 VLV 2370D	0.00153	Medium
1-TV-2370E	MAIN STM DMP TO CNDSR 1-01 VLV 2370E	0.00153	Medium
1-TV-2370F	MAIN STM DMP TO CNDSR 1-01 VLV 2370F	0.00153	Medium
1-TV-2370G	MAIN STM DMP TO CNDSR 1-01 VLV 2370G	0.00153	Medium
1-TV-2370H	MAIN STM DMP TO CNDSR 1-01 VLV 2370H	0.00153	Medium
1-TV-2370J	MAIN STM DMP TO CNDSR 1-01 VLV 2370J	0.00153	Medium
1-FCV-0510 (2)	SG 1-01 Fw Flo Ctrl Vlv	0.00176	Medium
1-FCV-0540 (2)	SG 1-04 Fw Flo Ctrl Vlv	0.00176	Medium
1-8341	U1 Pd PMP/CCP Suct Xtie Vlv	0.00102	Medium
X-PSV-3475A (1)	INST AIR RCVR X-01 PRESS RLV VLV	0.00085	Treat As Medium
(1) Non-Operating Train(s) Components To Be Treated As Operating Train Components			
1CI-0749	INST AIR DRYR 1-02 RLF VLV		
1CI-0750	INST AIR DRYR 1-02 RLF VLV		
1CI-0063	INST AIR DRYR 1-01 RLF VLV		
1CI-0072	INST AIR DRYR 1-01 RLF VLV		
1-PSV-3475A	INST AIR RCVR 1-02 PRESS RLV VLV		
1CI-0055	INST AIR RCVR 1-01 PRESS RLV VLV		
(2) Flow Paths to Steam Generators 2 and 3 To Be Treated As Modeled Flow Paths To Steam Generators 1 and 4			
1-FCV-0520	SG 1-02 Fw Flo Ctrl Vlv		
1-FCV-0530	SG 1-03 Fw Flo Ctrl Vlv		

Table 4.2-1
Truncated Components

System	Truncated Components
Auxiliary Feedwater and Main Steam	check valves and flow control valves in paths to the steam generators (4 to 8 paths available) check valves in a recoverable path to one of the motor driven pumps redundant check valves in diversion path to a single air operator atmospheric dump valves on steam generators not associated with TDAFW pump steam supply
Component Cooling Water	normally open MOVs in redundant paths components supporting long term operation of the containment spray system (see comments below)
Charging and CVCS	open check valves and MOVs in normally operating flowpaths for RCP seal injection check valves on cold leg injection lines check valves in redundant paths for emergency boration closed MOVs in a triply redundant paths for emergency boration redundant valves in flowpath boundaries
Containment Spray	all valves since system is not required for CD and not significant for LER
Residual Heat Removal	redundant check valves in recoverable paths when the system is used for high pressure recirculation check valves on hot leg and cold leg injection lines normally open MOVs in redundant paths normally closed MOVs on the hot leg return for RHR cooling (not needed for IPE, normally open for shutdown cooling)

Table 4.2-1
Truncated Components

System	Truncated Components
Safety Injection	check valves on hot leg and cold leg injection lines normally open MOVs in redundant paths normally closed MOVs in redundant hot leg injection paths (cold leg injection is the preferred path and is normally open) check valves in flowpath boundaries that have two alternate sources of flow isolation most accumulator valves (note however, that only the check valves have to change state)
Service Water System	normally open MOVs in a supply header

NOTE: For the injection lines in SI and RHR and other interfacing systems LOCAs (ISL) susceptible paths, valves were not truncated for their potential role in ISL initiators.

Table 4.2-2
Accident Initiaitors With Initiating Event Frequency and Conditional Core Damage Probability

Initiating Event	Event Description	INITIATING EVENT FREQUENCY (EVENTS/YR)	EVENT CONTRIBUTION TO IPE INTERNAL EVENTS CORE DAMAGE FREQUENCY	CONDITIONAL CORE DAMAGE PROBABILITY
%XL	Excessive LOCA (RV Breach)	2.66E-07	2.66E-07	1.00E+00
%A	Large Break LOCA (>6" Diameter)	0.0002	2.85E-06	1.43E-02
%M	Medium Break LOCA (4" to 6" Diameter)	0.00047	1.02E-06	2.17E-03
%X3	Loss of Offsite Power	0.035	1.59E-05	4.54E-04
%VS	Very Small Break LOCA	0.0126	3.76E-06	2.98E-04
%S	Small Break LOCA (2" to 4")	0.00583	1.65E-06	2.83E-04
%X7	Loss of SSW	0.00479	6.04E-07	1.26E-04
%R	Steam Generator Tube Rupture	0.0284	3.54E-06	1.25E-04
%X1	Loss of a DC Bus	0.0335	2.17E-06	6.48E-05
%X6	Loss of CCW	0.0153	9.03E-07	5.90E-05
%X2	Loss of HVAC	0.0731	7.55E-07	1.03E-05
%T4	Main Steam Line Break	0.00604	5.48E-08	9.07E-06
%CV	Loss of Condenser Vacuum	0.118	5.84E-07	4.95E-06
%T6	Loss of Main Feedwater	1.29	5.03E-06	3.90E-06
%T3	Inadvertant SI Actuation	0.0299	5.96E-08	1.99E-06
%T1	Reactor Trip-Reactor Trip	2.9	4.56E-06	1.57E-06
%X4	Loss of a non-vital AC Bus	0.0823	7.60E-08	9.23E-07
%X5	Loss of a Safeguards Bus(Protection Channel)	0.0836	4.86E-08	5.81E-07

Table 4.2-3
Table of Risk Importances With and Without Common Cause Failures

Component Tag Number	Component Description	Risk Importance Measure Ranking with CCF	Risk Importance Measure Ranking Change w/out CCF
1-8105	U1 Chrg Pmp To RCS Cntmt Isol Vlv	Low	None
1-8106	U1 Chrg Pmp To RCS Cntmt Isol Vlv	Low	None
1-8511A	Ccp 1-01 Alt Miniflo Isol Vlv	Medium	None
1-8511B	Ccp 1-02 Alt Miniflo Isol Vlv	Medium	None
1-8512A	Ccp 1-02 Alt Miniflo Isol Vlv	Medium	None
1-8512B	Ccp 1-01 Alt Miniflo Isol Vlv	Medium	None
1-8716A	RHR Pmp 1-01 Xtie Vlv	Medium	Low
1-8716B	RHR Pmp 1-02 Xtie Vlv	Medium	Low
1-8801A	Ccp 1-01/1-02 SI Isol Vlv 8801A	Low	None
1-8801B	Ccp 1-01/1-02 SI Isol Vlv 8801B	Low	None
1-8809A	RHR To Cl 1-01/1-02 Inj Isol Vlv	Medium	Low
1-8809B	RHR To Cl 1-03/1-04 Inj Isol Vlv	Medium	Low
1-8809A	RHR To Cl 1-01/1-02 Inj Isol Vlv	Medium	Low
1-8809B	RHR To Cl 1-03/1-04 Inj Isol Vlv	Medium	Low
1-8809A	RHR To Cl 1-01/1-02 Inj Isol Vlv	Medium	Low
1-8809B	RHR To Cl 1-03/1-04 Inj Isol Vlv	Medium	Low
1-FCV-0610	RHR Pmp 1-01 Miniflo Vlv	Low	None
1-FCV-0611	RHR Pmp 1-02 Miniflo Vlv	Low	None
1-HV-2333A	MSIV 1-01	Low	None
1-HV-2334A	MSIV 1-02	Low	None
1-HV-2335A	MSIV 1-03	Low	None
1-HV-2336A	MSIV 1-04	Low	None
1-HV-4513	U1 SFGD LOOP B CCW RET VLV	Medium	None
1-HV-4515	U1 SFGD LOOP B CCW SPLY VLV	Medium	None
1-HV-4524	U1 NON-SFGD LOOP CCW DNSTRM RET VLV	Medium	None
1-HV-4525	U1 NON-SFGD LOOP CCW UPSTRM RET VLV	Medium	None
1-HV-4526	U1 NON-SFGD LOOP CCW UPSTRM SPLY VLV	Medium	None
1-HV-4527	U1 NON-SFGD LOOP CCW DNSTRM SPLY VLV	Medium	None
1-HV-4572	RHR HX 1-01 CCW RET VLV	Medium	Low
1-HV-4573	RHR HX 1-02 CCW RET VLV	Medium	Low

Table 4.2-3a
IST/IPE Component Evaluation for Risk Importance Due to Common Cause

Sorted By Tag			
Component Tag Number	**Component Description**	**Risk Importance Measure Ranking with CCF**	**Risk Importance Measure Ranking Change w/out CCF**
1-7136	Rcdt Pump Discharge Control Valve	None	n/a
1-8000A	Przr 1-01 Porv 0455A Blk Vlv	High	High
1-8000B	Przr 1-01 Porv 0456 Blk Vlv	High	High
1-8010A	Przr 1-01 Sfty Vlv A	Medium	Medium
1-8010B	Przr 1-01 Sfty Vlv B	Medium	Medium
1-8010C	Przr 1-01 Sfty Vlv C	Medium	Medium
1-8100	U1 Rcp SI Wtr Ret Isol Vlv	None	n/a
1-8104	U1 Emer Borate Vlv	None	n/a
1-8105	U1 Chrg Pmp To RCS Cntmt Isol Vlv	Low	None
1-8106	U1 Chrg Pmp To RCS Cntmt Isol Vlv	Low	None
1-8110	Ccp 1-01/1-02 Dnstrm Miniflow Vlv	Low	Low
1-8111	Ccp 1-01/1-02 Upstrm Miniflow Vlv	Low	Low
1-8112	U1 RC Pmp Seal Wtr Ret Isol Vlv	None	n/a
1-8145	U1 Przr Aux Spr Vlv	None	n/a
1-8146	U1 RCS Loop 4 Chrg Vlv	None	n/a
1-8152	U1 LTDN CNTMT ORC ISOL VLV	None	n/a
1-8160	U1 LTDN CNTMT IRC ISOL VLV	None	n/a
1-8351A	RC Pmp 1-01 SI Wtr Inj Vlv	None	n/a
1-8351B	RC Pmp 1-02 SI Wtr Inj Vlv	None	n/a
1-8351C	RC Pmp 1-03 SI Wtr Inj Vlv	None	n/a
1-8351D	RC Pmp 1-04 SI Wtr Inj Vlv	None	n/a
1-8378A	RCS Loop 1-04 Chrg Dnstrm Chk Vlv	None	n/a
1-8378B	RCS Loop 1-04 Chrg Upstrm Chk Vlv	None	n/a
1-8381	Chrg Ln Irc Chk Vlv	None	n/a
1-8481A	Ccp 1-01 Disch Chk Vlv	Low	Low
1-8481B	Ccp 1-02 Disch Chk Vlv	Low	Low
1-8497	Pd Pmp 1-01 Disch Chk Vlv	None	n/a
1-8511A	Ccp 1-01 Alt Miniflo Isol Vlv	Medium	None
1-8511B	Ccp 1-02 Alt Miniflo Isol Vlv	Medium	None
1-8512A	Ccp 1-02 Alt Miniflo Isol Vlv	Medium	None
1-8512B	Ccp 1-01 Alt Miniflo Isol Vlv	Medium	None
1-8546	Rwst 1-01 To Chrg Pmp Suct Chk Vlv	Low	Low
1-8701A	RHR Pmp 1-01 Hl 1-01 Recirc Omb Isol Vlv	None	n/a
1-8701B	RHR Pmp 1-02 Hl 1-04 Recirc Omb Isol Vlv	None	n/a
1-8702A	RHR Pmp 1-01 Hl 1-01 Reicrc Imb Isol Vlv	None	n/a
1-8702B	RHR Pmp 1-02 Hl 1-04 Recirc Imb Isol Vlv	None	n/a
1-8708A	RHR Pmp 1-01 Suct Rlf Vlv	None	n/a
1-8708B	RHR Pmp 1-02 Suct Rlf Vlv	None	n/a
1-8716A	RHR Pmp 1-01 Xtie Vlv	Medium	Low
1-8716B	RHR Pmp 1-02 Xtie Vlv	Medium	Low
1-8717	U1 RHR Pmps Disch To Rwst Isol Vlv	Low	Low
1-8730A	RHR Hx 1-01 Disch Chk Vlv	None	n/a
1-8730B	RHR Hx 1-02 Disch Chk Vlv	None	n/a
1-8801A	Ccp 1-01/1-02 SI Isol Vlv 8801A	Low	None
1-8801B	Ccp 1-01/1-02 SI Isol Vlv 8801B	Low	None
1-8802A	SI Pmp 1-01 To Hl 2 & 3 Inj Isol Vlv	None	n/a
1-8802B	SI Pmp 1-02 To Hl 1 & 4 Inj Isol Vlv	None	n/a
1-8804A	RHR Pmp 1-01 To Ccp Suct Vlv	Medium	Medium
1-8804B	RHR Pmp 1-02 To SI Pmps Suct Vlv	Medium	Medium
1-8806	Rwst 1-01 To SI Pmps Suct Vlv	Low	Low
1-8807A	U1 SIP/CCP Suct Hdr Xtie Vlv 8807A	None	n/a
1-8807B	U1 SIP/CCP Suct Hdr Xtie Vlv 8807B	None	n/a
1-8808A	SI Accum 1-01 Inj Vlv	None	n/a
1-8808B	SI Accum 1-02 Inj Vlv	None	n/a

Table 4.2-3a
IST/IPE Component Evaluation for Risk Importance Due to Common Cause

Sorted By Tag			
Component Tag Number	**Component Description**	**Risk Importance Measure Ranking with CCF**	**Risk Importance Measure Ranking Change w/out CCF**
1-8808C	SI Accum 1-03 Inj Vlv	None	n/a
1-8808D	SI Accum 1-04 Inj Vlv	None	n/a
1-8809A	RHR To Cl 1-01/1-02 Inj Isol Vlv	Medium	Low
1-8809B	RHR To Cl 1-03/1-04 Inj Isol Vlv	Medium	Low
1-8811A	Cntmt Smp To RHR Pmp 1-01 Suct Isol Vlv	Medium	Medium
1-8811B	Cntmt Smp To RHR Pmp 1-02 Suct Isol Vlv	Medium	Medium
1-8809A	RHR To Cl 1-01/1-02 Inj Isol Vlv	Medium	Low
1-8809B	RHR To Cl 1-03/1-04 Inj Isol Vlv	Medium	Low
1-8813	SI Pmp 1-01/1-02 Miniflo Ret Vlv	Medium	Medium
1-8814A	SI Pmp 1-01 Miniflo Vlv	Medium	Medium
1-8814B	SI Pmp 1-02 Miniflo Vlv	Medium	Medium
1-8815	Ccp 1-01/1-02 Inj Chk Vlv	Low	Low
1-8818A	RHR Cl 1-01 Inj Chk Vlv	None	n/a
1-8818B	RHR Cl 1-02 Inj Chk Vlv	None	n/a
1-8818C	RHR Cl 1-03 Inj Chk Vlv	None	n/a
1-8818D	RHR Cl 1-04 Inj Chk Vlv	None	n/a
1-8821A	SI Pmp 1-01 Xtie Vlv	None	n/a
1-8821B	SI Pmp 1-02 Xtie Vlv	None	n/a
1-8835	SI Pmp 1-01/1-02 To Cl Inj Isol Vlv	Low	Low
1-8840	RHR To Hl 1-02/1-03 Inj Isol Vlv	High	High
1-8841A	RHR To RCS Hl 1-02 Upstrm Chk Vlv	None	n/a
1-8841B	RHR To RCS Hl 1-03 Upstrm Chk Vlv	None	n/a
1-8875A	SI Accum 1-01 N2 SPLY/VENT Vlv	None	n/a
1-8875B	SI Accum 1-02 N2 SPLY/VENT Vlv	None	n/a
1-8875C	SI Accum 1-03 N2 SPLY/VENT Vlv	None	n/a
1-8875D	SI Accum 1-04 N2 SPLY/VENT Vlv	None	n/a
1-8877A	SI Accum 1-01 Tst Ln Isol Vlv	None	n/a
1-8877B	SI Accum 1-02 Tst Ln Isol Vlv	None	n/a
1-8877C	SI Accum 1-03 Tst Ln Isol Vlv	None	n/a
1-8877D	SI Accum 1-04 Tst Ln Isol Vlv	None	n/a
1-8878A	SI Accum 1-01 Fill Vlv	None	n/a
1-8878B	SI Accum 1-02 Fill Vlv	None	n/a
1-8878C	SI Accum 1-03 Fill Vlv	None	n/a
1-8878D	SI Accum 1-04 Fill Vlv	None	n/a
1-8922A	SI Pmp 1-01 Disch Chk Vlv	Low	Low
1-8922B	SI Pmp 1-02 Disch Chk Vlv	Low	Low
1-8923A	SI Pmp 1-01 Suct Vlv	None	None
1-8923B	SI Pmp 1-02 Suct Vlv	None	None
1-8924	U1 SIP/CCP Suct Hdr Xtie Isol Vlv	None	None
1-8926	SI Pmp 1-01/1-02 Suct Chk Vlv	Low	Low
1-8948A	SI Accum 1-01 Dnstrm Inj Chk Vlv	None	n/a
1-8948B	SI Accum 1-02 Dnstrm Inj Chk Vlv	None	n/a
1-8948C	SI Accum 1-03 Dnstrm Inj Chk Vlv	None	n/a
1-8948D	SI Accum 1-04 Dnstrm Inj Chk Vlv	None	n/a
1-8949A	RHR To Rcp Hl 1-01 Dnstrm Chk Vlv	None	n/a
1-8949B	RHR To Rcp Hl 1-02 Dnstrm Chk Vlv	None	n/a
1-8949C	RHR To Rcp Hl 1-03 Dnstrm Chk Vlv	None	n/a
1-8949D	RHR To Rcp Hl 1-04 Dnstrm Chk Vlv	None	n/a
1-8956A	SI Accum 1-01 Upstrm Inj Chk Vlv	None	n/a
1-8956B	SI Accum 1-02 Upstrm Inj Chk Vlv	None	n/a
1-8956C	SI Accum 1-03 Upstrm Inj Chk Vlv	None	n/a
1-8956D	SI Accum 1-04 Upstrm Inj Chk Vlv	None	n/a
1-8958A	Rwst 1-01 To RHR Pmp 1-01 Chk Vlv	None	n/a
1-8958B	Rwst 1-01 To RHR Pmp 1-02 Chk Vlv	None	n/a
1-8969A	RHR To Ccp 1-01/1-02 Suct Chk Vlv	None	n/a

Table 4.2-3a
IST/IPE Component Evaluation for Risk Importance Due to Common Cause

Sorted By Tag			
Component Tag Number	Component Description	Risk Importance Measure Ranking with CCF	Risk Importance Measure Ranking Change w/out CCF
1-8969B	RHR To SI Pmp 1-01/1-02 Suct Chk Vlv	None	None
1-FCV-0610	RHR Pmp 1-01 Miniflo Vlv	Low	None
1-FCV-0611	RHR Pmp 1-02 Miniflo Vlv	Low	None
1-FCV-0618	RHR Hx 1-01 Byp Flo Ctrl Vlv	None	n/a
1-FCV-0619	RHR Hx 1-02 Byp Flo Ctrl Vlv	None	n/a
1-FV-2193	SG 1-01 Fw Prehtr Byp Vlv	None	n/a
1-FV-2196	SG 1-04 Fw Prehtr Byp Vlv	None	n/a
1-FV-4772-1	Cs Pmp 1-01 Recirc Vlv	None	n/a
1-FV-4772-2	Cs Pmp 1-03 Recirc Vlv	None	n/a
1-FV-4773-1	Cs Pmp 1-02 Recirc Vlv	None	n/a
1-FV-4773-2	Cs Pmp 1-04 Recirc Vlv	None	n/a
1-HCV-0606	RHR Hx 1-01 Flo Ctrl Vlv	None	n/a
1-HCV-0607	HR Hx 1-02 Flo Ctrl Vlv	None	n/a
1-HV-2134	1-01 FW ISOL VLV	None	n/a
1-HV-2135	SG 1-02 FW ISOL VLV	None	n/a
1-HV-2136	SG 1-03 FW ISOL VLV	None	n/a
1-HV-2137	SG 1-04 FW ISOL VLV	None	n/a
1-HV-2333A	MSIV 1-01	Low	None
1-HV-2334A	MSIV 1-02	Low	None
1-HV-2335A	MSIV 1-03	Low	None
1-HV-2336A	MSIV 1-04	Low	None
1-HV-2397	SG 1-01 BLDN ISOL VLV	None	n/a
1-HV-2397A	SG 1-01 BLDN HELB ISOL VLV	None	n/a
1-HV-2409	MSL 1-01 BEF MSIV D\POT 1-25 ISOL VLV	None	n/a
1-HV-2410	MSL 1-02 BEF MSIV D\POT ISOL VLV	None	n/a
1-HV-2411	MSL 1-03 BEF MSIV D\POT ISOL VLV	None	n/a
1-HV-2412	MSL 1-04 BEF MSIV D\POT ISOL VLV	None	n/a
1-HV-2452-1	MSL 1-01 TO AFWPT STM SPLY VLV	None	None
1-HV-2452-2	MSL 1-04 TO AFWPT STM SPLY VLV	None	None
1-HV-2459	TD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	None	n/a
1-HV-2460	TD AFW PMP 1-01 DISCH TO SG 1-02 FCV	None	n/a
1-HV-2461	TD AFW PMP 1-01 DISCH TO SG 1-03 FLO CTRL VLV	None	None
1-HV-2462	TD AFW PMP 1-01 DISCH TO SG 1-04 FLO CTRL VLV	None	None
1-HV-2491A	TD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	None	n/a
1-HV-2491B	MD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	None	n/a
1-HV-2492A	TD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	None	n/a
1-HV-2492B	MD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	None	n/a
1-HV-2493A	MD AFW PMP 1-02 DISCH TO SG 1-03 ISOL VLV	None	n/a
1-HV-2493B	TD AFW PMP 1-01 DISCH TO SG 1-03 ISOL VLV	None	n/a
1-HV-2494A	MD AFW PMP 1-02 DISCH TO SG 1-04 ISOL VLV	None	n/a
1-HV-2494B	TD AFW PMP 1-01 DISCH TO SG 1-04 ISOL VLV	None	n/a
1-HV-3487	U1 CNTMT INST AIR HDR ISOL VLV	None	n/a
1-HV-4171	ACCUM 1-01 LIQ SPACE SMPL LN IRC ISOL VLV	None	n/a
1-HV-4172	ACCUM 1-02 LIQ SPACE SMPL LN IRC ISOL VLV	None	n/a
1-HV-4173	ACCUM 1-03 LIQ SPACE SMPL LN IRC ISOL VLV	None	n/a
1-HV-4174	ACCUM 1-04 LIQ SPACE SMPL LN IRC ISOL VLV	None	n/a
1-HV-4286	SSW PMP 1-01 DISCH VLV	Medium	Medium
1-HV-4287	SSW PMP 1-02 DISCH VLV	Medium	Medium
1-HV-4393	DG 1-01 JKT WTR CLR SSW RET VLV	None	n/a
1-HV-4394	DG 1-02 JKT WTR CLR SSW RET VLV	None	n/a
1-HV-4512	U1 SFGD LOOP A CCW RET VLV	Medium	Medium
1-HV-4513	U1 SFGD LOOP B CCW RET VLV	Medium	None
1-HV-4514	U1 SFGD LOOP A CCW SPLY VLV	Medium	Medium
1-HV-4515	U1 SFGD LOOP B CCW SPLY VLV	Medium	None
1-HV-4524	U1 NON-SFGD LOOP CCW DNSTRM RET VLV	Medium	None

Table 4.2-3a
IST/IPE Component Evaluation for Risk Importance Due to Common Cause

Sorted By Tag			
Component Tag Number	**Component Description**	**Risk Importance Measure Ranking with CCF**	**Risk Importance Measure Ranking Change w/out CCF**
1-HV-4525	U1 NON-SFGD LOOP CCW UPSTRM RET VLV	Medium	None
1-HV-4526	U1 NON-SFGD LOOP CCW UPSTRM SPLY VLV	Medium	None
1-HV-4527	U1 NON-SFGD LOOP CCW DNSTRM SPLY VLV	Medium	None
1-HV-4572	RHR HX 1-01 CCW RET VLV	Medium	Low
1-HV-4573	RHR HX 1-02 CCW RET VLV	Medium	Low
1-HV-4574	CS HX 1-01 CCW RET VLV	None	n/a
1-HV-4575	CS HX 1-02 CCW RET VLV	None	n/a
1-HV-4696	U1 THBR CLR CCW RET IRC ISOL VLV	None	None
1-HV-4699	U1 RCP/THBR CLR CCW SPLY ORC UPSTRM ISOL VLV	None	None
1-HV-4700	U1 RCP/THBR CLR CCW SPLY ORC DNSTRM ISOL VLV	None	None
1-HV-4701	U1 RCP CLR CCW RET IRC ISOL VLV	None	n/a
1-HV-4708	U1 RCP CLR CCW RET ORC ISOL VLV	None	n/a
1-HV-4709	U1 THBR CLR CCW RET ORC ISOL VLV	None	None
1-HV-4725	CNTMT CCW DRN TK 1-02 IRC ISOL VLV	None	n/a
1-HV-4726	CNTMT CCW DRN TK 1-02 ORC ISOL VLV	None	n/a
1-HV-4758	RWST TO CS PMP 1-01/1-03 SUCT VLV	None	n/a
1-HV-4759	RWST TO CS PMP 1-02/1-04 SUCT VLV	None	n/a
1-HV-4776	CS HX 1-01 OUT VLV	None	n/a
1-HV-4777	CS HX 1-02 OUT VLV	None	n/a
1-HV-4782	CNTMT SMP TO CS PMP 1-01/1-03 SUCT ISOL VLV	None	n/a
1-HV-4783	CNTMT SMP TO CS PMP 1-02/1-04 SUCT ISOL VLV	None	n/a
1-HV-5157	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR ORC ISOL VLV	None	n/a
1-HV-5158	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR IRC ISOL VLV	None	n/a
1-HV-5548	U1 CNTMT PRESS RLF SYS ORC ISOL VLV	None	n/a
1-HV-5549	U1 CNTMT PRESS RLF SYS IRC ISOL VLV	None	n/a
1-HV-8220	U1 CHARGE PMP SUCT HI PNT VNT VLV 8220	None	n/a
1-HV-8221	U1 CHARGE PMP HI PNT VNT VLV 8221	None	n/a
1-LCV-0112B	VCT 1-01 TO CHRG PMP SUCT VLV 0112B	Low	Low
1-LCV-0112C	VCT 1-01 TO CHRG PMP SUCT VLV 0112C	Low	Low
1-LCV-0112D	RWST 1-01 TO CHRG PMP SUCT VLV 0112D	Low	Low
1-LCV-0112E	RWST 1-01 TO CHRG PMP SUCT VLV 0112E	Low	Low
1-LCV-1003	LWPS RCDT 1-01 LVL CTRL VLV	None	n/a
1-LCV-1003	RCDT LEVEL CONTROL VALVE	None	n/a
1-PCV-0456	PRZR PWR OPERATED RELIEF VLV	High	High
1-PV-2325	SG 1-01 ATMOS RLF VLV	Low	Low
1-PV-2326	SG 1-02 ATMOS RLF VLV	n/a	n/a
1-PV-2327	SG 1-02 ATMOS RLF VLV	n/a	n/a
1-PV-2328	SG 1-04 ATMOS RLF VLV	Low	Low
1-PV-2453A	MD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	None	n/a
1-PV-2453B	MD AFW PMP 1-01 DISCH TO SG 1-02 CTRL VLV	None	n/a
1-PV-2454A	MD AFW PMP 1-02 DISCH TO SG 1-03 CTRL VLV	None	None
1-PV-2454B	MD AFW PMP 1-02 DISCH TO SG 1-04 CTRL VLV	None	None
1-PV-4552	SFTY CHLR 1-05 CCW RET PCV	None	None
1-PV-4553	SFTY CHLR 1-06 CCW RET PCV	None	None
1AF-0014	CST TO MD AFW PMP 1-01 SUCT CHK VLV	None	n/a
1AF-0024	CST TO MD AFW PMP 1-02 SUCT CHK VLV	None	n/a
1AF-0032	CST 1-01 TO TD AFW PMP CHK VLV	Low	Low
1AF-0038	TD AFW PMP 1-01 DISCH CHK VLV	Low	Low
1AF-0041	TD AFW PMP 1-01 DISCH ISOL VLV	Low	Low
1AF-0051	MD AFW PMP 1-02 DISCH CHK VLV	Low	Low
1AF-0054	MD AFW PMP 1-02 DISCH ISOL VLV	Low	Low
1AF-0065	MD AFW PMP 1-01 DISCH CHK VLV	Low	Low
1AF-0066	MD AFW PMP 1-01 DISCH ISOL VLV	Low	Low
1AF-0075	MD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	None	n/a
1AF-0078	TD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	None	n/a

Table 4.2-3a
IST/IPE Component Evaluation for Risk Importance Due to Common Cause

Sorted By Tag			
Component Tag Number	**Component Description**	**Risk Importance Measure Ranking with CCF**	**Risk Importance Measure Ranking Change w/out CCF**
1AF-0083	MD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	None	n/a
1AF-0086	TD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	None	n/a
1AF-0093	MD AFW PMP 1-02 DISCH TO SG 1-03 CHK VLV	None	n/a
1AF-0098	TD AFW PMP 1-01 DISCH TO SG 1-03 CHK VLV	None	n/a
1AF-0101	MD AFW PMP 1-02 DISCH TO SG 1-04 CHK VLV	None	n/a
1AF-0106	TD AFW PMP 1-01 DISCH TO SG 1-04 CHK VLV	None	n/a
1AF-0215	MD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY UPSTRM CHK VLV	Low	Low
1AF-0216	MD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY DNSTRM CHK VLV	Low	Low
1AF-0217	MD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY UPSTRM CHK VLV	None	n/a
1AF-0218	MD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY DNSTRM CHK VLV	None	n/a
1AF-0219	MD AFW PMP 1-02 FCV TO SG 1-03 AIR SPLY UPSTRM CHK VLV	None	n/a
1AF-0220	MD AFW PMP 1-02 FCV TO SG 1-03 AIR SPLY DNSTRM CHK VLV	None	n/a
1AF-0221	MD AFW PMP 1-02 FCV TO SG 1-04 AIR SPLY UPSTRM CHK VLV	Low	Low
1AF-0222	MD AFW PMP 1-02 FCV TO SG 1-04 AIR SPLY DNSTRM CHK VLV	Low	Low
1AF-0223	TD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY DNSTRM CHK VLV	Low	Low
1AF-0224	TD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY UPSTRM CHK VLV	Low	Low
1AF-0226	TD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY UPSTRM CHK VLV	None	n/a
1AF-0227	TD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY DNSTRM CHK VLV	None	n/a
1AF-0228	TD AFW PMP 1-01 FCV TO SG 1-03 AIR SPLY UPSTRM CHK VLV	None	n/a
1AF-0229	TD AFW PMP 1-01 FCV TO SG 1-03 AIR SPLY DNSTRM CHK VLV	None	n/a
1AF-0230	TD AFW PMP 1-01 FCV TO SG 1-04 AIR SPLY UPSTRM CHK VLV	Low	Low
1AF-0231	TD AFW PMP 1-01 FCV TO SG 1-04 AIR SPLY DNSTRM CHK VLV	Low	Low
1CC-0031	CCW PMP 1-01 DISCH CHK VLV	Low	Low
1CC-0061	CCW PMP 1-02 DISCH CHK VLV	Low	Low
1CC-0646	RC PMP 1-04 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	None	None
1CC-0657	RC PMP 1-03 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	None	None
1CC-0687	RC PMP 1-02 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	None	None
1CC-0694	RC PMP 1-01 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	None	None
1CC-0713	U1 RCP CLR CCW SPLY HDR CHK VLV	None	None
1CC-1075	RC PMP 1-01 THBR CLR CCW SPLY STOP CHK VLV	None	None
1CC-1076	RC PMP 1-02 THBR CLR CCW SPLY STOP CHK VLV	None	None
1CC-1077	RC PMP 1-03 THBR CLR CCW SPLY STOP CHK VLV	None	None
1CC-1078	RC PMP 1-04 THBR CLR CCW SPLY STOP CHK VLV	None	None
1CC-1079	CIRCLE SEAL CHECK VALVE 1/2" FNPT	None	n/a
1CC-1080	CIRCLE SEAL CHECK VALVE 1/2" FNPT	None	n/a
1CC-1081	CIRCLE SEAL CHECK VALVE 1/2" FNPT	None	n/a
1CC-1082	CIRCEL SEAL CHECK VALVE 1/2 FNPT	None	n/a
1CI-0030	U1 INST AIR HDR TO U1 CNTMT CHK VLV	None	n/a
1CS-8180	U1 IRC SL WTR RET CNMT ISOL BYP CHK VLV	None	n/a
1CS-8350A	RC PMP 1-01 SL WTR INJ CHK VLV	None	n/a
1CS-8350B	RC PMP 1-02 SL WTR INJ CHK VLV	None	n/a
1CS-8350C	RC PMP 1-03 SL WTR INJ CHK VLV	None	n/a
1CS-8350D	RC PMP 1-04 SL WTR INJ CHK VLV	None	n/a
1CS-8367A	RC PMP 1-01 SL INJ IMB CHK VLV	None	n/a
1CS-8367B	RC PMP 1-02 SL INJ IMB CHK VLV	None	n/a
1CS-8367C	RC PMP 1-03 SL INJ IMB CHK VLV	None	n/a
1CS-8367D	RC PMP 1-04 SL INJ IMB CHK VLV	None	n/a
1CS-8368A	RC PMP 1-01 SL INJ IRC CHK VLV	None	n/a
1CS-8368B	RC PMP 1-02 SL INJ IRC CHK VLV	None	n/a
1CS-8368C	RC PMP 1-03 SL INJ IRC CHK VLV	None	n/a
1CS-8368D	RC PMP 1-04 SL INJ IRC CHK VLV	None	n/a
1CS-8442	U1 EMER BORATE LN CHK VLV	None	n/a
1CS-8473	BA PMP 1-02 DISCH CHK VLV	None	n/a
1CS-8487	BA PMP 1-01 DISCH CHK VLV	None	n/a
1CT-0025	RWST TO CS PMP 1-02/1-04 SUCT CHK VLV	None	n/a

Table 4.2-3a
IST/IPE Component Evaluation for Risk Importance Due to Common Cause

Sorted By Tag			
Component Tag Number	Component Description	Risk Importance Measure Ranking with CCF	Risk Importance Measure Ranking Change w/out CCF
1CT-0042	CS PMP 1-02 DISCH CHK VLV	None	n/a
1CT-0047	CS PMP 1-04 MINIFLO LN CHK VLV	None	n/a
1CT-0048	CS PMP 1-02 MINIFLO LN CHK VLV	None	n/a
1CT-0063	CS PMP 1-03 MINIFLO LN CHK VLV	None	n/a
1CT-0064	CS PMP 1-01 MINIFLO LN CHK VLV	None	n/a
1CT-0065	CS PMP 1-03 DISCH CHK VLV	None	n/a
1CT-0077	RWST TO CSP 1-01/1-03 SUCT CHK VLV	None	n/a
1CT-0094	CS PMP 1-01 DISCH CHK VLV	None	n/a
1CT-0142	U1 CS TRN A HDR IRC CHK VLV	None	n/a
1CT-0145	U1 CS TRN B HDR IRC CHK VLV	None	n/a
1CT-0148	CNTMT SMP TO CS PMP 1-02/1-04 CHK VLV	None	n/a
1CT-0149	CNTMT SMP TO CS PMP 1-01/1-03 CHK VLV	None	n/a
1DO-0004	DG 1-01 FO XREF PMP 1-01 DISCH CHK VLV	None	n/a
1DO-0005	DG 1-01 FO XREF PMP 1-02 DISCH CHK VLV	None	n/a
1DO-0016	DG 1-02 FO XFER PMP 1-03 DISCH CHK VLV	None	n/a
1DO-0017	DG 1-02 FO XFER PMP 1-04 DISCH CHK VLV	None	n/a
1DO-0049	DG 1-01 FO DAY TK 1-01 XFER HDR CHK VLV	Low	Low
1DO-0050	DG 1-02 FO DAY TK 1-02 XFER HDR CHK VLV	Low	Low
1FW-0076	SG 1-02 FW HDR CHK VLV	None	n/a
1FW-0082	SG 1-01 FW HDR CHK VLV	None	n/a
1FW-0088	SG 1-04 FW HDR CHK VLV	None	n/a
1FW-0195	SG 1-04 FW PREHTR BYP IRC CHK VLV	None	n/a
1FW-0196	SG 1-01 FW PREHTR BYP IRC CHK VLV	None	n/a
1FW-0197	SG 1-02 FW PREHTR BYP IRC CHK VLV	None	n/a
1FW-0198	SG 1-03 FW PREHTR BYP IRC CHK VLV	None	n/a
1FW-0199	SG 1-04 AFW NZL CHK VLV	None	n/a
1FW-0200	SG 1-01 AFW NZL CHK VLV	None	n/a
1FW-0201	SG 1-02 AFW NZL CHK VLV	None	n/a
1FW-0202	SG 1-03 AFW NZL CHK VLV	None	n/a
1MS-0026	SG 1-01 ATMOS RLF VLV UPSTRM ISOL VLV	None	n/a
1MS-0063	SG 1-02 ATMOS RLF VLV UPSTRM ISOL VLV	None	n/a
1MS-0098	SG 1-03 ATMOS RLF VLV UPSTRM ISOL VLV	None	n/a
1MS-0134	SG 1-04 ATMOS RLF VLV UPSTRM ISOL VLV	None	n/a
1MS-0142	MSL 1-04 TO AFWPT SPLY VLV DNSTRM CHK VLV	None	None
1MS-0143	MSL 1-01 TO AFWPT SPLY VLV DNSTRM CHK VLV	None	None
1MS-0680	SG 1-01 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	None	n/a
1MS-0681	SG 1-01 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	None	n/a
1MS-0682	SG 1-02 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	None	n/a
1MS-0683	SG 1-02 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	None	n/a
1MS-0684	SG 1-03 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	None	n/a
1MS-0685	SG 1-03 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	None	n/a
1MS-0686	SG 1-04 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	None	n/a
1MS-0687	SG 1-04 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	None	n/a
1SI-0047	RWST 1-01 TO SI ISOL VLV	Medium	Medium
1SI-8819A	SI TO CL 1-01 CHK VLV	None	n/a
1SI-8819B	SI TO CL 1-02 CHK VLV	None	n/a
1SI-8819C	SI TO CL 1-03 CHK VLV	None	n/a
1SI-8819D	SI TO CL 1-04 CHK VLV	None	n/a
1SI-8900A	CCP 1-01/1-02 TO CL 1-01 CHK VLV	None	n/a
1SI-8900B	CCP 1-01/1-02 TO CL 1-02 CHK VLV	None	n/a
1SI-8900C	CCP 1-01/1-02 TO CL 1-03 CHK VLV	None	n/a
1SI-8900D	CCP 1-01/1-02 TO CL 1-04 CHK VLV	None	n/a
1SI-8905A	SI TO HL 1-01 INJ UPSTRM CHK VLV	None	n/a
1SI-8905B	SI TO HL 1-02 INJ UPSTRM CHK VLV	None	n/a
1SI-8905C	SI TO HL 1-03 INJ UPSTRM CHK VLV	None	n/a

Table 4.2-3a
IST/IPE Component Evaluation for Risk Importance Due to Common Cause

Sorted By Tag			
Component Tag Number	**Component Description**	**Risk Importance Measure Ranking with CCF**	**Risk Importance Measure Ranking Change w/out CCF**
1SI-8905D	SI TO HL 1-04 INJ UPSTRM CHK VLV	None	n/a
1SI-8919A	SI PMP 1-01 TO RWST CHK VLV	None	n/a
1SI-8919B	SI PMP 1-02 TO RWST CHK VLV	None	n/a
1SW-0016	U1 SSW TRN B SPLY HDR IN CHK VLV	None	None
1SW-0017	U1 SSW TRN A SPLY HDR IN CHK VLV	None	None
1SW-0373	SSW PMP 1-02 DISCH CHK VLV	Medium	Medium
1SW-0374	SSW PMP 1-01 DISCH CHK VLV	Medium	Medium
CP1-AFAPMD-01	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-01	High	High
CP1-AFAPMD-02	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-02	High	High
CP1-AFAPTD-01	TURBINE DRIVEN AUXILIARY FEEDWATER PUMP 1-01	High	High
CP1-CCAPCC-01	COMPONENT COOLING WATER PUMP 1-01	High	High
CP1-CCAPCC-02	COMPONENT COOLING WATER PUMP 1-02	High	High
CP1-CHAPCP-05	SAFETY CHILLED WATER RECIRC PUMP 1-05	Medium	Medium
CP1-CHAPCP-06	SAFETY CHILLED WATER RECIRC PUMP 1-06	Medium	Medium
CP1-CTAPCS-01	CONTAINMENT SPRAY PUMP 1-01	None	n/a
CP1-CTAPCS-02	CONTAINMENT SPRAY PUMP 1-02	None	n/a
CP1-CTAPCS-03	CONTAINMENT SPRAY PUMP 1-03	None	n/a
CP1-CTAPCS-04	CONTAINMENT SPRAY PUMP 1-04	None	n/a
CP1-DOAPFT-01	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-01	High	None
CP1-DOAPFT-02	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-02	High	None
CP1-DOAPFT-03	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-03	High	None
CP1-DOAPFT-04	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-04	High	None
CP1-SWAPSW-01	STATION SERVICE WATER PUMP 1-01	High	High
CP1-SWAPSW-02	STATION SERVICE WATER PUMP 1-02	High	High
TBX-CSAPBA-01	BORIC ACID TRANSFER PUMP 1-01	None	n/a
TBX-CSAPBA-02	BORIC ACID TRANSFER PUMP 1-02	None	n/a
TBX-CSAPCH-01	CENTRIFUGAL CHARGING PUMP 1-01	High	High
TBX-CSAPCH-02	CENTRIFUGAL CHARGING PUMP 1-02	High	High
TBX-RHAPRH-01	RESIDUAL HEAT REMOVAL PUMP 1-01	Medium	Medium
TBX-RHAPRH-02	RESIDUAL HEAT REMOVAL PUMP 1-02	Medium	Medium
TBX-SIAPSI-01	SAFETY INJECTION PUMP 1-01	High	High
TBX-SIAPSI-02	SAFETY INJECTION PUMP 1-02	High	High
X-PCV-H116A	UPS A\C UNIT X-01 CCW RET PCV	Low	Low
X-PCV-H116B	UPS A\C UNIT X-02 CCW RET PCV	Low	Low
X-PV-3583	CR A\C UNIT X-01 CCW RET PCV	None	n/a
X-PV-3585	CR A\C UNIT X-03 CCW RET PCV	None	n/a

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
AF-0014 & AF-0024	Low	Low	IPE basis confirmed.	NA	Reverse flow will not affect redundant trains.
AF-0032	Low, but moderate RAW	Low	IPE basis confirmed. Moderate RAW with compensatory action.	Tested for opening during quarterly tech spec test.	Reverse flow will not affect redundant trains.
AF-0041, AF-0054 & AF-0066	Low, but moderate RAW	Low	IPE basis confirmed.	Locked valve program	Locked valve program and ease of recovery if valve left closed makes the latent human error risk insignificant.
AF-0038, AF-0051 & AF-0065	Low, but moderate RAW	Low	IPE basis confirmed. Moderate RAW with compensatory action.	Tested for opening during quarterly tech spec test.	Reverse flow will not affect redundant trains.
AF-0075 AF-0078, AF-0083 & AF-0086, AF-0093 & AF-0098 and AF-0101 & AF-0106	Low	Low	IPE basis confirmed.	NA	

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
1AF-0215 & 1AF-0216, 1AF-0217 & 1AF-0218, 1AF-0219 & 1AF-0220, and 1AF-0221 & 1AF -0222	Low	Low	IPE basis confirmed.	NA	Panel established importance of check valves for instrument air based primarily on the importance of the valve served, e.g., 1-PV-2453A, etc.
AF-0223 & AF-0224, AF-0226 & AF-0227, AF-0228 & AF-0229, and AF-0230 & AF-0231	Low	Low	IPE basis confirmed.	NA	Panel established importance of check valves for instrument air based primarily on the importance of the valve served, e.g., 1-HV-2459, etc.
2AF-0236 & 2AF-0291, 2AF-0237 & 2AF-0238, 2AF-0239 & 2AF-0240 and 2AF-0221 & 2AF-0222	Low	Low	IPE basis confirmed.	**NA**	Panel established importance of check valves for instrument air based primarily on the importance of the valve served (e.g., 2-PV-2453A, etc.)

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
AF-0232, AF-0233, AF-0234, & AF-0235	Low	Low	IPE basis confirmed	NA	Panel established importance of check valves for instrument air based primarily on the importance of the valve served, i.e., HV-2452-1 & -2. IST does not address IPE function because it is not an active component function, (e.g., IPE models valve transfers closed).
PV-2453A and PV-2454B	Low, but moderate RAW	Low	IPE basis confirmed. Moderate RAW is conservative.	No compensatory action required by expert panel. See comments.	RAW is conservative because the IPE did not credit that operators will use manual valves to control flow and other means of isolation are available.
PV-2453B and PV-2454A	Low	Low	IPE basis confirmed.	NA	
HV-2459, HV-2460, HV-2461, and HV-2462	Low, but moderate RAW	Low	IPE basis confirmed. RAW on low end of moderate range and conservative.	No compensatory action required by Expert Panel. See comments.	The IPE calculated RAW is conservative. IPE did not model maintaining flow control after control valve failure by controlling TD pump speed.

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
HV-2491A & B, HV-2492A & B, HV-2493A & B, and HV-2494A & B	Low	Low	IPE basis confirmed.	NA	

Component	**IPE Risk Category**	**Panel Decision/ Disposition**	**Panel Basis**	**Compensatory Action**	**Comments**
High risk category valves: HV-4512, HV-4513, HV-4514 HV-4515, HV-4524, HV-4525, HV-4526 HV-4527, HV-4572 & HV-4573	High	High	IPE basis confirmed.	NA	Note that each of these valves are high solely because of common cause failure (CCF).
HV-4574 and HV-4575	Low	Low	IPE basis confirmed.	NA	Needed for containment function only when in recirculation. IPE indicates that containment spray function will not be available for most risk significant severe accidents, e.g., station blackout. Importance of containment function addressed adequately by CT system, compensatory measures, including the CT IST pump test.

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
HV-4696 & HV-4709	Low, for close (IST failure mode) Low for open, but moderate RAW (IPE failure mode)	Low	IPE basis confirmed for both IPE and IST failure modes.	NA for IST. No compensatory action required by expert panel for IPE failure mode. See comments.	IST failure mode insignificant. See discussion below for 1CC-0646. IST does not check IPE failure mode. Valves are routinely stroked during refueling outages for maintenance work on the system.
HV-4699 & HV-4700	Low, for close (IST failure mode) Low for open, but high RAW (IPE failure mode)	Low	IPE basis confirmed for both IPE and IST failure modes.	NA for IST. No compensatory action required by expert panel for IPE failure mode. See comments.	IST failure mode is insignificant. See discussion below for 1CC-0713. IST does not check IPE failure mode. Valves are routinely stroked during refueling outages for maintenance work on the system.
HV-4701 & HV-4708	Low	Low	IPE basis confirmed	NA	IST does not check IPE failure mode. Insignificant IST failure mode. Similar to discussion below for 1CC-0713.
HV-4725 & HV-4726	High for accident mitigation	High	IPE basis confirmed Accident mitigation basis confirmed	NA	

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
PV-4552 & PV-4553	Low	Low	IPE basis confirmed	NA	
CC-0031 and CC-0061	Low for open Low for close, but high RAW	Low	IPE basis confirmed. Moderate RAW with compensatory action	Each train runs periodically. Reverse flow would cause observable flow problems immediately after the pump swap and during the normal running condition.	

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
CC-0646, CC-0657, CC-0687, CC-0694 and 1CC-1075 thru 1CC-1078 and 2CC-0371 through 2CC-0374	Low, but moderate RAW for IPE failure. Low for IST failure.	Low Low	Moderate RAW with compensatory measure. Previous problems with the valves sticking open have been corrected.	Degradation during operation would be detectable by thermal barrier alarms (i.e., low flow and high temperature). NA	These CVs, isolation valves, and 1CC-713 help prevent a containment bypass scenario. The scenario could result if an RCP thermal barrier tube rupture (guillotine break) occurred and it subsequently caused a CCW pipe rupture and these CVs and the other CVs all failed. This scenario was judged by the original PRA to be risk insignificant. This judgment was confirmed by the panel. The panel also confirmed with Westinghouse that there had not been any RCP thermal barrier tube ruptures at W plants.
1CC-713	Low, for close (IST failure mode) Low for open, but high RAW (IPE failure mode)	Low Low	IPE basis confirmed. High RAW with compensatory action. Not IST failure mode.	NA Degradation during operation would be detectable by thermal barrier alarms (i.e., low flow and high temperature).	IST program tests for reverse flow. That failure mode is not in the IPE because it is part of an extremely unlikely accident scenario. See 1CC-0646.

Component	**IPE Risk Category**	**Panel Decision/ Disposition**	**Panel Basis**	**Compensatory Action**	**Comments**
1CC-1079 thru 1CC-1082 and 2CC-1091 through 2CC-1094	Low	Low	Low because the valves they supply air to are low (1-PV-4553 and -4552).	NA	
X-PCV-H116A & X-PCV-H116B	High for accident mitigation and fire	High	Accident mitigation and fire basis confirmed.	NA	These components are only important when the lake temperature is such that they have to be throttled. Design modification in progress may change in ranking.
XPV-3484, XPV-3485, XPV-3583 & XPV-3585	Low	Low	IPE basis confirmed.	NA	Exempt from in-service testing per IST program plan.

Component	**IPE Risk Category**	**Panel Decision/ Disposition**	**Panel Basis**	**Compensatory Actions**	**Comments**
HV-5157, HV-5158, 7136, and LCV-1003	High for accident mitigation	High	IPE basis confirmed. Accident mitigation basis confirmed.	NA	
All other miscellaneous containment isolation valves	Low	Low	IPE basis confirmed. Accident mitigation basis confirmed.	NA	

Component	**IPE Risk Category**	**Panel Decision/ Disposition**	**Panel Basis**	**Compensatory Actions**	**Comments**
High risk category valves: 8511A, 8511B, 8512A & 8512B	High	High	IPE basis confirmed.	NA	Note that these valves are high solely because of common cause failure (CCF).
LCV-112B, LCV-112C, LCV-112D and LCV-112E	High for fire.	High	Panel ranked high for IPE because both Fussel-Vesely and RAW are near borderline. Fire basis confirmed.		
8100	Low	Low	IPE basis confirmed.	NA	IPE function is to remain open for seal water return.
8104	Low	Low	IPE basis confirmed.	NA	Many recovery paths not modeled in the IPE make this valve even less important than represented by the IPE.
8105	Low	Low	IPE basis confirmed.	NA	
8106	Low	Low	IPE basis confirmed.	NA	

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Actions	Comments
8110 and 8111	High for fire	High	IPE and fire basis confirmed.	NA	
8112	Low	Low	IPE basis confirmed.	NA	IPE function is to remain open for seal water return. ,
8145	Low	Low	IPE basis confirmed	NA	
8146 and 8147	Low	Low	IPE basis confirmed.	NA	
8152 and 8160	High for accident mitigation.	High	IPE basis confirmed Accident mitigation basis confirmed.	NA	Valves must close for containment isolation.
CS-8180	Low	Low	IPE basis confirmed.	NA	IPE function is to remain open for seal water return.
HV-8220 and HV-8221	Low	Low	IPE basis confirmed. Gas binding problem in past has been corrected by new valves	NA	

Component	**IPE Risk Category**	**Panel Decision/ Disposition**	**Panel Basis**	**Compensatory Actions**	**Comments**
CS-8350A thru CS-8350D	Low	Low	IPE basis confirmed.		IPE models fails to open for seal injection. IST addresses fails to close. This failure mode is insignificant for both bypass and LOCA scenarios because of additional check valves and isolation valves in line.
8351A thru 8351D	Low	Low	IPE basis confirmed.	NA	IPE models fails to open for seal injection. IST addresses fails to close. This failure mode is insignificant for both bypass and LOCA scenarios because of additional check valves and isolation valves in line.
CS-8367A thru CS-8367D	Low	Low	IPE basis confirmed.	NA	IPE models fails to open for seal injection. IST addresses fails to close. This failure mode is insignificant for both bypass and LOCA scenarios because of additional check valves and isolation valves in line.

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Actions	Comments
CS-8368A thru CS-8368D	Low	Low	IPE basis confirmed.	NA	IPE models fails to open for seal injection. IST addresses fails to close. This failure mode is insignificant for both bypass and LOCA scenarios because of additional check valves and isolation valves in line.
8378A & 8378B	Low	Low	IPE basis confirmed	NA	
8381	Low	Low	IPE basis confirmed.	NA	
CS-8442	Low	Low	IPE basis confirmed.	NA	Many recovery paths not modeled in the IPE make this valve even less important than represented by the IPE.
CS-8473	Low	Low	IPE basis confirmed.	NA	Many recovery paths not modeled in the IPE make this valve even less important than represented by the IPE. Reverse flow does not cause failure of redundant trains.

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Actions	Comments
8481A & 8481B	Low for fails to open but moderate RAW Low for fails to close	Low	Moderate RAW with compensatory action	IST pump operability test	Similar to CCW pump discharge check valves, but alternate flow paths make FV and RAW lower.
CS-8487	Low	Low	IPE basis confirmed.	NA	Many recovery paths not modeled in the IPE make this valve even less important than represented by the IPE. Reverse flow does not cause failure of redundant trains.
8497	Low	Low	IPE basis confirmed.	NA	Similar to 8481A & B, except also recoverable by closing 1-8358.
8546	High for fire and accident mitigation Low for accident prevention	High	Fire and accident mitigation bases confirmed. IPE basis confirmed.	NA	Reverse flow not a problem because 1-LCV-112D & E can still be closed

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Actions	Comments
1-FV-4772-1 & 1-FV-4772-2 and 1-FV-4773-1 & 1-FV-4773-2	Low	Low	IPE basis confirmed. Panel concluded a compensatory action was required because the valves are important for a radiological release not modeled in IPE, i.e., diversion to RWST during recirculation from the sump.	Tech spec slave relay test (K643A/B tested in OPT452A and 475A).	
All other modeled CT valves	Low	Low	IPE basis confirmed.	NA	Note that the MOVs which must change state for injection mode of containment spray each have a slave relay test.

Component	**IPE Risk Category**	**Panel Decision/ Disposition**	**Panel Basis**	**Compensatory Actions**	**Comments**
DO-0049 & DO-0050 and 2DO-0049 & 2DO-0052	Low, but moderate RAW	Low	IPE basis confirmed. Moderate RAW with compensatory action.	Monthly tech spec pump run (4.8.1.1.2a.3).	
DO-0004, DO-0005, DO-0016 & DO-0017	Low	Low	IPE basis confirmed.	NA	Reverse flow not a concern because of diesel fuel oil pump design.

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Actions	Comments
HV-2134 thru HV-2137	Low	High	IPE basis confirmed. Panel concluded to leave valves in the IST program as is because of plant-specific performance issues.	NA	
FW-0195, FW-0196, FW-0197, FW-0198, FW-0199, FW-0200, FW-0201 & FW-0202	Low	Low	IPE basis confirmed.	NA	No plant-specific performance concerns.
FV-2193 & FV-2196	Low	Low	IPE basis confirmed.	NA	These valves have an IPE function and were modeled. This IPE function is not an IST function.

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Actions	Comments
Safety relief valves: MS-0021 thru MS-0025, MS-0058 thru MS-0062, MS-0093 thru MS-0097 and MS-0129 thru MS-0133	Low	High	IPE basis confirmed - numerous means to relieve pressure. Leave testing as is because of insurance requirements.	NA	
MS-0026, MS-0063, MS-0098 and MS-0134	Low	Low	IPE basis confirmed.	NA	
MS-0142 and MS-0143	Low	Low	IPE basis confirmed.	NA	Reverse flow can be isolated by closing 1-HV-2452-1 & -2 or by closing manual valve.
1MS-0680 thru 1MS-0687	Low	Low	IPE basis confirmed.	NA	Fail to close is the important failure mode of valves 1-PV-2325 thru -2328. Valve will close on loss of air.
2MS-0663 thru 2MS-0665 & 2MS-0667 thru 2MS-0670	Low	Low	IPE basis confirmed.	NA	Fail to close is the important failure mode of valves 2-PV-2325 thru 2-PV-2328. Valve will close on loss of air.

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Actions	Comments
PV-2325, PV-2326, PV-2327, & PV-2328	Low for fails to open Low with moderate RAW for fails to close High for Fire	High	IPE basis for fails to close changed because recovery actions were not credited in the IPE. IPEEE Fire basis confirmed.	NA	Moderate RAW for IPE and significance to a potentially large but late release is not appropriate because block valves could be used to isolate the steam generator tube rupture. Recovery actions were not credited in the IPE. Applies to both accident prevention and containment isolation.
HV-2333A, HV-2334A, HV-2335A, and HV-2336A	Low for accident prevention with moderate RAW. Low for accident mitigation.		IPE basis confirmed. Moderate RAW is conservative. Accident mitigation basis confirmed.	No compensatory action required by expert panel. See comments.	Compensatory action for accident mitigation (potentially large, but late release) not required because leak path can be isolated after a steam generator tube rupture. RAW is conservative because recovery actions were not credited in the IPE (either before or after core damage).

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Actions	Comments
HV-2397 & HV-2397A, HV-2398 & HV-2398A, HV-2399 & HV-2399A, and HV-2400 & HV-2400A	Low	Low	IPE basis confirmed. Accident mitigation basis confirmed.	NA	
HV-2409 thru HV-2412	Low for accident prevention Low for accident mitigation	Low, but compensatory action required for accident mitigation (i.e., potentially large but late release because of containment isolation failure after tube rupture).	IPE basis confirmed. Accident mitigation basis confirmed.	Stroked on slave relay tests (for -2409 relays K634A & B in OPTs 456A and 479A).	IPE modeled only the valve on the SG assumed to have tube rupture (1-HV-2409). Results for other valves should be similar.

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Actions	Comments
HV-2452-1 & HV-2452-2	Low for accident prevention Low for accident mitigation	Low	IPE basis confirmed. Accident mitigation basis confirmed.	NA	Compensatory action for accident mitigation (potentially large but late release) not required because leak path can be isolated after steam generator tube rupture. Recovery action to isolate generator not credited by IPE (either before or after core damage).

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
High pumps (other than diesel fuel oil pumps) CP1-AFAPMD-01, CP1-AFAPMD-02, CP2-AFAPMD-01, CP2-AFAPMD-02, CP1-AFAPTD-01. CP2-AFAPTD-01, CP1-CCAPCC-01, CP1-CCAPCC-02, CP2-CCAPCC-01, CP2-CCAPCC-02, CP1-CHAPCP-05, CP1-CHAPCP-06, CP2-CHAPCP-05, CP2-CHAPCP-06, TBX-CSAPCH-01, TBX-CSAPCH-02, TCX-CSAPCH-01, TCX-CSAPCH-02, TBX-RHAPRH-01, TBX-RHAPRH-02, TCX-RHAPRH-01, TCX-RHAPRH-02, TBX-SIAPSI-01, TBX-SIAPSI-02,	High	High	IPE basis confirmed	NA	Safety chilled water recirc pump 1-06 was upgraded from low to medium due to symmetry with pump 1-05. That is, 1-06 performed a similar function and experienced a similar duty cycle. Its low ranking resulted from a simplifying modeling assumption in the IPE.

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
Diesel fuel oil pumps CP1-DOAPFT-01, CP1-DOAPFT-02, CP1-DOAPFT-03, CP1-DOAPFT-04, CP2-DOAPFT-01, CP2-DOAPFT-02, CP2-DOAPFT-03 and CP2-DOAPFT-04	Low, but moderate RAW	Low	IPE basis confirmed Moderate RAW with compensatory action	Monthly tech spec pump run. (4.8.1.1.2..3)	
CT pumps CP1-CTAPCS-01, CP1-CTAPCS-02, CP1-CTAPCS-03, CP1-CTAPCS-04, CP2-CTAPCS-01, CP2-CTAPCS-02, CP2-CTAPCS-03 and CP2-CTAPCS-04	Low	High	IPE basis confirmed. Retain in program because IST evaluates pump vibration and system has experienced vibration problems.	NA	

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
BAT pumps TBX-CSAPBA-01, TBX-CSAPBA-02, TCX-CSAPBA-01 and TCX-CSAPBA-02	Low	High	IPE basis confirmed. Retain in program to help maintain reliability of the pump for normal operations.	NA	BAT pump degradation is caused by steady and gradual wear of the carbon bearings which requires action at least as frequently as that required by IST. Pump degradation does not result in pump failure per the IPE definition. That is, when IST program enters into alert due to pump degradation, the pump will still perform its safety function for emergency boration.
Reactor makeup CP1-DDAPRM-01, CPX-DDAPRM-01 and CP2-DDAPRM-01	Low	Low	IPE basis confirmed.	NA	

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
Safeguards sump pumps CP1-WPAPSS-01, CP1-WPAPSS-02, CP1-WPAPSS-03, CP1-WPAPSS-04, CP2-WPAPSS-01, CP2-WPAPSS-02, CP2-WPAPSS-03, and CP2-WPAPSS-04,	Low	Low	IPE basis confirmed.	NA	Pumps are only for detection of flooding. Long time to failure and limited impact from leaks.
Spent fuel pumps CPX-SFAPSF-01 and CPX-SFAPSF-02	Low	High	Retain in program as is due to risk of boiling in pool.	NA	Recovery to prevent core damage is relatively easy by using fire water. Boiling is more likely, but will only lead to release of noble gases (i.e., a so-called gap release).

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
High risk category valves: 8000A & B, 8010A, B & C, PCV-0455A & PCV-0456	High	High	IPE basis confirmed.	NA	Note that these valves are high regardless of the contribution of CCF.

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
High risk category valves: 8716A & B	High	High	IPE basis confirmed.	NA	Note that these valves are high solely because of common cause failure (CCF).
HCV-0606 and HCV-0607	High for outage	High	IPE basis confirmed.	NA	
FCV-0610 and FCV-0611	High for fire	High	IPE basis confirmed. Fire basis confirmed.	NA	
FCV-0618 and FCV-0619	Low	Low	IPE basis confirmed.	NA	
8701A & B and 8702A & B	High for accident mitigation	High	IPE basis confirmed. Accident mitigation basis confirmed.	NA	
8708A & B	Low	High	IPE basis confirmed. Retain test due to insurance and liability concerns.	NA	
8717	High for accident mitigation	High	IPE basis confirmed. Accident mitigation basis confirmed.	NA	
8730A & B	Low	Low	IPE basis confirmed	NA	Reverse flow will not affect redundant trains.

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
High risk category valves: 1SI-0047 and 1-8840 plus 8804A & B, 8809A & B, 8811A & B, 8812A & B, 8813, and 8814A & B	High	High	IPE basis confirmed.	NA	Note that, except for 1SI-0047 and 1-8840, these valves are high solely because of common cause failure (CCF).
8801A & B	Low	Low	IPE basis confirmed.	NA	
8802A & B	Low	Low	IPE basis confirmed.	NA	
8806	High for fire and accident mitigation	High	Fire and accident mitigation basis confirmed. IPE basis confirmed.	NA	
8807A & B	Low	Low	IPE basis confirmed.	NA	
8808A thru D	Low	Low	IPE basis confirmed.	NA	
8815	High for fire and accident mitigation	High	Fire and accident mitigation basis confirmed. IPE basis confirmed.	NA	

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
8818A thru D	High	High	IPE basis confirmed. Accident mitigation basis confirmed.	NA	
SI-8819A thru D	High	High	IPE basis confirmed. Accident mitigation basis confirmed.	NA	
8821A & B	Low	Low	IPE basis confirmed.	NA	
8835	High for fire	High	Fire basis confirmed. IPE basis confirmed.	NA	
8841A & B	Low	Low	IPE basis confirmed.	NA	
8875A thru D	Low	Low	IPE basis confirmed.	NA	
8877A thru D	Low	Low	IPE basis confirmed.	NA	
8878A thru D	Low	Low	IPE basis confirmed.	NA	
SI-8900A thru D	Low	Low	IPE basis confirmed.	NA	
SI-8905A thru D	Low	Low	IPE basis confirmed.	NA	
SI-8919A & B	High for accident mitigation	High	IPE basis confirmed. Accident mitigation basis confirmed.	NA	Reverse flow will not affect redundant trains.

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
8922A & B	Low	Low	IPE basis confirmed.	IST pump operability test.	Reverse flow will not affect redundant trains. Compensatory action added due to results on intra-system common-cause failure.
8923A & B	High for fire and accident mitigation	High	Fire and accident mitigation basis confirmed. IPE basis confirmed.	NA	
8924	Low	Low	IPE basis confirmed.	NA	
8926	High for accident mitigation.	High	Accident mitigation basis confirmed. IPE basis confirmed.	NA	
8948A thru D	High for accident mitigation	High	IPE basis confirmed. Accident mitigation basis confirmed.	NA	Regardless of ranking, leave in program because of operational concerns. Back leakage can cause entry into tech spec LCO.
8949A thru D	Low	Low	IPE basis confirmed.	NA	

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
8956A thru D	Low	High	IPE basis confirmed. Leave in program because of operational concerns. Back leakage can cause entry into tech spec LCO.	NA	
8958A & B	Low	Low	IPE basis confirmed.	NA	Reverse flow not important because redundant trains are not affected and backflow to the RWST can be prevented by closing 1-8812.
8969A & B	Low	Low	IPE basis confirmed.	NA	

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
High risk category valves: HV-4286 & HV-4287 and SW-0373 & SW-0374	High	High	IPE basis confirmed.	NA	Note that these valves are high regardless of the contribution of CCF.
HV-4393 & HV-4394	Low	Low	IPE basis confirmed.	NA	

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
AF-0009	Non-Safety Makeup Line Isolation	Low	Low probability of AFW system failure. Failure requires line break, reverse flow in AF-0009, LV-2478 fails to close and SW backup not available.	NA	
AF-0042, AF-0055 and AF-0067	AFW Flowpath Boundary	Low	Moderate RAW with compensatory measure. Failure of these valves would fail train.	Locked valve program	Similar in consequence to valve with low FV and moderate RAW, e.g., AF-0038.

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
AF-0075, AF-0078, AF-0083, AF-0086, AF-0093, AF-0098, AF-0101 and AF-0106	AFW Flowpath Boundary	Low	Two check valves prevent flow diversion, e.g., also AF-0038 on TD pump train.	NA	Steam binding is modeled in the IPE, but IST tests for reverse flow of liquid, not steam. Valve performance for steam binding is monitored shiftly per procedure OWI-104.
AF-0075, AF-0078, AF-0083, AF-0086, AF-0093, AF-0098, AF-0101 and AF-0106	AFW Line Break Mitigation	Low	Design prevents complete failure of AFW even if these valves fail. Line break is an unlikely cause of single train failure.	NA	

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
AF-0075, AF-0078, AF-0083, AF-0086, AF-0093, AF-0098, AF-0101 and AF-0106	FW Backflow Prevention During Startup	Low	Will not startup in this condition, therefore, not a core damage prevention function.	NA	
AF-0167	Pump Miniflow Path	High	Failure could affect operation of redundant trains for a period of time.	NA	
AF-0232, -0233, -0234 and -0235	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	Low	Same as modeled components HV-2452-1 and -2.	NA	

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
PV-2453A, PV-2453B, PV-2454A and PV-2454B	AFW to Faulted SG Flow Isolation	Low	Backup capability available in HV-2491B, -2492B, -2493A and -2494A respectively.	NA	
HV-2459, HV-2460, HV-2461 and HV-2462	AFW to Faulted SG Flow Isolation	Low	Backup capability available in HV-2491A, -2492A, -2493B and -2494B respectively.	NA	
FV-2456 and FV-2457	Pump Miniflow Path	Low	Same as moderate RAW with compensatory measure.	IST pump test	Fails only one pump train. Similar in consequence to valve with low FV and moderate RAW, e.g., AF-0038.
FV-2456 and FV-2457	AFW Flowpath Boundary	Low	Same as moderate RAW with compensatory measure.	IST pump test	Fails only one pump train. Similar in consequence to valve with low FV and moderate RAW, e.g., AF-0038.

Expert Panel Meeting Minutes for Component Functions
Not Explicitly Modeled by the IPE - AFW System
TABLE 4.4-2 (AF)

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
LV-2478	Non-Safety Makeup Line Isolation	Low	Low probability of AFW system failure. Failure requires line break, reverse flow in AF-0009, LV-2478 fails to close and SW backup not available.	NA	
HV-2480 and HV-2481	AFW Pump Emergency Supply Flowpath	Low	Flowpath is backup to a reliable path.		Failure equivalent to AF-0014 and -0024 respectively.
HV-2482	AFW Pump Emergency Supply Flowpath	Low	Flowpath is not available when TD pump is most needed, e.g., SBO. At other times the flowpath is a backup to a reliable path.		

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
HV-2484 and HV-2485	Condensate System to Condensate Storage Tank Isolation to Preclude Tank Overpressurization	Low	Low probability of AFW system failure. If excessive condensate reject occurs, both valves must fail to close before the CST ruptures, and SW backup must fail.	NA	
HV-2491A, HV-2492A, HV-2493B and HV-2494B	AFW to Faulted SG Flow Isolation	Low	Backup capability available in HV-2459, -2460, -2461 and -2462 respectively.	NA	
HV-2491B, HV-2492B, HV-2493A and HV-2494A	AFW to Faulted SG Flow Isolation	Low	Backup capability available in PV-2453A, -2453B, -2454A and -2454B respectively.	NA	

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
CC-0003	Surge Tank emergency makeup flowpath	Low	Not likely to be needed during an accident. If needed, redundant sources available.	NA	Makeup occurs between once every week and month. Two makeup sources available are Reactor Makeup Water and Demineralized Water.
CC-0004	Surge Tank emergency makeup flowpath boundary	Low	Not likely to be needed during an accident. If needed, redundant sources available.	NA	Makeup occurs between once every week and month. Two makeup sources available are Reactor Makeup Water and Demineralized Water.
CC-0611 & CC-0618	Containment Penetration Thermal Relief	Low	Accident mitigation basis confirmed.	NA	Generally these thermal relief valves relieve to the containment and do not provide a release path to the environment. For the few that relieve outside containment, a pipe break inside containment must occur together with relief valve failure to cause a release path. Such a path is an insignificant contributor to large, early releases and not important for accident mitigation.

Expert Panel Meeting Minutes for Component Functions
Not Explicitly Modeled by the IPE - CCW System
TABLE 4.4-2 (CC)

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
CC-0629	Containment Penetration Thermal Relief/Containment Isolation	Low	Accident mitigation basis confirmed.	NA	To cause a release path to the environment, this type of check valve must fail open in conjunction with a pipe break inside containment and a containment isolation valve failure outside the containment boundary.
CC-0831	Containment Penetration Thermal Relief/Containment Isolation	Low	Accident mitigation basis confirmed.	NA	See CC-0629
1CC-1067	Containment Penetration Thermal Relief/ Containment Isolation	Low	Accident mitigation basis confirmed.	NA	See CC-0629

Expert Panel Meeting Minutes for Component Functions
Not Explicitly Modeled by the IPE - CCW System
TABLE 4.4-2 (CC)

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
LV-4500, LV-4500-1 & LV-4501	Surge Tank emergency makeup flowpath/ isolation	Low	Not likely to be needed during an accident. If needed, redundant sources available.	NA	Makeup occurs between once every week and month. Two makeup sources available are Reactor Makeup Water and Demineralized Water.
FV-4536 & FV-4537	CCW flowpath boundary	High	Keep because of operational concerns and reduction in design margin for heat sink if failed.	NA	Not functionally required.
HV-4631A & B	Non-Safety Flowpath Isolation (Process Sample Cooling)	Low	Insufficient flow diversion.	NA	

Component	**IST Functions not modeled explicitly in the IPE**	**Panel Decision/ Disposition**	**Panel Basis**	**Compensatory Action**	**Comments**
FV-4650A & B	Non-Safety Flowpath Isolation (Ventilation Chillers, Letdown Chiller)	Low	When needed, other means of isolation.	NA	
HV-4696	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	Retain leak testing per performance based Appendix J program
HV-4696	RCP Thermal Barrier Rupture Isolation	Low	Accident mitigation basis confirmed.	NA	Not modeled in IPE, but covered by previous expert panel notes.
HV-4699	Passive Pipe Break Isolation (inside Containment)	Low	Accident mitigation basis confirmed.	NA	Not modeled in IPE, but covered by previous expert panel notes.
HV-4700	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	Retain leak testing per performance based Appendix J program

Expert Panel Meeting Minutes for Component Functions Not Explicitly Modeled by the IPE - CCW System

TABLE 4.4-2 (CC)

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
HV-4700	Passive Pipe Break Isolation (inside Containment)	Low	Accident mitigation basis confirmed.	NA	Not modeled in IPE, but covered by previous expert panel notes.
HV-4701 & HV-4708	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	Retain leak testing per performance based Appendix J program
HV-4709	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	Retain leak testing per performance based Appendix J program
HV-4709	RCP Thermal Barrier Rupture Isolation	Low	Accident mitigation basis confirmed.	NA	Not modeled in IPE, but covered by previous expert panel notes.
HV-4710 & HV-4711	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	Retain leak testing per performance based Appendix J program
HV-4725 & HV-4726	Containment Isolation	High for accident mitigation	Accident mitigation basis confirmed.	NA	

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
CH-0300	Surge Tank Emergency Makeup Flowpath	Low	Not likely to be needed during an accident. If needed, redundant sources available.	NA	Makeup occurs between once every week and month. Two makeup sources available are Reactor Makeup Water and Demineralized Water.
CH-0301	Surge Tank Emergency Makeup Flowpath Boundary	Low	Not likely to be needed during an accident. If needed, redundant sources available.	NA	Makeup occurs between once every week and month. Two makeup sources available are Reactor Makeup Water and Demineralized Water.
CH-0302	Surge Tank Emergency Makeup Flowpath/ Isolation	Low	Not likely to be needed during an accident. If needed, redundant sources available.	NA	Makeup occurs between once every week and month. Two makeup sources available are Reactor Makeup Water and Demineralized Water.
CH-0305	Surge Tank Emergency Makeup Flowpath/ Isolation	Low	Not likely to be needed during an accident. If needed, redundant sources available.	NA	Makeup occurs between once every week and month. Two makeup sources available are Reactor Makeup Water and Demineralized Water.
HV-6720	Surge Tank Emergency Makeup Flowpath Boundary	Low	Not likely to be needed during an accident. If needed, redundant sources available.	NA	Makeup occurs between once every week and month. Two makeup sources available are Reactor Makeup Water and Demineralized Water.

Expert Panel Meeting Minutes for Component Functions Not Explicitly Modeled by the IPE - CVCS System

TABLE 4.4-2 (CS)

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
XCS-0037, XCS-0039, XCS-0041 & XCS-0044	Pump Miniflow Path	Low	Normal boration function not needed for core damage prevention.	NA	
FCV-0110B, FCV-0111A and FCV-0111B	Boration Flowpath Boundary	Low	Other means of isolating flowpath and ensuring emergency boration available.	NA	
FCV-0111B	Boron Dilu-tion Flowpath Isolation (during Mode 6)	Low	Shutdown and low power basis confirmed.	NA	Boron dilution would take at least 4 to 8 hours, providing ample time for recovery actions, e.g., turning off the demineralized water pump.

Component	**IST Functions not modeled explicitly in the IPE**	**Panel Decision/ Disposition**	**Panel Basis**	**Compensatory Action**	**Comments**
LCV-0459 & LCV-0460	Reactor Coolant Pressure Boundary	High	Needed for preventing a small LOCA path after closure of downstream containment isolation valve.	NA	
8100 & 8105	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	Retain leak testing per performance based Appendix J program
8109	ECCS Flowpath Boundary	Low	Diversion path to CCPs protected by check valves. PDP path rarely open.		
8112	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	Retain leak testing per performance based Appendix J program
8145	Reactor Coolant Pressure Boundary	Low	Probability of small LOCA is much lower than other sources, e.g., RCP seal failure.	NA	Valve is normally closed and fails closed. Upstream check valve also prevents LOCA.

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
8152 and 8160	Containment Isolation	High for accident mitigation	Accident mitigation basis confirmed.	NA	
8153, 8154	Reactor Coolant Pressure Boundary	Low	Probability of small LOCA is much lower than other sources, e.g., RCP seal failure.	NA	These valves are in series and both are normally closed and fail closed.
CS-8180	Containment Penetration Thermal Relief/Containment Isolation	Low	Accident mitigation basis confirmed.	NA	To cause a release path to the environment, this type of check valve must fail open in conjunction with a pipe break inside containment and a containment isolation valve failure outside the containment boundary.

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
8202A & B and 8210A & B	ECCS Flowpath Boundary	Low	Low probability of failure whether PDP is operating or not.	NA	The PDP is not normally used. When the PDP is not used, 2 or 3 valves in series must fail. Each valve is normally closed and fails closed. If the PDP is operating, the valves are open. In this case, the VCT level switch must fail and the charging pumps must draw in cover gases and fail prior to operator intervention. The PDP would fail prior to charging and it would be diagnosable and an warning of the potential for charging pump failure.

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
8202A & B and 8210A & B	Isolation of VCT Cover Gas (or PD Pump Suction Stabilizer Gas Supply) from Charging Pumps' Suction Header	Low	Low probability of failure whether PDP is operating or not.	NA	The PDP is not normally used. When the PDP is not used, 2 or 3 valves in series must fail. Each valve is normally closed and fails closed. If the PDP is operating, the valves are open. The VCT level switch must fail and the charging pumps must draw in cover gases and fail prior to operator intervention. The PDP would fail prior to charging and it would be diagnosable and an warning of the potential for charging pump failure.
CS-8350A, CS-8350B, CS-8350C & CS-8350D	Reactor Coolant Pressure Boundary	Low	Probability of small LOCA is much lower than other sources, e.g., RCP seal failure.	NA	LOCAs need a pipe break, multiple CVs failing to close, and failure to isolate (by closing 8351A).

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
8351A, 8351B, 8351C & 8351D	Containment Isolation	Low	Probability of containment isolation is much lower than other sources.	NA	Containment isolation failure needs a pipe break, multiple CVs failing to close, and failure to isolate (by closing 8351A).
CS-8367A, CS-8367B, CS-8367C & CS-8367D	Reactor Coolant Pressure Boundary	Low	Probability of small LOCA is much lower than other sources, e.g., RCP seal failure.	NA	LOCAs need a pipe break, multiple CVs failing to close, and failure to isolate (by closing 8351A).
CS-8368A, CS-8368B, CS-8368C & CS-8368D	Containment Isolation	Low	Probability of containment isolation is much lower than other sources.	NA	Containment isolation failure needs a pipe break, multiple CVs failing to close, and failure to isolate (by closing 8351A).
CS-8377	Reactor Coolant Pressure Boundary	Low	Probability of small LOCA is much lower than other sources, e.g., RCP seal failure.	NA	Upstream valve (8145) is normally closed and fails closed.

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
8378A & 8378B	Reactor Coolant Pressure Boundary	Low	Probability of small LOCA is much lower than other sources, e.g., RCP seal failure.	NA	Two other CVs in series (including 8381). Easily diagnosable if reverse flow occurs and leak path is isolable by closing 8105 or 8106.
8378A & 8378B	Boration Flowpath	Low	Normal boration function not needed for core damage prevention.	NA	
8379A & 8379B	Boration Flowpath	Low	Normal boration function not needed for core damage prevention.	NA	
8379A & 8379B	Reactor Coolant Pressure Boundary	Low	Probability of small LOCA is much lower than other sources, e.g., RCP seal failure.	NA	Upstream valve (8147) is normally closed and two other CVs in series (including 8381). Easily diagnos-able if reverse flow occurs and leak path is isolable by closing 8105 or 8106.

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
CS-8473 & CS-8487	Boration Flowpath Boundary	Low	Reverse flow does not cause failure of redundant trains.	NA	
CS-8480A & CS-8480B	ECCS Flowpath Boundary	Low	Not functionally required	NA	Valve failure only causes a loss of chemistry control; flow which is not significant during accident.
8481A & 8481B	Boration Flowpath	Low	Normal boration function not needed for core damage prevention	NA	
8510A & 8510B	HHSI Pump Miniflow Path	Low	Miniflow path not needed to protect pump.	NA	
8510A & 8510B	ECCS Recirculation Flowpath Boundary	Low	Flow diversion affects only one train and is easily recoverable.	NA	Diversion path isolable by either of two valves.

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
all valves in DD	all	Low	Makeup is unlikely to be needed in an accident. If needed, many alternatives are available.	NA	

Expert Panel Meeting Minutes for Component Functions
Not Explicitly Modeled by the IPE - Diesel Generator Auxiliaries
TABLE 4.4-2 (DO)

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
DO-0004, DO-0005, DO-0016 & DO-0017	Fuel Oil Flowpath Boundary	Low	Reverse flow not a concern because of pump design.	NA	
DO-0058, DO-0059, DO-0060 & DO-0061	Safety-Related Air Receiver to Non-Safety Air Supply Isolation	Low	Low probability of air loss.	NA	Two CV s in series must fail to remain closed to fail one air receiver. Two air receivers must fail to fail DG starting air for one diesel.
1DO-0062, 1DO-0063, 1DO-0064 & 1DO-0065 and 2DO-0074, 2DO-0075, 2DO-0076 & 2DO-0077	Safety-Related Air Receiver to Non-Safety Air Supply Isolation	Low	Low probability of air loss.	NA	Two CV s in series must fail to remain closed to fail one air receiver. Two air receivers must fail to fail DG starting air for one diesel.
DO-0104 & DO-0204	Jacket Water Flowpath Boundary	Low	Insufficient flow diversion	NA	Boundary to one inch diversion on a six inch line. No mass loss since diversion returned to system.
DO-0107 & DO-0207	NA	NA	NA	NA	Valves are exempt from in-service testing per the IST plan.

DO-0157 & DO-0257	Lube Oil Flowpath	Low, but moderate RAW	Implicit basis in IPE confirmed. Equivalent to moderate RAW with compensatory measure.	Monthly tech spec diesel test	
DO-0158 & DO-0258	Lube Oil Flowpath Boundary	Low, but moderate RAW	Implicit basis in IPE confirmed. Equivalent to moderate RAW with compensatory measure.	Monthly tech spec diesel test	

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
FW-0070, FW-0076, FW-0082 & FW-0088	Main Feedline Break Isolation	Low	AFW is not affected. Other means of isolating a main feedline break.	NA	
FW-0191, FW-0192, FW-0193 & FW-0194	AFW Flowpath Boundary	Low	Low probability of affecting AFW. Two normally-closed valves upstream of the diversion path.	NA	
HV-2154 & HV-2155	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	
FV-2181, FV-2182, FV-2183 & FV-2184	AFW Flowpath Boundary	Low	AFW function not affected.	NA	If valve fails open, AFW still goes to the steam generator, but through a different nozzle.
HV-2185, HV-2186, HV-2187 & HV-2188	Feedwater Isolation	Low	Valve failure affects only one train of AFW and is recoverable.	NA	Valve is normally closed and inter-locked. Feedwater can be isolated by other means including closing the manual isolation valve or tripping the MFW pumps.
HV-2185, HV-2186, HV-2187 & HV-2188	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
FV-2194 & FV-2195	Feedwater Isolation	Low	Valve failure affects only one train of AFW and is recoverable.	NA	Valve is normally closed and interlocked. Feedwater can be isolated by other means including closing the manual isolation valve or tripping the MFW pumps.
FV-2193, FV-2194, FV-2195 & FV-2196	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
MS-0142 & MS-0143	TDAFW Pump Steam Supply Flowpath Boundary	Low	Flow diversion conditions unlikely and recoverable.	NA	Need a faulted steam generator for flow diversion to be possible. If reverse flow in CV occurs , diversion flow can be isolated by closing 2452-1 or -2.
HV-2333B, HV-2334B, HV-2335B & HV-2336B	Containment Isolation	Low, but moderate RAW	Implicit basis in IPE confirmed. Equivalent to low RAW with compensatory measure.	Locked valve program	
HV-2333B, HV-2334B, HV-2335B & HV-2336B	Steam Line Isolation	Low, but moderate RAW	Implicit basis in IPE confirmed. Equivalent to low RAW with compensatory measure.	Locked valve program	
HV-2397, HV-2398, HV-2399, and HV-2400	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
HV-2397, HV-2397A, HV-2398, HV-2398A, HV-2399, HV-2399A, HV-2400 & HV-2400A	HELB Isolation	Low	Low probability of accident scenario and recoverable.	NA	Two valves in series must both fail open and remain open together with pipe break to cause HELB conditions.
HV-2397, HV-2397A, HV-2398, HV-2398A, HV-2399, HV-2399A, HV-2400 & HV-2400A	AFW Flowpath Boundary	Low	AFW function not affected.	NA	AFW goes to steam generator regardless of failure. Failure can be recovered by closing another valve.
HV-2401A & B, HV-2402A & B, HV-2403A & B, HV-2404A & B	AFW Flowpath Boundary	Low	Insufficient flow diversion.	NA	Failure also can be recovered by closing another valve.

Expert Panel Meeting Minutes for Component Functions
Not Explicitly Modeled by the IPE - Main Steam System
TABLE 4.4-2 (MS)

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
HV-2405, HV-2406, HV-2407 & HV-2408	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	
HV-2405, HV-2406, HV-2407 & HV-2408	AFW Flowpath Boundary	Low	Insufficient flow diversion.	NA	Failure also cah be recovered by closing another valve.
HV-2409, HV-2410, HV-2411 & HV-2412	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	
HV-2409, HV-2410, HV-2411 & HV-2412	Steam Line Isolation	Low	Low probability and cannot affect redundant AFW flowpaths.	NA	
HV-2452-1 and HV-2452-2	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	

Expert Panel Meeting Minutes for Component Functions Not Explicitly Modeled by the IPE - Reactor Coolant System
TABLE 4.4-2 (RC)

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
RC-0036	Containment Penetration Thermal Relief/Containment Isolation	Low	Accident mitigation basis confirmed.	NA	Generally these thermal relief valves relieve to the containment and do not provide a release path to the environment. For the few that relieve outside containment, a pipe break inside containment must occur together with relief valve failure to cause a release path. Such a path is an insignificant contributor to large, early releases and not important for accident mitigation.
SI-0166, SI-0167, SI-0168 & SI-0169	Safety-Related Nitrogen Accumulator to Non-Safety Nitrogen Supply Isolation	High	Operational concerns	NA	Two CVs in series must fail to remain closed and the normally isolated N_2 supply must be open.
HV-3607, HV-3608, HV-3609 & HV-3610	Post Accident Vent Path	Low	Vent path is backup to a reliable path.	NA	

HV-3607, HV-3608, HV-3609 & HV-3610	Vent Path Isolation	Low	Low probability of failure and within normal charging capability.	NA	Two normally closed fails closed valves in series.
8026, 8027, 8046 & 8047	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
HV-4178, HV-4179 and HV-4182	RHR System to Non-Safety Process Sampling System Isolation	Low	Insufficient flow diversion.	NA	Effects limited to a single train. Also isolable downstream by manual valve.

Expert Panel Meeting Minutes for Component Functions Not Explicitly Modeled by the IPE - Safety Injection System

TABLE 4.4-2 (SI)

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
SI-0182 & SI-0183	8811A Bonnet Overpressure Relief/ Containment Isolation	High	Operational concerns.	NA	
8800A & 8800B	RWST to Non-Safety Purification System Isolation	Low	Low probability of flow diversion.	NA	Two valves in series must fail and other means of isolation are available.
8801A & 8801B	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	
8801A & 8801B	Passive Pipe Break Isolation	Low	Low probability of accident scenario.	NA	Scenario requires pipe break plus reverse flow in two CVs.
8802A & 8802B	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	
8802A & 8802B	Passive Pipe Break Isolation	Low	Low probability of accident scenario.	NA	Scenario requires pipe break plus reverse flow in at least two CVs.
8821A & 8821B	Passive Pipe Break Isolation	Low	Low probability of either SI system failure or accident scenario.	NA	Pipe break must occur together with another MOV or CV failure.
8823, 8824 & 8825	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	
8823 and 8824	ECCS Flowpath Boundary	Low	Insufficient flow diversion	NA	

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
8843	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	
8843	Flowpath Boundary	Low	Insufficient flow diversion	NA	
8871	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	
8879A, 8879B, 8879C & 8879D	ECCS Flowpath Boundary	Low	Insufficient flow diversion	NA	
8880	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	
8881 & 8888	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	
8881, 8882 and 8888	ECCS Flowpath Boundary	Low	Insufficient flow diversion	NA	
8889A, 8889B, 8889C & 8889D	ECCS Flowpath Boundary	Low	Insufficient flow diversion	NA	

Expert Panel Meeting Minutes for Component Functions
Not Explicitly Modeled by the IPE - Safety Injection System
TABLE 4.4-2 (SI)

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
8890A & 8890B	ECCS Flowpath Boundary	Low	Insufficient flow diversion	NA	
SI-8900A, SI-8900B, SI-8900C & SI-8900D	Reactor Coolant Pressure Boundary	Low	Probability of small LOCA is much lower than other sources, e.g., RCP seal failure.	NA	CV 8815 upstream must fail plus 2 MOVs must fail to close to cause LOCA.
8924	Passive Pipe Break Isolation	Low	Low probability of either SI system failure or accident scenario.	NA	Scenario requires pipe break and other MOV failure.
8964	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	
SI-8968	Containment Isolation	Low	Accident mitigation basis confirmed.	NA	

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
1SI-8972 and 2SI-8983	Containment Penetration Thermal Relief/Containment Isolation	Low	Accident mitigation basis confirmed.	NA	Generally these thermal relief valves relieve to the containment and do not provide a release path to the environment. For the few that relieve outside containment, a pipe break inside containment must occur together with relief valve failure to cause a release path. Such a path is an insignificant contributor to large, early releases and not important for accident mitigation.

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
HV-4395 & HV-4396	AFW Pump Emergency Supply Flowpath	Low	Flowpath is backup to a reliable path.	NA	Failure equivalent to AF-0014 and AF-0024 respectively.
SWVAVB-01, SWVAVB-02, SWVAVB-03 and SWVAVB-04	Vent Path (for water hammer prevention)/ Flowpath Boundary	High	Water hammer can affect redundant trains	NA	

Component	**IST Functions not modeled explicitly in the IPE**	**Panel Decision/ Disposition**	**Panel Basis**	**Compensatory Action**	**Comments**
1CI-0644, 1CI-0645, 1CI-0646 and 1CI-0647	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	High	Important for maintaining control room environment	NA	Valves provide air for operating Control Room dampers on Control Room HVAC. CR environment important for electronics and habitability.

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
VD-0003, VD-0004, VD-0011 & VD-0012	Sump Discharge Flowpath	Low	Long time to failure and limited impact from leaks.	NA	
VD-0003, VD-0004, VD-0011 & VD-0012	Sump Discharge Flowpath Boundary	Low	Long time to failure and limited impact from leaks.	NA	
1VD-0907 & 2VD-0896	Containment Penetration Thermal Relief/Con-tainment Isolation	Low	Accident mitigation basis confirmed.	NA	Generally these thermal relief valves relieve to the containment and do not provide a release path to the environment. For the few that relieve outside containment, a pipe break inside containment must occur together with relief valve failure to cause a release path. Such a path is an insignificant contributor to large, early releases and not important for accident mitigation.

Component	IST Functions not modeled explicitly in the IPE	Panel Decision/ Disposition	Panel Basis	Compensatory Action	Comments
HV-5157 & HV-5158	Containment Isolation	High	Accident mitigation basis confirmed.	NA	

EXPERT PANEL MEETING MINUTES
FOR HIGH RANK IPE COMPONENTS NOT IN THE IST PROGRAM
TABLE 4.4-2a

Component	**IPE Risk Category**	**Panel Decision/ Disposition**	**Panel Basis**	**Compensatory Actions**	**Comments**
All instrument air relief valves not protected by check valves that can depressurize the common header (includes -0681, etc plus X-PSV-3475A, etc -	High	High	IPE basis confirmed, but see comments regarding operator recovery.	Equivelent IST relief test stratagy (Proposed)	An evaluation will be performed to determine the appropriate equivelent IST compensatory actions for the IPE failure mode(s). The IPE did not credit operator recovery by isolating the affected air line from the system common header.
AF-0006 and AF-0007	High	High	IPE basis confirmed, but see comments regarding operator recovery.	No applicable in-service test for normally open manual valves without remote position indication.	Current plant programs are adequate to maintain a low failure probability. Programs include the quarterly IST pump test which will verify position is open and either the locked valve program or position surveillances very 30 days per technical specifications. The IPE did not credit operator recovery by opening the valve if it was left closed.

Component	IPE Risk Category	Panel Decision/ Disposition	Panel Basis	Compensatory Actions	Comments
TV-2370A thru TV-2370J	High	High	IPE basis confirmed.	To be determined.	An evaluation will be performed to determine the appropriate compensatory actions for the IPE,failure mode(s).
FCV-510 and FCV-540	High	High	IPE basis confirmed.	To be determined.	An evaluation will be performed to determine the appropriate compensatory actions for the IPE failure mode(s).
FCV-520 and FCV-530	Low	High	IPE basis confirmed. These valves added to ensure administrative consistency.	To be determined.	These valves are not as risk significant because they do not affect the steam supply from steam generators 1 & 4 to the turbine driven AFW pump.

Component	**IPE Risk Category**	**Panel Decision/ Disposition**	**Panel Basis**	**Compensatory Actions**	**Comments**
8341	High	High	IPE basis confirmed, but see comments regarding operator recovery.	No applicable in-service test for normally open manual valves without remote position indication.	Current plant programs are adequate to maintain a low failure probability. Programs include the quarterly IST pump test which will verify position is open and either the locked valve program or position surveillances very 30 days per technical specifications. The IPE did not credit operator recovery by opening the valve if it was left closed.

Table 4.4-3
Results of Expert Panel Evaluation of IPE/IST Components and the Final Ranking of All IST Components

Sorted By Tag			
Component Tag Number	Component Description	Ranking Changes Due To Expert Panel	Final Ranking Based On IST Study
1-7126	LWPS RCDT 1-01 VNT HDR IRC DNSTRM ISOL VLV	Low	Low
1-7135	LWPS RCDT 1-01 LVL CTRL VLV BYP VLV	Low	Low
1-7136	Rcdt Pump Discharge Control Valve	No Change	High
1-7150	LWPS RCDT 1-01 VNT HDR ORC ISOL VLV	Low	Low
1-8000A	Przr 1-01 Porv 0455A Blk Vlv	No Change	High
1-8000B	Przr 1-01 Porv 0456 Blk Vlv	No Change	High
1-8010A	Przr 1-01 Sfty Vlv A	No Change	High
1-8010B	Przr 1-01 Sfty Vlv B	No Change	High
1-8010C	Przr 1-01 Sfty Vlv C	No Change	High
1-8026	PRT 1-01 VNT IRC ISOL VLV	Low	Low
1-8027	PRT 1-01 VNT ORC ISOL VLV	Low	Low
1-8046	RMUW TO PRT 1-01 SPLY IRC CHK VLV	Low	Low
1-8047	RMUW TO PRT 1-01/CNTMT SPLY ORC ISOL VLV	Low	Low
1-8100	U1 Rcp SI Wtr Ret Isol Vlv	No Change	Low
1-8104	U1 Emer Borate Vlv	No Change	Low
1-8105	U1 Chrg Pmp To RCS Cntmt Isol Vlv	No Change	Low
1-8106	U1 Chrg Pmp To RCS Cntmt Isol Vlv	No Change	Low
1-8109	PD CHRG PMP 1-01 RECIRC VLV	Low	Low
1-8110	Ccp 1-01/1-02 Dnstrm Miniflow Vlv	No Change	High
1-8111	Ccp 1-01/1-02 Upstrm Miniflow Vlv	No Change	High
1-8112	U1 RC Pmp Seal Wtr Ret Isol Vlv	No Change	Low
1-8145	U1 Przr Aux Spr Vlv	No Change	Low
1-8146	U1 RCS Loop 4 Chrg Vlv	No Change	Low
1-8147	U1 RCS LOOP 1 CHRG VLV	Low	Low
1-8152	U1 LTDN CNTMT ORC ISOL VLV	No Change	High
1-8153	U1 XS LTDN ISOL VLV 8153	Low	Low
1-8154	U1 XS LTDN ISOL VLV 8154	Low	Low
1-8160	U1 LTDN CNTMT IRC ISOL VLV	No Change	High
1-8202A	PD CHRG PMP 1-01 SUCT STAB DNSTRM VNT VLV	Low	Low
1-8202B	PD CHRG PMP 1-01 SUCT STAB UPSTRM VNT VLV	Low	Low
1-8210A	PD CHRG PMP 1-01 SUCT STAB H2/N2 SPLY VLV 8210A	Low	Low
1-8210B	PD CHRG PMP 1-01 SUCT STAB H2/N2 SPLY VLV 8210B	Low	Low
1-8351A	RC Pmp 1-01 SI Wtr Inj Vlv	No Change	Low
1-8351B	RC Pmp 1-02 SI Wtr Inj Vlv	No Change	Low
1-8351C	RC Pmp 1-03 SI Wtr Inj Vlv	No Change	Low
1-8351D	RC Pmp 1-04 SI Wtr Inj Vlv	No Change	Low
1-8378A	RCS Loop 1-04 Chrg Dnstrm Chk Vlv	No Change	Low
1-8378B	RCS Loop 1-04 Chrg Upstrm Chk Vlv	No Change	Low
1-8379A	RCS LOOP 1-01 CHRG LN DNSTRM CHK VLV	Low	Low
1-8379B	RCS LOOP 1-01 CHRG LN UPSTRM CHK VLV	Low	Low
1-8381	Chrg Ln Irc Chk Vlv	No Change	Low
1-8481A	Ccp 1-01 Disch Chk Vlv	No Change	Low
1-8481B	Ccp 1-02 Disch Chk Vlv	No Change	Low
1-8497	Pd Pmp 1-01 Disch Chk Vlv	No Change	Low
1-8510A	CCP 1-01 ALT MINIFLO RLF VLV	Low	Low
1-8510B	CCP 1-02 ALT MINIFLO RLF VLV	Low	Low
1-8511A	Ccp 1-01 Alt Miniflo Isol Vlv	No Change	High
1-8511B	Ccp 1-02 Alt Miniflo Isol Vlv	No Change	High
1-8512A	Ccp 1-02 Alt Miniflo Isol Vlv	No Change	High
1-8512B	Ccp 1-01 Alt Miniflo Isol Vlv	No Change	High

Table 4.4-3

Results of Expert Panel Evaluation of IPE/IST Components and the Final Ranking of All IST Components

Sorted By Tag			
Component Tag Number	**Component Description**	**Ranking Changes Due To Expert Panel**	**Final Ranking Based On IST Study**
1-8546	Rwst 1-01 To Chrg Pmp Suct Chk Vlv	No Change	High
1-8701A	RHR Pmp 1-01 Hl 1-01 Recirc Omb Isol Vlv	No Change	High
1-8701B	RHR Pmp 1-02 Hl 1-04 Recirc Omb Isol Vlv	No Change	High
1-8702A	RHR Pmp 1-01 Hl 1-01 Reicrc Imb Isol Vlv	No Change	High
1-8702B	RHR Pmp 1-02 Hl 1-04 Recirc Imb Isol Vlv	No Change	High
1-8708A	RHR Pmp 1-01 Suct Rlf Vlv	No Change	High
1-8708B	RHR Pmp 1-02 Suct Rlf Vlv	No Change	High
1-8716A	RHR Pmp 1-01 Xtie Vlv	No Change	High
1-8716B	RHR Pmp 1-02 Xtie Vlv	No Change	High
1-8717	U1 RHR Pmps Disch To Rwst Isol Vlv	No Change	High
1-8730A	RHR Hx 1-01 Disch Chk Vlv	No Change	Low
1-8730B	RHR Hx 1-02 Disch Chk Vlv	No Change	Low
1-8800A	RWST 1-01 TO SFPCS PMP DNSTRM DRN VLV	Low	Low
1-8800B	RWST 1-01 TO SFPCS PMP UPSTRM DRN VLV	Low	Low
1-8801A	Ccp 1-01/1-02 SI Isol Vlv 8801A	No Change	Low
1-8801B	Ccp 1-01/1-02 SI Isol Vlv 8801B	No Change	Low
1-8802A	SI Pmp 1-01 To Hl 2 & 3 Inj Isol Vlv	No Change	Low
1-8802B	SI Pmp 1-02 To Hl 1 & 4 Inj Isol Vlv	No Change	Low
1-8804A	RHR Pmp 1-01 To Ccp Suct Vlv	No Change	High
1-8804B	RHR Pmp 1-02 To SI Pmps Suct Vlv	No Change	High
1-8806	Rwst 1-01 To SI Pmps Suct Vlv	No Change	High
1-8807A	U1 SIP/CCP Suct Hdr Xtie Vlv 8807A	No Change	Low
1-8807B	U1 SIP/CCP Suct Hdr Xtie Vlv 8807B	No Change	Low
1-8808A	SI Accum 1-01 Inj Vlv	No Change	Low
1-8808B	SI Accum 1-02 Inj Vlv	No Change	Low
1-8808C	SI Accum 1-03 Inj Vlv	No Change	Low
1-8808D	SI Accum 1-04 Inj Vlv	No Change	Low
1-8809A	RHR To Cl 1-01/1-02 Inj Isol Vlv	No Change	High
1-8809A	RHR To Cl 1-01/1-02 Inj Isol Vlv	No Change	High
1-8809B	RHR To Cl 1-03/1-04 Inj Isol Vlv	No Change	High
1-8809B	RHR To Cl 1-03/1-04 Inj Isol Vlv	No Change	High
1-8811A	Cntmt Smp To RHR Pmp 1-01 Suct Isol Vlv	No Change	High
1-8811B	Cntmt Smp To RHR Pmp 1-02 Suct Isol Vlv	No Change	High
1-8813	SI Pmp 1-01/1-02 Miniflo Ret Vlv	No Change	High
1-8814A	SI Pmp 1-01 Miniflo Vlv	No Change	High
1-8814B	SI Pmp 1-02 Miniflo Vlv	No Change	High
1-8815	Ccp 1-01/1-02 Inj Chk Vlv	No Change	High
1-8818A	RHR Cl 1-01 Inj Chk Vlv	No Change	High
1-8818B	RHR Cl 1-02 Inj Chk Vlv	No Change	High
1-8818C	RHR Cl 1-03 Inj Chk Vlv	No Change	High
1-8818D	RHR Cl 1-04 Inj Chk Vlv	No Change	High
1-8821A	SI Pmp 1-01 Xtie Vlv	No Change	Low
1-8821B	SI Pmp 1-02 Xtie Vlv	No Change	Low
1-8823	U1 SI TO CL TST ISOL VLV	Low	Low
1-8824	SI TO HL 1-01/1-04 TST ISOL VLV	Low	Low
1-8825	RHR TO HL 1-02/1-03 TST ISOL VLV	Low	Low
1-8835	SI Pmp 1-01/1-02 To Cl Inj Isol Vlv	No Change	High
1-8840	RHR To Hl 1-02/1-03 Inj Isol Vlv	No Change	High
1-8841A	RHR To RCS Hl 1-02 Upstrm Chk Vlv	No Change	Low
1-8841B	RHR To RCS Hl 1-03 Upstrm Chk Vlv	No Change	Low

Table 4.4-3

Results of Expert Panel Evaluation of IPE/IST Components and the Final Ranking of All IST Components

Sorted By Tag			
Component Tag Number	**Component Description**	**Ranking Changes Due To Expert Panel**	**Final Ranking Based On IST Study**
1-8843	CCP 1-01/1-02 INJ HDR CHK VLV UPSTRM TST VLV	Low	Low
1-8871	U1 SI TST HDR RET IRC ISOL VLV	Low	Low
1-8875A	SI Accum 1-01 N2 SPLY/VENT Vlv	No Change	Low
1-8875B	SI Accum 1-02 N2 SPLY/VENT Vlv	No Change	Low
1-8875C	SI Accum 1-03 N2 SPLY/VENT Vlv	No Change	Low
1-8875D	SI Accum 1-04 N2 SPLY/VENT Vlv	No Change	Low
1-8877A	SI Accum 1-01 Tst Ln Isol Vlv	No Change	Low
1-8877B	SI Accum 1-02 Tst Ln Isol Vlv	No Change	Low
1-8877C	SI Accum 1-03 Tst Ln Isol Vlv	No Change	Low
1-8877D	SI Accum 1-04 Tst Ln Isol Vlv	No Change	Low
1-8878A	SI Accum 1-01 Fill Vlv	No Change	Low
1-8878B	SI Accum 1-02 Fill Vlv	No Change	Low
1-8878C	SI Accum 1-03 Fill Vlv	No Change	Low
1-8878D	SI Accum 1-04 Fill Vlv	No Change	Low
1-8879A	RHR TO CL 1-01 TST VLV	Low	Low
1-8879B	RHR TO CL 1-02 TST VLV	Low	Low
1-8879C	RHR TO CL 1-03 TST VLV	Low	Low
1-8879D	RHR TO CL 1-04 TST VLV	Low	Low
1-8880	U1 SI/PORV ACCUM N2 SPLY ORC ISOL VLV	Low	Low
1-8881	SI TO HL 1-02/1-03 TST ISOL VLV	Low	Low
1-8882	CCP 1-01/1-02 INJ HDR CHK VLV DNSTRM TST VLV	Low	Low
1-8888	U1 SI ACCUM FILL LN ISOL VLV	Low	Low
1-8889A	SI TO HL 1-01 TST LN VLV	Low	Low
1-8889B	SI TO HL 1-02 TST LN VLV	Low	Low
1-8889C	SI TO HL 1-03 TST LN VLV	Low	Low
1-8889D	SI TO HL 1-04 TST LN VLV	Low	Low
1-8890A	RHR TO CL 1-01/1-02 TST VLV	Low	Low
1-8890B	RHR TO CL 1-03/1-04 TST VLV	Low	Low
1-8922A	SI Pmp 1-01 Disch Chk Vlv	No Change	Low
1-8922B	SI Pmp 1-02 Disch Chk Vlv	No Change	Low
1-8923A	SI Pmp 1-01 Suct Vlv	No Change	High
1-8923B	SI Pmp 1-02 Suct Vlv	No Change	High
1-8924	U1 SIP/CCP Suct Hdr Xtie Isol Vlv	High	High
1-8926	SI Pmp 1-01/1-02 Suct Chk Vlv	No Change	High
1-8948A	SI Accum 1-01 Dnstrm Inj Chk Vlv	No Change	High
1-8948B	SI Accum 1-02 Dnstrm Inj Chk Vlv	No Change	High
1-8948C	SI Accum 1-03 Dnstrm Inj Chk Vlv	No Change	High
1-8948D	SI Accum 1-04 Dnstrm Inj Chk Vlv	No Change	High
1-8949A	RHR To Rcp Hl 1-01 Dnstrm Chk Vlv	No Change	Low
1-8949B	RHR To Rcp Hl 1-02 Dnstrm Chk Vlv	No Change	Low
1-8949C	RHR To Rcp Hl 1-03 Dnstrm Chk Vlv	No Change	Low
1-8949D	RHR To Rcp Hl 1-04 Dnstrm Chk Vlv	No Change	Low
1-8956A	SI Accum 1-01 Upstrm Inj Chk Vlv	Increased	High
1-8956B	SI Accum 1-02 Upstrm Inj Chk Vlv	Increased	High
1-8956C	SI Accum 1-03 Upstrm Inj Chk Vlv	Increased	High
1-8956D	SI Accum 1-04 Upstrm Inj Chk Vlv	Increased	High
1-8958A	Rwst 1-01 To RHR Pmp 1-01 Chk Vlv	No Change	Low
1-8958B	Rwst 1-01 To RHR Pmp 1-02 Chk Vlv	No Change	Low
1-8964	U1 SI TEST HDR RET ORC ISOL VLV	Low	Low
1-8969A	RHR To Ccp 1-01/1-02 Suct Chk Vlv	No Change	Low

Table 4.4-3

Results of Expert Panel Evaluation of IPE/IST Components and the Final Ranking of All IST Components

Sorted By Tag			
Component Tag Number	**Component Description**	**Ranking Changes Due To Expert Panel**	**Final Ranking Based On IST Study**
1-8969B	RHR To SI Pmp 1-01/1-02 Suct Chk Vlv	No Change	Low
1-FCV-0110B	U1 RCS MU TO CHRG PMP FLO CTRL VLV	Low	Low
1-FCV-0111A	RMUW TO CVCS BA BLNDR 1-01 FLO CTRL VLV	Low	Low
1-FCV-0111B	RCS MU TO VCT 1-01 ISOL VLV	Low	Low
1-FCV-0610	RHR Pmp 1-01 Miniflo Vlv	No Change	High
1-FCV-0611	RHR Pmp 1-02 Miniflo Vlv	No Change	High
1-FCV-0618	RHR Hx 1-01 Byp Flo Ctrl Vlv	No Change	Low
1-FCV-0619	RHR Hx 1-02 Byp Flo Ctrl Vlv	No Change	Low
1-FV-2181	SG 1-01 FW SPLIT FLO BYP VLV	Low	Low
1-FV-2182	SG 1-02 FW SPLIT FLO BYP VLV	Low	Low
1-FV-2183	SG 1-03 FW SPLIT FLO BYP VLV	Low	Low
1-FV-2184	SG 1-04 FW SPLIT FLO BYP VLV	Low	Low
1-FV-2193	SG 1-01 Fw Prehtr Byp Vlv	No Change	Low
1-FV-2194	SG 1-02 FW PREHTR BYP VLV	Low	Low
1-FV-2195	SG 1-03 FW PREHTR BYP VLV	Low	Low
1-FV-2196	SG 1-04 Fw Prehtr Byp Vlv	No Change	Low
1-FV-2456	MD AFW PMP 1-01 TO CST RECIRC FLO VLV	Low	Low
1-FV-2457	MD AFW PMP 1-02 TO CST RECIRC FLO VLV	Low	Low
1-FV-4536	CCW PMP 1-01 RECIRC FLO VLV	High	High
1-FV-4537	CCW PMP 1-02 RECIRC FLO VLV	High	High
1-FV-4650A	VENT CHLR U1 CCW SPLY VLV	Low	Low
1-FV-4650B	VENT CHLR U1 CCW RET VLV	Low	Low
1-FV-4772-1	Cs Pmp 1-01 Recirc Vlv	No Change	Low
1-FV-4772-2	Cs Pmp 1-03 Recirc Vlv	No Change	Low
1-FV-4773-1	Cs Pmp 1-02 Recirc Vlv	No Change	Low
1-FV-4773-2	Cs Pmp 1-04 Recirc Vlv	No Change	Low
1-HCV-0606	RHR Hx 1-01 Flo Ctrl Vlv	No Change	High
1-HCV-0607	RHR Hx 1-02 Flo Ctrl Vlv	No Change	High
1-HV-2134	SG 1-01 FW ISOL VLV	High	High
1-HV-2135	SG 1-02 FW ISOL VLV	High	High
1-HV-2136	SG 1-03 FW ISOL VLV	High	High
1-HV-2137	SG 1-04 FW ISOL VLV	High	High
1-HV-2154	FW LN 1-01 SEC SMPL VLV	Low	Low
1-HV-2155	FW LN 1-02 SEC SMPL VLV	Low	Low
1-HV-2185	SG 1-01 FW ISOL BYP VLV	Low	Low
1-HV-2186	SG 1-02 FW ISOL BYP VLV	Low	Low
1-HV-2187	SG 1-03 FW ISOL BYP VLV	Low	Low
1-HV-2188	SG 1-04 FW ISOL BYP VLV	Low	Low
1-HV-2333A	MSIV 1-01	No Change	Low
1-HV-2333B	MSIV 1-01 BYP VLV	Low	Low
1-HV-2334A	MSIV 1-02	No Change	Low
1-HV-2334B	MSIV 1-02 BYP VLV	Low	Low
1-HV-2335A	MSIV 1-03	No Change	Low
1-HV-2335B	MSIV 1-03 BYP VLV	Low	Low
1-HV-2336A	MSIV 1-04	No Change	Low
1-HV-2336B	MSIV 1-04 BYP VLV	Low	Low
1-HV-2397	SG 1-01 BLDN ISOL VLV	Low	Low
1-HV-2397A	SG 1-01 BLDN HELB ISOL VLV	Low	Low
1-HV-2398	SG 1-02 BLDN ISOL VLV	Low	Low
1-HV-2398A	SG 1-02 BLDN HELB ISOL VLV	Low	Low

Table 4.4-3

Results of Expert Panel Evaluation of IPE/IST Components and the Final Ranking of All IST Components

Sorted By Tag			
Component Tag Number	**Component Description**	**Ranking Changes Due To Expert Panel**	**Final Ranking Based On IST Study**
1-HV-2399	SG 1-03 BLDN ISOL VLV	Low	Low
1-HV-2399A	SG 1-03 BLDN HELB ISOL VLV	Low	Low
1-HV-2400	SG 1-04 BLDN ISOL VLV	Low	Low
1-HV-2400A	SG 1-04 BLDN HELB ISOL VLV	Low	Low
1-HV-2401A	SG 1-01 DRUM SMPL ISOL VLV	Low	Low
1-HV-2401B	SG 1-01 BLDN SMPL ISOL VLV	Low	Low
1-HV-2402A	SG 1-02 DRUM SMPL ISOL VLV	Low	Low
1-HV-2402B	SG 1-02 BLDN SMPL ISOL VLV	Low	Low
1-HV-2403A	SG 1-03 DRUM SMPL ISOL VLV	Low	Low
1-HV-2403B	SG 1-03 BLDN SMPL ISOL VLV	Low	Low
1-HV-2404A	SG 1-04 DRUM SMPL ISOL VLV	Low	Low
1-HV-2404B	SG 1-04 BLDN SMPL ISOL VLV	Low	Low
1-HV-2405	SG 1-01 SMPL ISOL VLV	Low	Low
1-HV-2406	SG 1-02 SMPL ISOL VLV	Low	Low
1-HV-2407	SG 1-03 SMPL ISOL VLV	Low	Low
1-HV-2408	SG 1-04 SMPL ISOL VLV	Low	Low
1-HV-2409	MSL 1-01 BEF MSIV D\POT 1-25 ISOL VLV	No Change	Low
1-HV-2410	MSL 1-02 BEF MSIV D\POT ISOL VLV	No Change	Low
1-HV-2410	MSL 1-02 BEF MSIV D\POT 1-24 ISOL VLV	Low	Low
1-HV-2411	MSL 1-03 BEF MSIV D\POT ISOL VLV	No Change	Low
1-HV-2411	MSL 1-03 BEF MSIV D\POT 1-23 ISOL VLV	Low	Low
1-HV-2412	MSL 1-04 BEF MSIV D\POT ISOL VLV	No Change	Low
1-HV-2412	MSL 1-04 BEF MSIV D\POT 1-26 ISOL VLV	Low	Low
1-HV-2452-1	MSL 1-01 TO AFWPT STM SPLY VLV	No Change	Low
1-HV-2452-2	MSL 1-04 TO AFWPT STM SPLY VLV	No Change	Low
1-HV-2459	TD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	No Change	Low
1-HV-2460	TD AFW PMP 1-01 DISCH TO SG 1-02 FCV	No Change	Low
1-HV-2461	TD AFW PMP 1-01 DISCH TO SG 1-03 FLO CTRL VLV	No Change	Low
1-HV-2462	TD AFW PMP 1-01 DISCH TO SG 1-04 FLO CTRL VLV	No Change	Low
1-HV-2480	MD AFW PMP 1-01 SSW SUCT ISOL VLV	Low	Low
1-HV-2481	MD AFW PMP 1-02 SSW SUCT ISOL VLV	Low	Low
1-HV-2482	TD AFW PMP 1-01 SSW SUCT ISOL VLV	Low	Low
1-HV-2484	CST 1-01 DISCH VLV 2484	Low	Low
1-HV-2485	CST 1-01 DISCH VLV 2485	Low	Low
1-HV-2491A	TD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	No Change	Low
1-HV-2491B	MD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	No Change	Low
1-HV-2492A	TD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	No Change	Low
1-HV-2492B	MD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	No Change	Low
1-HV-2493A	MD AFW PMP 1-02 DISCH TO SG 1-03 ISOL VLV	No Change	Low
1-HV-2493B	TD AFW PMP 1-01 DISCH TO SG 1-03 ISOL VLV	No Change	Low
1-HV-2494A	MD AFW PMP 1-02 DISCH TO SG 1-04 ISOL VLV	No Change	Low
1-HV-2494B	TD AFW PMP 1-01 DISCH TO SG 1-04 ISOL VLV	No Change	Low
1-HV-3486	U1 CNTMT SERV AIR ISOL VLV	Low	Low
1-HV-3487	U1 CNTMT INST AIR HDR ISOL VLV	No Change	Low
1-HV-3607	RV 1-01 HEAD UPSTRM VNT VLV	Low	Low
1-HV-3608	RV 1-01 HEAD DNSTRM VNT VLV	Low	Low
1-HV-3609	PRZR 1-01 UPSTRM VNT VLV	Low	Low
1-HV-3610	PRZR 1-01 DNSTRM VNT VLV	Low	Low
1-HV-4075B	U1 CNTMT FP HDR ORC ISOL VLV	Low	Low
1-HV-4075C	U1 CNTMT FP HDR IRC ISOL VLV	Low	Low

Table 4.4-3

Results of Expert Panel Evaluation of IPE/IST Components and the Final Ranking of All IST Components

Sorted By Tag			
Component Tag Number	**Component Description**	**Ranking Changes Due To Expert Panel**	**Final Ranking Based On IST Study**
1-HV-4165	PRZR 1-01 STM SPACE SMPL LN IRC ISOL VLV	Low	Low
1-HV-4166	PRZR 1-01 LIQ SPACE SMPL LN IRC ISOL VLV	Low	Low
1-HV-4167	PRZR 1-01 LIQ SPACE SMPL LN ORC ISOL VLV	Low	Low
1-HV-4168	RC LOOP 1-01 HOT LEG SMPL LN IRC ISOL VLV	Low	Low
1-HV-4169	RC LOOP 1-04 HOT LEG SMPL LN IRC ISOL VLV	Low	Low
1-HV-4170	RC LOOP 1-01 & 1-04 HOT LEG SMPL LN ORC ISOL VLV	Low	Low
1-HV-4171	ACCUM 1-01 LIQ SPACE SMPL LN IRC ISOL VLV	No Change	Low
1-HV-4172	ACCUM 1-02 LIQ SPACE SMPL LN IRC ISOL VLV	No Change	Low
1-HV-4173	ACCUM 1-03 LIQ SPACE SMPL LN IRC ISOL VLV	No Change	Low
1-HV-4174	ACCUM 1-04 LIQ SPACE SMPL LN IRC ISOL VLV	No Change	Low
1-HV-4175	U1 ACCUM LIQ SPACE SMPL LN ORC ISOL VLV	Low	Low
1-HV-4176	PRZR 1-01 STM SPACE SMPL LN ORC ISOL VLV	Low	Low
1-HV-4178	U1 RHR TRN A SMPL LN ORC ISOL VLV	Low	Low
1-HV-4179	U1 RHR TRN B SMPL LN ORC ISOL VLV	Low	Low
1-HV-4182	RHR TO RC PASS FLSH AND DIVERT MNFLD 1-07A LN ISOL VLV	Low	Low
1-HV-4286	SSW PMP 1-01 DISCH VLV	No Change	High
1-HV-4287	SSW PMP 1-02 DISCH VLV	No Change	High
1-HV-4393	DG 1-01 JKT WTR CLR SSW RET VLV	No Change	Low
1-HV-4394	DG 1-02 JKT WTR CLR SSW RET VLV	No Change	Low
1-HV-4395	SSW TRN A TO U1 AFW PMP SUCT VLV	Low	Low
1-HV-4396	SSW TRN B TO U1 AFW PMP SUCT VLV	Low	Low
1-HV-4512	U1 SFGD LOOP A CCW RET VLV	No Change	High
1-HV-4513	U1 SFGD LOOP B CCW RET VLV	No Change	High
1-HV-4514	U1 SFGD LOOP A CCW SPLY VLV	No Change	High
1-HV-4515	U1 SFGD LOOP B CCW SPLY VLV	No Change	High
1-HV-4524	U1 NON-SFGD LOOP CCW DNSTRM RET VLV	No Change	High
1-HV-4525	U1 NON-SFGD LOOP CCW UPSTRM RET VLV	No Change	High
1-HV-4526	U1 NON-SFGD LOOP CCW UPSTRM SPLY VLV	No Change	High
1-HV-4527	U1 NON-SFGD LOOP CCW DNSTRM SPLY VLV	No Change	High
1-HV-4572	RHR HX 1-01 CCW RET VLV	No Change	High
1-HV-4573	RHR HX 1-02 CCW RET VLV	No Change	High
1-HV-4574	CS HX 1-01 CCW RET VLV	No Change	Low
1-HV-4575	CS HX 1-02 CCW RET VLV	No Change	Low
1-HV-4631A	U1 PSS CCW SPLY HDR ISOL VLV	Low	Low
1-HV-4631B	U1 PSS CCW RET HDR ISOL VLV	Low	Low
1-HV-4696	U1 THBR CLR CCW RET IRC ISOL VLV	No Change	Low
1-HV-4699	U1 RCP/THBR CLR CCW SPLY ORC UPSTRM ISOL VLV	No Change	Low
1-HV-4700	U1 RCP/THBR CLR CCW SPLY ORC DNSTRM ISOL VLV	No Change	Low
1-HV-4701	U1 RCP CLR CCW RET IRC ISOL VLV	No Change	Low
1-HV-4708	U1 RCP CLR CCW RET ORC ISOL VLV	No Change	Low
1-HV-4709	U1 THBR CLR CCW RET ORC ISOL VLV	No Change	Low
1-HV-4710	U1 XS LTDN RCDT HX CCW SPLY ORC ISOL VLV	Low	Low
1-HV-4711	U1 XS LTDN RCDT HX CCW RET ORC ISOL VLV	Low	Low
1-HV-4725	CNTMT CCW DRN TK 1-02 IRC ISOL VLV	No Change	High
1-HV-4726	CNTMT CCW DRN TK 1-02 ORC ISOL VLV	No Change	High
1-HV-4758	RWST TO CS PMP 1-01/1-03 SUCT VLV	No Change	Low
1-HV-4759	RWST TO CS PMP 1-02/1-04 SUCT VLV	No Change	Low
1-HV-4776	CS HX 1-01 OUT VLV	No Change	Low
1-HV-4777	CS HX 1-02 OUT VLV	No Change	Low
1-HV-4782	CNTMT SMP TO CS PMP 1-01/1-03 SUCT ISOL VLV	No Change	Low

Table 4.4-3

Results of Expert Panel Evaluation of IPE/IST Components and the Final Ranking of All IST Components

Sorted By Tag			
Component Tag Number	**Component Description**	**Ranking Changes Due To Expert Panel**	**Final Ranking Based On IST Study**
1-HV-4783	CNTMT SMP TO CS PMP 1-02/1-04 SUCT ISOL VLV	No Change	Low
1-HV-5157	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR ORC ISOL VLV	No Change	High
1-HV-5158	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR IRC ISOL VLV	No Change	High
1-HV-5365	U1 CNTMT DEMIN/RMUW SPLY ORC ISOL VLV	Low	Low
1-HV-5366	U1 CNTMT DEMIN/RMUW SPLY IRC ISOL VLV	Low	Low
1-HV-5536	U1 CNTMT AIR PRG SPLY ORC ISOL DMPR AO	Low	Low
1-HV-5537	U1 CNTMT AIR PRG SPLY IRC ISOL DMPR AO	Low	Low
1-HV-5538	U1 CNTMT AIR PRG EXH ORC ISOL DMPR AO	Low	Low
1-HV-5539	U1 CNTMT AIR PRG EXH IRC ISOL DMPR AO	Low	Low
1-HV-5540	U1 CNTMT H2 PRG EXH ORC ISOL DMPR	Low	Low
1-HV-5541	U1 CNTMT H2 PRG EXH IRC ISOL DMPR	Low	Low
1-HV-5542	U1 CNTMT H2 PRG SPLY ORC ISOL DMPR	Low	Low
1-HV-5543	U1 CNTMT H2 PRG SPLY IRC ISOL DMPR	Low	Low
1-HV-5544	U1 CNTMT AIR PIG RAD DET UNIT 5502/03/66 SMPL IN ORC ISOL VLV	Low	Low
1-HV-5545	U1 CNTMT AIR PIG RAD DET UNIT 5502/03/66 SMPL IN IRC ISOL VLV	Low	Low
1-HV-5546	U1 CNTMT AIR PIG RAD DET UNIT 5502/03/66 SMPL OUT ORC ISOL VL	Low	Low
1-HV-5547	U1 CNTMT AIR PIG RAD DET UNIT 5502/03/66 SMPL OUT IRC ISOL VL	Low	Low
1-HV-5548	U1 CNTMT PRESS RLF SYS ORC ISOL VLV	No Change	Low
1-HV-5549	U1 CNTMT PRESS RLF SYS IRC ISOL VLV	No Change	Low
1-HV-5556	U1 CNTMT AIR PASS SMPL RET LN ORC ISOL VLV	Low	Low
1-HV-5557	U1 CNTMT AIR PASS SMPL RET LN IRC ISOL VLV	Low	Low
1-HV-5558	U1 CNTMT AIR PASS SMPL SPLY LN ORC ISOL VLV 5558	Low	Low
1-HV-5559	U1 CNTMT AIR PASS SMPL SPLY LN IRC ISOL VLV 5559	Low	Low
1-HV-5560	U1 CNTMT AIR PASS SMPL SPLY LN ORC ISOL VLV 5560	Low	Low
1-HV-5561	U1 CNTMT AIR PASS SMPL SPLY LN IRC ISOL VLV 5561	Low	Low
1-HV-5562	U1 CNTMT PRG EXH IRC ISOL DMPR BYP DMPR	Low	Low
1-HV-5563	U1 CNTMT H2 PRG SPLY IRC ISOL DMPR	Low	Low
1-HV-6082	U1 VENT CH WTR SPLY ORC UPSTRM ISOL VLV	Low	Low
1-HV-6083	U1 VENT CH WTR RET IRC DNSTRM ISOL VLV	Low	Low
1-HV-6084	U1 VENT CH WTR SPLY ORC DNSTRM ISOL VLV	Low	Low
1-HV-6720	SFTY CH WTR SRG TK 1-01 RMUW SPLY VLV	Low	Low
1-HV-7311	RC PASS SMPL MODULE 1-04 TO RCDT 1-01 RET LN ORC ISOL VLV	Low	Low
1-HV-7312	RC PASS SMPL MODULE 1-04 TO RCDT 1-01 RET LN IRC ISOL VLV	Low	Low
1-HV-8220	U1 CHARGE PMP SUCT HI PNT VNT VLV 8220	No Change	Low
1-HV-8221	U1 CHARGE PMP HI PNT VNT VLV 8221	No Change	Low
1-LCV-0112B	VCT 1-01 TO CHRG PMP SUCT VLV 0112B	Increased	High
1-LCV-0112C	VCT 1-01 TO CHRG PMP SUCT VLV 0112C	Increased	High
1-LCV-0112D	RWST 1-01 TO CHRG PMP SUCT VLV 0112D	Increased	High
1-LCV-0112E	RWST 1-01 TO CHRG PMP SUCT VLV 0112E	Increased	High
1-LCV-0459	U1 LTDN ISOL VLV 0459	Increased	High
1-LCV-0460	U1 LTDN ISOL VLV 0460	Increased	High
1-LCV-1003	LWPS RCDT 1-01 LVL CTRL VLV	Increased	High
1-LV-2478	DEMIN WTR TO CST 1-01 MU VLV	Low	Low
1-LV-4500	CCW SRG TK 1-01 MU VLV 4500	Low	Low
1-LV-4500-1	CCW SRG TK 1-01 RMUW SPLY VLV	Low	Low
1-LV-4501	CCW SRG TK 1-01 MU VLV 4501	Low	Low
1-LV-4754	CS CHEM ADD TK 1-01 DISCH VLV 4754	Low	Low
1-LV-4755	CS CHEM ADD TK 1-01 DISCH VLV 4755	Low	Low
1-PCV-0455A	PRZR 1-01 PORV 0455A	No Change	High
1-PCV-0456	PRZR PWR OPERATED RELIEF VLV	No Change	High

Table 4.4-3

Results of Expert Panel Evaluation of IPE/IST Components and the Final Ranking of All IST Components

Sorted By Tag			
Component Tag Number	Component Description	Ranking Changes Due To Expert Panel	Final Ranking Based On IST Study
1-PS-0500	U1 ACCUM LIQ SPACE SMPL LN ORC RLF VLV	Low	Low
1-PS-0501	PRZR 1-01 LIQ SPACE SMPL LN ORC RLF VLV	Low	Low
1-PS-0502	PRZR 1-01 STM SPACE SMPL LN ORC RLF VLV	Low	Low
1-PS-0503	RC LOOP 1-01/1-04 HL SMPL LN ORC RLF VLV	Low	Low
1-PV-2325	SG 1-01 ATMOS RLF VLV	No Change	High
1-PV-2326	SG 1-02 ATMOS RLF VLV	No Change	High
1-PV-2327	SG 1-02 ATMOS RLF VLV	No Change	High
1-PV-2328	SG 1-04 ATMOS RLF VLV	No Change	High
1-PV-2453A	MD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	No Change	Low
1-PV-2453B	MD AFW PMP 1-01 DISCH TO SG 1-02 CTRL VLV	No Change	Low
1-PV-2454A	MD AFW PMP 1-02 DISCH TO SG 1-03 CTRL VLV	No Change	Low
1-PV-2454B	MD AFW PMP 1-02 DISCH TO SG 1-04 CTRL VLV	No Change	Low
1-PV-4552	SFTY CHLR 1-05 CCW RET PCV	No Change	Low
1-PV-4553	SFTY CHLR 1-06 CCW RET PCV	No Change	Low
1AF-0009	DEMIN WTR TO CST 1-01 MU LN CHK VLV	Low	Low
1AF-0014	CST TO MD AFW PMP 1-01 SUCT CHK VLV	No Change	Low
1AF-0024	CST TO MD AFW PMP 1-02 SUCT CHK VLV	No Change	Low
1AF-0032	CST 1-01 TO TD AFW PMP CHK VLV	No Change	Low
1AF-0038	TD AFW PMP 1-01 DISCH CHK VLV	No Change	Low
1AF-0041	TD AFW PMP 1-01 DISCH ISOL VLV	No Change	Low
1AF-0042	TD AFW PMP 1-01 DISCH TST ISOL VLV	Low	Low
1AF-0045	TD AFW PMP 1-01 DISCH RECIRC CHK VLV	Low	Low
1AF-0051	MD AFW PMP 1-02 DISCH CHK VLV	No Change	Low
1AF-0054	MD AFW PMP 1-02 DISCH ISOL VLV	No Change	Low
1AF-0055	MD AFW PMP 1-02 DISCH TST ISOL VLV	Low	Low
1AF-0057	MD AFW PMP 1-02 DISCH RECIRC CHK VLV	Low	Low
1AF-0065	MD AFW PMP 1-01 DISCH CHK VLV	No Change	Low
1AF-0066	MD AFW PMP 1-01 DISCH ISOL VLV	No Change	Low
1AF-0067	MD AFW PMP 1-01 DISCH TST ISOL VLV	Low	Low
1AF-0069	MD AFW PMP 1-01 DISCH RECIRC CHK VLV	Low	Low
1AF-0075	MD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	No Change	Low
1AF-0078	TD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	No Change	Low
1AF-0083	MD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	No Change	Low
1AF-0086	TD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	No Change	Low
1AF-0093	MD AFW PMP 1-02 DISCH TO SG 1-03 CHK VLV	No Change	Low
1AF-0098	TD AFW PMP 1-01 DISCH TO SG 1-03 CHK VLV	No Change	Low
1AF-0101	MD AFW PMP 1-02 DISCH TO SG 1-04 CHK VLV	No Change	Low
1AF-0106	TD AFW PMP 1-01 DISCH TO SG 1-04 CHK VLV	No Change	Low
1AF-0167	U1 AFW PMPS DISCH RECIRC TO CST CHK VLV	High	High
1AF-0215	MD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY UPSTRM CHK VLV	No Change	Low
1AF-0216	MD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY DNSTRM CHK VLV	No Change	Low
1AF-0217	MD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY UPSTRM CHK VLV	No Change	Low
1AF-0218	MD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY DNSTRM CHK VLV	No Change	Low
1AF-0219	MD AFW PMP 1-02 FCV TO SG 1-03 AIR SPLY UPSTRM CHK VLV	No Change	Low
1AF-0220	MD AFW PMP 1-02 FCV TO SG 1-03 AIR SPLY DNSTRM CHK VLV	No Change	Low
1AF-0221	MD AFW PMP 1-02 FCV TO SG 1-04 AIR SPLY UPSTRM CHK VLV	No Change	Low
1AF-0222	MD AFW PMP 1-02 FCV TO SG 1-04 AIR SPLY DNSTRM CHK VLV	No Change	Low
1AF-0223	TD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY DNSTRM CHK VLV	No Change	Low
1AF-0224	TD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY UPSTRM CHK VLV	No Change	Low
1AF-0226	TD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY UPSTRM CHK VLV	No Change	Low

Table 4.4-3

Results of Expert Panel Evaluation of IPE/IST Components and the Final Ranking of All IST Components

Sorted By Tag			
Component Tag Number	**Component Description**	**Ranking Changes Due To Expert Panel**	**Final Ranking Based On IST Study**
1AF-0227	TD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY DNSTRM CHK VLV	No Change	Low
1AF-0228	TD AFW PMP 1-01 FCV TO SG 1-03 AIR SPLY UPSTRM CHK VLV	No Change	Low
1AF-0229	TD AFW PMP 1-01 FCV TO SG 1-03 AIR SPLY DNSTRM CHK VLV	No Change	Low
1AF-0230	TD AFW PMP 1-01 FCV TO SG 1-04 AIR SPLY UPSTRM CHK VLV	No Change	Low
1AF-0231	TD AFW PMP 1-01 FCV TO SG 1-04 AIR SPLY DNSTRM CHK VLV	No Change	Low
1AF-0232	AFWPT 1-01 STM SPLY VLV 2452-1 AIR SPLY DNSTRM CHK VLV	Low	Low
1AF-0233	AFWPT 1-01 STM SPLY VLV 2452-1 AIR SPLY UPSTRM CHK VLV	Low	Low
1AF-0234	AFWPT 1-04 STM SPLY VLV 2452-2 AIR SPLY DNSTRM CHK VLV	Low	Low
1AF-0235	AFWPT 1-01 STM SPLY VLV 2452-2 AIR SPLY UPSTRM CHK VLV	Low	Low
1BS-0015	CNTMT PERS AIRLOCK 1-01 EXT DOOR MAN EQUAL VLV 0015	Low	Low
1BS-0025	CNTMT PERS AIRLOCK 1-01 EXT DOOR AUTO EQUAL VLV	Low	Low
1BS-0029	CNTMT PERS AIRLOCK 1-01 EXT DOOR MAN EQUAL VLV 0029	Low	Low
1BS-0030	CNTMT PERS AIRLOCK 1-01 INT DOOR AUTO EQUAL VLV	Low	Low
1BS-0044	CNTMT PERS AIRLOCK 1-01 INT DOOR MAN EQUAL VLV 0044	Low	Low
1BS-0056	CNTMT PERS AIRLOCK 1-01 INT DOOR MAN EQUAL VLV 0056	Low	Low
1BS-0202	U1 CNTMT PERS EMER AIRLOCK INT DOOR MAN EQUAL VLV	Low	Low
1BS-0203	U1 CNTMT PERS EMER AIRLOCK EXT DOOR MAN EQUAL VLV	Low	Low
1CA-0016	U1 CNTMT SERV AIR HDR CHK VLV	Low	Low
1CC-0003	CCW SRG TK 1-01 RMUW SPLY CHK VLV	Low	Low
1CC-0004	CCW SRG TK 1-01 DEMIN WTR SPLY CHK VLV	Low	Low
1CC-0031	CCW PMP 1-01 DISCH CHK VLV	No Change	Low
1CC-0061	CCW PMP 1-02 DISCH CHK VLV	No Change	Low
1CC-0611	XS LTDN HX 1-01 CCW SPLY RLF VLV	Low	Low
1CC-0618	RCDT HX 1-01 CCW SPLY RLF VLV	Low	Low
1CC-0629	U1 RCP CLR CCW RET HDR CHK VLV	Low	Low
1CC-0646	RC PMP 1-04 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No Change	Low
1CC-0657	RC PMP 1-03 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No Change	Low
1CC-0687	RC PMP 1-02 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No Change	Low
1CC-0694	RC PMP 1-01 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	No Change	Low
1CC-0713	U1 RCP CLR CCW SPLY HDR CHK VLV	No Change	Low
1CC-0831	U1 RC PMP THBR CLR CCW RET HDR RLF CHK VLV	Low	Low
1CC-1067	CNTMT CCW DRN TK 1-02 RET HDR RLF VLV	Low	Low
1CC-1075	RC PMP 1-01 THBR CLR CCW SPLY STOP CHK VLV	No Change	Low
1CC-1076	RC PMP 1-02 THBR CLR CCW SPLY STOP CHK VLV	No Change	Low
1CC-1077	RC PMP 1-03 THBR CLR CCW SPLY STOP CHK VLV	No Change	Low
1CC-1078	RC PMP 1-04 THBR CLR CCW SPLY STOP CHK VLV	No Change	Low
1CC-1079	CIRCLE SEAL CHECK VALVE 1/2" FNPT	No Change	Low
1CC-1080	CIRCLE SEAL CHECK VALVE 1/2" FNPT	No Change	Low
1CC-1081	CIRCLE SEAL CHECK VALVE 1/2" FNPT	No Change	Low
1CC-1082	CIRCEL SEAL CHECK VALVE 1/2 FNPT	No Change	Low
1CH-0024	U1 VENT CH WTR SPLY IRC CHK VLV	Low	Low
1CH-0271	U1 CNTMT VENT CH WTR SPLY HDR ORC PRESS RLF VLV	Low	Low
1CH-0272	U1 CNTMT VENT CH WTR RET HDR ORC PRESS RLF VLV	Low	Low
1CH-0300	SFTY CH WTR SRG TK 1-01 DEMIN WTR SPLY CHK VLV	Low	Low
1CH-0301	SFTY CH WTR SRG TK 1-01 DEMIN WTR SPLY CHK VLV	Low	Low
1CH-0302	SFTY CH WTR SRG TK 1-01 MU LVL VLV 6712 BYP VLV	Low	Low
1CH-0305	SFTY CH WTR SRG TK 1-01 MU LVL VLV 6713 BYP VLV	Low	Low
1CI-0030	U1 INST AIR HDR TO U1 CNTMT CHK VLV	No Change	Low
1CI-0644	CR A\C ACCUM X-01 INST AIR SPLY UPSTRM CHK VLV	High	High
1CI-0645	CR A\C ACCUM X-01 INST AIR SPLY DNSTRM CHK VLV	High	High

Table 4.4-3

Results of Expert Panel Evaluation of IPE/IST Components and the Final Ranking of All IST Components

Sorted By Tag			
Component Tag Number	**Component Description**	**Ranking Changes Due To Expert Panel**	**Final Ranking Based On IST Study**
1CI-0646	CR A\C ACCUM X-02 INST AIR SPLY UPSTRM CHK VLV	High	High
1CI-0647	CR A\C ACCUM X-02 INST AIR SPLY DNSTRM CHK VLV	High	High
1CS-8180	U1 IRC SL WTR RET CNMT ISOL BYP CHK VLV	No Change	Low
1CS-8350A	RC PMP 1-01 SL WTR INJ CHK VLV	No Change	Low
1CS-8350B	RC PMP 1-02 SL WTR INJ CHK VLV	No Change	Low
1CS-8350C	RC PMP 1-03 SL WTR INJ CHK VLV	No Change	Low
1CS-8350D	RC PMP 1-04 SL WTR INJ CHK VLV	No Change	Low
1CS-8367A	RC PMP 1-01 SL INJ IMB CHK VLV	No Change	Low
1CS-8367B	RC PMP 1-02 SL INJ IMB CHK VLV	No Change	Low
1CS-8367C	RC PMP 1-03 SL INJ IMB CHK VLV	No Change	Low
1CS-8367D	RC PMP 1-04 SL INJ IMB CHK VLV	No Change	Low
1CS-8368A	RC PMP 1-01 SL INJ IRC CHK VLV	No Change	Low
1CS-8368B	RC PMP 1-02 SL INJ IRC CHK VLV	No Change	Low
1CS-8368C	RC PMP 1-03 SL INJ IRC CHK VLV	No Change	Low
1CS-8368D	RC PMP 1-04 SL INJ IRC CHK VLV	No Change	Low
1CS-8377	U1 RCS AUX SPR LN TO PRZR 1-01 CHK VLV	Low	Low
1CS-8442	U1 EMER BORATE LN CHK VLV	No Change	Low
1CS-8473	BA PMP 1-02 DISCH CHK VLV	No Change	Low
1CS-8480A	CCP 1-01 RECIRC CHK VLV	Low	Low
1CS-8480B	CCP 1-02 RECIRC CHK VLV	Low	Low
1CS-8487	BA PMP 1-01 DISCH CHK VLV	No Change	Low
1CT-0013	CS PMP 1-04 DISCH CHK VLV	Low	Low
1CT-0020	CS PMP 1-04 EDUCT SUCT CHK VLV	Low	Low
1CT-0025	RWST TO CS PMP 1-02/1-04 SUCT CHK VLV	No Change	Low
1CT-0031	CS PMP 1-02 EDUCT SUCT CHK VLV	Low	Low
1CT-0042	CS PMP 1-02 DISCH CHK VLV	No Change	Low
1CT-0047	CS PMP 1-04 MINIFLO LN CHK VLV	No Change	Low
1CT-0048	CS PMP 1-02 MINIFLO LN CHK VLV	No Change	Low
1CT-0063	CS PMP 1-03 MINIFLO LN CHK VLV	No Change	Low
1CT-0064	CS PMP 1-01 MINIFLO LN CHK VLV	No Change	Low
1CT-0065	CS PMP 1-03 DISCH CHK VLV	No Change	Low
1CT-0072	CS PMP 1-03 EDUCT SUCT CHK VLV	Low	Low
1CT-0077	RWST TO CSP 1-01/1-03 SUCT CHK VLV	No Change	Low
1CT-0082	CS PMP 1-01 EDUCT SUCT CHK VLV	Low	Low
1CT-0094	CS PMP 1-01 DISCH CHK VLV	No Change	Low
1CT-0142	U1 CS TRN A HDR IRC CHK VLV	No Change	Low
1CT-0145	U1 CS TRN B HDR IRC CHK VLV	No Change	Low
1CT-0148	CNTMT SMP TO CS PMP 1-02/1-04 CHK VLV	No Change	Low
1CT-0149	CNTMT SMP TO CS PMP 1-01/1-03 CHK VLV	No Change	Low
1CT-0309	CNTMT SMP TO CS PMP 1-01/1-03 SUCT ISOL VLV BONNET RLF VLV	Low	Low
1CT-0310	CNTMT SMP TO CS PMP 1-02/1-04 SUCT ISOL VLV BONNET RLF VLV	Low	Low
1DD-0006	RMUWST 1-01 IN UPSTRM CHK VLV	Low	Low
1DD-0016	RMUW PMP 1-01 RECIRC CHK VLV	Low	Low
1DD-0018	RMUW PMP 1-01 DISCH CHK VLV	Low	Low
1DD-0020	RMUW PMP 1-01 TO RMUW HDR ISOL VLV	Low	Low
1DD-0064	RMUWST 1-01 RET UPSTRM CHK VLV	Low	Low
1DD-0065	RMUWST 1-01 IN DNSTRM CHK VLV	Low	Low
1DD-0066	RMUWST 1-01 RET DNSTRM CHK VLV	Low	Low
1DD-0430	U1 DEMIN/RMUW CNTMT PENET ORC RLF VLV	Low	Low
1DO-0004	DG 1-01 FO XREF PMP 1-01 DISCH CHK VLV	No Change	Low

Table 4.4-3

Results of Expert Panel Evaluation of IPE/IST Components and the Final Ranking of All IST Components

Sorted By Tag			
Component Tag Number	**Component Description**	**Ranking Changes Due To Expert Panel**	**Final Ranking Based On IST Study**
1DO-0005	DG 1-01 FO XREF PMP 1-02 DISCH CHK VLV	No Change	Low
1DO-0016	DG 1-02 FO XFER PMP 1-03 DISCH CHK VLV	No Change	Low
1DO-0017	DG 1-02 FO XFER PMP 1-04 DISCH CHK VLV	No Change	Low
1DO-0049	DG 1-01 FO DAY TK 1-01 XFER HDR CHK VLV	No Change	Low
1DO-0050	DG 1-02 FO DAY TK 1-02 XFER HDR CHK VLV	No Change	Low
1DO-0058	DG 1-01 START AIR RCVR 1-01 IN CHK VLV	Low	Low
1DO-0059	DG 1-01 START AIR RCVR 1-02 IN CHK VLV	Low	Low
1DO-0060	DG 1-02 START AIR RCVR 1-03 IN CHK VLV	Low	Low
1DO-0061	DG 1-02 START AIR RCVR 1-04 IN CHK VLV	Low	Low
1DO-0062	DG 1-01 AIR DRYR 1-02 OUT DNSTRM CHK VLV	Low	Low
1DO-0063	DG 1-01 AIR DRYR 1-01 OUT DNSTRM CHK VLV	Low	Low
1DO-0064	DG 1-02 AIR DRYR 1-04 OUT DNSTRM CHK VLV	Low	Low
1DO-0065	DG 1-02 AIR DRYR 1-03 OUT DNSTRM CHK VLV	Low	Low
1DO-0104	DG 1-01 JKT WTR KWP 1-01 DISCH CHK VLV	Low	Low
1DO-0107	DG 1-01 JKT WTR TEMP CTRL VLV	Low	Low
1DO-0157	DG 1-01 ENGN L\O PMP 1-01 SUCT CHK VLV	Low	Low
1DO-0158	DG 1-01 AUX L\O PMP 1-02 SUCT CHK VLV	Low	Low
1DO-0204	DG 1-02 JW KWP 1-02 DISCH CHK VLV	Low	Low
1DO-0207	DG 1-02 JW TEMP CTRL VLV	Low	Low
1DO-0257	DG 1-02 ENGN L\O PMP 1-03 SUCT CHK VLV	Low	Low
1DO-0258	DG 1-02 AUX L\O PMP 1-04 SUCT CHK VLV	Low	Low
1FW-0070	SG 1-03 FW HDR CHK VLV	No Change	Low
1FW-0076	SG 1-02 FW HDR CHK VLV	No Change	Low
1FW-0082	SG 1-01 FW HDR CHK VLV	No Change	Low
1FW-0088	SG 1-04 FW HDR CHK VLV	No Change	Low
1FW-0191	SG 1-04 FW PREHTR BYP ORC CHK VLV	Low	Low
1FW-0192	SG 1-01 FW PREHTR BYP ORC CHK VLV	Low	Low
1FW-0193	SG 1-02 FW PREHTR BYP ORC CHK VLV	Low	Low
1FW-0194	SG 1-03 FW PREHTR BYP ORC CHK VLV	Low	Low
1FW-0195	SG 1-04 FW PREHTR BYP IRC CHK VLV	No Change	Low
1FW-0196	SG 1-01 FW PREHTR BYP IRC CHK VLV	No Change	Low
1FW-0197	SG 1-02 FW PREHTR BYP IRC CHK VLV	No Change	Low
1FW-0198	SG 1-03 FW PREHTR BYP IRC CHK VLV	No Change	Low
1FW-0199	SG 1-04 AFW NZL CHK VLV	No Change	Low
1FW-0200	SG 1-01 AFW NZL CHK VLV	No Change	Low
1FW-0201	SG 1-02 AFW NZL CHK VLV	No Change	Low
1FW-0202	SG 1-03 AFW NZL CHK VLV	No Change	Low
1MS-0021	SG 1-01 SFTY VLV 0021	Low	Low
1MS-0022	SG 1-01 SFTY VLV 0022	Low	Low
1MS-0023	SG 1-01 SFTY VLV 0023	Low	Low
1MS-0024	SG 1-01 SFTY VLV 0024	Low	Low
1MS-0025	SG 1-01 SFTY VLV 0025	Low	Low
1MS-0026	SG 1-01 ATMOS RLF VLV UPSTRM ISOL VLV	No Change	Low
1MS-0058	SG 1-02 SFTY VLV 0058	Low	Low
1MS-0059	SG 1-02 SFTY VLV 0059	Low	Low
1MS-0060	SG 1-02 SFTY VLV 0060	Low	Low
1MS-0061	SG 1-02 SFTY VLV 0061	Low	Low
1MS-0062	SG 1-02 SFTY VLV 0062	Low	Low
1MS-0063	SG 1-02 ATMOS RLF VLV UPSTRM ISOL VLV	No Change	Low
1MS-0093	SG 1-03 SFTY VLV 0093	Low	Low

Table 4.4-3
Results of Expert Panel Evaluation of IPE/IST Components and the Final Ranking of All IST Components

Sorted By Tag			
Component Tag Number	**Component Description**	**Ranking Changes Due To Expert Panel**	**Final Ranking Based On IST Study**
1MS-0094	SG 1-03 SFTY VLV 0094	Low	Low
1MS-0095	SG 1-03 SFTY VLV 0095	Low	Low
1MS-0096	SG 1-03 SFTY VLV 0096	Low	Low
1MS-0097	SG 1-03 SFTY VLV 0097	Low	Low
1MS-0098	SG 1-03 ATMOS RLF VLV UPSTRM ISOL VLV	No Change	Low
1MS-0129	SG 1-04 SFTY VLV 0129	Low	Low
1MS-0130	SG 1-04 SFTY VLV 0130	Low	Low
1MS-0131	SG 1-04 SFTY VLV 0131	Low	Low
1MS-0132	SG 1-04 SFTY VLV 0132	Low	Low
1MS-0133	SG 1-04 SFTY VLV 0133	Low	Low
1MS-0134	SG 1-04 ATMOS RLF VLV UPSTRM ISOL VLV	No Change	Low
1MS-0142	MSL 1-04 TO AFWPT SPLY VLV DNSTRM CHK VLV	No Change	Low
1MS-0143	MSL 1-01 TO AFWPT SPLY VLV DNSTRM CHK VLV	No Change	Low
1MS-0680	SG 1-01 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No Change	Low
1MS-0681	SG 1-01 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No Change	Low
1MS-0682	SG 1-02 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No Change	Low
1MS-0683	SG 1-02 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No Change	Low
1MS-0684	SG 1-03 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No Change	Low
1MS-0685	SG 1-03 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No Change	Low
1MS-0686	SG 1-04 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	No Change	Low
1MS-0687	SG 1-04 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	No Change	Low
1RC-0036	RMUW TO PRT 1-01/CNTMT ORC RLF VLV	Low	Low
1SF-0011	U1 REFUEL CAV PURIF LOOP HDR UPSTRM ISOL VLV	Low	Low
1SF-0012	U1 REFUEL CAV PURIF LOOP HDR DNSTRM ISOL VLV	Low	Low
1SF-0021	U1 REFUEL CAV DRN TO REFUEL WTR PURIF PMP HDR UPSTRM ISOL VLV	Low	Low
1SF-0022	U1 REFUEL CAV DRN TO REFUEL WTR PURIF PMP HDR DNSTRM ISOL VLV	Low	Low
1SF-0053	REFUEL CAV SKM PMP 1-01 IRC DISCH VLV	Low	Low
1SF-0054	REFUEL CAV SKM PMP 1-01 ORC DISCH VLV	Low	Low
1SI-0047	RWST 1-01 TO SI ISOL VLV	No Change	High
1SI-0166	PRZR 1-01 PORV 0455A N2 ACCUM 1-02 UPSTRM IN CHK VLV	High	High
1SI-0167	PRZR 1-01 PORV 0455A N2 ACCUM 1-02 DNSTRM IN CHK VLV	High	High
1SI-0168	PRZR 1-01 PORV 0456 N2 ACCUM 1-01 UPSTRM IN CHK VLV	High	High
1SI-0169	PRZR 1-01 PORV 0456 N2 ACCUM 1-01 DNSTRM IN CHK VLV	High	High
1SI-0182	BONNET RELIEF VALVE FOR CONTAINMENT ISOLATION VALVE 1-8811A	High	High
1SI-0183	BONNET RELIEF VALVE FOR CONTAINMENT ISOLATION VALVE 1-8811B	High	High
1SI-8819A	SI TO CL 1-01 CHK VLV	No Change	High
1SI-8819B	SI TO CL 1-02 CHK VLV	No Change	High
1SI-8819C	SI TO CL 1-03 CHK VLV	No Change	High
1SI-8819D	SI TO CL 1-04 CHK VLV	No Change	High
1SI-8900A	CCP 1-01/1-02 TO CL 1-01 CHK VLV	No Change	Low
1SI-8900B	CCP 1-01/1-02 TO CL 1-02 CHK VLV	No Change	Low
1SI-8900C	CCP 1-01/1-02 TO CL 1-03 CHK VLV	No Change	Low
1SI-8900D	CCP 1-01/1-02 TO CL 1-04 CHK VLV	No Change	Low
1SI-8905A	SI TO HL 1-01 INJ UPSTRM CHK VLV	No Change	Low
1SI-8905B	SI TO HL 1-02 INJ UPSTRM CHK VLV	No Change	Low
1SI-8905C	SI TO HL 1-03 INJ UPSTRM CHK VLV	No Change	Low
1SI-8905D	SI TO HL 1-04 INJ UPSTRM CHK VLV	No Change	Low
1SI-8919A	SI PMP 1-01 TO RWST CHK VLV	No Change	Low
1SI-8919B	SI PMP 1-02 TO RWST CHK VLV	No Change	Low
1SI-8968	SI N2 SPLY HDR 1-01/1-02 CHK VLV	Low	Low

Table 4.4-3

Results of Expert Panel Evaluation of IPE/IST Components and the Final Ranking of All IST Components

Sorted By Tag			
Component Tag Number	**Component Description**	**Ranking Changes Due To Expert Panel**	**Final Ranking Based On IST Study**
1SI-8972	U1 SI TST HDR RLF VLV	Low	Low
1SW-0016	U1 SSW TRN B SPLY HDR IN CHK VLV	No Change	Low
1SW-0017	U1 SSW TRN A SPLY HDR IN CHK VLV	No Change	Low
1SW-0373	SSW PMP 1-02 DISCH CHK VLV	No Change	High
1SW-0374	SSW PMP 1-01 DISCH CHK VLV	No Change	High
1VD-0907	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR PRESS RLF VLV	Low	Low
1WP-7176	LWPS RCDT 1-01 DRN HDR RLF VLV	Low	Low
1WP-7177	RC PASS SMPL RET TO RCDT 1-01 RLF VLV	Low	Low
CP1-AFAPMD-01	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-01	No Change	High
CP1-AFAPMD-02	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-02	No Change	High
CP1-AFAPTD-01	TURBINE DRIVEN AUXILIARY FEEDWATER PUMP 1-01	No Change	High
CP1-CCAPCC-01	COMPONENT COOLING WATER PUMP 1-01	No Change	High
CP1-CCAPCC-02	COMPONENT COOLING WATER PUMP 1-02	No Change	High
CP1-CHAPCP-05	SAFETY CHILLED WATER RECIRC PUMP 1-05	No Change	High
CP1-CHAPCP-06	SAFETY CHILLED WATER RECIRC PUMP 1-06	No Change	High
CP1-CTAPCS-01	CONTAINMENT SPRAY PUMP 1-01	No Change	High
CP1-CTAPCS-02	CONTAINMENT SPRAY PUMP 1-02	No Change	High
CP1-CTAPCS-03	CONTAINMENT SPRAY PUMP 1-03	No Change	High
CP1-CTAPCS-04	CONTAINMENT SPRAY PUMP 1-04	No Change	High
CP1-DDAPRM-01	REACTOR MAKEUP WATER PUMP 1-01	Low	Low
CP1-DOAPFT-01	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-01	Decreased	Low
CP1-DOAPFT-02	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-02	Decreased	Low
CP1-DOAPFT-03	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-03	Decreased	Low
CP1-DOAPFT-04	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-04	Decreased	Low
CP1-SWAPSW-01	STATION SERVICE WATER PUMP 1-01	No Change	High
CP1-SWAPSW-02	STATION SERVICE WATER PUMP 1-02	No Change	High
CP1-WPAPSS-01	SAFEGUARD BUILDING SUMP 1-01 PUMP 1-01	Low	Low
CP1-WPAPSS-02	SAFEGUARD BUILDING SUMP 1-01 PUMP 1-02	Low	Low
CP1-WPAPSS-03	SAFEGUARD BUILDING SUMP 1-02 PUMP 1-03	Low	Low
CP1-WPAPSS-04	SAFEGUARD BUILDING SUMP 1-02 PUMP 1-04	Low	Low
CPX-DDAPRM-01	REACTOR MAKEUP WATER PUMP X-01	Low	Low
CPX-SFAPSF-01	SPENT FUEL POOL COOLING WATER PUMP X-01	Low	Low
CPX-SFAPSF-02	SPENT FUEL POOL COOLING WATER PUMP X-02	Low	Low
CTVBCA-01	CHEMICAL ADDITIVE TANK VENTPATH	Low	Low
CTVBCA-02	CHEMICAL ADDITIVE TANK VENTPATH	Low	Low
SWVAVB-01	VENT PATH FORWATER HAMMER PROTECTION	High	High
SWVAVB-02	VENT PATH FORWATER HAMMER PROTECTION	High	High
SWVAVB-03	VENT PATH FORWATER HAMMER PROTECTION	High	High
SWVAVB-04	VENT PATH FORWATER HAMMER PROTECTION	High	High
TBX-CSAPBA-01	BORIC ACID TRANSFER PUMP 1-01	No Change	High
TBX-CSAPBA-02	BORIC ACID TRANSFER PUMP 1-02	No Change	High
TBX-CSAPCH-01	CENTRIFUGAL CHARGING PUMP 1-01	No Change	High
TBX-CSAPCH-02	CENTRIFUGAL CHARGING PUMP 1-02	No Change	High
TBX-RHAPRH-01	RESIDUAL HEAT REMOVAL PUMP 1-01	No Change	High
TBX-RHAPRH-02	RESIDUAL HEAT REMOVAL PUMP 1-02	No Change	High
TBX-SIAPSI-01	SAFETY INJECTION PUMP 1-01	No Change	High
TBX-SIAPSI-02	SAFETY INJECTION PUMP 1-02	No Change	High
VD-0003	SFGD BLDG SMP 1-01 PMP 1-01 DISCH CHK VLV	Low	Low
VD-0004	SFGD BLDG SMP 1-01 PMP 1-02 DISCH CHK VLV	Low	Low
VD-0011	SFGD BLDG SMP 1-02 PMP 1-03 DISCH CHK VLV	Low	Low

Table 4.4-3

Results of Expert Panel Evaluation of IPE/IST Components and the Final Ranking of All IST Components

Sorted By Tag			
Component Tag Number	**Component Description**	**Ranking Changes Due To Expert Panel**	**Final Ranking Based On IST Study**
VD-0012	SFGD BLDG SMP 1-02 PMP 1-04 DISCH CHK VLV	Low	Low
X-PCV-H116A	UPS A\C UNIT X-01 CCW RET PCV	No Change	High
X-PCV-H116B	UPS A\C UNIT X-02 CCW RET PCV	No Change	High
X-PV-3583	CR A\C UNIT X-01 CCW RET PCV	No Change	Low
X-PV-3584	CTRL RM A\C UNIT X-02 REFRIG CNDSR CCW RET PRESS CTRL VLV	Low	Low
X-PV-3585	CR A\C UNIT X-03 CCW RET PCV	No Change	Low
X-PV-3586	CTRL RM A\C UNIT X-04 REFRIG CNDSR CCW RET PRESS CTRL VLV	Low	Low
XCS-0037	BA PMP 1-01 MINIFLO CHK VLV	Low	Low
XCS-0039	BA PMP 2-01 MINIFLO CHK VLV	Low	Low
XCS-0041	BA PMP 1-02 MINIFLO CHK VLV	Low	Low
XCS-0044	BA PMP 2-02 MINIFLO CHK VLV	Low	Low
XDD-0044	RMUW PMP X-01 MINIFLO RECIRC CHK VLV	Low	Low
XDD-0048	RMUW PMP X-01 DISCH CHK VLV	Low	Low
XDD-0103	RMUW PMP 2-01 TO RMUW HDR ISOL VLV	Low	Low
XSF-0003	SFP CLG WTR PMP X-01 DISCH CHK VLV	Low	Low
XSF-0004	SFP CLG WTR PMP X-02 DISCH CHK VLV	Low	Low
XSF-0160	U1 RMUW TO SFPCS CHK VLV	Low	Low
XSF-0161	U1 RMUW TO SFPCS ISOL VLV	Low	Low
XSF-0179	U2 RMUW TO SFPCS ISOL VLV	Low	Low
XSF-0180	U2 RMUW TO SFPCS CHK VLV	Low	Low

Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan											
Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 0	CP1-AFAPMD-01 (1)	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-01	0.0282	2.8296	High	No change	No change	No change	No change	High	No Change	High
Table 0	CP1-AFAPMD-02	MOTOR DRIVEN AUXILIARY FEEDWATER PUMP 1-02	0.0394	3.3020	High	No change	No change	No change	No change	High	No Change	High
Table 0	CP1-AFAPTD-01	TURBINE DRIVEN AUXILIARY FEEDWATER PUMP 1-01	0.2351	12.9035	High	No change	No change	No change	No change	High	No Change	High
Table 0	CP1-CCAPCC-01	COMPONENT COOLING WATER PUMP 1 01	0.0366	4.8323	High	No change	No change	No change	No change	High	No Change	High
Table 0	CP1-CCAPCC-02	COMPONENT COOLING WATER PUMP 1 02	0.0303	38.5384	High	No change	No change	No change	No change	High	No Change	High
Table 0	CP1-CHAPCP-05	SAFETY CHILLED WATER RECIRC PUMP 1-05	0.0060	1.7278	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 0	CP1-CHAPCP-06 (2)(4	SAFETY CHILLED WATER RECIRC PUMP 1-06	0.0003	1.3459	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 0	CP1-CTAPCS-01	CONTAINMENT SPRAY PUMP 1-01	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	High
Table 0	CP1-CTAPCS-02	CONTAINMENT SPRAY PUMP 1-02	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	High
Table 0	CP1-CTAPCS-03	CONTAINMENT SPRAY PUMP 1-03	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	High
Table 0	CP1-CTAPCS-04	CONTAINMENT SPRAY PUMP 1-04	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	High
Table 0	CP1-DDAPRM-01	REACTOR MAKEUP WATER PUMP 1-01	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 0	CP1-DOAPFT-01	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-01	0.0478	140.0000	High	No change	No change	No change	No change	None	Decreased	Low
Table 0	CP1-DOAPFT-02	DIESEL GENERATOR 1-01 FUEL OIL TRANSFER PUMP 1-02	0.0478	140.0000	High	No change	No change	No change	No change	None	Decreased	Low
Table 0	CP1-DOAPFT-03	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-03	0.0478	140.0000	High	No change	No change	No change	No change	None	Decreased	Low
Table 0	CP1-DOAPFT-04	DIESEL GENERATOR 1-02 FUEL OIL TRANSFER PUMP 1-04	0.0478	140.0000	High	No change	No change	No change	No change	None	Decreased	Low
Table 0	CP1-SWAPSW-01	STATION SERVICE WATER PUMP 1-01	0.0969	77.6709	High	No change	No change	No change	No change	High	No Change	High
Table 0	CP1-SWAPSW-02 (1)	STATION SERVICE WATER PUMP 1-02	0.0386	107.0000	High	No change	No change	No change	No change	High	No Change	High
Table 0	CP1-WPAPSS-01	SAFEGUARD BUILDING SUMP 1-01 PUMP 1-01	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 0	CP1-WPAPSS-02	SAFEGUARD BUILDING SUMP 1-01 PUMP 1-02	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 0	CP1-WPAPSS-03	SAFEGUARD BUILDING SUMP 1-02 PUMP 1-03	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 0	CP1-WPAPSS-04	SAFEGUARD BUILDING SUMP 1-02 PUMP 1-04	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 0	CPX-DDAPRM-01	REACTOR MAKEUP WATER PUMP X-01	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 0	CPX-SFAPSF-01	SPENT FUEL POOL COOLING WATER PUMP X-01	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 0	CPX-SFAPSF-02	SPENT FUEL POOL COOLING WATER PUMP X-02	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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** The initial IPE ranking based on FV reflect the rankings of the symmetry evaluation

Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan													
Table Number	**Component Tag Number**	**Component Description**	**Fussell-Vesely ***	**Risk Achievement Worth ***	**Initial IPE Ranking Based on FV ****	**IPEEE Fire & Tornado FV Ranking Changes**	**Outage Risk Ranking Changes**	**Large, Early Release FV Ranking Changes**	**Seismic Risk Ranking Changes**	**CDF Ranking Changes w/out CCF**	**Ranking Changes Due To Expert Panel Review**	**Final Ranking Based On IST Study**
Table 0	TBX-CSAPBA-01	BORIC ACID TRANSFER PUMP 1-01	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	High
Table 0	TBX-CSAPBA-02	BORIC ACID TRANSFER PUMP 1-02	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	High
Table 0	TBX-CSAPCH-01 (1)	CENTRIFUGAL CHARGING PUMP 1-01	0.0125	1.5301	High	No change	No change	No change	No change	High	No Change	High
Table 0	TBX-CSAPCH-02	CENTRIFUGAL CHARGING PUMP 1-02	0.0271	2.1861	High	No change	No change	No change	No change	High	No Change	High
Table 0	TBX-RHAPRH-01 (1)	RESIDUAL HEAT REMOVAL PUMP 1-01	0.0050	1.3468	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 0	TBX-RHAPRH-02	RESIDUAL HEAT REMOVAL PUMP 1-02	0.0088	1.6201	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 0	TBX-SIAPSI-01 (1)	SAFETY INJECTION PUMP 1-01	0.0146	1.2559	High	No change	No change	No change	No change	High	No Change	High
Table 0	TBX-SIAPSI-02	SAFETY INJECTION PUMP 1-02	0.0257	1.4509	High	No change	No change	No change	No change	High	No Change	High

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Summary of Risk Ranking Results for IST Components

Sorted By IST Plan												
Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 1	1-FV-2456	MD AFW PMP 1-01 TO CST RECIRC FLO VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1-FV-2457	MD AFW PMP 1-02 TO CST RECIRC FLO VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1-HV-2459	TD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	n/a	n/a	None	No change	Low	No change	No change	n/a	No Change	Low
Table 1	1-HV-2460	TD AFW PMP 1-01 DISCH TO SG 1-02 FCV	n/a	n/a	None	No change	Low	No change	No change	n/a	No Change	Low
Table 1	1-HV-2461 (1)	TD AFW PMP 1-01 DISCH TO SG 1-03 FLO CTRL VLV	n/a	n/a	None	No change	Low	No change	No change	None	No Change	Low
Table 1	1-HV-2462	TD AFW PMP 1-01 DISCH TO SG 1-04 FLO CTRL VLV	0.0000	1.9356	None	No change	Low	No change	No change	None	No Change	Low
Table 1	1-HV-2480	MD AFW PMP 1-01 SSW SUCT ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1-HV-2481	MD AFW PMP 1-02 SSW SUCT ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1-HV-2482	TD AFW PMP 1-01 SSW SUCT ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1-HV-2484	CST 1-01 DISCH VLV 2484	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1-HV-2485	CST 1-01 DISCH VLV 2485	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1-HV-2491A	TD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1-HV-2491B	MD AFW PMP 1-01 DISCH TO SG 1-01 ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1-HV-2492A	TD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1-HV-2492B	MD AFW PMP 1-01 DISCH TO SG 1-02 ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1-HV-2493A	MD AFW PMP 1-02 DISCH TO SG 1-03 ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1-HV-2493B	TD AFW PMP 1-01 DISCH TO SG 1-03 ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1-HV-2494A	MD AFW PMP 1-02 DISCH TO SG 1-04 ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1-HV-2494B	TD AFW PMP 1-01 DISCH TO SG 1-04 ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1-LV-2478	DEMIN WTR TO CST 1-01 MU VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1-PV-2453A	MD AFW PMP 1-01 DISCH TO SG 1-01 FLO CTRL VLV	n/a	n/a	None	No change	Low	No change	No change	n/a	No Change	Low
Table 1	1-PV-2453B	MD AFW PMP 1-01 DISCH TO SG 1-02 CTRL VLV	n/a	n/a	None	No change	Low	No change	No change	n/a	No Change	Low
Table 1	1-PV-2454A (1)	MD AFW PMP 1-02 DISCH TO SG 1-03 CTRL VLV	n/a	n/a	None	No change	Low	No change	No change	None	No Change	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan											
Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 1	1-PV-2454B	MD AFW PMP 1-02 DISCH TO SG 1-04 CTRL VLV	0.0000	2.8715	None	No change	Low	No change	No change	None	No Change	Low
Table 1	1AF-0009	DEMIN WTR TO CST 1-01 MU LN CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1AF-0014	CST TO MD AFW PMP 1-01 SUCT CHK VLV	0.0003	2.0232	Low	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0024	CST TO MD AFW PMP 1-02 SUCT CHK VLV	0.0004	2.4741	Low	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0032	CST 1-01 TO TD AFW PMP CHK VLV	0.0003	2.0581	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0038	TD AFW PMP 1-01 DISCH CHK VLV	0.0003	2.0581	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0041	TD AFW PMP 1-01 DISCH ISOL VLV	0.0002	2.0562	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0042	TD AFW PMP 1-01 DISCH TST ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1AF-0045	TD AFW PMP 1-01 DISCH RECIRC CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1AF-0051	MD AFW PMP 1-02 DISCH CHK VLV	0.0004	2.4741	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0054	MD AFW PMP 1-02 DISCH ISOL VLV	0.0003	2.4741	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0055	MD AFW PMP 1-02 DISCH TST ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1AF-0057	MD AFW PMP 1-02 DISCH RECIRC CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1AF-0065 (1)	MD AFW PMP 1-01 DISCH CHK VLV	0.0003	2.0232	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0066 (1)	MD AFW PMP 1-01 DISCH ISOL VLV	0.0002	2.0232	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0067	MD AFW PMP 1-01 DISCH TST ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1AF-0069	MD AFW PMP 1-01 DISCH RECIRC CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1AF-0075	MD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0078	TD AFW PMP 1-01 DISCH TO SG 1-01 CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0083	MD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0086	TD AFW PMP 1-01 DISCH TO SG 1-02 CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0093	MD AFW PMP 1-02 DISCH TO SG 1-03 CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0098	TD AFW PMP 1-01 DISCH TO SG 1-03 CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0101	MD AFW PMP 1-02 DISCH TO SG 1-04 CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0106	TD AFW PMP 1-01 DISCH TO SG 1-04 CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 1	1AF-0167	U1 AFW PMPS DISCH RECIRC TO CST CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 1	1AF-0215	MD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY UPSTRM CHK VLV	0.0003	1.9358	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0216	MD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY DNSTRM CHK VLV	0.0003	1.9358	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0217	MD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY UPSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0218	MD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY DNSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0219	MD AFW PMP 1-02 FCV TO SG 1-03 AIR SPLY UPSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0220	MD AFW PMP 1-02 FCV TO SG 1-03 AIR SPLY DNSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0221	MD AFW PMP 1-02 FCV TO SG 1-04 AIR SPLY UPSTRM CHK VLV	0.0003	1.9358	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0222	MD AFW PMP 1-02 FCV TO SG 1-04 AIR SPLY DNSTRM CHK VLV	0.0003	1.9358	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0223	TD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY DNSTRM CHK VLV	0.0003	1.9358	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0224	TD AFW PMP 1-01 FCV TO SG 1-01 AIR SPLY UPSTRM CHK VLV	0.0003	1.9358	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0226	TD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY UPSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0227	TD AFW PMP 1-01 FCV TO SG 1-02 AIR SPLY DNSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0228	TD AFW PMP 1-01 FCV TO SG 1-03 AIR SPLY UPSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0229	TD AFW PMP 1-01 FCV TO SG 1-03 AIR SPLY DNSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 1	1AF-0230	TD AFW PMP 1-01 FCV TO SG 1-04 AIR SPLY UPSTRM CHK VLV	0.0003	1.9358	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0231	TD AFW PMP 1-01 FCV TO SG 1-04 AIR SPLY DNSTRM CHK VLV	0.0003	1.9358	Low	No change	No change	No change	No change	Low	No Change	Low
Table 1	1AF-0232	AFWPT 1-01 STM SPLY VLV 2452-1 AIR SPLY DNSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1AF-0233	AFWPT 1-01 STM SPLY VLV 2452-1 AIR SPLY UPSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1AF-0234	AFWPT 1-04 STM SPLY VLV 2452-2 AIR SPLY DNSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 1	1AF-0235	AFWPT 1-01 STM SPLY VLV 2452-2 AIR SPLY UPSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 2	1-FV-4536	CCW PMP 1-01 RECIRC FLO VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 2	1-FV-4537	CCW PMP 1-02 RECIRC FLO VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 2	1-FV-4650A	VENT CHLR U1 CCW SPLY VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1-FV-4650B	VENT CHLR U1 CCW RET VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1-HV-4512 (1)(4)	U1 SFGD LOOP A CCW RET VLV	0.0028	23.7844	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 2	1-HV-4513	U1 SFGD LOOP B CCW RET VLV	0.0018	30.9018	Medium	No change	No change	No change	No change	None	No Change	High
Table 2	1-HV-4514	U1 SFGD LOOP A CCW SPLY VLV	0.0050	23.7844	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 2	1-HV-4515	U1 SFGD LOOP B CCW SPLY VLV	0.0018	30.9018	Medium	No change	No change	No change	No change	None	No Change	High
Table 2	1-HV-4524	U1 NON-SFGD LOOP CCW DNSTRM RET VLV	0.0019	40.9779	Medium	No change	No change	No change	No change	None	No Change	High
Table 2	1-HV-4525	U1 NON-SFGD LOOP CCW UPSTRM RET VLV	0.0019	40.9779	Medium	No change	No change	No change	No change	None	No Change	High
Table 2	1-HV-4526	U1 NON-SFGD LOOP CCW UPSTRM SPLY VLV	0.0019	40.9779	Medium	No change	No change	No change	No change	None	No Change	High
Table 2	1-HV-4527	U1 NON-SFGD LOOP CCW DNSTRM SPLY VLV	0.0019	40.9779	Medium	No change	No change	No change	No change	None	No Change	High
Table 2	1-HV-4572	RHR HX 1-01 CCW RET VLV	0.0045	9.2011	Medium	No change	No change	No change	No change	Low	No Change	High
Table 2	1-HV-4573	RHR HX 1-02 CCW RET VLV	0.0048	9.2781	Medium	No change	No change	No change	No change	Low	No Change	High
Table 2	1-HV-4574	CS HX 1-01 CCW RET VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 2	1-HV-4575	CS HX 1-02 CCW RET VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 2	1-HV-4631A	U1 PSS CCW SPLY HDR ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1-HV-4631B	U1 PSS CCW RET HDR ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1-HV-4696	U1 THBR CLR CCW RET IRC ISOL VLV	0.0000	5.9646	None	No change	No change	No change	No change	None	No Change	Low
Table 2	1-HV-4699	U1 RCP/THBR CLR CCW SPLY ORC UPSTRM ISOL VLV	0.0000	19.2050	None	No change	No change	No change	No change	None	No Change	Low
Table 2	1-HV-4700	U1 RCP/THBR CLR CCW SPLY ORC DNSTRM ISOL VLV	0.0000	19.2050	None	No change	No change	No change	No change	None	No Change	Low
Table 2	1-HV-4701	U1 RCP CLR CCW RET IRC ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 2	1-HV-4708	U1 RCP CLR CCW RET ORC ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 2	1-HV-4709	U1 THBR CLR CCW RET ORC ISOL VLV	0.0000	5.9646	None	No change	No change	No change	No change	None	No Change	Low
Table 2	1-HV-4710	U1 XS LTDN/RCDT HX CCW SPLY ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1-HV-4711	U1 XS LTDN/RCDT HX CCW RET ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1-HV-4725	CNTMT CCW DRN TK 1-02 IRC ISOL VLV	n/a	n/a	None	No change	No change	Medium CIV	No change	n/a	No Change	High
Table 2	1-HV-4726	CNTMT CCW DRN TK 1-02 ORC ISOL VLV	n/a	n/a	None	No change	No change	Medium CIV	No change	n/a	No Change	High
Table 2	1-LV-4500	CCW SRG TK 1-01 MU VLV 4500	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1-LV-4500-1	CCW SRG TK 1-01 RMUW SPLY VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1-LV-4501	CCW SRG TK 1-31 MU VLV 4501	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1-PV-4552 (1)	SFTY CHLR 1-05 CCW RET PCV	n/a	n/a	None	No change	No change	No change	No change	None	No Change	Low
Table 2	1-PV-4553	SFTY CHLR 1-06 CCW RET PCV	0.0000	1.1249	None	No change	No change	No change	No change	None	No Change	Low
Table 2	1CC-0003	CCW SRG TK 1-01 RMUW SPLY CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1CC-0004	CCW SRG TK 1-01 DEMIN WTR SPLY CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1CC-0031	CCW PMP 1-01 DISCH CHK VLV	0.0005	3.0208	Low	No change	No change	No change	No change	Low	No Change	Low
Table 2	1CC-0061 (1)(4)	CCW PMP 1-02 DISCH CHK VLV	0.0000	38.5415	Low	No change	No change	No change	No change	Low	No Change	Low
Table 2	1CC-0611	XS LTDN HX 1-01 CCW SPLY RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1CC-0618	RCDT HX 1-01 CCW SPLY RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1CC-0629	U1 RCP CLR CCW RET HDR CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1CC-0646	RC PMP 1-04 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	0.0000	6.1735	None	No change	No change	No change	No change	None	No Change	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 2	1CC-0657	RC PMP 1-03 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	0.0000	6.1735	None	No change	No change	No change	No change	None	No Change	Low
Table 2	1CC-0687	RC PMP 1-02 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	0.0000	6.1735	None	No change	No change	No change	No change	None	No Change	Low
Table 2	1CC-0694	RC PMP 1-01 THBR CLR CCW SPLY UPSTRM STOP CHK VLV	0.0000	6.1735	None	No change	No change	No change	No change	None	No Change	Low
Table 2	1CC-0713	U1 RCP CLR CCW SPLY HDR CHK VLV	0.0000	19.2052	None	No change	No change	No change	No change	None	No Change	Low
Table 2	1CC-0831	U1 RC PMP THBR CLR CCW RET HDR RLF CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1CC-1067	CNTMT CCW DRN TK 1-02 RET HDR RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	1CC-1075	RC PMP 1-01 THBR CLR CCW SPLY STOP CHK VLV	0.0000	6.1735	None	No change	No change	No change	No change	None	No Change	Low
Table 2	1CC-1076	RC PMP 1-02 THBR CLR CCW SPLY STOP CHK VLV	0.0000	6.1735	None	No change	No change	No change	No change	None	No Change	Low
Table 2	1CC-1077	RC PMP 1-03 THBR CLR CCW SPLY STOP CHK VLV	0.0000	6.1735	None	No change	No change	No change	No change	None	No Change	Low
Table 2	1CC-1078	RC PMP 1-04 THBR CLR CCW SPLY STOP CHK VLV	0.0000	6.1735	None	No change	No change	No change	No change	None	No Change	Low
Table 2	1CC-1079	CIRCLE SEAL CHECK VALVE 1/2" FNPT	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 2	1CC-1080	CIRCLE SEAL CHECK VALVE 1/2" FNPT	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 2	1CC-1081	CIRCLE SEAL CHECK VALVE 1/2" FNPT	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 2	1CC-1082	CIRCEL SEAL CHECK VALVE 1/2 FNPT	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 2	X-PCV-H116A (1)(4)	UPS A\C UNIT X-01 CCW RET PCV	0.0000	1.0132	Low	Medium	No change	Medium	No change	Low	No Change	High

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan												
Table Number	**Component Tag Number**	**Component Description**	**Fussell-Vesely ***	**Risk Achievement Worth ***	**Initial IPE Ranking Based on FV ****	**IPEEE Fire & Tornado FV Ranking Changes**	**Outage Risk Ranking Changes**	**Large, Early Release FV Ranking Changes**	**Seismic Risk Ranking Changes**	**CDF Ranking Changes w/out CCF**	**Ranking Changes Due To Expert Panel Review**	**Final Ranking Based On IST Study**
Table 2	X-PCV-H116B	UPS A\C UNIT X-02 CCW RET PCV	0.0002	1.1610	Low	Medium	No change	Medium	No change	Low	No Change	High
Table 2	X-PV-3583	CR A\C UNIT X-01 CCW RET PCV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 2	X-PV-3584	CTRL RM A\C UNIT X-02 REFRIG CNDSR CCW RET PRESS CTRL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 2	X-PV-3585	CR A\C UNIT X-03 CCW RET PCV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 2	X-PV-3586	CTRL RM A\C UNIT X-04 REFRIG CNDSR CCW RET PRESS CTRL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan												
Table Number	**Component Tag Number**	**Component Description**	**Fussell-Vesely ***	**Risk Achievement Worth ***	**Initial IPE Ranking Based on FV ****	**IPEEE Fire & Tornado FV Ranking Changes**	**Outage Risk Ranking Changes**	**Large, Early Release FV Ranking Changes**	**Seismic Risk Ranking Changes**	**CDF Ranking Changes w/out CCF**	**Ranking Changes Due To Expert Panel Review**	**Final Ranking Based On IST Study**
Table 3	1-HV-6720	SFTY CH WTR SRG TK 1-01 RMUW SPLY VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 3	1CH-0300	SFTY CH WTR SRG TK 1-01 DEMIN WTR SPLY CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 3	1CH-0301	SFTY CH WTR SRG TK 1-01 DEMIN WTR SPLY CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 3	1CH-0302	SFTY CH WTR SRG TK 1-01 MU LVL VLV 6712 BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 3	1CH-0305	SFTY CH WTR SRG TK 1-01 MU LVL VLV 6713 BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

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Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 4	1-8100	U1 Rcp SI Wtr Ret Isol Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1-8104	U1 Emer Borate Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1-8105	U1 Chrg Pmp To RCS Cntmt Isol Vlv	0.0002	1.7840	Low	No change	No change	No change	No change	None	No Change	Low
Table 4	1-8106	U1 Chrg Pmp To RCS Cntmt Isol Vlv	0.0002	1.7840	Low	No change	No change	No change	No change	None	No Change	Low
Table 4	1-8109	PD CHRG PMP 1-01 RECIRC VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-8110 (1)(4)	Ccp 1-01/1-02 Dnstrm Miniflow Vlv	0.0002	1.7840	Low	Medium	No change	No change	No change	Low	No Change	High
Table 4	1-8111	Ccp 1-01/1-02 Upstrm Miniflow Vlv	0.0009	1.9458	Low	Medium	No change	No change	No change	Low	No Change	High
Table 4	1-8112	U1 RC Pmp Seal Wtr Ret Isol Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1-8145	U1 Przr Aux Spr Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1-8146	U1 RCS Loop 4 Chrg Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1-8147	U1 RCS LOOP 1 CHRG VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-8152	U1 LTDN CNTMT ORC ISOL VLV	n/a	n/a	None	No change	No change	Medium CIV	No change	n/a	No Change	High
Table 4	1-8153	U1 XS LTDN ISOL VLV 8153	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-8154	U1 XS LTDN ISOL VLV 8154	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-8160	U1 LTDN CNTMT IRC ISOL VLV	n/a	n/a	None	No change	No change	Medium CIV	No change	n/a	No Change	High
Table 4	1-8202A	PD CHRG PMP 1-01 SUCT STAB DNSTRM VNT VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-8202B	PD CHRG PMP 1-01 SUCT STAB UPSTRM VNT VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-8210A	PD CHRG PMP 1-01 SUCT STAB H2/N2 SPLY VLV 8210A	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-8210B	PD CHRG PMP 1-01 SUCT STAB H2/N2 SPLY VLV 8210B	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-8351A	RC Pmp 1-01 SI Wtr Inj Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1-8351B	RC Pmp 1-02 SI Wtr Inj Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1-8351C	RC Pmp 1-03 SI Wtr Inj Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low

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Table Number	**Component Tag Number**	**Component Description**	**Fussell-Vesely ***	**Risk Achievement Worth ***	**Initial IPE Ranking Based on FV ****	**IPEEE Fire & Tornado FV Ranking Changes**	**Outage Risk Ranking Changes**	**Large, Early Release FV Ranking Changes**	**Seismic Risk Ranking Changes**	**CDF Ranking Changes w/out CCF**	**Ranking Changes Due To Expert Panel Review**	**Final Ranking Based On IST Study**
Table 4	1-8351D	RC Pmp 1-04 SI Wtr Inj Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1-8378A	RCS Loop 1-04 Chrg Dnstrm Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1-8378B	RCS Loop 1-04 Chrg Upstrm Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1-8379A	RCS LOOP 1-01 CHRG LN DNSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-8379B	RCS LOOP 1-01 CHRG LN UPSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-8381	Chrg Ln Irc Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1-8481A (1)	Ccp 1-01 Disch Chk Vlv	0.0001	1.5050	Low	No change	No change	No change	No change	Low	No Change	Low
Table 4	1-8481B	Ccp 1-02 Disch Chk Vlv	0.0003	2.0913	Low	No change	No change	No change	No change	Low	No Change	Low
Table 4	1-8497	Pd Pmp 1-01 Disch Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1-8510A	CCP 1-01 ALT MINIFLO RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-8510B	CCP 1-02 ALT MINIFLO RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-8511A	Ccp 1-01 Alt Miniflo Isol Vlv	0.0012	4.8723	Medium	No change	No change	No change	No change	None	No Change	High
Table 4	1-8511B	Ccp 1-02 Alt Miniflo Isol Vlv	0.0012	4.8723	Medium	No change	No change	No change	No change	None	No Change	High
Table 4	1-8512A	Ccp 1-02 Alt Miniflo Isol Vlv	0.0012	4.8723	Medium	No change	No change	No change	No change	None	No Change	High
Table 4	1-8512B	Ccp 1-01 Alt Miniflo Isol Vlv	0.0012	4.8723	Medium	No change	No change	No change	No change	None	No Change	High
Table 4	1-8546	Rwst 1-01 To Chrg Pmp Suct Chk Vlv	0.0002	1.7840	Low	Medium	No change	Medium	No change	Low	No Change	High
Table 4	1-FCV-0110B	U1 RCS MU TO CHRG PMP FLO CTRL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-FCV-0111A	RMUW TO CVCS BA BLNDR 1-01 FLO CTRL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-FCV-0111B	RCS MU TO VCT 1-01 ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1-HV-8220	U1 CHARGE PMP SUCT HI PNT VNT VLV 8220	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1-HV-8221	U1 CHARGE PMP HI PNT VNT VLV 8221	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1-LCV-0112B (1)(4)	VCT 1-01 TO CHRG PMP SUCT VLV 0112B	0.0002	1.7841	Low	Medium	No change	No change	No change	Low	Increased	High

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan												
Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 4	1-LCV-0112C	VCT 1-01 TO CHRG PMP SUCT VLV 0112C	0.0009	1.9459	Low	Medium	No change	No change	No change	Low	Increased	High
Table 4	1-LCV-0112D (1)(4)	RWST 1-01 TO CHRG PMP SUCT VLV 0112D	0.0002	1.7841	Low	Medium	No change	No change	No change	Low	Increased	High
Table 4	1-LCV-0112E	RWST 1-01 TO CHRG PMP SUCT VLV 0112E	0.0009	1.9459	Low	Medium	No change	No change	No change	Low	Increased	High
Table 4	1-LCV-0459	U1 LTDN ISOL VLV 0459	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 4	1-LCV-0460	U1 LTDN ISOL VLV 0460	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 4	1CS-8180	U1 IRC SL WTR RET CNMT ISOL BYP CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8350A	RC PMP 1-01 SL WTR INJ CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8350B	RC PMP 1-02 SL WTR INJ CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8350C	RC PMP 1-03 SL WTR INJ CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8350D	RC PMP 1-04 SL WTR INJ CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8367A	RC PMP 1-01 SL INJ IMB CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8367B	RC PMP 1-02 SL INJ IMB CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8367C	RC PMP 1-03 SL INJ IMB CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8367D	RC PMP 1-04 SL INJ IMB CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8368A	RC PMP 1-01 SL INJ IRC CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8368B	RC PMP 1-02 SL INJ IRC CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8368C	RC PMP 1-03 SL INJ IRC CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8368D	RC PMP 1-04 SL INJ IRC CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8377	U1 RCS AUX SPR LN TO PRZR 1-01 CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1CS-8442	U1 EMER BORATE LN CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8473	BA PMP 1-02 DISCH CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 4	1CS-8480A	CCP 1-01 RECIRC CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1CS-8480B	CCP 1-02 RECIRC CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	1CS-8487	BA PMP 1-01 DISCH CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan												
Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 4	XCS-0037	BA PMP 1-01 MINIFLO CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	XCS-0039	BA PMP 2-01 MINIFLO CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	XCS-0041	BA PMP 1-02 MINIFLO CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 4	XCS-0044	BA PMP 2-02 MINIFLO CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 5	1-FV-4772-1	Cs Pmp 1-01 Recirc Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 5	1-FV-4772-2	Cs Pmp 1-03 Recirc Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 5	1-FV-4773-1	Cs Pmp 1-02 Recirc Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 5	1-FV-4773-2	Cs Pmp 1-04 Recirc Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 5	1-HV-4758	RWST TO CS PMP 1-01/1-03 SUCT VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 5	1-HV-4759	RWST TO CS PMP 1-02/1-04 SUCT VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 5	1-HV-4776	CS HX 1-01 OUT VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 5	1-HV-4777	CS HX 1-02 OUT VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 5	1-HV-4782	CNTMT SMP TO CS PMP 1-01/1-03 SUCT ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 5	1-HV-4783	CNTMT SMP TO CS PMP 1-02/1-04 SUCT ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 5	1-LV-4754	CS CHEM ADD TK 1-01 DISCH VLV 4754	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 5	1-LV-4755	CS CHEM ADD TK 1-01 DISCH VLV 4755	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 5	1CT-0013	CS PMP 1-04 DISCH CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	Low	Low
Table 5	1CT-0020	CS PMP 1-04 EDUCT SUCT CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 5	1CT-0025	RWST TO CS PMP 1-02/1-04 SUCT CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	Low	Low
Table 5	1CT-0031	CS PMP 1-02 EDUCT SUCT CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 5	1CT-0042	CS PMP 1-02 DISCH CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	Low	Low
Table 5	1CT-0047	CS PMP 1-04 MINIFLO LN CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	Low	Low
Table 5	1CT-0048	CS PMP 1-02 MINIFLO LN CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	Low	Low
Table 5	1CT-0063	CS PMP 1-03 MINIFLO LN CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	Low	Low
Table 5	1CT-0064	CS PMP 1-01 MINIFLO LN CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	Low	Low
Table 5	1CT-0065	CS PMP 1-03 DISCH CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 5	1CT-0072	CS PMP 1-03 EDUCT SUCT CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 5	1CT-0077	RWST TO CSP 1-01/1-03 SUCT CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	Low	Low
Table 5	1CT-0082	CS PMP 1-01 EDUCT SUCT CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 5	1CT-0094	CS PMP 1-01 DISCH CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	Low	Low
Table 5	1CT-0142	U1 CS TRN A HDR IRC CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	Low	Low
Table 5	1CT-0145	U1 CS TRN B HDR IRC CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	Low	Low
Table 5	1CT-0148	CNTMT SMP TO CS PMP 1-02/1-04 CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	Low	Low
Table 5	1CT-0149	CNTMT SMP TO CS PMP 1-01/1-03 CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	Low	Low
Table 5	1CT-0309	CNTMT SMP TO CS PMP 1-01/1-03 SUCT ISOL VLV BONNET RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 5	1CT-0310	CNTMT SMP TO CS PMP 1-02/1-04 SUCT ISOL VLV BONNET RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 5	CTVBCA-01	CHEMICAL ADDITIVE TANK VENTPATH	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 5	CTVBCA-02	CHEMICAL ADDITIVE TANK VENTPATH	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 6	1-HV-5365	U1 CNTMT DEMIN/RMUW SPLY ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 6	1-HV-5366	U1 CNTMT DEMIN/RMUW SPLY IRC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 6	1DD-0006	RMUWST 1-01 IN UPSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 6	1DD-0016	RMUW PMP 1-01 RECIRC CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 6	1DD-0018	RMUW PMP 1-01 DISCH CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 6	1DD-0020	RMUW PMP 1-01 TO RMUW HDR ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 6	1DD-0064	RMUWST 1-01 RET UPSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 6	1DD-0065	RMUWST 1-01 IN DNSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 6	1DD-0066	RMUWST 1-01 RET DNSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 6	1DD-0430	U1 DEMIN/RMUW CNTMT PENET ORC RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 6	XDD-0044	RMUW PMP X-01 MINIFLO RECIRC CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 6	XDD-0048	RMUW PMP X-01 DISCH CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 6	XDD-0103	RMUW PMP 2-01 TO RMUW HDR ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Sorted By IST Plan												
Table 7	1DO-0004	DG 1-01 FO XREF PMP 1-01 DISCH CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 7	1DO-0005	DG 1-01 FO XREF PMP 1-02 DISCH CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 7	1DO-0016	DG 1-02 FO XFER PMP 1-03 DISCH CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 7	1DO-0017	DG 1-02 FO XFER PMP 1-04 DISCH CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 7	1DO-0049 (1)	DG 1-01 FO DAY TK 1-01 XFER HDR CHK VLV	0.0003	1.9795	Low	No change	No change	No change	No change	Low	No Change	Low
Table 7	1DO-0050	DG 1-02 FO DAY TK 1-02 XFER HDR CHK VLV	0.0005	3.0296	Low	No change	No change	No change	No change	Low	No Change	Low
Table 7	1DO-0058	DG 1-01 START AIR RCVR 1-01 IN CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0059	DG 1-01 START AIR RCVR 1-02 IN CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0060	DG 1-02 START AIR RCVR 1-03 IN CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0061	DG 1-02 START AIR RCVR 1-04 IN CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0062	DG 1-01 AIR DRYR 1-02 OUT DNSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0063	DG 1-01 AIR DRYR 1-01 OUT DNSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0064	DG 1-02 AIR DRYR 1-04 OUT DNSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0065	DG 1-02 AIR DRYR 1-03 OUT DNSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0104	DG 1-01 JKT WTR KWP 1-01 DISCH CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0107	DG 1-01 JKT WTR TEMP CTRL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0157	DG 1-01 ENGN L\O PMP 1-01 SUCT CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0158	DG 1-01 AUX L\O PMP 1-02 SUCT CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0204	DG 1-02 JW KWP 1-02 DISCH CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0207	DG 1-02 JW TEMP CTRL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0257	DG 1-02 ENGN L\O PMP 1-03 SUCT CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 7	1DO-0258	DG 1-02 AUX L\O PMP 1-04 SUCT CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Summary of Risk Ranking Results for IST Components

Sorted By IST Plan												
Table Number	**Component Tag Number**	**Component Description**	**Fussell-Vesely ***	**Risk Achievement Worth ***	**Initial IPE Ranking Based on FV ****	**IPEEE Fire & Tornado FV Ranking Changes**	**Outage Risk Ranking Changes**	**Large, Early Release FV Ranking Changes**	**Seismic Risk Ranking Changes**	**CDF Ranking Changes w/out CCF**	**Ranking Changes Due To Expert Panel Review**	**Final Ranking Based On IST Study**
Table 8	1-FV-21[illegible]	SG 1-01 FW SPLIT FLO BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1-FV-218[illegible]	SG 1-02 FW SPLIT FLO BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1-FV-21[illegible]3	SG 1-03 FW SPLIT FLO BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1-FV-2184	SG 1-04 FW SPLIT FLO BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1-FV-2193	SG 1-01 Fw Prehtr Byp Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 8	1-FV-2194	SG 1-02 FW PREHTR BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1-FV-2195	SG 1-03 FW PREHTR BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1-FV-2196	SG 1-04 Fw Prehtr Byp Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 8	1-HV-2134	SG 1-01 FW ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	High	High
Table 8	1-HV-2135	SG 1-02 FW ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	High	High
Table 8	1-HV-2136	SG 1-03 FW ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	High	High
Table 8	1-HV-2137	SG 1-04 FW ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	High	High
Table 8	1-HV-2154	FW LN 1-01 SEC SMPL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1-HV-2155	FW LN 1-02 SEC SMPL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1-HV-2185	SG 1-01 FW ISOL BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1-HV-2186	SG 1-02 FW ISOL BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1-HV-2187	SG 1-03 FW ISOL BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1-HV-2188	SG 1-04 FW ISOL BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1FW-0070	SG 1-03 FW HDR CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 8	1FW-0076	SG 1-02 FW HDR CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan												
Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 8	1FW-0082	SG 1-01 FW HDR CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 8	1FW-0088	SG 1-04 FW HDR CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 8	1FW-0191	SG 1-04 FW PREHTR BYP ORC CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1FW-0192	SG 1-01 FW PREHTR BYP ORC CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1FW-0193	SG 1-02 FW PREHTR BYP ORC CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1FW-0194	SG 1-03 FW PREHTR BYP ORC CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 8	1FW-0195	SG 1-04 FW PREHTR BYP IRC CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 8	1FW-0196	SG 1-01 FW PREHTR BYP IRC CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 8	1FW-0197	SG 1-02 FW PREHTR BYP IRC CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 8	1FW-0198	SG 1-03 FW PREHTR BYP IRC CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 8	1FW-0199	SG 1-04 AFW NZL CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 8	1FW-0200	SG 1-01 AFW NZL CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 8	1FW-0201	SG 1-02 AFW NZL CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 8	1FW-0202	SG 1-03 AFW NZL CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan													
Table Number	**Component Tag Number**	**Component Description**	**Fussell-Vesely ***	**Risk Achievement Worth ***	**Initial IPE Ranking Based on FV ****	**IPEEE Fire & Tornado FV Ranking Changes**	**Outage Risk Ranking Changes**	**Large, Early Release FV Ranking Changes**	**Seismic Risk Ranking Changes**	**CDF Ranking Changes w/out CCF**	**Ranking Changes Due To Expert Panel Review**	**Final Ranking Based On IST Study**
Table 9	1-HV-2333A	MSIV 1-01	0.0004	6.9592	Low	No change	No change	Low SGTR-CIV	No change	None	No Change	Low
Table 9	1-HV-2333B	MSIV 1-01 BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2334A	MSIV 1-02	0.0004	6.9592	Low	No change	No change	Low SGTR-CIV	No change	None	No Change	Low
Table 9	1-HV-2334B	MSIV 1-02 BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2335A	MSIV 1-03	0.0004	6.9592	Low	No change	No change	Low SGTR-CIV	No change	None	No Change	Low
Table 9	1-HV-2335B	MSIV 1-03 BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2336A	MSIV 1-04	0.0004	6.9592	Low	No change	No change	Low SGTR-CIV	No change	None	No Change	Low
Table 9	1-HV-2336B	MSIV 1-04 BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2397	SG 1-01 BLDN ISOL VLV	n/a	n/a	None	No change	No change	Low SGTR-CIV	No change	n/a	No Change	Low
Table 9	1-HV-2397A	SG 1-01 BLDN HELB ISOL VLV	n/a	n/a	None	No change	No change	Low SGTR-CIV	No change	n/a	No Change	Low
Table 9	1-HV-2398	SG 1-02 BLDN ISOL VLV	n/a	n/a	n/a	n/a	n/a	Low SGTR-CIV	No change	n/a	No Change	Low
Table 9	1-HV-2398A	SG 1-02 BLDN HELB ISOL VLV	n/a	n/a	n/a	n/a	n/a	Low SGTR-CIV	No change	n/a	No Change	Low
Table 9	1-HV-2399	SG 1-03 BLDN ISOL VLV	n/a	n/a	n/a	n/a	n/a	Low SGTR-CIV	No change	n/a	No Change	Low
Table 9	1-HV-2399A	SG 1-03 BLDN HELB ISOL VLV	n/a	n/a	n/a	n/a	n/a	Low SGTR-CIV	No change	n/a	No Change	Low
Table 9	1-HV-2400	SG 1-04 BLDN ISOL VLV	n/a	n/a	n/a	n/a	n/a	Low SGTR-CIV	No change	n/a	No Change	Low
Table 9	1-HV-2400A	SG 1-04 BLDN HELB ISOL VLV	n/a	n/a	n/a	n/a	n/a	Low SGTR-CIV	No change	n/a	No Change	Low
Table 9	1-HV-2401A	SG 1-01 DRUM SMPL ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2401B	SG 1-01 BLDN SMPL ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2402A	SG 1-02 DRUM SMPL ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2402B	SG 1-02 BLDN SMPL ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2403A	SG 1-03 DRUM SMPL ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2403B	SG 1-03 BLDN SMPL ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Sorted By IST Plan												
Table 9	1-HV-2404A	SG 1-04 DRUM SMPL ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2404B	SG 1-04 BLDN SMPL ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2405	SG 1-01 SMPL ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2406	SG 1-02 SMPL ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2407	SG 1-03 SMPL ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2408	SG 1-04 SMPL ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1-HV-2409	MSL 1-01 BEF MSIV D\POT 1-25 ISOL VLV	n/a	n/a	None	No change	No change	Low SGTR-CIV	No change	n/a	No Change	Low
Table 9	1-HV-2410	MSL 1-02 BEF MSIV D\POT ISOL VLV	n/a	n/a	None	No change	No change	Low SGTR-CIV	No change	n/a	No Change	Low
Table 9	1-HV-2411	MSL 1-03 BEF MSIV D\POT ISOL VLV	n/a	n/a	None	No change	No change	Low SGTR-CIV	No change	n/a	No Change	Low
Table 9	1-HV-2412	MSL 1-04 BEF MSIV D\POT ISOL VLV	n/a	n/a	None	No change	No change	Low SGTR-CIV	No change	n/a	No Change	Low
Table 9	1-HV-2452-1	MSL 1-01 TO AFWPT STM SPLY VLV	0.0000	1.0083	None	No change	No change	Low SGTR-CIV	No change	None	No Change	Low
Table 9	1-HV-2452-2	MSL 1-04 TO AFWPT STM SPLY VLV	0.0000	1.0083	None	No change	No change	Low SGTR-CIV	No change	None	No Change	Low
Table 9	1-PV-2325	SG 1-01 ATMOS RLF VLV	0.0008	1.0329	Low	Medium	No change	Low SGTR-CIV	No change	Low	No Change	High
Table 9	1-PV-2326	SG 1-02 ATMOS RLF VLV	n/a	n/a	n/a	Medium	No change	Low SGTR-CIV	No change	n/a	No Change	High
Table 9	1-PV-2327	SG 1-02 ATMOS RLF VLV	n/a	n/a	n/a	Medium	No change	Low SGTR-CIV	No change	n/a	No Change	High
Table 9	1-PV-2328	SG 1-04 ATMOS RLF VLV	0.0006	1.0248	Low	Medium	No change	Low SGTR-CIV	No change	Low	No Change	High
Table 9	1MS-0021	SG 1-01 SFTY VLV 0021	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0022	SG 1-01 SFTY VLV 0022	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0023	SG 1-01 SFTY VLV 0023	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0024	SG 1-01 SFTY VLV 0024	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0025	SG 1-01 SFTY VLV 0025	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0026	VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 9	1MS-0058	SG 1-02 SFTY VLV 0058	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0059	SG 1-02 SFTY VLV 0059	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0060	SG 1-02 SFTY VLV 0060	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Sorted By IST Plan												
Table 9	1MS-0061	SG 1-02 SFTY VLV 0061	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0062	SG 1-02 SFTY VLV 0062	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0063	VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 9	1MS-0093	SG 1-03 SFTY VLV 0093	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0094	SG 1-03 SFTY VLV 0094	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0095	SG 1-03 SFTY VLV 0095	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0096	SG 1-03 SFTY VLV 0096	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0097	SG 1-03 SFTY VLV 0097	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0098	SG 1-03 ATMOS RLF VLV UPSTRM ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 9	1MS-0129	SG 1-04 SFTY VLV 0129	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0130	SG 1-04 SFTY VLV 0130	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0131	SG 1-04 SFTY VLV 0131	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0132	SG 1-04 SFTY VLV 0132	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0133	SG 1-04 SFTY VLV 0133	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 9	1MS-0134	VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 9	1MS-0142	CHK VLV	0.0000	1.0083	None	No change	No change	No change	No change	None	No Change	Low
Table 9	1MS-0143	CHK VLV	0.0000	1.0083	None	No change	No change	No change	No change	None	No Change	Low
Table 9	1MS-0680	SG 1-01 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 9	1MS-0681	SG 1-01 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 9	1MS-0682	UPSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 9	1MS-0683	SG 1-02 ATMOS RLF VLV AIR SPLY DNSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 9	1MS-0684	SG 1-03 ATMOS RLF VLV AIR SPLY UPSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 9	1MS-0685	DNSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 9	1MS-0686	UPSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 9	1MS-0687	DNSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan												
Table Number	**Component Tag Number**	**Component Description**	**Fussell-Vesely ***	**Risk Achievement Worth ***	**Initial IPE Ranking Based on FV ****	**IPEEE Fire & Tornado FV Ranking Changes**	**Outage Risk Ranking Changes**	**Large, Early Release FV Ranking Changes**	**Seismic Risk Ranking Changes**	**CDF Ranking Changes w/out CCF**	**Ranking Changes Due To Expert Panel Review**	**Final Ranking Based On IST Study**
Table 10	1-8000A (2)(4)	Przr 1-01 Porv 0455A Blk Vlv	0.0028	1.3049	High	No change	No change	No change	No change	High	No Change	High
Table 10	1-8000B	Przr 1-01 Porv 0456 Blk Vlv	0.0110	2.6299	High	No change	No change	No change	No change	High	No Change	High
Table 10	1-8010A	Przr 1-01 Sfty Vlv A	0.0057	3.8695	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 10	1-8010B	Przr 1-01 Sfty Vlv B	0.0057	3.8695	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 10	1-8010C	Przr 1-01 Sfty Vlv C	0.0057	3.8695	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 10	1-8026	PRT 1-01 VNT IRC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 10	1-8027	PRT 1-01 VNT ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 10	1-8046	RMUW TO PRT 1-01 SPLY IRC CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 10	1-8047	RMUW TO PRT 1-01/CNTMT SPLY ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 10	1-HV-3607	RV 1-01 HEAD UPSTRM VNT VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 10	1-HV-3608	RV 1-01 HEAD DNSTRM VNT VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 10	1-HV-3609	PRZR 1-01 UPSTRM VNT VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 10	1-HV-3610	PRZR 1-01 DNSTRM VNT VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 10	1-PCV-0455A	PRZR 1-01 PORV 0455A	0.0128	1.5130	High	No change	Category 1	No change	No change	High	No Change	High
Table 10	1-PCV-0456	PRZR PWR OPERATED RELIEF VLV	0.0167	2.6291	High	No change	Category 1	No change	No change	High	No Change	High
Table 10	1RC-0036	RMUW TO PRT 1-01/CNTMT ORC RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Low	Low
Table 10	1SI-0166	PRZR 1-01 PORV 0455A N2 ACCUM 1-02 UPSTRM IN CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 10	1SI-0167	PRZR 1-01 PORV 0455A N2 ACCUM 1-02 DNSTRM IN CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 10	1SI-0168	PRZR 1-01 PORV 0456 N2 ACCUM 1-01 UPSTRM IN CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 10	1SI-0169	PRZR 1-01 PORV 0456 N2 ACCUM 1-01 DNSTRM IN CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan												
Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 11	1-8701A	RHR Pmp 1-01 HI 1-01 Recirc Omb Isol Vlv	n/a	n/a	None	No change	Category 2	Medium ISLOCA	No change	n/a	No Change	High
Table 11	1-8701B	RHR Pmp 1-02 HI 1-04 Recirc Omb Isol Vlv	n/a	n/a	None	No change	Category 2	Medium ISLOCA	No change	n/a	No Change	High
Table 11	1-8702A	RHR Pmp 1-01 HI 1-01 Reicrc Imb Isol Vlv	n/a	n/a	None	No change	Category 2	Medium ISLOCA	No change	n/a	No Change	High
Table 11	1-8702B	RHR Pmp 1-02 HI 1-04 Recirc Imb Isol Vlv	n/a	n/a	None	No change	Category 2	Medium ISLOCA	No change	n/a	No Change	High
Table 11	1-8708A	RHR Pmp 1-01 Suct Rlf Vlv	n/a	n/a	None	No change	Category 1	No change	No change	n/a	No Change	High
Table 11	1-8708B	RHR Pmp 1-02 Suct Rlf Vlv	n/a	n/a	None	No change	Category 1	No change	No change	n/a	No Change	High
Table 11	1-8716A (1)	RHR Pmp 1-01 Xtie Vlv	0.0034	5.3279	Medium	No change	No change	No change	No change	Low	No Change	High
Table 11	1-8716B	RHR Pmp 1-02 Xtie Vlv	0.0037	5.3988	Medium	No change	No change	No change	No change	Low	No Change	High
Table 11	1-8717	U1 RHR Pmps Disch To Rwst Isol Vlv	0.0002	5.2624	Low	No change	No change	Medium ISLOCA	No change	Low	No Change	High
Table 11	1-8730A	RHR Hx 1-01 Disch Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 11	1-8730B	RHR Hx 1-02 Disch Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 11	1-FCV-0610 (1)	RHR Pmp 1-01 Miniflo Vlv	0.0000	1.3467	Low	Medium	No change	No change	No change	None	No Change	High
Table 11	1-FCV-0611	RHR Pmp 1-02 Miniflo Vlv	0.0001	1.6200	Low	Medium	No change	No change	No change	None	No Change	High
Table 11	1-FCV-0618	RHR Hx 1-01 Byp Flo Ctrl Vlv	n/a	n/a	None	No change	Low	No change	No change	n/a	No Change	Low
Table 11	1-FCV-0619	RHR Hx 1-02 Byp Flo Ctrl Vlv	n/a	n/a	None	No change	Low	No change	No change	n/a	No Change	Low
Table 11	1-HCV-0606	RHR Hx 1-01 Flo Ctrl Vlv	n/a	n/a	None	No change	Category 1	No change	No change	n/a	No Change	High
Table 11	1-HCV-0607	RHR Hx 1-02 Flo Ctrl Vlv	n/a	n/a	None	No change	Category 1	No change	No change	n/a	No Change	High
Table 11	1-HV-4178	U1 RHR TRN A SMPL LN ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 11	1-HV-4179	U1 RHR TRN B SMPL LN ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 11	1-HV-4182	RHR TO RC PASS FLSH AND DIVERT MNFLD 1-07A LN ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Sorted By IST Plan												
Table 12	1SF-0011	U1 REFUEL CAV PURIF LOOP HDR UPSTRM ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 12	1SF-0012	U1 REFUEL CAV PURIF LOOP HDR DNSTRM ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 12	1SF-0021	U1 REFUEL CAV DRN TO REFUEL WTR PURIF PMP HDR UPSTRM ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 12	1SF-0022	U1 REFUEL CAV DRN TO REFUEL WTR PURIF PMP HDR DNSTRM ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 12	1SF-0053	REFUEL CAV SKM PMP 1-01 IRC DISCH VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 12	1SF-0054	REFUEL CAV SKM PMP 1-01 ORC DISCH VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 12	XSF-0003	SFP CLG WTR PMP X-01 DISCH CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 12	XSF-0004	SFP CLG WTR PMP X-02 DISCH CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 12	XSF-0160	U1 RMUW TO SFPCS CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 12	XSF-0161	U1 RMUW TO SFPCS ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 12	XSF-0179	U2 RMUW TO SFPCS ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 12	XSF-0180	U2 RMUW TO SFPCS CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Sorted By IST Plan												
Table 13	1-8800A	RWST 1-01 TO SFPCS PMP DNSTRM DRN VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8800B	RWST 1-01 TO SFPCS PMP UPSTRM DRN VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8801A	Ccp 1-01/1-02 SI Isol Vlv 8801A	0.0002	1.7840	Low	No change	No change	No change	No change	None	No Change	Low
Table 13	1-8801B	Ccp 1-01/1-02 SI Isol Vlv 8801B	0.0002	1.7840	Low	No change	No change	No change	No change	None	No Change	Low
Table 13	1-8802A	SI Pmp 1-01 To HI 2 & 3 Inj Isol Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8802B	SI Pmp 1-02 To HI 1 & 4 Inj Isol Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8804A (2)(4)	RHR Pmp 1-01 To Ccp Suct Vlv	n/a	n/a	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 13	1-8804B	RHR Pmp 1-02 To SI Pmps Suct Vlv	0.0011	1.1151	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 13	1-8806	Rwst 1-01 To SI Pmps Suct Vlv	0.0005	1.4773	Low	Medium	No change	Medium	No change	Low	No Change	High
Table 13	1-8807A	U1 SIP/CCP Suct Hdr Xtie Vlv 8807A	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8807B	U1 SIP/CCP Suct Hdr Xtie Vlv 8807B	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8808A	SI Accum 1-01 Inj Vlv	n/a	n/a	None	No change	Low	No change	No change	n/a	No Change	Low
Table 13	1-8808B	SI Accum 1-02 Inj Vlv	n/a	n/a	None	No change	Low	No change	No change	n/a	No Change	Low
Table 13	1-8808C	SI Accum 1-03 Inj Vlv	n/a	n/a	None	No change	Low	No change	No change	n/a	No Change	Low
Table 13	1-8808D	SI Accum 1-04 Inj Vlv	n/a	n/a	None	No change	Low	No change	No change	n/a	No Change	Low
Table 13	1-8809A (1)	RHR To Cl 1-01/1-02 Inj Isol Vlv	0.0034	5.3279	Medium	No change	Category 1	No change	No change	Low	No Change	High
Table 13	1-8809B	RHR To Cl 1-03/1-04 Inj Isol Vlv	0.0037	5.3988	Medium	No change	Category 1	No change	No change	Low	No Change	High
Table 13	1-8811A (1)	Cntmt Smp To RHR Pmp 1-01 Suct Isol Vlv	0.0045	5.0741	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 13	1-8811B	Cntmt Smp To RHR Pmp 1-02 Suct Isol Vlv	0.0072	9.4595	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 13	1-8812A (1)	Rwst 1-01 To RHR Pmp 1-01 Suct Vlv	0.0028	4.9150	Medium	No change	Category 1	No change	No change	Low	No Change	High
Table 13	1-8812B	Rwst 1-01 To RHR Pmp 1-02 Suct Vlv	0.0031	4.9650	Medium	No change	Category 1	No change	No change	Low	No Change	High
Table 13	1-8813	SI Pmp 1-01/1-02 Miniflo Ret Vlv	0.0021	5.3732	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 13	1-8814A	SI Pmp 1-01 Miniflo Vlv	0.0016	4.8719	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 13	1-8814B	SI Pmp 1-02 Miniflo Vlv	0.0016	4.8719	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 13	1-8815	Ccp 1-01/1-02 Inj Chk Vlv	0.0002	1.7870	Low	Medium	No change	Medium	No change	Low	No Change	High
Table 13	1-8818A	RHR Cl 1-01 Inj Chk Vlv	n/a	n/a	None	No change	No change	Medium ISLOCA	No change	n/a	No Change	High
Table 13	1-8818B	RHR Cl 1-02 Inj Chk Vlv	n/a	n/a	None	No change	No change	Medium ISLOCA	No change	n/a	No Change	High
Table 13	1-8818C	RHR Cl 1-03 Inj Chk Vlv	n/a	n/a	None	No change	No change	Medium ISLOCA	No change	n/a	No Change	High
Table 13	1-8818D	RHR Cl 1-04 Inj Chk Vlv	n/a	n/a	None	No change	No change	Medium ISLOCA	No change	n/a	No Change	High
Table 13	1-8821A	SI Pmp 1-01 Xtie Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8821B	SI Pmp 1-02 Xtie Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8823	U1 SI TO CL TST ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8824	SI TO HL 1-01/1-04 TST ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan												
Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Chang[illegible] To E[illegible] Panel Review	Final Ranking Based On IST Study
Table 13	1-8825	RHR TO HL 1-02/1-03 TST ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8835	SI Pmp 1-01/1-02 To Cl Inj Isol Vlv	0.0006	1.4773	Low	Medium	Category 1	Medium	No change	Low	No Change	High
Table 13	1-8840	RHR To Hl 1-02/1-03 Inj Isol Vlv	0.0247	13.9685	High	No change	No change	No change	No change	High	No Change	High
Table 13	1-8841A	RHR To RCS Hl 1-02 Upstrm Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8841B	RHR To RCS Hl 1-03 Upstrm Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8843	CCP 1-01/1-02 INJ HDR CHK VLV UPSTRM TST VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8871	U1 SI TST HDR RET IRC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8875A	SI Accum 1-01 N2 SPLY/VENT Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8875B	SI Accum 1-02 N2 SPLY/VENT Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8875C	SI Accum 1-03 N2 SPLY/VENT Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8875D	SI Accum 1-04 N2 SPLY/VENT Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8877A	SI Accum 1-01 Tst Ln Isol Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8877B	SI Accum 1-02 Tst Ln Isol Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8877C	SI Accum 1-03 Tst Ln Isol Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8877D	SI Accum 1-04 Tst Ln Isol Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8878A	SI Accum 1-01 Fill Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8878B	SI Accum 1-02 Fill Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8878C	SI Accum 1-03 Fill Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8878D	SI Accum 1-04 Fill Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8879A	RHR TO CL 1-01 TST VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8879B	RHR TO CL 1-02 TST VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8879C	RHR TO CL 1-03 TST VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8879D	RHR TO CL 1-04 TST VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8880	U1 SI/PORV ACCUM N2 SPLY ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8881	SI TO HL 1-02/1-03 TST ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8882	CCP 1-01/1-02 INJ HDR CHK VLV DNSTRM TST VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8888	U1 SI ACCUM FILL LN ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8889A	SI TO HL 1-01 TST LN VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8889B	SI TO HL 1-02 TST LN VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8889C	SI TO HL 1-03 TST LN VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8889D	SI TO HL 1-04 TST LN VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8890A	RHR TO CL 1-01/1-02 TST VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 13	1-8890B	RHR TO CL 1-03/1-04 TST VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8922A	SI Pmp 1-01 Disch Chk Vlv	0.0001	1.2558	Low	No change	No change	No change	No change	Low	No Change	Low
Table 13	1-8922B	SI Pmp 1-02 Disch Chk Vlv	0.0001	1.4509	Low	No change	No change	No change	No change	Low	No Change	Low
Table 13	1-8923A	SI Pmp 1-01 Suct Vlv	0.0000	1.0061	None	Medium	No change	Medium	No change	None	No Change	High
Table 13	1-8923B	SI Pmp 1-02 Suct Vlv	0.0000	1.0061	None	Medium	No change	Medium	No change	None	No Change	High
Table 13	1-8924	U1 SIP/CCP Suct Hdr Xtie Isol Vlv	0.0000	1.0002	None	No change	No change	No change	No change	None	High	High
Table 13	1-8926	SI Pmp 1-01/1-02 Suct Chk Vlv	0.0001	1.4773	Low	No change	No change	Medium	No change	Low	No Change	High
Table 13	1-8948A	SI Accum 1-01 Dnstrm Inj Chk Vlv	n/a	n/a	None	No change	No change	Medium ISLOCA	No change	n/a	No Change	High
Table 13	1-8948B	SI Accum 1-02 Dnstrm Inj Chk Vlv	n/a	n/a	None	No change	No change	Medium ISLOCA	No change	n/a	No Change	High
Table 13	1-8948C	SI Accum 1-03 Dnstrm Inj Chk Vlv	n/a	n/a	None	No change	No change	Medium ISLOCA	No change	n/a	No Change	High
Table 13	1-8948D	SI Accum 1-04 Dnstrm Inj Chk Vlv	n/a	n/a	None	No change	No change	Medium ISLOCA	No change	n/a	No Change	High
Table 13	1-8949A	RHR To Rcp Hl 1-01 Dnstrm Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8949B	RHR To Rcp Hl 1-02 Dnstrm Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8949C	RHR To Rcp Hl 1-03 Dnstrm Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8949D	RHR To Rcp Hl 1-04 Dnstrm Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8956A	SI Accum 1-01 Upstrm Inj Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	Increased	High
Table 13	1-8956B	SI Accum 1-02 Upstrm Inj Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	Increased	High
Table 13	1-8956C	SI Accum 1-03 Upstrm Inj Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	Increased	High
Table 13	1-8956D	SI Accum 1-04 Upstrm Inj Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	Increased	High
Table 13	1-8958A	Rwst 1-01 To RHR Pmp 1-01 Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8958B	Rwst 1-01 To RHR Pmp 1-02 Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8964	U1 SI TEST HDR RET ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1-8969A (1)	RHR To Ccp 1-01/1-02 Suct Chk Vlv	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1-8969B	RHR To SI Pmp 1-01/1-02 Suct Chk Vlv	0.0000	1.1151	None	No change	No change	No change	No change	None	No Change	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan												
Table Number	**Component Tag Number**	**Component Description**	**Fussell-Vesely ***	**Risk Achievement Worth ***	**Initial IPE Ranking Based on FV ****	**IPEEE Fire & Tornado FV Ranking Changes**	**Outage Risk Ranking Changes**	**Large, Early Release FV Ranking Changes**	**Seismic Risk Ranking Changes**	**CDF Ranking Changes w/out CCF**	**Ranking Changes Due To Expert Panel Review**	**Final Ranking Based On IST Study**
Table 13	1SI-0047 (A)	RWST 1-01 TO SI ISOL VLV	0.0050	5.7600	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 13	1SI-0182	BONNET RELIEF VALVE FOR CONTAINMENT ISOLATION VALVE 1-8811A	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 13	1SI-0183	BONNET RELIEF VALVE FOR CONTAINMENT ISOLATION VALVE 1-8811B	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 13	1SI-8819A	SI TO CL 1-01 CHK VLV	n/a	n/a	None	No change	No change	Medium ISLOCA	No change	n/a	No Change	High
Table 13	1SI-8819B	SI TO CL 1-02 CHK VLV	n/a	n/a	None	No change	No change	Medium ISLOCA	No change	n/a	No Change	High
Table 13	1SI-8819C	SI TO CL 1-03 CHK VLV	n/a	n/a	None	No change	No change	Medium ISLOCA	No change	n/a	No Change	High
Table 13	1SI-8819D	SI TO CL 1-04 CHK VLV	n/a	n/a	None	No change	No change	Medium ISLOCA	No change	n/a	No Change	High
Table 13	1SI-8900A	CCP 1-01/1-02 TO CL 1-01 CHK VLV	n/a	n/a	None	No change *	No change	No change	No change	n/a	No Change	Low
Table 13	1SI-8900B	CCP 1-01/1-02 TO CL 1-02 CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1SI-8900C	CCP 1-01/1-02 TO CL 1-03 CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1SI-8900D	CCP 1-01/1-02 TO CL 1-04 CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1SI-8905A	SI TO HL 1-01 INJ UPSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1SI-8905B	SI TO HL 1-02 INJ UPSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1SI-8905C	SI TO HL 1-03 INJ UPSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1SI-8905D	SI TO HL 1-04 INJ UPSTRM CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1SI-8919A	SI PMP 1-01 TO RWST CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1SI-8919B	SI PMP 1-02 TO RWST CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 13	1SI-8968	SI N2 SPLY HDR 1-01/1-02 CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 13	1SI-8972	U1 SI TST HDR RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 14	1-HV-4286	SSW PMP 1-01 DISCH VLV	0.0061	9.0386	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 14	1-HV-4287 (2)(4)	SSW PMP 1-02 DISCH VLV	0.0001	37.1754	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 14	1-HV-4393	DG 1-01 JKT WTR CLR SSW RET VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 14	1-HV-4394	DG 1-02 JKT WTR CLR SSW RET VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 14	1-HV-4395	SSW TRN A TO U1 AFW PMP SUCT VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 14	1-HV-4396	SSW TRN B TO U1 AFW PMP SUCT VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 14	1SW-0016 (3)	U1 SSW TRN B SPLY HDR IN CHK VLV	0.0005	3.0296	None	No change	No change	No change	No change	None	No Change	Low
Table 14	1SW-0017 (3)	U1 SSW TRN A SPLY HDR IN CHK VLV	0.0003	1.9796	None	No change	No change	No change	No change	None	No Change	Low
Table 14	1SW-0373	SSW PMP 1-02 DISCH CHK VLV	0.0015	70.7025	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 14	1SW-0374	SSW PMP 1-01 DISCH CHK VLV	0.0012	71.8633	Medium	No change	No change	No change	No change	Medium	No Change	High
Table 14	SWVAVB-01	VENT PATH FORWATER HAMMER PROTECTION	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 14	SWVAVB-02	VENT PATH FORWATER HAMMER PROTECTION	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 14	SWVAVB-03	VENT PATH FORWATER HAMMER PROTECTION	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 14	SWVAVB-04	VENT PATH FORWATER HAMMER PROTECTION	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan													
Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 15	1CI-0644	CR A\C ACCUM X-01 INST AIR SPLY UPSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 15	1CI-0645	CR A\C ACCUM X-01 INST AIR SPLY DNSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 15	1CI-0646	CR A\C ACCUM X-02 INST AIR SPLY UPSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High
Table 15	1CI-0647	CR A\C ACCUM X-02 INST AIR SPLY DNSTRM CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	High	High

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Table5-1
Summary of Risk Ranking Results for IST Components

Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Sorted By IST Plan												
Table 16	1-HV-5157	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR ORC ISOL VLV	n/a	n/a	None	No change	No change	Medium CIV	No change	n/a	No Change	High
Table 16	1-HV-5158	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR IRC ISOL VLV	n/a	n/a	None	No change	No change	Medium CIV	No change	n/a	No Change	High
Table 16	1VD-0907	RX CAV SMP & CNTMT SMP 1-01/1-02 DISCH HDR PRESS RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 16	VD-0003	SFGD BLDG SMP 1-01 PMP 1-01 DISCH CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 16	VD-0004	SFGD BLDG SMP 1-01 PMP 1-02 DISCH CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 16	VD-0011	SFGD BLDG SMP 1-02 PMP 1-03 DISCH CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 16	VD-0012	SFGD BLDG SMP 1-02 PMP 1-04 DISCH CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan												
Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 17	1-7126	LWPS RCDT 1-01 VNT HDR IRC DNSTRM ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-7135	LWPS RCDT 1-01 LVL CTRL VLV BYP VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-7136	Rcdt Pump Discharge Control Valve	n/a	n/a	None	No change	No change	Medium CIV	No change	n/a	No Change	High
Table 17	1-7150	LWPS RCDT 1-01 VNT HDR ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-3486	U1 CNTMT SERV AIR ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-3487	U1 CNTMT INST AIR HDR ISOL VLV	n/a	n/a	None	No change	No change	Low SGTR-CIV	No change	n/a	No Change	Low
Table 17	1-HV-4075B	U1 CNTMT FP HDR ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-4075C	U1 CNTMT FP HDR IRC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-4165	PRZR 1-01 STM SPACE SMPL LN IRC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-4166	PRZR 1-01 LIQ SPACE SMPL LN IRC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-4167	PRZR 1-01 LIQ SPACE SMPL LN ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-4168	RC LOOP 1-01 HOT LEG SMPL LN IRC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-4169	RC LOOP 1-04 HOT LEG SMPL LN IRC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-4170	RC LOOP 1-01 & 1-04 HOT LEG SMPL LN ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-4171	ACCUM 1-01 LIQ SPACE SMPL LN IRC ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 17	1-HV-4172	ACCUM 1-02 LIQ SPACE SMPL LN IRC ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 17	1-HV-4173	ACCUM 1-03 LIQ SPACE SMPL LN IRC ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 17	1-HV-4174	ACCUM 1-04 LIQ SPACE SMPL LN IRC ISOL VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 17	1-HV-4175	U1 ACCUM LIQ SPACE SMPL LN ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-4176	PRZR 1-01 STM SPACE SMPL LN ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5536	U1 CNTMT AIR PRG SPLY ORC ISOL DMPR AO	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Sorted By IST Plan												
Table Number	Component Tag Number	Component Description	Fusseli-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
Table 17	1-HV-5537	U1 CNTMT AIR PRG SPLY IRC ISOL DMPR AO	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5538	U1 CNTMT AIR PRG EXH ORC ISOL DMPR AO	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5539	U1 CNTMT AIR PRG EXH IRC ISOL DMPR AO	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5540	U1 CNTMT H2 PRG EXH ORC ISOL DMPR	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5541	U1 CNTMT H2 PRG EXH IRC ISOL DMPR	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5542	U1 CNTMT H2 PRG SPLY ORC ISOL DMPR	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5543	U1 CNTMT H2 PRG SPLY IRC ISOL DMPR	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5544	U1 CNTMT AIR PIG RAD DET UNIT 5502/03/66 SMPL IN ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5545	U1 CNTMT AIR PIG RAD DET UNIT 5502/03/66 SMPL IN IRC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5546	U1 CNTMT AIR PIG RAD DET UNIT 5502/03/66 SMPL OUT ORC ISOL VL	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5547	U1 CNTMT AIR PIG RAD DET UNIT 5502/03/66 SMPL OUT IRC ISOL VL	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5548	U1 CNTMT PRESS RLF SYS ORC ISOL VLV	n/a	n/a	None	No change	No change	Low CIV	No change	n/a	No Change	Low
Table 17	1-HV-5549	U1 CNTMT PRESS RLF SYS IRC ISOL VLV	n/a	n/a	None	No change	No change	Low CIV	No change	n/a	No Change	Low
Table 17	1-HV-5556	U1 CNTMT AIR PASS SMPL RET LN ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5557	U1 CNTMT AIR PASS SMPL RET LN IRC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5558	U1 CNTMT AIR PASS SMPL SPLY LN ORC ISOL VLV 5558	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5559	U1 CNTMT AIR PASS SMPL SPLY LN IRC ISOL VLV 5559	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5560	U1 CNTMT AIR PASS SMPL SPLY LN ORC ISOL VLV 5560	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5561	U1 CNTMT AIR PASS SMPL SPLY LN IRC ISOL VLV 5561	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-5562	U1 CNTMT PRG EXH IRC ISOL DMPR BYP DMPR	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Table5-1
Summary of Risk Ranking Results for IST Components

Sorted By IST Plan												
Table Number	**Component Tag Number**	**Component Description**	**Fussell-Vesely ***	**Risk Achievement Worth ***	**Initial IPE Ranking Based on FV ****	**IPEEE Fire & Tornado FV Ranking Changes**	**Outage Risk Ranking Changes**	**Large, Early Release FV Ranking Changes**	**Seismic Risk Ranking Changes**	**CDF Ranking Changes w/out CCF**	**Ranking Changes Due To Expert Panel Review**	**Final Ranking Based On IST Study**
Table 17	1-HV-5563	U1 CNTMT H2 PRG SPLY IRC ISOL DMPR	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-6082	U1 VENT CH WTR SPLY ORC UPSTRM ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-6083	U1 VENT CH WTR RET IRC DNSTRM ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-6084	U1 VENT CH WTR SPLY ORC DNSTRM ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-7311	RC PASS SMPL MODULE 1-04 TO RCDT 1-01 RET LN ORC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-HV-7312	RC PASS SMPL MODULE 1-04 TO RCDT 1-01 RET LN IRC ISOL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-LCV-1003	LWPS RCDT 1-01 LVL CTRL VLV	n/a	n/a	None	No change	No change	Medium CIV	No change	n/a	Increased	High
Table 17	1-PS-0500	U1 ACCUM LIQ SPACE SMPL LN ORC RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-PS-0501	PRZR 1-01 LIQ SPACE SMPL LN ORC RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-PS-0502	PRZR 1-01 STM SPACE SMPL LN ORC RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1-PS-0503	RC LOOP 1-01/1-04 HL SMPL LN ORC RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1BS-0015	CNTMT PERS AIRLOCK 1-01 EXT DOOR MAN EQUAL VLV 0015	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1BS-0025	CNTMT PERS AIRLOCK 1-01 EXT DOOR AUTO EQUAL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1BS-0029	CNTMT PERS AIRLOCK 1-01 EXT DOOR MAN EQUAL VLV 0029	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1BS-0030	CNTMT PERS AIRLOCK 1-01 INT DOOR AUTO EQUAL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1BS-0044	CNTMT PERS AIRLOCK 1-01 INT DOOR MAN EQUAL VLV 0044	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1BS-0056	CNTMT PERS AIRLOCK 1-01 INT DOOR MAN EQUAL VLV 0056	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1BS-0202	U1 CNTMT PERS EMER AIRLOCK INT DOOR MAN EQUAL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1BS-0203	U1 CNTMT PERS EMER AIRLOCK EXT DOOR MAN EQUAL VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1CA-0016	U1 CNTMT SERV AIR HDR CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1CH-0024	U1 VENT CH WTR SPLY IRC CHK VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Summary of Risk Ranking Results for IST Components

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Table Number	**Component Tag Number**	**Component Description**	**Fussell-Vesely ***	**Risk Achievement Worth ***	**Initial IPE Ranking Based on FV ****	**IPEEE Fire & Tornado FV Ranking Changes**	**Outage Risk Ranking Changes**	**Large, Early Release FV Ranking Changes**	**Seismic Risk Ranking Changes**	**CDF Ranking Changes w/out CCF**	**Ranking Changes Due To Expert Panel Review**	**Final Ranking Based On IST Study**
Table 17	1CH-0271	U1 CNTMT VENT CH WTR SPLY HDR ORC PRESS RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1CH-0272	U1 CNTMT VENT CH WTR RET HDR ORC PRESS RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1CI-0030	U1 INST AIR HDR TO U1 CNTMT CHK VLV	n/a	n/a	None	No change	No change	No change	No change	n/a	No Change	Low
Table 17	1WP-7176	LWPS RCDT 1-01 DRN HDR RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low
Table 17	1WP-7177	RC PASS SMPL RET TO RCDT 1-01 RLF VLV	n/a	n/a	n/a	n/a	n/a	n/a	No change	n/a	Low	Low

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Sorted By IST Plan											
Table Number	Component Tag Number	Component Description	Fussell-Vesely *	Risk Achievement Worth *	Initial IPE Ranking Based on FV **	IPEEE Fire & Tornado FV Ranking Changes	Outage Risk Ranking Changes	Large, Early Release FV Ranking Changes	Seismic Risk Ranking Changes	CDF Ranking Changes w/out CCF	Ranking Changes Due To Expert Panel Review	Final Ranking Based On IST Study
	FV = Fussell-Vesely (Prob = 0) Hi > .01, Med > .001, Low > .0001 Negl < .0001											
	n/a = component either truncated in PRA or not in RMQS 1E-8 cutsets											
	Note: IST components not shown in the above list are not modeled in the IPE and therefore can not have											
	a FV risk measure. These components are binned in the "None" category.											
	(1) Component F-V/RAW values have been assessed and should be associated with its sister valve.											
	CDF risk catergory does not change											
	(2) Component F-V/RAW values have been assessed and should be associated with its sister valve.											
	CDF risk catergory for the component increases to match sister valve											
	(3) Component F-V/RAW values have been assessed and should be revised to											
	CDF risk catergory "None" as valves internals removed											
	(4) Components CCF rankings change due to sister pairs evaluation											

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7.0 REFERENCES

1. ASME Boiler and Pressure Vessel Code, Section XI
2. Letter dated September 9, 1991 from James E. Richardson of the NRC to Forrest T. Rhodes of ASME.
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10. NUREG-1150, "Severe Accident Risks: An Assessment of Five U.S. Nuclear Power Plants," U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research
11. Comanche Peak Steam Electric Station, "Outage Safety Function Guide," Draft Revision 0, August 2,1995.
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8.0 APPENDICES

Appendix A Comanche Peak Steam Electric Station Risk-Based In-Service Testing Expert Panel Guidance Document ----Provided Later

CPSES	Table 1: Valve Population Summary			
IST	IPE	Risk Significance	# Valves (Unit 1 & common)	Comments
Yes	Yes	High	~ 119	Already included in IST Program; continue testing in accordance with the ASME Section XI Code.
Yes	Yes	Low	~ 256	Already included in IST Program; continue Code testing except extend test frequencies. Extended test frequencies will be implemented on a staggered test basis.
Yes	No	High	~ 19	Already included in IST Program; continue testing in accordance with the ASME Code.
Yes	No	Low	~ 293	Already included in IST Program; continue Code testing except extend test frequencies
No	Yes	High	~ 25	Test commensurate with safety significance.
No	Yes	Low	~ 723	No action required.

CPSES	Table 2-P: Less Safety Significant Pumps			
Component	Code Class	Description	Test Schedule	
			Current	Proposed
Reactor Coolant System				
CP1-DDAPRM-01	3	Reactor makeup water	3 MO.	6 YR
CPX-DDAPRM-01	3	Reactor makeup water	3 MO.	6 YR
CP2-DDAPRM-01	3	Reactor makeup water	3 MO.	6 YR
Diesel Generator Fuel Oil Auxiliary System				
CP1-DOAPFT-01	2	Fuel Oil Transfer	3 MO.	6 YR
CP1-DOAPFT-02	2	Fuel Oil Transfer	3 MO.	6 YR
CP1-DOAPFT-03	2	Fuel Oil Transfer	3 MO.	6 YR
CP1-DOAPFT-04	2	Fuel Oil Transfer	3 MO.	6 YR
CP2-DOAPFT-01	2	Fuel Oil Transfer	3 MO.	6 YR
CP2-DOAPFT-02	2	Fuel Oil Transfer	3 MO.	6 YR
CP2-DOAPFT-03	2	Fuel Oil Transfer	3 MO.	6 YR
CP2-DOAPFT-04	2	Fuel Oil Transfer	3 MO.	6 YR
Vents and Drains System				
CP1-WPAPSS-01	3	Safeguards Building Floor Drain Sump	2 YR.	6 YR.
CP1-WPAPSS-02	3	Safeguards Building Floor Drain Sump	2 YR.	6 YR.
CP1-WPAPSS-03	3	Safeguards Building Floor Drain Sump	2 YR.	6 YR.
CP1-WPAPSS-04	3	Safeguards Building Floor Drain Sump	2 YR.	6 YR.
CP2-WPAPSS-01	3	Safeguards Building Floor Drain Sump	2 YR.	6 YR.
CP2-WPAPSS-02	3	Safeguards Building Floor Drain Sump	2 YR.	6 YR.
CP2-WPAPSS-03	3	Safeguards Building Floor Drain Sump	2 YR.	6 YR.
CP2-WPAPSS-04	3	Safeguards Building Floor Drain Sump	2 YR.	6 YR.

CPSES — Table 2-V: Less Safety Significant Valves

Component	Code Class	Category	Description	Test Schedule (See Notes) Current	Test Schedule (See Notes) Proposed

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Auxiliary Feedwater System

Component	Code Class	Category	Description	Current	Proposed
AF-0009	3	C	Non-Safety Makeup Line Isolation	CV/Q	6 YR
AF-0014	3	C	AFW Flowpath	CV/Q	6 YR
AF-0024	3	C	AFW Flowpath	CV/Q	6 YR
AF-0032	3	C	AFW Flowpath	CV/Q	6 YR
AF-0038	3	C	AFW Flowpath	CV/Q	6 YR
AF-0041	3	B	AFW Flowpath	PIT/2 YR	6 YR
AF-0042	3	B	AFW Flowpath Boundary	PIT/2 YR	6 YR
AF-0051	3	C	AFW Flowpath	CV/Q	6 YR
AF-0054	3	B	AFW Flowpath	PIT/2 YR	6 YR
AF-0055	3	B	AFW Flowpath Boundary	PIT/2 YR	6 YR
AF-0065	3	C	AFW Flowpath	CV/Q	6 YR
AF-0066	3	B	AFW Flowpath	PIT/2 YR	6 YR
AF-0067	3	B	AFW Flowpath Boundary	PIT/2 YR	6 YR
AF-0075	3	C	AFW Flowpath/AFW Flowpath Boundary & AFW Line Break Mitigation & FW Backflow Prevention During Startup	CV/CS	6 YR

CPSES — Table 2-V: Less Safety Significant Valves

Component	Code Class	Category	Description	Test Schedule (See Notes)	
				Current	Proposed
AF-0078	3	C	AFW Flowpath/AFW Flowpath Boundary & AFW Line Break Mitigation & FW Backflow Prevention During Startup	CV/CS	6 YR
AF-0083	3	C	AFW Flowpath/AFW Flowpath Boundary & AFW Line Break Mitigation & FW Backflow Prevention During Startup	CV/CS	6 YR
AF-0086	3	C	AFW Flowpath/AFW Flowpath Boundary & AFW Line Break Mitigation & FW Backflow Prevention During Startup	CV/CS	6 YR
AF-0093	3	C	AFW Flowpath/AFW Flowpath Boundary & AFW Line Break Mitigation & FW Backflow Prevention During Startup	CV/CS	6 YR
AF-0098	3	C	AFW Flowpath/AFW Flowpath Boundary & AFW Line Break Mitigation & FW Backflow Prevention During Startup	CV/CS	6 YR
AF-0101	3	C	AFW Flowpath/AFW Flowpath Boundary & AFW Line Break Mitigation & FW Backflow Prevention During Startup	CV/CS	6 YR
AF-0106	3	C	AFW Flowpath/AFW Flowpath Boundary & AFW Line Break Mitigation & FW Backflow Prevention During Startup	CV/CS	6 YR
1AF-0215	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
1AF-0216	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
1AF-0217	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
1AF-0218	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
1AF-0219	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
1AF-0220	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
AF-0221	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
AF-0222	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
1AF-0223	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Cate-gory	Description	Test Schedule (See Notes) Current	Proposed
2AF-0224	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
1AF-0224	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
2AF-0223	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
1AF-0226	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
2AF-0227	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
1AF-0227	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
2AF-0226	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
AF-0228	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
AF-0229	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
1AF-0230	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
2AF-0231	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
1AF-0231	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
2AF-0230	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
AF-0232	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
AF-0233	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
AF-0234	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
AF-0235	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR. CV/Q	6 YR 6 YR
PV-2453A	3	B	AFW to SG Flowpath/AFW to Faulted SG Flow Isolation	MT/Q FO/Q PIT/2 YR.	6 YR 6 YR 6 YR

CPSES — Table 2-V: Less Safety Significant Valves

Component	Code Class	Category	Description	Test Schedule (See Notes) Current	Proposed
PV-2453B	3	B	AFW to SG Flowpath/AFW to Faulted SG Flow Isolation	MT/Q FO/Q PIT/2 YR.	6 YR 6 YR 6 YR
PV-2454A	3	B	AFW to SG Flowpath/AFW to Faulted SG Flow Isolation	MT/Q FO/Q PIT/2 YR.	6 YR 6 YR 6 YR
PV-2454B	3	B	AFW to SG Flowpath/AFW to Faulted SG Flow Isolation	MT/Q FO/Q PIT/2 YR.	6 YR 6 YR 6 YR
FV-2456	3	B	Pump Miniflow Path/AFW Flowpath Boundary	MT/Q FO/Q PIT/2 YR.	6 YR 6 YR 6 YR
FV-2457	3	B	Pump Miniflow Path/AFW Flowpath Boundary	MT/Q FO/Q PIT/2 YR.	6 YR 6 YR 6 YR
HV-2459	3	B	AFW to SG Flowpath/AFW to Faulted SG Flow Isolation	MT/Q FO/Q PIT/2 YR.	6 YR 6 YR 6 YR
HV-2460	3	B	AFW to SG Flowpath/AFW to Faulted SG Flow Isolation	MT/Q FO/Q PIT/2 YR.	6 YR 6 YR 6 YR
HV-2461	3	B	AFW to SG Flowpath/AFW to Faulted SG Flow Isolation	MT/Q FO/Q PIT/2 YR.	6 YR 6 YR 6 YR
HV-2462	3	B	AFW to SG Flowpath/AFW to Faulted SG Flow Isolation	MT/Q FO/Q PIT/2 YR.	6 YR 6 YR 6 YR
LV-2478	3	B	Non-Safety Makeup Line Isolation	PIT/2 YR.	6 YR.
HV-2480	3	B	AFW Pump Emergency Supply Flowpath	MT/Q PIT/2 YR	6 YR 6 YR
HV-2481	3	B	AFW Pump Emergency Supply Flowpath	MT/Q PIT/2 YR	6 YR 6 YR
HV-2482	3	B	AFW Pump Emergency Supply Flowpath	MT/Q PIT/2 YR	6 YR 6 YR
HV-2484	3	B	Condensate System to Condensate Storage Tank Isolation to Preclude Tank Overpressurization	MT/Q PIT/2 YR	6 YR 6 YR
HV-2485	3	B	Condensate System to Condensate Storage Tank Isolation to Preclude Tank Overpressurization	MT/Q PIT/2 YR	6 YR 6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Category	Description	Test Schedule (See Notes)	
				Current	Proposed
HV-2491A	2	B	Containment Isolation & AFW to Faulted SG Flow Isolation	MT/Q PIT/2 YR	6 YR 6 YR
HV-2491B	2	B	Containment Isolation & AFW to Faulted SG Flow Isolation	MT/Q PIT/2 YR	6 YR 6 YR
HV-2492A	2	B	Containment Isolation & AFW to Faulted SG Flow Isolation	MT/Q PIT/2 YR	6 YR 6 YR
HV-2492B	2	B	Containment Isolation & AFW to Faulted SG Flow Isolation	MT/Q PIT/2 YR	6 YR 6 YR
HV-2493A	2	B	Containment Isolation & AFW to Faulted SG Flow Isolation	MT/Q PIT/2 YR	6 YR 6 YR
HV-2493B	2	B	Containment Isolation & AFW to Faulted SG Flow Isolation	MT/Q PIT/2 YR	6 YR 6 YR
HV-2494A	2	B	Containment Isolation & AFW to Faulted SG Flow Isolation	MT/Q PIT/2 YR	6 YR 6 YR
HV-2494B	2	B	Containment Isolation & AFW to Faulted SG Flow Isolation	MT/Q PIT/2 YR	6 YR 6 YR
Component Cooling Water System					
CC-0003	3	C	Surge Tank Emergency Makeup Flowpath	CV/Q	6 YR
CC-0004	3	C	Surge Tank Emergency Makeup Flowpath	CV/Q	6 YR
CC-0031	3	C	CCW Flowpath / CCW Flowpath Boundary	CV/Q	6 YR
CC-0061	3	C	CCW Flowpath / CCW Flowpath Boundary	CV/Q	6 YR
2CC-0371	3	C	RCP Thermal Barrier Rupture Isolation	CV/CS	6 YR
2CC-0372	3	C	RCP Thermal Barrier Rupture Isolation	CV/CS	6 YR
2CC-0373	3	C	RCP Thermal Barrier Rupture Isolation	CV/CS	6 YR
2CC-0374	3	C	RCP Thermal Barrier Rupture Isolation	CV/CS	6 YR
CC-0611	2	C	Containment Penetration Thermal Relief	SRV/10 YR	10 YR
CC-0618	2	C	Containment Penetration Thermal Relief	SRV/10 YR	10 YR
CC-0629	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS CV/CS	Note 1 6 YR
CC-0646	3	C	RCP Thermal Barrier Rupture Isolation	CV/CS	6 YR
CC-0657	3	C	RCP Thermal Barrier Rupture Isolation	CV/CS	6 YR
CC-0687	3	C	RCP Thermal Barrier Rupture Isolation	CV/CS	6 YR
CC-0694	3	C	RCP Thermal Barrier Rupture Isolation	CV/CS	6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Cate-gory	Description	Test Schedule (See Notes)	
				Current	Proposed
CC-0713	2	A/C	Containment Isolation	LTJ/TS CV/CS	Note 1 6 YR
CC-0831	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS CV/CS	Note 1 6 YR
1CC-1067	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
1CC-1075	3	C	RCP Thermal Barrier Rupture Isolation	CV/CS	6 YR
1CC-1076	3	C	RCP Thermal Barrier Rupture Isolation	CV/CS	6 YR
1CC-1077	3	C	RCP Thermal Barrier Rupture Isolation	CV/CS	6 YR
1CC-1078	3	C	RCP Thermal Barrier Rupture Isolation	CV/CS	6 YR
1CC-1079	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
1CC-1080	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
1CC-1081	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
1CC-1082	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
2CC-1090	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
2CC-1091	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
2CC-1092	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
2CC-1093	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
2CC-1094	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
LV-4500	3	B	Surge Tank Emergency Makeup Flowpath/Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
LV-4500-1	3	B	Surge Tank Emergency Makeup Flowpath	MT/Q FO/Q PIT/2 YR	6 YR 6 YR 6 YR
LV-4501	3	B	Surge Tank Emergency Makeup Flowpath/Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Cate-gory	Description	Test Schedule (See Notes) Current	Proposed
PV-4552	3	B	Safety Chilled Water Condenser Cooling Flow Control	FO/Q PIT/2 YR	6 YR 6 YR
PV-4553	3	B	Safety Chilled Water Condenser Cooling Flow Control	FO/Q PIT/2 YR	6 YR 6 YR
HV-4574	3	B	Containment Spray Heat Exchanger Cooling Flowpath	MT/Q PIT/2 YR	6 YR 6 YR
HV-4575	3	B	Containment Spray Heat Exchanger Cooling Flowpath	MT/Q PIT/2 YR	6 YR 6 YR
HV-4631A	3	B	Non-Safety Flowpath (Process Sample Cooling) Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-4631B	3	B	Non-Safety Flowpath (Process Sample Cooling) Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
FV-4650A	3	B	Non-Safety Flowpath (Ventilation Chillers, Letdown Chiller) Isolation	MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR
FV-4650B	3	B	Non-Safety Flowpath (Ventilation Chillers, Letdown Chiller) Isolation	MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR
HV-4696	2	A	Containment Isolation & RCP Thermal Barrier Rupture Isolation	LTJ/TS MT/Q PIT/2 YR	Note 1 6 YR 6 YR
HV-4699	2	B	Passive Pipe Break Isolation (inside Containment)	MT/CS PIT/2 YR	6 YR 6 YR
HV-4700	2	A	Containment Isolation & RCP Thermal Barrier Rupture Isolation	LTJ/TS MT/CS PIT/2 YR	Note 1 6 YR 6 YR
HV-4701	2	A	Containment Isolation	LTJ/TS MT/CS PIT/2 YR	Note 1 6 YR 6 YR
HV-4708	2	A	Containment Isolation	LTJ/TS MT/CS PIT/2 YR	Note 1 6 YR 6 YR
HV-4709	2	A	Containment Isolation & RCP Thermal Barrier Rupture Isolation	LTJ/TS MT/Q PIT/2 YR	Note 1 6 YR 6 YR
HV-4710	2	B	Containment Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Cate-gory	Description	Test Schedule (See Notes) Current	Test Schedule (See Notes) Proposed
HV-4711	2	B	Containment Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
			Chilled Water (Safety) System		
CH-0300	3	C	Surge Tank Emergency Makeup Flowpath	CV/Q	6 YR
CH-0301	3	C	Surge Tank Emergency Makeup Flowpath	CV/Q	6 YR
CH-0302	3	B	Surge Tank Emergency Makeup Flowpath	ET/Q	6 YR
CH-0305	3	B	Surge Tank Emergency Makeup Flowpath	ET/Q	6 YR
HV-6720	3	B	Surge Tank Emergency Makeup Flowpath	MT/Q FO/Q PIT/2 YR	6 YR 6 YR 6 YR
			Chemical and Volume Control System		
XCS-0037	3	C	Pump Miniflow Path	CV/Q	6 YR
XCS-0039	3	C	Pump Miniflow Path	CV/Q	6 YR
XCS-0041	3	C	Pump Miniflow Path	CV/Q	6 YR
XCS-0044	3	C	Pump Miniflow Path	CV/Q	6 YR
FCV-0110B	2	B	Boration Flowpath Boundary	PIT/2 YR	6 YR
FCV-0111A	3	B	Boration Flowpath Boundary	PIT/2 YR	6 YR
FCV-0111B	2	B	Boration Flowpath Boundary $ Boron Dilution Flowpath Isolation (during Mode 6)	PIT/2 YR	6 YR
8100	2	A	Containment Isolation	LTJ/TS MT/CS PIT/2 YR	Note 1 6 YR 6 YR
8104	2	B	Boration Flowpath	MT/Q PIT/2 YR	6 YR 6 YR
8105	2	A	Boration Flowpath/ECCS Flowpath Boundary & Containment Isolation	LTJ/TS MT/CS PIT/2 YR	Note 1 6 YR 6 YR
8106	2	B	Boration Flowpath/ECCS Flowpath Boundary	MT/CS PIT/2 YR	6 YR 6 YR
8109	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8145	1	B	Reactor Coolant Pressure Boundary	MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR
81[illegible]6	2	B	Boration Flowpath	PIT/2 YR	6 YR

CPSES — Table 2-V: Less Safety Significant Valves

Component	Code Class	Category	Description	Test Schedule (See Notes)	
				Current	Proposed
8147	2	B	Boration Flowpath	PIT/2 YR	6 YR
8153	1	B	Reactor Coolant Pressure Boundary	MT/CS FC/Q PIT/2 YR	6 YR 6 YR 6 YR
8154	2	A	Containment Isolation	MT/CS FC/Q PIT/2 YR	6 YR 6 YR 6 YR
CS-8180	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS CV/CS	Note 1 6 YR
8202A	2	B	ECCS Flowpath Boundary & Isolation of VCT Cover Gas from Charging Pumps' Suction Header	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
8202B	2	B	ECCS Flowpath Boundary & Isolation of VCT Cover Gas from Charging Pumps' Suction Header	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
8210A	2	B	ECCS Flowpath Boundary & Isolation of PD Pump Suction Stabilizer Gas Supply from Charging Pumps' Suction Header	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
8210B	2	B	ECCS Flowpath Boundary & Isolation of PD Pump Suction Stabilizer Gas Supply from Charging Pumps' Suction Header	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-8220	2	B	ECCS Flowpath Boundary & Isolation of VCT Cover Gas from Charging Pumps' Suction Header (upon low VCT level)	MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR
HV-8221	2	B	ECCS Flowpath Boundary & Isolation of VCT Cover Gas from Charging Pumps' Suction Header (upon low VCT level)	MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR
CS-8350A	1	C	Reactor Coolant Pressure Boundary	CV/CS	6 YR
CS-8350B	1	C	Reactor Coolant Pressure Boundary	CV/CS	6 YR
CS-8350C	1	C	Reactor Coolant Pressure Boundary	CV/CS	6 YR
CS-8350D	1	C	Reactor Coolant Pressure Boundary	CV/CS	6 YR
8351A	2	B	Containment Isolation	MT/CS PIT/2 YR	6 YR 6 YR
8351B	2	B	Containment Isolation	MT/CS PIT/2 YR	6 YR 6 YR
8351C	2	B	Containment Isolation	MT/CS PIT/2 YR	6 YR 6 YR

CPSES — Table 2-V: Less Safety Significant Valves

Component	Code Class	Category	Description	Test Schedule (See Notes) Current	Proposed
8351D	2	B	Containment Isolation	MT/CS PIT/2 YR	6 YR 6 YR
CS-8367A	1	C	Reactor Coolant Pressure Boundary	CV/CS	6 YR
CS-8367B	1	C	Reactor Coolant Pressure Boundary	CV/CS	6 YR
CS-8367C	1	C	Reactor Coolant Pressure Boundary	CV/CS	6 YR
CS-8367D	1	C	Reactor Coolant Pressure Boundary	CV/CS	6 YR
CS-8368A	2	C	Containment Isolation	CV/CS	6 YR
CS-8368B	2	C	Containment Isolation	CV/CS	6 YR
CS-8368C	2	C	Containment Isolation	CV/CS	6 YR
CS-8368D	2	C	Containment Isolation	CV/CS	6 YR
CS-8377	1	C	Reactor Coolant Pressure Boundary	CV/CS	6 YR
8378A	1	C	Boration Flowpath ------------------------> Reactor Coolant Pressure Boundary -------->	CV/Q CV/CS	6 YR 6 YR
8378B	1	C	Boration Flowpath ------------------------> Reactor Coolant Pressure Boundary -------->	CV/Q CV/CS	6 YR 6 YR
8379A	1	C	Boration Flowpath ------------------------> Reactor Coolant Pressure Boundary -------->	CV/Q CV/CS	6 YR 6 YR
8379B	1	C	Boration Flowpath ------------------------> Reactor Coolant Pressure Boundary -------->	CV/Q CV/CS	6 YR 6 YR
8381	2	A/C	Boration Flowpath ------------------------> Containment Isolation --------------------> Containment Isolation -------------------->	CV/Q LTJ/TS CV/CS	6 YR Note 1 6 YR
CS-8442	2	C	Boration Flowpath	CV/CS	6 YR
CS-8473	3	C	Boration Flowpath/Boration Flowpath Boundary	CV/Q	6 YR
CS-8480A	2	C	ECCS Flowpath Boundary	CV/Q	6 YR
CS-8480B	2	C	ECCS Flowpath Boundary	CV/Q	6 YR
8481A	2	C	ECCS Flowpath & Boration Flowpath --------> ECCS Flowpath Boundary ------------------>	PS/Q CV/RF CV/Q	6 YR 6 YR 6 YR
8481B	2	C	ECCS Flowpath & Boration Flowpath --------> ECCS Flowpath Boundary ------------------>	PS/Q CV/RF CV/Q	6 YR 6 YR 6 YR
CS-8487	3	C	Boration Flowpath/Boration Flowpath Boundary	CV/Q	6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Category	Description	Test Schedule (See Notes) Current	Test Schedule (See Notes) Proposed
8497	2	C	ECCS Flowpath Boundary	CV/Q	6 YR
8510A	2	C	High Head Safety Injection Pump Miniflow Path/ECCS Recirculation Flowpath Boundary	SRV	Note 2
8510B	2	C	High Head Safety Injection Pump Miniflow Path/ECCS Recirculation Flowpath Boundary	SRV	Note 2
Containment Spray System					
CT-0013	2	C	Containment Spray Flowpath	CV/Q	6 YR
CT-0020	2	C	Chemical Additive Flowpath	CV/Q	6 YR
CT-0025	2	C	Containment Spray Injection Flowpath/ Sump Recirculation Flowpath Boundary	CV/Q	6 YR
CT-0031	2	C	Chemical Additive Flowpath	CV/Q	6 YR
CT-0042	2	C	Containment Spray Flowpath	CV/Q	6 YR
CT-0047	2	C	Pump Miniflow Flowpath	CV/Q	6 YR
CT-0048	2	C	Pump Miniflow Flowpath	CV/Q	6 YR
CT-0063	2	C	Pump Miniflow Flowpath	CV/Q	6 YR
CT-0064	2	C	Pump Miniflow Flowpath	CV/Q	6 YR
CT-0065	2	C	Containment Spray Flowpath	CV/Q	6 YR
CT-0072	2	C	Chemical Additive Flowpath	CV/Q	6 YR
CT-0077	2	C	Containment Spray Injection Flowpath / Sump Recirculation Flowpath Boundary	CV/Q	6 YR
CT-0082	2	C	Chemical Additive Flowpath	CV/Q	6 YR
CT-0094	2	C	Containment Spray Flowpath	CV/Q	6 YR
CT-0142	2	A/C	Containment Spray Flowpath/ Containment Isolation	LTJ/TS CVD/RF	Note 1 6 YR
CT-0145	2	A/C	Containment Spray Flowpath/ Containment Isolation	LTJ/TS CVD/RF	Note 1 6 YR
CT-0148	2	C	Sump Recirculation Flowpath	CVD/RF	6 YR
CT-0149	2	C	Sump Recirculation Flowpath	CVD/RF	6 YR
CT-0309	2	C	HV-4782 Bonnet Overpressure Relief / Containment Isolation	SRV/10 YR	10 YR
CT-0310	2	C	HV-4783 Bonnet Overpressure Relief / Containment Isolation	SRV/10 YR	10 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Cate-gory	Description	Test Schedule (See Notes) Current	Proposed
LV-4754	3	B	Chemical Additive Flowpath/ Chemical Additive Tank Isolation	MT/Q PIT/2 YR	6 YR 6 YR
LV-4755	3	B	Chemical Additive Flowpath/ Chemical Additive Tank Isolation	MT/Q PIT/2 YR	6 YR 6 YR
HV-4758	2	B	Sump Recirculation Flowpath Boundary	MT/Q PIT/2 YR	6 YR 6 YR
HV-4759	2	B	Sump Recirculation Flowpath Boundary	MT/Q PIT/2 YR	6 YR 6 YR
FV-4772-1	2	B	Pump Miniflow Flowpath / Containment Spray Flowpath Boundary	MT/Q PIT/2 YR	6 YR 6 YR
FV-4772-2	2	B	Pump Miniflow Flowpath / Containment Spray Flowpath Boundary	MT/Q PIT/2 YR	6 YR 6 YR
FV-4773-1	2	B	Pump Miniflow Flowpath / Containment Spray Flowpath Boundary	MT/Q PIT/2 YR	6 YR 6 YR
FV-4773-2	2	B	Pump Miniflow Flowpath / Containment Spray Flowpath Boundary	MT/Q PIT/2 YR	6 YR 6 YR
HV-4776	2	A	Containment Spray Flowpath/ Containment Isolation	LTJ/TS MT/Q PIT/2 YR	Note 1 6 YR 6 YR
HV-4777	2	A	Containment Spray Flowpath/ Containment Isolation	LTJ/TS MT/Q PIT/2 YR	Note 1 6 YR 6 YR
HV-4782	2	B	Sump Recirculation Flowpath/ Containment Isolation	MT/Q PIT/2 YR	6 YR 6 YR
HV-4783	2	A	Sump Recirculation Flowpath/ Containment Isolation	MT/Q PIT/2 YR	6 YR 6 YR
CTVBCA-01	3	C	Chemical Additive Tank Ventpath/ System Boundary	SRV/10 YR	10 YR
CTVBCA-02	3	C	Chemical Additive Tank Ventpath/ System Boundary	SRV/10 YR	10 YR
Demineralized and Reactor Makeup Water System					
2DD-0002	3	C	Non-Safety Makeup Line Isolation	CV/Q	6 YR
DD-0006	3	C	Non-Safety Makeup Line Isolation	CV/Q	6 YR
2DD-0008	3	C	Non-Safety Makeup Line Isolation	CV/Q	6 YR
2DD-0009	3	C	Non-Safety Makeup Line Isolation	CV/Q	6 YR
DD-0016	3	C	Pump Miniflow Path	CV/Q	6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Cate-gory	Description	Test Schedule (See Notes)	
				Current	Proposed
DD-0018	3	C	Pump Discharge Flowpath	CV/Q	6 YR
1DD-0020	3	B	Non-Safety Flowpath Isolation	ET/Q	6 YR
XDD-0044	3	C	Pump Miniflow Path	CV/Q	6 YR
XDD-0048	3	C	Pump Discharge Flowpath	CV/Q	6 YR
1DD-0064	3	C	Non-Safety Makeup Line Isolation	CV/Q	6 YR
1DD-0065	3	C	Non-Safety Makeup Line Isolation	CV/Q	6 YR
1DD-0066	3	C	Non-Safety Makeup Line Isolation	CV/Q	6 YR
XDD-0103	3	B	Non-Safety Flowpath Isolation	ET/Q	6 YR
DD-0430	2	A/C	Containment Penetration Thermal Relief/ Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
HV-5365	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-5365	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
Diesel Generator Auxiliary System					
DO-0004	3	C	Fuel Oil Flowpath/ Fuel Oil Flowpath Boundary	CV/Q	6 YR
DO-0005	3	C	Fuel Oil Flowpath/ Fuel Oil Flowpath Boundary	CV/Q	6 YR
DO-0016	3	C	Fuel Oil Flowpath/ Fuel Oil Flowpath Boundary	CV/Q	6 YR
DO-0017	3	C	Fuel Oil Flowpath/ Fuel Oil Flowpath Boundary	CV/Q	6 YR
DO-0049	3	C	Fuel Oil Flowpath	CV/Q	6 YR
1DO-0050	3	C	Fuel Oil Flowpath	CV/Q	6 YR
2DO-0052	3	C	Fuel Oil Flowpath	CV/Q	6 YR
DO-0058	3	C	Safety-Related Air Receiver to Non-Safety Air Supply Isolation	CV/Q	6 YR
DO-0059	3	C	Safety-Related Air Receiver to Non-Safety Air Supply Isolation	CV/Q	6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Cate-gory	Description	Test Schedule (See Notes)	
				Current	Proposed
DO-0060	3	C	Safety-Related Air Receiver to Non-Safety Air Supply Isolation	CV/Q	6 YR
DO-0061	3	C	Safety-Related Air Receiver to Non-Safety Air Supply Isolation	CV/Q	6 YR
DO-0062	3	C	Safety-Related Air Receiver to Non-Safety Air Supply Isolation	CV/Q	6 YR
DO-0063	3	C	Safety-Related Air Receiver to Non-Safety Air Supply isolation	CV/Q	6 YR
DO-0064	3	C	Safety-Related Air Receiver to Non-Safety Air Supply Isolation	CV/Q	6 YR
DO-0065	3	C	Safety-Related Air Receiver to Non-Safety Air Supply Isolation	CV/Q	6 YR
2DO-0074	3	C	Safety-Related Air Receiver to Non-Safety Air Supply Isolation	CV/Q	6 YR
2DO-0075	3	C	Safety-Related Air Receiver to Non-Safety Air Supply Isolation	CV/Q	6 YR
2DO-0076	3	C	Safety-Related Air Receiver to Non-Safety Air Supply Isolation	CV/Q	6 YR
2DO-0077	3	C	Safety-Related Air Receiver to Non-Safety Air Supply Isolation	CV/Q	6 YR
DO-0104	3	C	Jacket Water Flowpath Boundary	CV/Q	6 YR
DO-0107	3	B	Jacket Water Temperature Control	Note 3	N/A
DO-0157	3	C	Lube Oil Flowpath	CV/Q	6 YR
DO-0158	3	C	Lube Oil Flopath Boundary	CV/Q	6 YR
DO-0204	3	C	Jacket Water Flowpath Boundary	CV/Q	6 YR
DO-0207	3	B	Jacket Water Temperature Control	Note 3	N/A
DO-0257	3	C	Lube Oil Flowpath	CV/Q	6 YR
DO-0258	3	C	Lube Oil Flowpath Boundary	CV/Q	6 YR
Feedwater System					
FW-0070	2	C	Main Feedlin Break Isolation	CV/CS	6 YR
FW-0076	2	C	Main Feedlin Break Isolation	CV/CS	6 YR
FW-0082	2	C	Main Feedlin Break Isolation	CV/CS	6 YR
FW-0088	2	C	Main Feedlin Break Isolation	CV/CS	6 YR
FW-00191	2	C	AFW Flowpath Boundary	CV/CS	6 YR

CPSES Table 2-V: Less Safety Significant Valves

Component	Code Class	Category	Description	Test Schedule (See Notes) Current	Test Schedule (See Notes) Proposed
FW-0192	2	C	AFW Flowpath Boundary	CV/CS	6 YR
FW-0193	2	C	AFW Flowpath Boundary	CV/CS	6 YR
FW-0194	2	C	AFW Flowpath Boundary	CV/CS	6 YR
FW-0195	2	C	AFW Flowpath Boundary	CV/CS	6 YR
FW-0196	2	C	AFW Flowpath Boundary	CV/CS	6 YR
FW-0197	2	C	AFW Flowpath Boundary	CV/CS	6 YR
FW-0198	2	C	AFW Flowpath Boundary	CV/CS	6 YR
FW-0199	2	C	AFW Flowpath Boundary	CV/Q	6 YR
FW-0200	2	C	AFW Flowpath Boundary	CV/Q	6 YR
FW-0201	2	C	AFW Flowpath Boundary	CV/Q	6 YR
FW-0202	2	C	AFW Flowpath Boundary	CV/Q	6 YR
HV-2154	2	B	Containment Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2155	2	B	Containment Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
FV-2181	2	B	AFW Flowpath Boundary	PS/Q MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR 6 YR
FV-2182	2	B	AFW Flowpath Boundary	PS/Q MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR 6 YR
FV-2183	2	B	AFW Flowpath Boundary	PS/Q MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR 6 YR
FV-2184	2	B	AFW Flowpath Boundary	PS/Q MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR 6 YR
HV-2185	2	B	Feedwater Isolation & Containment Isolation	MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR

CPSES			Table 2-V: Less Safety Significant Valves		
Component	Code Class	Category	Description	Test Schedule (See Notes)	
				Current	Proposed
HV-2186	2	B	Feedwater Isolation & Containment Isolation	MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR
HV-2187	2	B	Feedwater Isolation & Containment Isolation	MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR
HV-2188	2	B	Feedwater Isolation & Containment Isolation	MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR
HV-2193	2	B	Feedwater Isolation & Containment Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2194	2	B	Feedwater Isolation & Containment Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2195	2	B	Feedwater Isolation & Containment Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2196	2	B	Feedwater Isolation & Containment Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
			Main Steam System		
MS-0026	2	B	Steam Generator Tube Rupture Isolation (Isolates PORV)	ET/Q	6 YR
MS-0063	2	B	Steam Generator Tube Rupture Isolation (Isolates PORV)	ET/Q	6 YR
MS-0098	2	B	Steam Generator Tube Rupture Isolation (Isolates PORV)	ET/Q	6 YR
MS-0134	2	B	Steam Generator Tube Rupture Isolation (Isolates PORV)	ET/Q	6 YR
MS-0142	3	C	TDAFW Pump Steam Supply Flowpath/TDAFW Pump SteamSupply Flowpath Boundary	CV/Q	6 YR
MS-0143	3	C	TDAFW Pump Steam Supply Flowpath/TDAFW Pump SteamSupply Flowpath Boundary	CV/Q	6 YR
2MS-0663	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
2MS-0664	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR

CPSES Table 2-V: Less Safety Significant Valves

Component	Code Class	Cate-gory	Description	Test Schedule (See Notes)	
				Current	Proposed
2MS-0665	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
2MS-0666	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
2MS-0667	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
2MS-0668	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
2MS-0669	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
2MS-0670	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
1MS-0680	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
1MS-0681	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
1MS-0682	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
1MS-0683	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
1MS-0684	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
1MS-0685	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
1MS-0686	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
1MS-0687	3	A/C	Safety-Related Air Accumulator to Non-Safety Air Supply Isolation	LT/2 YR CV/Q	6 YR 6 YR
HV-2333B	2	B	Steam Line Isolation/ Containment Isolation	PIT/2 YR	6 YR
HV-2334B	2	3	Steam Line Isolation/ Containment Isolation	PIT/2 YR	6 YR
HV-2335B	2	B	Steam Line Isolation/ Containment Isolation	PIT/2 YR	6 YR
HV-2336B	2	B	Steam Line Isolation/ Containment Isolation	PIT/2 YR	6 YR
HV-2401A	2	B	AFW Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Cate-gory	Description	Test Schedule (See Notes)	
				Current	Proposed
HV-2401B	2	B	AFW Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2402A	2	B	AFW Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2402B	2	B	AFW Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2403A	2	B	AFW Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2403B	2	B	AFW Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2404A	2	B	AFW Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2404B	2	B	AFW Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2405	2	B	Containment Isolation & AFW Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2406	2	B	Containment Isolation & AFW Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2407	2	B	Containment Isolation & AFW Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2408	2	B	Containment Isolation & AFW Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2409	2	B	Steam Line Isolation & Containment Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2410	2	B	Steam Line Isolation & Containment Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Cate-gory	Description	Test Schedule (See Notes) Current	Test Schedule (See Notes) Proposed
HV-2411	2	B	Steam Line Isolation & Containment Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-2412	2	B	Steam Line Isolation & Containment Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
			Reactor Coolant System		
RC-0036	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
HV-3607	2	B	Post Accident Vent Path / Vent Path Isolation	MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR
HV-3608	2	B	Post Accident Vent Path / Vent Path Isolation	MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR
HV-3609	2	B	Post Accident Vent Path / Vent Path Isolation	MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR
HV-3610	2	B	Post Accident Vent Path / Vent Path Isolation	MT/CS FC/CS PIT/2 YR	6 YR 6 YR 6 YR
8026	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
8027	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
8046	2	A/C	Containment Isolation	LTJ/TS CV/CS	Note 1 6 YR
8047	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
			Residual Heat Removal System		
FCV-0618	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
FCV-0619	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Category	Description	Test Schedule (See Notes) Current	Proposed
HV-4178	2	B	RHR System to Non-Safety Process Sampling System Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-4179	2	B	RHR System to Non-Safety Process Sampling System Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
HV-4182	2	B	RHR System to Non-Safety Post Accident Sampling System Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
8730A	2	C	ECCS & RHR Flowpath / ECCS Injection Flowpath Boundary	CV/CS	6 YR
8730B	2	C	ECCS & RHR Flowpath / ECCS Injection Flowpath Boundary	CV/CS	6 YR
Spent Fuel Pool Cooling System					
XSF-0003	3	C	Spent Fuel Pool Cooling Flowpath	CV/Q	6 YR
XSF-0004	3	C	Spent Fuel Pool Cooling Flowpath	CV/Q	6 YR
SF-0011	2	A	Containment Isolation	LTJ/TS	Note 1
SF-0012	2	A	Containment Isolation	LTJ/TS	Note 1
SF-0021	2	A	Containment Isolation	LTJ/TS	Note 1
SF-0022	2	A	Containment Isolation	LTJ/TS	Note 1
1SF-0053	2	A	Containment Isolation	LTJ/TS	Note 1
1SF-0054	2	A	Containment Isolation	LTJ/TS	Note 1
2SF-0055	2	A	Containment Isolation	LTJ/TS	Note 1
2SF-0056	2	A	Containment Isolation	LTJ/TS	Note 1
XSF-0160	3	C	Spent Fuel Pool Emergency Makeup Flowpath	CV/Q	6 YR
XSF-0161	3	B	Spent Fuel Pool Emergency Makeup Flowpath	ET/Q	6 YR
XSF-0179	3	B	Spent Fuel Pool Emergency Makeup Flowpath	ET/Q	6 YR
XSF-0180	3	C	Spent Fuel Pool Emergency Makeup Flowpath	CV/Q	6 YR
Safety Injection System					
8800A	2	B	RWST to Non-Safety Purification System Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR

CPSES			Table 2-V: Less Safety Significant Valves		
Component	Code Class	Category	Description	Test Schedule (See Notes)	
				Current	Proposed
8800B	2	B	RWST to Non-Safety Purification System Isolation	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
8801A	2	B	ECCS to Cold Legs Flowpath & Boration Flowpath / Containment Isolation & Passive Pipe Break Isolation	MT/RF PIT/2 YR	6 YR 6 YR
8801B	2	B	ECCS to Cold Legs Flowpath & Boration Flowpath / Containment Isolation & Passive Pipe Break Isolation	MT/RF PIT/2 YR	6 YR 6 YR
8802A	2	B	ECCS to Hot Legs Flowpath/ ECCS to Cold Legs Flowpath & Boration Flowpath / Containment Isolation & Passive Pipe Break Isolation	MT/CS PIT/2 YR	6 YR 6 YR
8802B	2	B	ECCS to Hot Legs Flowpath/ ECCS to Cold Legs Flowpath & Boration Flowpath / Containment Isolation & Passive Pipe Break Isolation	MT/CS PIT/2 YR	6 YR 6 YR
8807A	2	B	ECCS Recirculation Flowpath/Passive Pipe Break Isolation	MT/Q PIT/2 YR	6 YR 6 YR
8807B	2	B	ECCS Recirculation Flowpath/Passive Pipe Break Isolation	MT/Q PIT/2 YR	6 YR 6 YR
8808A	2	B	ECCS from Accumulators to Cold Legs Flowpath	MT/CS PIT/2 YR	6 YR 6 YR
8808B	2	B	ECCS from Accumulators to Cold Legs Flowpath	MT/CS PIT/2 YR	6 YR 6 YR
8808C	2	B	ECCS from Accumulators to Cold Legs Flowpath	MT/CS PIT/2 YR	6 YR 6 YR
8808D	2	B	ECCS from Accumulators to Cold Legs Flowpath	MT/CS PIT/2 YR	6 YR 6 YR
8821A	2	B	ECCS to Cold Legs Flowpath/ECCS to Hot Legs Flowpath Boundary & Passive Pipe Break Isolation	MT/Q PIT/2 YR	6 YR 6 YR
8821B	2	B	ECCS to Cold Legs Flowpath/ECCS to Hot Legs Flowpath Boundary & Passive Pipe Break Isolation	MT/Q PIT/2 YR	6 YR 6 YR
8823	2	B	Containment Isolation & ECCS Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Cate-gory	Description	Test Schedule (See Notes)	
				Current	Proposed
8824	2	B	Containment Isolation & ECCS Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
8825	2	A	Containment Isolation & ECCS Flowpath Boundary	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
8841A	1	A/C	ECCS to Hot Legs Flowpath/Reactor Coolant Pressure Boundary & Containment Isolation	LT/TS CV/RF	Note 4 6 YR
8841B	1	A/C	ECCS to Hot Legs Flowpath/Reactor Coolant Pressure Boundary & Containment Isolation	LT/TS CV/RF	Note 4 6 YR
8843	2	B	Containment Isolation & ECCS Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
8871	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
8875A	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8875B	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8875C	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8875D	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8877A	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8877B	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8877C	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8877D	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8878A	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8878B	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8878C	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8878D	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8879A	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8879B	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8879C	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8879D	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR

CPSES Table 2-V: Less Safety Significant Valves

Component	Code Class	Category	Description	Test Schedule (See Notes) Current	Test Schedule (See Notes) Proposed
8880	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
8881	2	B	Containment Isolation & ECCS Flowpath Boundary	MT/Q FC/Q PIT/2 YR	6 YR 6 YR 6 YR
8882	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8888	2	A	Containment Isolation & ECCS Flowpath Boundary	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
8889A	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8889B	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8889C	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8889D	2	B	ECCS Flowpath Boundary	PIT/2 YR	6 YR
8890A	2	A	Containment Isolation & ECCS Flowpath Boundary	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
8890B	2	A	Containment Isolation & ECCS Flowpath Boundary	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
SI-8900A	1	A/C	ECCS to Cold Legs Flowpath & Boration Flowpath/Reactor Coolant Pressure Boundary	LT/TS CV/RF	Note 4 6 YR
SI-8900B	1	A/C	ECCS to Cold Legs Flowpath & Boration Flowpath/Reactor Coolant Pressure Boundary	LT/TS CV/RF	Note 4 6 YR
SI-8900C	1	A/C	ECCS to Cold Legs Flowpath & Boration Flowpath/Reactor Coolant Pressure Boundary	LT/TS CV/RF	Note 4 6 YR
SI-8900D	1	A/C	ECCS to Cold Legs Flowpath & Boration Flowpath/Reactor Coolant Pressure Boundary	LT/TS CV/RF	Note 4 6 YR
SI-8905A	1	A/C	ECCS to Hot Legs Flowpath/Reactor Coolant Pressure Boundary & Containment Isolation	LT/TS CV/RF	Note 4 6 YR
SI-8905B	1	A/C	ECCS to Hot Legs Flowpath/Reactor Coolant Pressure Boundary & Containment Isolation	LT/TS CV/RF	Note 4 6 YR
SI-8905C	1	A/C	ECCS to Hot Legs Flowpath/Reactor Coolant Pressure Boundary & Containment Isolation	LT/TS CV/RF	Note 4 6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Category	Description	Test Schedule (See Notes) Current	Proposed
SI-8905D	1	A/C	ECCS to Hot Legs Flowpath/Reactor Coolant Pressure Boundary & Containment Isolation	LT/TS CV/RF	Note 4 6 YR
SI-8919A	2	C	SI Pump Miniflow Path / ECCS Recirculation Flowpath Boundary	CV/Q	6 YR
SI-8919B	2	C	SI Pump Miniflow Path / ECCS Recirculation Flowpath Boundary	CV/Q	6 YR
8922A	2	C	ECCS Flowpath / ECCS Flowpath Boundary	CV/RF	6 YR
8922B	2	C	ECCS Flowpath / ECCS Flowpath Boundary	CV/RF	6 YR
8924	2	B	Passive Pipe Break Isolation	MT/Q PIT/2 YR	6 YR 6 YR
8949A	1	A/C	ECCS to Hot Legs Flowpath/ Reactor Coolant Pressure Boundary	LT/TS CV/RF	Note 4 6 YR
8949B	1	A/C	ECCS to Hot Legs Flowpath/ Reactor Coolant Pressure Boundary	LT/TS CV/RF	Note 4 6 YR
8949C	1	A/C	ECCS to Hot Legs Flowpath/ Reactor Coolant Pressure Boundary	LT/TS CV/RF	Note 4 6 YR
8949D	1	A/C	ECCS to Hot Legs Flowpath/ Reactor Coolant Pressure Boundary	LT/TS CV/RF	Note 4 6 YR
8958A	2	C	ECCS Injection Flowpath / ECCS Recirculation flowpath Boundary	CV/CS	6 YR
8958B	2	C	ECCS Injection Flowpath / ECCS Recirculation flowpath Boundary	CV/CS	6 YR
8964	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
SI-8968	2	A/C	Containment Isolation	LTJ/TS CV/Q	Note 1 6 YR
8969A	2	C	ECCS Recirculation Flowpath /ECCS Flowpath Boundary (during Recirculation with Loss of RHR B)	CV/RF	6 YR
8969B	2	C	ECCS Recirculation Flowpath /ECCS Flowpath Boundary (during Recirculation with Loss of RHR A)	CV/RF	6 YR
1SI-8972	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
2SI-8983	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Category	Description	Test Schedule (See Notes) Current	Proposed
Service Water System					
HV-4393	3	B	Service Water Flowpath	MT/Q PIT/2 YR	6 YR 6 YR
HV-4394	3	B	Service Water Flowpath	MT/Q PIT/2 YR	6 YR 6 YR
HV-4395	3	B	AFW Pump Emergency Supply Flowpath	MT/RF PIT/2 YR	6 YR 6 YR
HV-4396	3	B	AFW Pump Emergency Supply Flowpath	MT/RF PIT/2 YR	6 YR 6 YR
Vents and Drains					
VD-0003	3	C	Sump Discharge Flowpath / Sump Discharge Flowpath Boundary	CV/RF	6 YR
VD-0004	3	C	Sump Discharge Flowpath / Sump Discharge Flowpath Boundary	CV/RF	6 YR
VD-0011	3	C	Sump Discharge Flowpath / Sump Discharge Flowpath Boundary	CV/RF	6 YR
VD-0012	3	C	Sump Discharge Flowpath / Sump Discharge Flowpath Boundary	CV/RF	6 YR
2VD-0896	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
1VD-0907	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
Misc Containment Isolation Valves (Buildings and Structures)					
1BS-0015	N/A	A	Containment Isolation	LTJ/TS	Note 1
2BS-0015	2	A	Containment Isolation	LTJ/TS	Note 1
2BS-0016	2	A	Containment Isolation	LTJ/TS	Note 1
2BS-0017	2	A	Containment Isolation	LTJ/TS	Note 1
BS-0025	2	A	Containment Isolation	LTJ/TS	Note 1
1BS-0029	N/A	A	Containment Isolation	LTJ/TS	Note 1
2BS-0029	2	A	Containment Isolation	LTJ/TS	Note 1
BS-0030	2	A	Containment Isolation	LTJ/TS	Note 1
2BS-0039	2	A	Containment Isolation	LTJ/TS	Note 1
2BS-0040	2	A	Containment Isolation	LTJ/TS	Note 1
1BS-0044	N/A	A	Containment Isolation	LTJ/TS	Note 1

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Cate-gory	Description	Test Schedule (See Notes)	
				Current	Proposed
2BS-0044	2	A	Containment Isolation	LTJ/TS	Note 1
1BS-0056	N/A	A	Containment Isolation	LTJ/TS	Note 1
2BS-0056	2	A	Containment Isolation	LTJ/TS	Note 1
BS-0202	2	A	Containment Isolation	LTJ/TS	Note 1
BS-0203	2	A	Containment Isolation	LTJ/TS	Note 1
Misc Containment Isolation Valves (Service Air)					
CA-0016	2	A/C	Containment Isolation	LTJ/TS CV/Q	Note 1 6 YR
HV-3468	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
Misc Containment Isolation Valves (Chilled Water / Non-Safety)					
CH-0024	2	A/C	Containment Isolation	LTJ/TS CV/CS	Note 1 6 YR
1CH-0271	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
1CH-0272	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
2CH-0281	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
2CH-0282	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
HV-0682	2	A	Containment Isolation	LTJ/TS MT/CS PIT/2 YR	Note 1 6 YR 6 YR
HV-0683	2	A	Containment Isolation	LTJ/TS MT/CS PIT/2 YR	Note 1 6 YR 6 YR
HV-0684	2	A	Containment Isolation	LTJ/TS MT/CS PIT/2 YR	Note 1 6 YR 6 YR
Misc Containment Isolation Valves (Instrument Air)					
CI-0030	2	A/C	Containment Isolation	LTJ/TS CV/RF	Note 1 6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Cate-gory	Description	Test Schedule (See Notes)	
				Current	Proposed
HV-3487	2	A	Conataiment Isolation	LTJ/TS MT/CS FC/CS PIT/2 YR	Note 1 6 YR 6 YR 6 YR
Misc Containment Isolation Valves (Fire Protection)					
HV-4075B	2	A	Conataiment Isolation	LTJ/TS MT/Q PIT/2 YR	Note 1 6 YR 6 YR
HV-4075C	2	A	Conataiment Isolation	LTJ/TS MT/Q PIT/2 YR	Note 1 6 YR 6 YR
Misc Containment Isolation Valves (Post Accident Sampling)					
HV-5556	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-5557	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-5558	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-5559	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-5560	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-5561	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
WP-7177	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
HV-7311	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Category	Description	Test Schedule (See Notes) Current	Test Schedule (See Notes) Proposed
HV-7312	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
Misc Containment Isolation Valves (Process Sampling)					
PS-0500	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
PS-0501	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
PS-0502	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
PS-0503	2	A/C	Containment Penetration Thermal Relief / Containment Isolation	LTJ/TS SRV/10 YR	Note 1 10 YR
HV-4165	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-4166	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-4167	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-4168	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-4169	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-4170	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-4171	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Category	Description	Test Schedule (See Notes) Current	Proposed
HV-4172	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-4173	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-4174	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-4175	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-4176	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
Misc Containment Isolation Valves (Radiation Monitoring)					
HV-5544	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-5545	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-5546	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-5547	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
Misc Containment Isolation Valves (Containment HVAC)					
HV-5536	2	A	Containment Isolation	LTJ/TS MT/CS FC/CS PIT/2 YR	Note 1 6 YR 6 YR 6 YR

CPSES			Table 2-V: Less Safety Significant Valves		
Component	Code Class	Category	Description	Test Schedule (See Notes) Current	Test Schedule (See Notes) Proposed
HV-5537	2	A	Containment Isolation	LTJ/TS MT/CS FC/CS PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-5538	2	A	Containment Isolation	LTJ/TS MT/CS FC/CS PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-5539	2	A	Containment Isolation	LTJ/TS MT/CS FC/CS PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-5548	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
HV-5549	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
Misc Containment Isolation Valves (Containment Hydrogen Purge)					
HV-5540	2	A	Containment Isolation	LTJ/TS MT/CS PIT/2 YR	Note 1 6 YR 6 YR
HV-5541	2	A	Containment Isolation	LTJ/TS MT/CS PIT/2 YR	Note 1 6 YR 6 YR
HV-5542	2	A	Containment Isolation	LTJ/TS MT/CS PIT/2 YR	Note 1 6 YR 6 YR
HV-5543	2	A	Containment Isolation	LTJ/TS MT/CS PIT/2 YR	Note 1 6 YR 6 YR
HV-5562	2	A	Containment Isolation	LTJ/TS MT/CS PIT/2 YR	Note 1 6 YR 6 YR
HV-5563	2	A	Containment Isolation	LTJ/TS MT/CS PIT/2 YR	Note 1 6 YR 6 YR
Misc Containment Isolation Valves (Liquid Waste Processing)					

CPSES	Table 2-V: Less Safety Significant Valves				
Component	Code Class	Category	Description	Test Schedule (See Notes) Current	Test Schedule (See Notes) Proposed
LCV-1003	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
7126	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
7135	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
7150	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR
WP-7196	2	A	Containment Isolation	LTJ/TS MT/Q FC/Q PIT/2 YR	Note 1 6 YR 6 YR 6 YR

Notes:

1. No change is requested for the 10CFR50.55 Appendix J Test Requirements.

2. Under the provisions of 10CFR50.55a(f)(6)(ii), the NRC staff has imposed augmented inservice test requirements for these valves. See safety evaluation dated January 29, 1993, for Unit 1 and NUREG-0797, SER Supplement 26 for Unit 2 for the frequency requirements.

3. These valves are exempt from inservice testing per OM Part 10, 1.2(a)(2).

4. The test frequency requirements of Technical Specification 4.4.5.2.2 apply for leak testing of these valves. The Technical Specification 4.4.5.2.2 test frequency requirements are more restrictive than the test frequency requirements of OM Part 10, para. 4.2.2.3(a).

TEST PARAMETERS

Leak Test

LT - Leak test Category A valve (other than containment isolation valves) per the requirements of OM Part 10, para. 4.2.2.3.

LTJ - Leak test Category A containment isolation valve per the requirements of OM Part 10, para. 4.2.2.2 (i.e., 10CFR50, Appendix J) and additional requirements of OM Part 10, paras. 4.2.2.3(e) and (f) as required by 10CFR50.55a(b)(2)(vii).

Exercise Test

MT - Exercise power operated Category A or B valve full-stroke to its safety function position(s) and measure stroke time per the requirements of OM Part 10, para. 4.2.1.

ET - Exercise manual Category A or B valve full-stroke to its safety function position(s) per the requirements of OM Part 10, para. 4.2.1.

CV - Exercise Category C check valve full-stroke to its safety function position(s) per the requirements of OM Part 10, para. 4.3.2.

CVD - Disassemble Category C check valve to verify operability per the requirements of OM Part 10, para. 4.3.2.4(c).

PS - Exercise Category A or B valve or Category C check valve part-stroke towards its safety function position(s) per the requirements of OM Part 10, paras. 4.2.1 or 4.3.2, as applicable. Part-stroke close exercising is not applicable to check valves.

SRV - Performance test Category C safety, relief or vacuum breaker valve per the requirements of OM Part 10, para. 4.3.1 (i.e., applicable portions of OM Part 1).

DT - Test Category D valve per the requirements of OM Part 10, para. 4.4.

Fail Safe Test

FO - Fail safe test Category A or B valve in the open direction per the requirements of OM Part 10, para. 4.2.1.6.

FC - Fail safe test Category A or B valve in the closed direction per the requirements of OM Part 10, para. 4.2.1.6.

Position Indicator Test

PIT - Test Category A, B, C or D valve position indication per OM Part 10, para. 4.1.

TEST SCHEDULES

Q - Perform exercise test (and fail safe test, if applicable) nominally every three months.

CS - Perform exercise test (and fail safe test, if applicable) during each cold shutdown. Such exercise is not required if the time period since the previous full-stroke exercise is less than three months. Valve exercising during cold shutdown shall commence within 48 hours of achieving cold shutdown, and continue until all testing is complete or the plant is ready to return to power. For extended outages, testing need not be commenced in 48 hours provided all valves required to be tested during cold shutdown will be tested prior to plant startup.

RF - Perform exercise test (and fail safe test, if applicable) during each refueling outage.

TS - Perform test at the applicable Technical Specification frequency.

NYR - Perform test at least once every N years. For leak tests (LT) and position indicator tests (PIT), N equals two years. For pressure relief device performance tests (SRV), N nominally equals five years or ten years for Class 1 or Class 2 & 3 devices respectively. However, other test frequencies may apply for pressure relief devices. See OM Part 1, paras. 1.3.3 and 1.3.4.

CPSES	Table 3: More Safety Significant Components
Component	Description
XCI-0681	INST AIR DRYR X-01 RLF VLV
XCI-0683	INST AIR DRYR X-01 RLF VLV
1AF-0006	CST 1-01 TO TD AFW PMP 1-01 ISOL VLV
IAF-0007	CST 1-01 TO MD AFW PMP 1-01/1-02 ISOL VLV
1-TV-2370A	MAIN STM DMP TO CNDSR 1-01 VLV 2370A
1-TV-2370B	MAIN STM DMP TO CNDSR 1-01 VLV 2370B
1-TV-2370C	MAIN STM DMP TO CNDSR 1-01 VLV 2370C
1-TV-2370D	MAIN STM DMP TO CNDSR 1-01 VLV 2370D
1-TV-2370E	MAIN STM DMP TO CNDSR 1-01 VLV 2370E
1-TV-2370F	MAIN STM DMP TO CNDSR 1-01 VLV 2370F
1-TV-2370G	MAIN STM DMP TO CNDSR 1-01 VLV 2370G
1-TV-2370H	MAIN STM DMP TO CNDSR 1-01 VLV 2370H
1-TV-2370J	MAIN STM DMP TO CNDSR 1-01 VLV 2370J
1-FCV-0510	SG 1-01 Fw Flo Crtl Vlv
1-FCV-0540	SG 1-04 Fw Flo Crtl Vlv
1-8341	U1 Pd PMP/CCP Suct Xtie Vlv
X-PSV-3475A	INST AIR RCVR X-01 PRESS RLV VLV
1-CI-0749	INST AIR DRYR 1-02 RLF VLV
1-CI-0750	INST AIR DRYR 1-02 RLF VLV
1-CI-0063	INST AIR DRYR 1-01 RLF VLV
1-CI-0072	INST AIR DRYR 1-01 RLF VLV
1-PSV-3475A	INST AIR RCVR 1-02 PRESS RLF VLV
1-CI-0055	INST AIR RCVR 1-01 PRESS RLF VLV
1-FCV-0520	SB 1-02 Fw Flo Ctrl Vlv
1-FCV-0530	SG 1-03 Fw Flo Ctrl Vlv