

WOLF CREEK

NUCLEAR OPERATING CORPORATION

Donna Jacobs
Vice President Operations and Plant Manager

JUL 23 2004

WO 04-0030

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

- References: 1) Letter ET 02-0030, dated August 16, 2002, from G. B. Fader, WCNOC, to USNRC
- 2) Letter WM 04-0016, dated June 4, 2004, from R. A. Muench, WCNOC, to USNRC
- Subject: Docket No. 50-482: Revision to Technical Specification 3.6.3, "Containment Isolation Valves"

Gentlemen:

Wolf Creek Nuclear Operating Corporation (WCNOC) herewith transmits an application for amendment to Facility Operating License No. NPF-42 for the Wolf Creek Generating Station (WCGS).

This amendment application would revise Technical Specification (TS) 3.6.3, "Containment Isolation Valves," to extend the Completion Times for an inoperable containment isolation valve. The proposed changes are based on WCAP-15791-P, Revision 1, "Risk-Informed Evaluation of Extensions to Containment Isolation Valve Completion Times." WCNOC is the Westinghouse Owners Group lead plant for this risk-informed program. WCAP-15791-P, Revision 1, was submitted to the NRC by letter WOG-04-0234, dated May 6, 2004. Reference 1 submitted an amendment application to revise TS 3.6.3 based on WCAP-15791-P, Revision 0. As discussed in Reference 2, WCNOC withdrew the amendment application provided by Reference 1 due to the NRC schedule for reviewing WCAP-15791-P.

The WCNOC Plant Safety Review Committee and the Nuclear Safety Review Committee have reviewed this amendment application. Attachments I through VI provide the required Affidavit, Evaluation, Markup of Technical Specifications, Retyped Technical Specifications, Proposed Technical Specification Bases Changes, and List of Commitments, respectively, in support of this amendment request. Attachment V is provided for information only. Final Bases changes will be implemented pursuant to TS 5.5.14, "Technical Specifications (TS) Bases Control Program."

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It has been determined that this amendment application does not involve a significant hazard consideration as determined per 10 CFR 50.92. Pursuant to 10 CFR 51.22(b), no environmental assessment need be prepared in connection with the issuance of this amendment.

WCNOC requests approval of the proposed license amendment by August 31, 2005. Once approved, this amendment will be implemented within 90 days.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Kansas State Official. If you should have any questions regarding this submittal, please contact me at (620) 364-4246, or Mr. Kevin Moles, Manager Regulatory Affairs, at (620) 364-4126.

Very truly yours,


Donna Jacobs

DJ/rig

Attachments: I - Affidavit
II - Evaluation
III - Markup of Technical Specification pages
IV - Retyped Technical Specification pages
V - Proposed Bases Changes (for information only)
VI - List of Commitments

cc: V. L. Cooper (KDHE), w/a
J. N. Donohew (NRC), w/a
D. N. Graves (NRC), w/a
B. S. Mallett (NRC), w/a
Senior Resident Inspector (NRC), w/a

STATE OF KANSAS)
) SS
COUNTY OF COFFEY)

Donna Jacobs, of lawful age, being first duly sworn upon oath says that she is Vice President Operations and Plant Manager of Wolf Creek Nuclear Operating Corporation; that she has read the foregoing document and knows the contents thereof; that she has executed the same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of her knowledge, information and belief.

By *Donna Jacobs*
Donna Jacobs
Vice President Operations and Plant Manager

SUBSCRIBED and sworn to before me this 23 day of July, 2004.



Rhonda L. Gleue
Notary Public

Expiration Date May 11, 2006

ATTACHMENT II
EVALUATION

EVALUATION

1.0 DESCRIPTION

This amendment application would revise Technical Specification (TS) 3.6.3, "Containment Isolation Valves," to extend the Completion Times for an inoperable containment isolation valve. WCAP-15791-P, Rev. 1, "Risk-Informed Evaluation of Extensions to Containment Isolation Valve Completion Times," (Reference 1) provides the technical justification for extending the Completion Time from 4 hours to a maximum of 168 hours (7 days) for TS 3.6.3. For containment isolation valves where acceptable results could not be demonstrated within 168 hours, shorter Completion Times were considered, evaluated, and requested. The current Completion Times are generally insufficient to respond to containment isolation valve inoperability and perform preventative maintenance activities at power.

The TS Bases for TS 3.6.3 are modified for consistency with the changes to the technical specifications.

Wolf Creek Nuclear Operating Corporation (WCNOC) is the Westinghouse Owners Group lead plant for this risk-informed program. Letter WOG-04-0234, dated May 6, 2004, transmitted WCAP-15791-P, Rev. 1 (Proprietary) and WCAP-15791-NP, Rev. 1 (Non-Proprietary), both entitled "Risk-Informed Evaluation of Extensions to Containment Isolation Valve Completion Times," to the NRC for review and approval. References are listed in Section 7 of this evaluation.

2.0 PROPOSED CHANGE

TS 3.6.3, "Containment Isolation Valves," Required Action A.1 of Condition A, requires isolating the affected penetration flow path within 4 hours with one or more penetration flow paths with one containment isolation valve inoperable except for purge valve leakage not within limit. Condition A is only applicable to penetration flow paths with two containment isolation valves. Required Action C.1 of Condition C, requires isolating the affected penetration flow path within 72 hours with one or more penetration flow paths with one containment isolation valve inoperable. Condition C is only applicable to penetration flow paths with one containment isolation valve and a closed system. This amendment application proposes to revise TS 3.6.3 as follows:

- Condition A is revised to delete the NOTE indicating that Condition A is only applicable to penetration flow paths with two containment isolation valves.
- The Completion Time for Required Action A.1 is revised to allow Completion Times from 4 hours up to a Completion Time of 7 days.
- The existing Condition C is deleted since WCAP-15791-P, Rev. 1, evaluates a Completion Time for each specific valve as opposed to each penetration flow path. A new Condition C is added for two or more penetration flow paths with one containment isolation valve inoperable.

Attachments III and IV provide the TS markups and the retyped TS. Attachment V provides the proposed TS Bases.

3.0 BACKGROUND

The containment isolation valves are used to isolate containment penetration flow paths. Typically there is one containment isolation valve inside and one containment isolation valve outside each penetration that performs this function. Depending on the purpose of the system, the containment isolation valves may be normally open or closed. Systems can be closed or open inside and outside of containment. An open system inside containment is one that is directly connected to the containment atmosphere. An open system outside containment is one that is directly connected to the outside environment. A closed system inside containment is one that is not directly connected to the containment atmosphere and may consist of only a run of pipe inside containment. A closed system outside containment has no direct connection to the outside environment. Closed systems, either inside or outside containment, may not have an associated containment isolation valve.

The containment isolation valves form part of the containment pressure boundary and provide a means for fluid penetrations not serving accident consequence limiting systems to be provided with two isolation barriers that are closed on a containment isolation signal. The isolation devices are either passive or active (automatic). Manual valves, de-activated automatic valves secured in their closed position (including check valves with flow through the valve secured), blind flanges, and closed systems are considered passive devices. Check valves, or other automatic valves designed to close without operator action following an accident, are considered active devices. Two barriers in series are provided for each penetration so that no single credible failure or malfunction of an active component can result in a loss of isolation or leakage that exceeds the limits assumed in the safety analyses. One of these barriers may be a closed system. These barriers (typically containment isolation valves) make up the Containment Isolation System.

Automatic containment isolation signals are produced during accident conditions. Containment Phase "A" isolation occurs upon receipt of a safety injection signal. A Phase "A" isolation signal isolates nonessential process lines in order to minimize leakage of fission product radioactivity. Containment Phase "B" isolation occurs upon receipt of a containment pressure High-High signal and isolates the remaining process lines, except systems required for accident mitigation. In addition to the isolation signals listed above, the purge and exhaust valves receive an isolation signal on a containment high radiation condition. As a result, the Containment Isolation System helps ensure that the containment atmosphere will be isolated from the environment in the event of a release of fission product radioactivity to the containment atmosphere as a result of a Design Basis Accident (DBA).

The OPERABILITY requirements for containment isolation valves help ensure that containment is isolated within the time limits assumed in the safety analysis. Therefore, the OPERABILITY requirements provide assurance that the containment function assumed in the safety analysis will be maintained.

The containment isolation valve Limiting Condition for Operation (LCO) was derived from the assumptions related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during major accidents. As part of the containment boundary, containment isolation valve OPERABILITY supports leak tightness of the containment. Therefore, the safety analysis of any event requiring isolation of containment is applicable to this LCO.

The DBAs that result in a release of radioactive material within containment are a loss of coolant accident and a rod ejection accident. In the analysis for each of these accidents, it is assumed that containment isolation valves are either closed or function to close within the required isolation time following event initiation. This ensures that potential paths to the environment through containment isolation valves are minimized.

As discussed in Regulatory Guide 1.177, "An Approach for Plant-Specific, Risk-Informed Decision-Making: Technical Specifications," acceptable reasons for requesting Technical Specification changes fall into one or more of the following categories:

Improvement to operational safety: A change to the TS can be made due to reductions in the plant risk or a reduction in the occupational exposure of plant personnel in complying with the TS requirements.

Consistency with risk basis in regulatory requirements: TS requirements can be changed to reflect improved design features in a plant or to reflect equipment reliability improvements that make a previous requirement unnecessarily stringent or ineffective. TSs may be changed to establish consistently based requirements across the industry or across an industry group.

Reduce unnecessary burdens: The change may be requested to reduce unnecessary burdens in complying with current TS requirements, based on operating history of the plant or the industry in general. This includes extending Completion Times 1) that are too short to complete repairs when components fail with the plant at-power, 2) to complete additional maintenance activities at-power to reduce plant down time, and 3) provide increased flexibility to plant operators.

The Completion Time extensions are requested primarily to provide an improvement to operational safety, reduce unnecessary burden and provide a more consistent risk basis in regulatory requirements. In addition, the assumption that shutting the plant down is the safest course of action is not always valid and depending on the component or system of interest, it may be safer to complete component repairs at power. During shutdown, the transfer from auxiliary feedwater (AFW) to the residual heat removal (RHR) system represents an increased risk level due to system alignment changes that could lead to loss of inventory events. This transition can be avoided by completing the repair at-power. Potential risks associated with plant shutdown need to be considered when determining an appropriate course of action. Extended Completion Times enable this shutdown risk to be averted.

With regard to the regulatory basis consistency, containment isolation valves are typically not as risk significant as many other plant safety systems and components. Completion Times should be commensurate with the risk significance of a component. Containment penetrations do not rely on single valves to perform their isolation function, but are designed with multiple isolation valves or involve a closed system. A 4 hour Completion Time is too restrictive and potentially forces plant operators to focus on containment isolation valve inoperability ahead of other inoperabilities that may be more risk significant, but have longer Completion Times.

4.0 TECHNICAL ANALYSIS

4.1 Impact on Defense-In-Depth and Safety Margins

In addition to discussing the impact of the changes on plant risk, the traditional engineering considerations need to be addressed. These include defense-in-depth and safety margins. The fundamental safety principles on which the plant design is based cannot be compromised. Design basis accidents are used to develop the plant design. These are a combination of postulated challenges and failure events that are used in the plant design to demonstrate safe plant response. Defense-in-depth, the single failure criterion, and adequate safety margins may be impacted by the proposed change and consideration needs to be given to these elements.

Impact on Defense-in Depth

The proposed change needs to meet the defense-in-depth principle which consists of a number of elements. These elements and the impact of the proposed change on each follow:

- A reasonable balance among prevention of core damage, prevention of containment failure, and consequence mitigation is preserved.

The containment isolation valves are part of the plant design to primarily ensure containment integrity following an accident. By closing the containment isolation valves, inventory required to cool the core is also maintained. Therefore, the proposed Completion Time change for the containment isolation valves has a negligible impact on Core Damage Frequency (CDF), no direct impact on consequence mitigation, and only a small impact on Large Early Release Frequency (LERF). This change does not significantly degrade the ability of one barrier to fission product release and compensate with an improvement of another. The balance between prevention of core damage and prevention of containment failure and consequence mitigation is maintained. Furthermore, no new accident or transients are introduced with the requested change and the likelihood of an accident or transient is not impacted.

- Over-reliance on programmatic activities to compensate for weaknesses in plant design.

The plant design will not be modified with this proposed change. All safety systems, including the containment isolation valves, will still function in the same manner with the same reliability, and there will be no additional reliance on additional systems, procedures, or operator actions. The calculated risk increase for the Completion Time changes is very small and additional control processes are not required to be put into place to compensate for any risk increase.

- System redundancy, independence, and diversity are maintained commensurate with the expected frequency and consequences of challenges to the system.

There is no impact on the redundancy, independence, or diversity of the containment isolation valves or on the ability of the plant to isolate containment penetrations with diverse systems. The redundant and diverse containment isolation designs will not be changed. The containment isolation valves are reliable components and will remain reliable after these proposed changes.

- Defenses against potential common cause failures are maintained and the potential for introduction of new common cause failure mechanisms is assessed.

Defenses against common cause failures are maintained. The Completion Time extensions requested are not significantly increased such that any new common cause failure mechanisms would occur. In addition, the operating environment for these components remains the same; therefore, new common cause failures modes are not expected. The number, design, and types of valves used for containment isolation remain the same with these changes so the containment isolation system maintains the potential against common cause failures.

- Independence of barriers is not degraded.

The barriers protecting the public and the independence of these barriers are maintained. It is not expected that multiple systems will be out of service simultaneously during the extended Completion Times that could lead to degradation of these barriers, and an increase in risk to the public. In addition, the extended Completion Times do not provide a mechanism that degrades the independence of the fuel cladding, Reactor Coolant System, and containment barriers.

- Defenses against human errors are maintained.

No new operator actions related to the Completion Time extensions are required to maintain plant safety. No changes to current operating, maintenance, or test procedures are required due to these changes. The increase in Completion Times provides additional time to complete troubleshooting, test, and repair activities which will lead to improved operator and maintenance personnel performance, and result in reduced system re-alignment and restoration errors.

Impact on Safety Margins

The safety analysis acceptance criteria as stated in the Updated Safety Analysis Report are not impacted by this change. Where applicable, redundant and diverse containment isolation valves and closed systems will be maintained. The proposed changes will not allow plant operation in a configuration outside the design basis. Isolation of all containment penetrations will remain single failure proof. Containment isolation valve operation and testing requirements and containment leakage requirements are not impacted by this change. There is no impact on safety margins.

4.2 Assessment of Impact on Risk

This section presents the analysis and assumptions used to determine the impact on plant risk of increasing the Completion Times specified in Section 2.0. This section addresses the three tiered approach to the evaluation of risk-informed TS changes. The three tiered approach is defined in Regulatory Guide 1.177. The first tier addresses Probabilistic Safety Assessment (PSA) insights and includes the risk analyses to support the Completion Time change. The second tier addresses avoidance of risk-significant plant configurations. The third tier, which addresses risk-informed plant configuration control and management, is covered by the Maintenance Rule Program.

The following types of containment penetration flow paths are evaluated:

- Penetration flow paths connected to the containment atmosphere
- Penetration flow paths connected to the Reactor Coolant System
- Penetration flow paths connected to the Steam Generators

Tier 1: Approach to the Evaluation

The Tier 1 analysis provides the impact of the Completion Time changes on the incremental conditional large early release probability (ICLERP) and LERF. Since the containment isolation valves are used to maintain containment integrity, any change to their availability will directly impact releases from containment following a core damage event. The impact of these changes on CDF, and as measured by the change in CDF and incremental conditional core damage probability (ICCDP) values, is not important since this impact would be a secondary effect related to a long-term loss of inventory for core cooling or due to a small increase in the probability of flow diversion paths for several safety systems. Potential flow diversion paths are typically small lines not included in PRA models due to the small amount of diverted flow or due to normally closed valves isolating the flow path or multiple valves in series that need to be open for a flow diversion. In addition, inoperable valves in maintenance are not large contributors to fluid safety system unavailability. Therefore, the impact of diversion flow paths on plant risk is not expected to change with this Completion Time extension.

The approach used in WCAP-15791-P applies to both deterministic and probabilistic evaluations. A deterministic approach is used to determine the minimum containment hole size that will result in a large release from the containment atmosphere. Penetration flow paths connected to the containment atmosphere smaller than this size are allowed a Completion Time of 7 days. The minimum hole size is determined for large dry, subatmospheric, and ice condenser containment types. All other penetrations are evaluated on a probabilistic basis to demonstrate if a Completion Time of 7 days is acceptable or to determine an appropriate Completion Time of less than 7 days. The probabilistic evaluation is consistent with the Nuclear Regulatory Commission's (NRC) approach for using PRA in risk-informed decisions on plant-specific changes to the current licensing basis. This approach is discussed in Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," and Regulatory Guide 1.177.

Both the deterministic and probabilistic analyses were completed on a generic basis. Input parameters used in the analyses were chosen based on the most conservative plant, that is, the set of design parameters that results in the most conservative results (shortest Completion Time). Application of the generic analysis on a plant specific basis requires each utility implementing this change to demonstrate that their plant is within the bounds of the generic analysis.

The applicability of the WCAP-15791-P generic analysis to WCGS is demonstrated in Section 9 of Reference 1. A plant specific analysis was also completed for WCGS and is documented in Section 10 of Reference 1. The plant specific analysis is based on actual plant data and justifies longer plant specific Completion Times.

Probabilistic Evaluation of the Containment Penetrations

The probabilistic evaluation involves the calculation of the ICLERP and Δ LERF for each type of containment isolation valve penetration in Sections 8.2.2 through 8.2.4 of Reference 1. Based on the ICLERP and Δ LERF values (less than 5.0E-08 and 1.0E-07, respectively) per Regulatory Guides 1.177 and 1.174, the maximum Completion Times were determined. For those penetrations where a 7 day Completion Time could not be justified, shorter Completion Times of 72, 48, 24, 12, and 8 hours were evaluated.

The ICLERP is defined in Regulatory Guide 1.177 as:

ICLERP = [(conditional LERF with the subject equipment out of service) – (baseline LERF with nominal expected equipment unavailabilities)] x duration of a single CT under consideration

The ICLERP was determined for each penetration with the assumption that one containment isolation valve within the penetration is in maintenance. If there was more than one containment isolation valve within the penetration, the calculation was performed as many times as there are valves because any one of those valves could be in maintenance.

For the Δ LERF calculations, a fault tree analysis was performed to evaluate all combinations of non-isolated penetration possibilities for each penetration. Non-isolations can be a result of valve failures as well as a valve being in maintenance. This was done for the current 4 hour Completion Time and the proposed 168 hour (7 day) Completion Time or shorter Completion Times as necessary to meet the 1.0E-07/yr Δ LERF criterion. The increase in the probability of failing to isolate the penetration was then multiplied by the CDF to determine the final Δ LERF.

The specific calculations for the ICLERPs and Δ LERFs for the containment isolation valves vary from penetration to penetration. The variations are dependent upon the conditions and configurations of the penetration. Sections 8.2.2 through 8.2.4 of Reference 1 provide the calculations for each penetration and the applicable assumptions.

Deterministic Evaluation of Containment Hole Size

A deterministic evaluation was performed in WCAP 15791-P, Rev. 0, to determine the minimum containment hole size that would result in a large release. Penetration flow paths connected to the containment atmosphere (this excludes all Reactor Coolant System and Steam Generator connections) that have piping diameters smaller than this minimum threshold value are assumed to be of insufficient size to result in a large release. These penetrations are assigned a 7 day Completion Time and no detailed probabilistic analysis is required.

A large release was originally defined as a pathway of sufficient size to release the contents of the containment (i.e., one volume change) within one hour. This criterion is provided in the EPRI PSA Applications Guide. The vent diameter, or containment hole size, that met this criteria was calculated. For this evaluation, all releases are considered early.

In Revision 1 to WCAP-15791-P, it is assumed that a hole size of greater than 2 inches in diameter can result in a large release. This assumption was utilized based on discussions with the NRC staff. The Staff did not agree with the definition that was used for a large release (one containment volume per hour) and felt the criteria used in previous studies was more appropriate. In previous studies, a 2 inch containment hole size has been used for screening in the development of containment isolation PRA models.

Plant Specific Analysis

Plant specific evaluations were performed using WCGS-specific parameters and implementing them into the generic probabilistic evaluation of Section 8.2 of Reference 1 to get actual WCGS-specific results. Consistent with the generic analysis, containment isolation valves not directly connected to the RCS with a pipe diameter of 2 inches or less are assigned a Completion Time of 7 days since these hole sizes are too small to provide a large release.

For the remaining containment penetrations which had a Completion Time of less than 7 days based on the generic analysis, the ICLERP and/or Δ LERF (depending on which was more limiting) was recalculated with WCGS specific input parameters of Tables 9-1a, 9-1b, 9-1c, and 9-1d of Reference 1. The inputs were used in the appropriate ICLERP and Δ LERF equations discussed in Sections 8.2.2 through 8.2.4 of Reference 1. The plant specific evaluations resulted in additional Completion Time improvements. Table 1 provides the resulting Completion Times for each containment isolation valve.

Tier 2: Avoidance of Risk-Significant Plant Conditions

The objective of the second tier, which is applicable to Completion Time extensions, is to provide reasonable assurance that risk-significant plant equipment outage configurations will not occur when equipment is out of service. If risk-significant configurations do occur, then enhancements to Technical Specifications or procedures, such as limiting unavailability of backup systems, increased surveillance frequencies, or upgrading procedures or training, can be made that avoid, limit, or lessen the importance of these configurations.

The containment isolation valves form part of the containment barrier which limits releases to the environment. Other containment systems, such as the containment cooling system and containment spray system, also function to mitigate releases to the environment, but by different mechanisms. These other systems typically are used to preserve containment integrity by limiting the containment pressure increase or to remove radioactive material from the containment atmosphere during an accident. The containment cooling and containment spray systems are generally not considered backup to the containment isolation function. Given that containment isolation has failed, releases from containment are independent of the success or failure of containment cooling. The containment is already breached and containment pressure limitation would no longer be an issue. On the other hand, if containment isolation would fail, then containment spray could be a factor in limiting releases via its scrubbing effect. This would be of limited benefit, because a large portion of the core damage sequences in which containment spray would be functional at the time of the initiating event do not have effective scrubbing by containment spray at the time of fission product release to the containment. Thus, efforts taken to assure the availability of containment spray when containment isolation may be impaired, do little to assure that containment spray will be effective in reducing releases if a core damage accident were to occur. Also, when analyzed on a realistic basis, only a small fraction of the core damage sequences with containment isolation failures would result in fission product releases that are risk significant. Therefore, no Tier 2 limitations need to be imposed.

Tier 3: Risk-Informed Plant Configuration Control and Management

The objective of the third tier is to ensure that the risk impact of out-of-service equipment is evaluated prior to performing any maintenance activity. As stated in Regulatory Guide 1.174, "a viable program would be one that is able to uncover risk-significant plant equipment outage configurations as they evolve during real-time, normal plant operation." The third-tier requirement is an extension of the second-tier requirement, but addresses the limitation of not being able to identify all possible risk-significant plant configurations in the second-tier evaluation.

The risk impact associated with performance of maintenance and testing activities is evaluated in accordance with the Wolf Creek Operational Risk Assessment Program (administrative procedure AP 22C-003). An Operational Risk Assessment is performed for activities within a weekly schedule. Compensatory measures are addressed for activities deemed to be risk significant. The weekly scheduled activities and associated Operational Risk Assessment are reviewed by the WCGS PSA Group and approved by the Plant Manager or designee. The Operational Risk Assessment Program also addresses the impact on the Operational Risk Assessment due to added or emergent activities and activities which have slipped from the scheduled completion time.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration

This amendment application would revise Technical Specification (TS) 3.6.3, "Containment Isolation Valves," to extend the Completion Times for an inoperable containment isolation valve. WCAP-15791-P, "Risk-Informed Evaluation of Extensions to Containment Isolation Valve Completion Times," (Reference 1) provides the technical justification for extending the Completion Time from 4 hours to a maximum of 168 hours (7 days) for TS 3.6.3. For containment isolation valves where acceptable results could not be demonstrated for 168 hours, shorter Completion Times were considered, evaluated, and requested.

The proposed changes do not involve a significant hazards consideration for WCGS based on the three standards set forth in 10CFR50.92(c) as discussed below:

- (1) Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?**

Response: No

The proposed changes to the Completion Times do not change the response of the plant to any accidents and have an insignificant impact on the reliability of the containment isolation valves. The containment isolation valves will remain highly reliable and the proposed changes will not result in a significant increase in the risk of plant operation. This is demonstrated by showing that the impact on plant safety as measured by the large early release frequency (LERF) and incremental conditional large early release probabilities (ICLERP) is acceptable. These changes are consistent with the acceptance criteria in Regulatory Guides 1.174 and 1.177. Therefore, since the containment isolation valves will continue to perform their functions with high reliability as originally assumed and the increase in risk as measured by LERF and ICLERP is acceptable, there will not be a significant increase in the consequences of any accidents.

The proposed changes do not adversely affect accident initiators or precursors nor alter the design assumptions, conditions, or configuration of the facility or the manner in which the plant is operated and maintained. The proposed changes do not alter or prevent the ability of structures, systems, and components (SSCs) from performing their intended function to mitigate the consequences of an initiating event within the assumed acceptance limits. The proposed changes do not affect the source term, containment isolation, or radiological release assumptions used in evaluating the radiological consequences of an accident previously evaluated. Further, the proposed changes do not increase the types or amounts of radioactive effluent that may be released offsite, nor significantly increase individual or cumulative occupational/public radiation exposures. The proposed changes are consistent with the safety analysis assumptions and resultant consequences.

Therefore, it is concluded that this change does not increase the probability of occurrence of a malfunction of equipment important to safety.

(2) Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed changes do not result in a change in the manner in which the containment isolation valves provide plant protection. There are no design changes associated with the proposed changes. The changes to Completion Times do not change any existing accident scenarios, nor create any new or different accident scenarios.

The changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. In addition, the changes do not impose any new or different requirements or eliminate any existing requirements. The changes do not alter assumptions made in the safety analysis. The proposed changes are consistent with the safety analysis assumptions and current plant operating practice.

Therefore, the possibility of a new or different malfunction of safety related equipment is not created.

(3) Do the proposed changes involve a significant reduction in a margin of safety?

Response: No

The proposed changes do not alter the manner in which safety limits, limiting safety system settings or limiting conditions for operation are determined. The safety analysis acceptance criteria are not impacted by these changes. The proposed changes will not result in plant operation in a configuration outside the design basis. The calculated impact on risk is insignificant and is consistent with the acceptance criteria contained in Regulatory Guides 1.174 and 1.177.

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

Based on the above, WCNOG concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c) and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Applicable Regulatory Requirements/Criteria

The regulatory bases and guidance documents associated with the systems discussed in this amendment application include:

General Design Criteria 54 – Piping Systems Penetrating Containment

Piping systems penetrating the primary reactor containment shall be provided with leak detection, isolation, and containment capabilities having redundancy, reliability, and performance capabilities which reflect the importance to safety of isolating these piping systems. Such piping systems shall be designed with a capability to test periodically the operability of the isolation valves and associated apparatus and to determine if valve leakage is within acceptable limits.

General Design Criteria 55 – Reactor Coolant Pressure Boundary Penetrating Containment

Each line that is part of the reactor coolant pressure boundary and that penetrates primary reactor containment shall be provided with containment isolation valves as follows, unless it can be demonstrated that the containment isolation provisions for a specific class of lines, such as instrument lines, are acceptable on some other defined basis:

- (1) One locked closed isolation valve inside and one locked closed isolation valve outside containment; or
- (2) One automatic isolation valve inside and one locked closed isolation valve outside containment; or
- (3) One locked closed isolation valve inside and one automatic isolation valve outside containment. A simple check valve may not be used as the automatic isolation valve outside containment; or
- (4) One automatic isolation valve inside and one automatic isolation valve outside containment. A simple check valve may not be used as the automatic isolation valve outside containment.

Isolation valves outside containment shall be located as close to containment as practical and upon loss of actuating power, automatic isolation valves shall be designed to take the position that provides greater safety.

Other appropriate requirements to minimize the probability or consequences of an accidental rupture of those lines or of lines connected to them shall be provided as necessary to assure adequate safety. Determination of the appropriateness of these requirements, such as higher quality in design, fabrication and testing, additional provisions for inservice inspection, protection against more severe natural phenomena, and additional isolation valves and containment, shall include consideration of the population density, use characteristics, and physical characteristics of the site environs.

General Design Criteria 56 – Primary Containment Isolation

Each line that connects directly to the containment atmosphere and penetrates primary reactor containment shall be provided with containment isolation valves as follows, unless it can be demonstrated that the containment isolation provisions for a specific class of lines, such as instrument lines, are acceptable on some other defined basis:

- (1) One locked closed isolation valve inside and one locked closed isolation valve outside containment; or
- (2) One automatic isolation valve inside and one locked closed isolation valve outside containment; or
- (3) One locked closed isolation valve inside and one automatic isolation valve outside containment. A simple check valve may not be used as the automatic isolation valve outside containment; or
- (4) One automatic isolation valve inside and one automatic isolation valve outside containment. A simple check valve may not be used as the automatic isolation valve outside containment.

Isolation valves outside containment shall be located as close to the containment as practical and upon loss of actuating power, automatic isolation valves shall be designed to take the position that provides greater safety.

General Design Criteria 57 – Closed System Isolation Valves

Each line that penetrates the primary reactor containment and is neither part of the reactor coolant pressure boundary nor connected directly to the containment atmosphere shall have at least one containment isolation valve which shall be either automatic, or locked closed, or capable of remote manual operation. This valve shall be outside containment and located as close to the containment as practical. A simple check valve may not be used as the automatic isolation valve.

There have been no changes to the containment penetration design such that any of the regulatory requirements and guidance documents in Section 5.0 would come into question. The evaluation performed by WCNOG in Section 4.0 concludes that WCGS will continue to comply with the applicable regulatory requirements.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the approval of the proposed change will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

WCNOC has determined that the proposed amendment would change requirements with respect to the installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. WCNOC has evaluated the proposed amendment and has determined that the amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amount of effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed amendment is not required.

7.0 REFERENCES

1. WCAP-15791-P, Revision 1, "Risk-Informed Evaluation of Extensions to Containment Isolation Valve Completion Times," April 2004.

Table 1

WCGS Containment Isolation Valve Completion Time Results

Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-1 to P-12	-	These penetrations are not covered under LCO 3.6.3 but under their own TS.	-	-	-	-	-
P-13	ENHV-07	No direct connection to RCS; penetration flow path connects open system IC to closed system outside containment (OC); single, normally closed valve OC.	I,C #23	System pressure boundary maintained System pressure boundary compromised	8 hrs 4 hrs	168 hrs 168 hrs	8 hrs 4 hrs
P-14	EJHV-8811B	No direct connection to RCS; penetration flow path connects open system inside containment (IC) to closed system OC; single, normally closed valve OC.	I,C #23	System pressure boundary maintained System pressure boundary compromised	8 hrs 4 hrs	168 hrs 168 hrs	8 hrs 4 hrs
	EJHV-24	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EJHV-26	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EJV-189	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-15	EJHV-8811A	No direct connection to RCS; penetration flow path connects open system IC to closed system OC; single, normally closed valve OC.	I,C #23	System pressure boundary maintained System pressure boundary compromised	8 hrs 4 hrs	168 hrs 168 hrs	8 hrs 4 hrs
	EJHV-23	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EJHV-25	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EJV-187	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-16	ENHV-01	No direct connection to RCS; penetration flow path connects open system IC to closed system OC; single, normally closed valve OC.	I,C #23	System pressure boundary maintained System pressure boundary compromised	8 hrs 4 hrs	168 hrs 168 hrs	8 hrs 4 hrs
P-21	EJHCV-8825	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the RHR system. Flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EJHV-8840	RCS connection; standby system; normally closed valve OC. Assessed with valves EJV-056, EJ-8841A, EJ-8841B.	II,A #32	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	168 hrs 168 hrs	72 hrs 72 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-21 (cont)	EJV-056	RCS connection; standby system; normally closed valve OC. Assessed with valves EJHV-8840, EJ-8841A, EJ-8841B.	II,A #32	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	168 hrs 168 hrs	72 hrs 72 hrs
	EJV-124	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the RHR system. Flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EJV-122	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the RHR system. Flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EJV-118,120	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the RHR system. Flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EJV-175,6,7,8	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the RHR system. Flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-21 (cont)	EJ-8841A	RCS connection; standby system; check valve IC; extra check valve upstream that also provides isolation. Assessed with valves EJHV-8840, EJ-8841B.	II,A #32	System pressure boundary maintained System pressure boundary compromised	72 hrs 168 hrs	168 hrs 168 hrs	72 hrs 168 hrs
	EJ-8841B	RCS connection; standby system; check valve IC; extra check valve upstream that also provides isolation. Assessed with valves EJHV-8840; EJ-8841A.	II,A #32	System pressure boundary maintained System pressure boundary compromised	72 hrs 168 hrs	168 hrs 168 hrs	72 hrs 168 hrs
P-22	BBHV-8351B	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BBV-354	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-22 (cont)	BBV-246	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BBV148	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-23	BGHV-8160	RCS connection; normally operating system; normally open valve IC; when system pressure boundary is compromised, no longer an RCS connection. Assessed with valves BGHV-8152, BGV-363; Chose CT for an AOV based on guideline B of Section 9.1.	II,B #39	System pressure boundary maintained System pressure boundary compromised	24 hrs 48 hrs	168 hrs 168 hrs	24 hrs 48 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-23 (cont)	BGV-363	RCS connection; normally operating system; normally closed valve OC. Assessed with valves BGHV-8160, BGHV-8152; Chose CT for an AOV based on guideline B of Section 9.1 of Reference 1.	II,B #39	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BGHV-8152	RCS connection; normally operating system; normally open valve OC. Assessed with valves BGHV-8160, BGV-363; Chose CT for an AOV based on guideline B of Section 9.1 of Reference 1.	II,B #39	System pressure boundary maintained System pressure boundary compromised	24 hrs 24 hrs	168 hrs 168 hrs	24 hrs 24 hrs
P-24	BGHV-8112	Normally operating system; RCS connection, however b/c of relief valve on RC drain tank IC (WCGS P&ID drawing M-12BG01, Rev. 10), extremely unlikely to reach RCS pressure, therefore considered as connection from closed system IC to open system OC; given this scenario, flow path is also smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-24 (cont)	BGV-135	Normally operating system; RCS connection, however b/c of relief valve on RC drain tank IC (WCGS P&ID drawing M-12BG01, Rev. 10), extremely unlikely to reach RCS pressure, therefore considered as connection from closed system IC to open system OC; given this scenario, flow path is also smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BGHV-8100	Normally operating system; RCS connection, however b/c of relief valve on RC drain tank IC (WCGS P&ID drawing M-12BG01, Rev. 10), extremely unlikely to reach RCS pressure, therefore considered as connection from closed system IC to open system OC; given this scenario, flow path is also smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BGV-457	Normally operating system; RCS connection, however b/c of relief valve IC, extremely unlikely to reach RCS pressure, therefore considered as connection from open system IC to open system OC; given this scenario, flow path is also smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-25	BLHV-8047	No direct connection to RCS; penetration lines normally open IC and OC.	I,A #4	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BLV-054	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BL-8046	No direct connection to RCS; penetration lines normally open IC and OC	I,A #4	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-26	HBHV-7176	Normally operating system; RCS connection, however b/c of relief valve on RC drain tank IC (WCGS P&ID drawing M-12HB01, Rev. 8), extremely unlikely to reach RCS pressure, therefore considered as connection from closed system IC to open system OC.	I,B #20	System pressure boundary maintained System pressure boundary compromised	72 hrs 48 hrs	168 hrs 168 hrs	72 hrs 48 hrs
	HBHV-7136	Normally operating system; RCS connection, however b/c of relief valve on RC drain tank IC (WCGS P&ID drawing M-12HB01, Rev. 8), extremely unlikely to reach RCS pressure, therefore considered as connection from closed system IC to open system OC.	I,B #20	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	168 hrs 168 hrs	72 hrs 72 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-26 (cont)	HBV-419	Normally operating system; RCS connection, however b/c of relief valve on RC drain tank IC (WCGS P&ID drawing M-12HB01, Rev. 8), extremely unlikely to reach RCS pressure, therefore considered as connection from closed system IC to open system OC; given this scenario, flow path is also smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-27	EJHV-8809B	RCS connection; standby system; normally open valve OC. Assessed with valves EJV-058, EP-8818C, EP-8818D; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	II,A #33	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	4 hrs 4 hrs	4 hrs 4 hrs
	EJV-058	RCS connection; standby system; normally closed valve OC. Assessed with valves EJHV-8809B, EP-8818C, EP-8818D; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	II,A #33	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	4 hrs 4 hrs	4 hrs 4 hrs
	EJHCV-8890B	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the RHR system, flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-27 (cont)	EJV-086	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the RHR system; flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EJV-088,090	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the RHR system, flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EP-8818C	RCS connection; standby system; check valve IC; extra check valve upstream that also provides isolation. Assessed with valves EJHV-8809B, EJV-058, EP-8818D; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1..	II,A #33	System pressure boundary maintained System pressure boundary compromised	8 hrs 168 hrs	4 hrs 4 hrs	4 hrs 4 hrs
	EJV-179, 180, 181,182	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the RHR system, flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ALERF @ CT:	Justified CT
P-27 (cont)	EP-8818D	RCS connection; standby system; check valve IC; extra check valve upstream that also provides isolation. Assessed with valves EJHV-8809B, EJV-058, EP-8818C; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	II,A #33	System pressure boundary maintained System pressure boundary compromised	8 hrs 168 hrs	4 hrs 4 hrs	4 hrs 4 hrs
	EJV-166	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the RHR system, flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-28	EFHV-32	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally open valve OC. Assessed with valve EFHV-34; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #5	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EFHV-34	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally open valve IC. Assessed with valve EFHV-32; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #20	System pressure boundary maintained System pressure boundary compromised	168 hrs 72 hrs	168 hrs 168 hrs	168 hrs 72 hrs
	EFV-278	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-29	EFHV-46	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally open valve IC. Assessed with valve EFHV-32; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #20	System pressure boundary maintained System pressure boundary compromised	168 hrs 72 hrs	168 hrs 168 hrs	168 hrs 72 hrs
	EFV-279	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EFHV-50	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally open valve OC. Assessed with valve EFHV-46; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #20	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-30	KAFV-29	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	KAV-218	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	KAV-204	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-32	LFFV-95	No direct connection to RCS; penetration flow path connects open system IC to open system OC; normally open valve IC. Assessed with valve LFFV-96, valve 96 opens if sump is running; (get same CT results for both cases). Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	I,A #14 or I,A #4 if valve 96 is open	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	LFFV-96	No direct connection to RCS; penetration flow path connects open system IC to open system OC; normally closed valve OC, valve opens if sump is running; (get same CT results for both cases). Assessed with valve LFFV-95; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	I,A #14 or I,A #4 if valve 96 is open	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	LFV-093	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-34	GPV-010	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
	Flanges	No direct connection to RCS; penetration flow path connects open system IC to open system OC; 1 flange IC and 1 flange OC used to isolate the penetration are analyzed as normally closed valves of the same type.	I,A #1	System pressure boundary maintained System pressure boundary compromised	24 hrs 24 hrs	168 hrs 168 hrs	24 hrs 24 hrs
P-39	BBHV-8351C	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BBV-356	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ALERF @ CT:	Justified CT
P-39 (cont)	BBV-247	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BBV-178	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-40	BBHV-8351D	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-40 (cont)	BBV-358	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BBV-248	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BBV-208	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-41	BBHV-8351A	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BBV-352	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BBV-245	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-41 (cont)	BBV-118	RCS connection; normally operating system; continues to operate during accident, therefore not considered a path for release directly from RCS since flow continues to be forced into RCS; therefore, release scenario is from containment atmosphere, flow path is smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-43	HDV-016	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	HDV-023	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	HDV-017	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-44	HBHV-7126	Normally operating system; RCS connection, however b/c of relief valve on RC drain tank IC (WCGS P&ID drawing M-12HB01, Rev. 8), extremely unlikely to reach RCS pressure, therefore considered as connection from closed system IC to open system OC; given this scenario, flow path is also smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-44 (cont)	HBHV-7150	Normally operating system; RCS connection, however b/c of relief valve on RC drain tank IC (WCGS P&ID drawing M-12HB01, Rev. 8), extremely unlikely to reach RCS pressure, therefore considered as connection from closed system IC to open system OC; given this scenario, flow path is also smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	HBV-420	Normally operating system; RCS connection, however b/c of relief valve on RC drain tank IC (WCGS P&ID drawing M-12HB01, Rev. 8), extremely unlikely to reach RCS pressure, therefore considered as connection from closed system IC to open system OC; given this scenario, flow path is also smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-45	EPV-046	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EPV-043	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-45 (cont)	EPHV-8880	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-48	EMHV-8802B	RCS connection; standby system; normally closed valve OC. Assessed with valves EMV-059, EMV-003, EMV-004.	II,A #32	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	168 hrs 168 hrs	72 hrs 72 hrs
	EMHV-8824	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the SI system; flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMV-003	RCS connection; standby system; check valve IC; extra check valve upstream that also provides isolation; when system pressure boundary is compromised, no longer an RCS connection, flow path is smaller in size than that required to result in a large release, therefore is considered a 'small line' and given 168 hour CT. Assessed with valves EMHV-8802B, EMV-059, EMV-004.	II,A #32	System pressure boundary maintained System pressure boundary compromised	72 hrs 168 hrs	168 hrs 168 hrs	72 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-48 (cont)	EMV-004	RCS connection; standby system; check valve IC; extra check valve upstream that also provides isolation; when system pressure boundary is compromised, no longer an RCS connection, flow path is smaller in size than that required to result in a large release, therefore is considered a 'small line' and given 168 hour CT. Assessed with valves EMHV-8802B, EMV-059, EMV-003.	II,A #32	System pressure boundary maintained System pressure boundary compromised	72 hrs 168 hrs	168 hrs 168 hrs	72 hrs 168 hrs
	EMV-060, 061, 063,064 EMV-217, 169	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the SI system; flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMV-170,172	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the SI system; flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMV-059	RCS connection; standby system; normally closed valve OC. Assessed with valves EMHV-8802B, EMV-003, EMV-004.	II,A #32	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	168 hrs 168 hrs	72 hrs 72 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ALERF @ CT:	Justified CT
P-49	EMHV-8835	RCS connection; standby system; normally open valve OC. Assessed with valves EPV-067, EPV-020, EPV-010, EPV-040, EPV-030; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	II,A #34	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	4 hrs 4 hrs	4 hrs 4 hrs
	EMHV-8823	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the SI system; flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EPV-020	RCS connection; standby system; check valve IC; extra check valve upstream that also provides isolation; when system pressure boundary is compromised, no longer an RCS connection, flow path is smaller in size than that required to result in a large release, therefore is considered a 'small line' and given 168 hour CT. Assessed with valves EMHV-8835, EPV-067, EPV-010, EPV-040, EPV-030; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	II,A #34	System pressure boundary maintained System pressure boundary compromised	8 hrs 168 hrs	4 hrs 168 hrs	4 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-49 (cont)	EPV-010	RCS connection; standby system; check valve IC; extra check valve upstream that also provides isolation; when system pressure boundary is compromised, no longer an RCS connection, flow path is smaller in size than that required to result in a large release, therefore is considered a 'small line' and given 168 hour CT. Assessed with valves EMHV-8835, EPV-067, EPV-020, EPV-040, EPV-030; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	II,A #34	System pressure boundary maintained System pressure boundary compromised	8 hrs 168 hrs	4 hrs 168 hrs	4 hrs 168 hrs
	EPV-040	RCS connection; standby system; check valve IC; extra check valve upstream that also provides isolation; when system pressure boundary is compromised, no longer an RCS connection, flow path is smaller in size than that required to result in a large release, therefore is considered a 'small line' and given 168 hour CT. Assessed with valves EMHV-8835, EPV-067, EPV-020, EPV-010, EPV-030; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	II,A #34	System pressure boundary maintained System pressure boundary compromised	8 hrs 168 hrs	4 hrs 168 hrs	4 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-49 (cont)	EPV-030	RCS connection; standby system; check valve IC; extra check valve upstream that also provides isolation; when system pressure boundary is compromised, no longer an RCS connection, flow path is smaller in size than that required to result in a large release, therefore is considered a 'small line' and given 168 hour CT. Assessed with valves EMHV-8835, EPV-067, EPV-020, EPV-020, EPV-040; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	II,A #34	System pressure boundary maintained System pressure boundary compromised	8 hrs 168 hrs	4 hrs 168 hrs	4 hrs 168 hrs
	EMV-067	RCS connection; standby system; normally closed valve OC. Assessed with valves EMHV-8835, EPV-020, EPV-010, EPV-040, EPV-030; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	II,A #34	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	4 hrs 4 hrs	4 hrs 4 hrs
	EMV-068 thru EMV-075	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the SI system; flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-49 (cont)	EMV-218 EMV-162 thru EMV-168	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the SI system; flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-51	GPV-011	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GPV-012	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	Flanges	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-52	EJHV-8701B	RCS connection; standby system; normally closed valve IC; for boundary maintained, extra valve upstream that also provides isolation; for boundary compromised, ECCS is considered a closed system and I,C #23 is applicable.	II,A #35 & I,C #23	System pressure boundary maintained System pressure boundary compromised	4 hrs 8 hrs	4 hrs 168 hrs	4 hrs 8 hrs
	EJ-8708B	RCS connection; but no direct RCS to environment connection via this CIV; valve is IC; analyze as single CIV IC to closed system OC, ECCS is considered a closed system and I,C #23 is applicable.	I,C #23	System pressure boundary maintained System pressure boundary compromised	8 hrs 8 hrs	168 hrs 168 hrs	8 hrs 8 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-53	ECV-084	No direct connection to RCS; penetration flow path connects to open system IC to open system OC; normally closed valve IC. Assessed with valve ECV-083.	IA, #1	System pressure boundary maintained System pressure boundary compromised	24 hrs 24 hrs	168 hrs 168 hrs	24 hrs 24 hrs
	ECV-085	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	ECV-083	No direct connection to RCS; penetration flow path connects open system IC to open system OC; normally closed valve OC. Assessed with valve ECV-084.	IA, #1	System pressure boundary maintained System pressure boundary compromised	24 hrs 24 hrs	168 hrs 168 hrs	24 hrs 24 hrs
P-54	ECV-087	No direct connection to RCS; penetration flow path connects open system IC to open system OC; normally closed valve IC. Assessed with valve ECV-088.	IA, #1	System pressure boundary maintained System pressure boundary compromised	24 hrs 24 hrs	168 hrs 168 hrs	24 hrs 24 hrs
	ECV-086	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	ECV-088	No direct connection to RCS; penetration flow path connects open system IC to open system OC; normally closed valve OC. Assessed with valve ECV-087.	IA, #1	System pressure boundary maintained System pressure boundary compromised	24 hrs 24 hrs	168 hrs 168 hrs	24 hrs 24 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-55	ECV-095	No direct connection to RCS; penetration flow path connects open system IC to open system OC; normally closed valve IC. Assessed with valve ECV-096.	IA, #1	System pressure boundary maintained System pressure boundary compromised	24 hrs 24 hrs	168 hrs 168 hrs	24 hrs 24 hrs
	ECV-094	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	ECV-096	No direct connection to RCS; penetration flow path connects open system IC to open system OC; normally closed valve IC. Assessed with valve ECV-095.	IA, #1	System pressure boundary maintained System pressure boundary compromised	24 hrs 24 hrs	168 hrs 168 hrs	24 hrs 24 hrs
P-56	GSHV-9	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSHV-8	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSV-032	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSHV-38	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSHV-39	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-56 (cont)	GSV-058	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-57	SJHV-131	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	SJHV-132	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	SJV-111	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	SJV-114	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-58	EMV-006	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMV-182	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMV-123	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMHV-8888	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-59	N/A	2 lines within one penetration; connection to RCS; standby system; hydraulic sensor IC, LIS OC per line; 3/16" line.	II,A #9	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-62	BBHV-8026	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BBHV-8027	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-63	KAV-118	No direct connection to RCS; penetration flow path connects open system IC to open system OC; normally closed valve OC. Assessed with valve KAV-039.	I,A #2	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	KAV-163	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	KAV-039	No direct connection to RCS; penetration flow path connects open system IC to open system OC; normally closed valve IC. Assessed with valve KAV-118.	I,A #2	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-64	SJHV-128	RCS connection; standby system; normally closed valve IC; when system pressure boundary is compromised, no longer an RCS connection, flow path is smaller in size than that required to result in a large release, therefore is considered a 'small line' and given 168 hour CT. Assessed with valves SJHV-129, SJHV-130, SJV-106.	II,A #31	System pressure boundary maintained System pressure boundary compromised	12 hrs 168 hrs	168 hrs 168 hrs	12 hrs 168 hrs
	SJHV-129	RCS connection; standby system; normally closed valve OC. Assessed with valves SJHV-128, SJHV-130, SJV-106.	II,A #4	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	SJHV-130	RCS connection; standby system; normally closed valve OC. Assessed with valves SJHV-128, SJHV-129, SJV-106.	II,A #4	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	SJV-106	RCS connection; standby system; normally closed valve OC. Assessed with valves SJHV-128, SJHV-129, SJV-130.	II,A #4	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-65	GSHV-20	No direct connection to RCS; penetration flow path connects open system IC to open system OC; normally closed valve IC. Assessed with valve GSHV-21.	I,A #1	System pressure boundary maintained System pressure boundary compromised	24 hrs 24 hrs	168 hrs 168 hrs	24 hrs 24 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-65 (cont)	GSHV-21	No direct connection to RCS; penetration flow path connects open system IC to open system OC; normally closed valve OC. Assessed with valve GSHV-20.	I,A #1	System pressure boundary maintained System pressure boundary compromised	24 hrs 24 hrs	168 hrs 168 hrs	24 hrs 24 hrs
	GSV-041	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-66	ENHV-12	No direct connection to RCS; penetration flow path connects open system IC to closed system OC; normally closed valve OC. Assessed with valve ENV-017.	I,C #4	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	ENV-080	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	ENV-017	No direct connection to RCS; penetration flow path connects open system IC to closed system OC; normally closed valve IC. Assessed with valve ENHV-12.	I,C #4	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-67	KCHV-253	No direct connection to RCS; penetration flow path connects open system IC to open system OC; normally closed valve OC. Assessed with valve KCV-478.	I,A #2	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-67 (cont)	KCV-478	No direct connection to RCS; penetration flow path connects open system IC to open system OC; normally closed valve IC. Assessed with valve KCV-253.	I,A #2	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	KCV-431	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-69	SJHV-12	RCS connection; standby system; normally closed valve IC; when system pressure boundary is compromised, no longer an RCS connection, flow path is smaller in size than that required to result in a large release, therefore is considered a 'small line' and given 168 hour CT. Assessed with valves SJHV-13, SJV-071.	II,A #30a	System pressure boundary maintained System pressure boundary compromised	24hrs 168 hrs	168 hrs 168 hrs	24 hrs 168 hrs
	SJHV-13	RCS connection; standby system; normally closed valve OC. Assessed with valves SJHV-12, SJV-071.	II,A #30a	System pressure boundary maintained System pressure boundary compromised	24 hrs 24 hrs	168 hrs 168 hrs	24 hrs 24 hrs
	SJV-071	RCS connection; standby system; normally closed valve OC. Assessed with valves SJHV-12, SJHV-13.	II,A #2	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-71	EFHV-31	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally open valve OC. Assessed with valve EFHV-33; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #20	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EFV-276	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EFHV-33	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally open valve IC. Assessed with valve EFHV-31; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #20	System pressure boundary maintained System pressure boundary compromised	168 hrs 72 hrs	168 hrs 168 hrs	168 hrs 72 hrs
P-73	EFHV-45	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally open valve IC. Assessed with valve EFHV-49; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #20	System pressure boundary maintained System pressure boundary compromised	168 hrs 72 hrs	168 hrs 168 hrs	168 hrs 72 hrs
	EFV-277	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-73 (cont)	EFHV-49	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally open valve OC. Assessed with valve EFHV-45; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #20	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-74	EGHV-58	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally open valve OC. Assessed with valves EGV-204, EGHV-127; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #7	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EGV-090	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EGV-204	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally open valve IC. Assessed with valves EGHV-58, EGHV-127; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #7	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-74 (cont)	EGHV-127	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally closed valve OC. Assessed with valves EGHV-58, EGV-204; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #7	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-75	EGHV-60	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally open valve IC. Assessed with valves EGHV-59, EGHV-131, EGHV-130; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #22a	System pressure boundary maintained System pressure boundary compromised	168 hrs 72 hrs	168 hrs 168 hrs	168 hrs 72 hrs
	EG-V372	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EGHV-59	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally open valve OC. Assessed with valves EGHV-60, EGHV-131, EGHV-130; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #22a	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-75 (cont)	EGHV-131	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally closed valve OC. Assessed with valves EGHV-60, EGHV-59, EGHV-130; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #22a	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	168 hrs 168 hrs	72 hrs 72 hrs
	EGHV-130	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally closed valve IC. Assessed with valves EGHV-60, EGHV-59, EGHV-131; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #22a	System pressure boundary maintained System pressure boundary compromised	72 hrs 24 hrs	168 hrs 168 hrs	72 hrs 24 hrs
P-76	EGHV-62	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally open valve IC. Assessed with valves EGHV-61, EGHV-132, EGHV-133; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #22a	System pressure boundary maintained System pressure boundary compromised	168 hrs 72 hrs	168 hrs 168 hrs	168 hrs 72 hrs
	EGV-371	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ALERF @ CT:	Justified CT
P-76 (cont)	EGHV-61	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally open valve IC. Assessed with valves EGHV-62, EGHV-132, EGHV-133; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #22a	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EGHV-132	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally closed valve IC. Assessed with valves EGHV-62, EGHV-61, EGHV-133; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #22a	System pressure boundary maintained System pressure boundary compromised	72 hrs 24 hrs	168 hrs 168 hrs	72 hrs 24 hrs
	EGHV-133	No direct connection to RCS; penetration flow path connects closed system IC to open system OC; normally closed valve OC. Assessed with valves EGHV-62, EGHV-61, EGHV-132; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	I,B #22a	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	168 hrs 168 hrs	72 hrs 72 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-78	BMV-045	No direct connection to RCS; B/c of multiple closed valves between the IC CIV and the SG (WCGS P&ID drawing M-12BM01, Rev. 13), not considered a SG connection; therefore considered a connection from open system IC to open system OC.	I,A #1	System pressure boundary maintained System pressure boundary compromised	24 hrs 24 hrs	168 hrs 168 hrs	24 hrs 24 hrs
	BMV-302	No direct connection to RCS; B/c of multiple closed valves between the IC CIV and the SG (WCGS P&ID drawing M-12BM01, Rev. 13), not considered a SG connection; therefore considered a connection from open system IC to open system OC; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BMV-046	No direct connection to RCS; B/c of multiple closed valves between the IC CIV and the SG (WCGS P&ID drawing M-12BM01, Rev. 13), not considered a SG connection; therefore considered a connection from open system IC to open system OC.	I,A #1	System pressure boundary maintained System pressure boundary compromised	24 hrs 24 hrs	168 hrs 168 hrs	24 hrs 24 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-79	EJHV-8701A	RCS connection; standby system; normally closed valve IC; extra valve upstream that also provides isolation; for boundary compromised, ECCS is considered a closed system and I,C #23 is applicable.	II,A #35 & I,C #23	System pressure boundary maintained System pressure boundary compromised	4 hrs 8 hrs	4 hrs 168 hrs	4 hrs 8 hrs
	EJ8708A	RCS connection; but no direct RCS to environment connection via this CIV, valve is IC; analyze as single CIV IC to closed system OC. ECCS is considered a closed system and I,C #23 is applicable.	I,C #23	System pressure boundary maintained System pressure boundary compromised	8 hrs 8 hrs	168 hrs 168 hrs	8 hrs 8 hrs
	EJV-154	RCS connection, but no direct RCS to environment connection via this CIV; valve is IC; analyze as single CIV IC to closed system OC, flow path smaller in size that that required to result in a large release..	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-80	BGHV-8105	RCS connection; normally operating system; normally open valve OC; 1 extra valve between MOV 8105 and charging pumps that also provide isolation; line isolated during accident. Assessed with valve BG8381; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	II,B #3	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	BGV-342	RCS connection; valve is IC; flow path smaller in size and small release would occur only within containment.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔALERF @ CT:	Justified CT
P-80 (cont)	BG8381	RCS connection; normally operating system; check valve IC; extra check valve upstream that also provides isolation; line isolated during accident; when system pressure boundary is compromised, no longer an RCS connection. Assessed with valve BGHV-8105; Chose CT for an MOV based on guideline B of Section 9.1 of Reference 1.	II,B #3	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-82	EJHV-8809A	RCS connection; standby system; normally open valve OC. Assessed with valves EJV-054, EP8818A, EP8818B; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	II,A #33	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	4 hrs 4 hrs	4 hrs 4 hrs
	EJV-054	RCS connection; standby system; normally closed valve OC. Assessed with valves EJHV-8809A, EP8818A, EP8818B; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	II,A #33	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	4 hrs 4 hrs	4 hrs 4 hrs
	EP8818A	RCS connection; standby system; check valve IC; extra check valve upstream that also provides isolation. Assessed with valves EJHV-8809A, EJV-054, EP8818B; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	II,A #33	System pressure boundary maintained System pressure boundary compromised	8 hrs 168 hrs	4 hrs 4 hrs	4 hrs 4 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-82 (cont)	EP8818B	RCS connection; standby system; check valve IC; extra check valve upstream that also provides isolation. Assessed with valves EJHV-8809A, EJV-054, EP8818A; Chose CT for an MOV based on guideline A of Section 9.1 of Reference 1.	II,A #33	System pressure boundary maintained System pressure boundary compromised	8 hrs 168 hrs	4 hrs 4 hrs	4 hrs 4 hrs
	EJHCV-8890A	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the RHR system, flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EJV-134, V-136	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the RHR system, flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EJV-132	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the RHR system, flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-82 (cont)	EJV-171, EJV-172, EJV-173, EJV-174	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the RHR system, flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-83 to P-86	-	These penetrations are not covered under LCO 3.6.3 but under their own TS.	-	-	-	-	-
P-87	EMHV-8802A	RCS connection; standby system; normally closed valve OC. Assessed with valves EMV-001, EMV-002, EMV-051.	II,A #32	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	168 hrs 168 hrs	72 hrs 72 hrs
	EMHV-8881	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the SI system, flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMV-001	RCS connection; standby system; check valve IC; extra check valve upstream that also provides isolation; when system pressure boundary is compromised, no longer an RCS connection, flow path is smaller in size than that required to result in a large release, therefore is considered a 'small line' and given 168 hour CT. Assessed with valves EMHV-8802A, EMV-002, EMV-051.	II,A #32	System pressure boundary maintained System pressure boundary compromised	72 hrs 168 hrs	168 hrs 168 hrs	72 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-87 (cont)	EMV-002	RCS connection; standby system; check valve IC; extra check valve upstream that also provides isolation; when system pressure boundary is compromised, no longer an RCS connection, flow path is smaller in size than that required to result in a large release, therefore is considered a 'small line' and given 168 hour CT. Assessed with valves EMHV-8802A, EMV-001, EMV-051.	II,A #32	System pressure boundary maintained System pressure boundary compromised	72 hrs 168 hrs	168 hrs 168 hrs	72 hrs 168 hrs
	EMV-052, V-053, V-055, V-056, V-184, V-185	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the SI system, flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMV-051	RCS connection; standby system; normally closed valve OC. Assessed with valves EMHV-8802A, EMV-001, EMV-002.	II,A #32	System pressure boundary maintained System pressure boundary compromised	72 hrs 72 hrs	168 hrs 168 hrs	72 hrs 72 hrs
	EMV-186, V-187	RCS connection; valve is IC; only release path is from containment atmosphere to environment via the SI system, flow path is smaller than minimum size required for a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔALERF @ CT:	Justified CT
P-88	EMHV-8801A	RCS connection; standby system; normally closed valve OC. Assessed with valves EMHV-8801B, EMV-8815.	II,A #11	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMHV-8801B	RCS connection; standby system; normally closed valve OC. Assessed with valves EMHV-8801A, EMV-8815.	II,A #11	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMV-077	RCS connection; standby system; piping rated for RCS pressure; dominating flow path through valves EMHV-8801A, EMHV-8801B; large number of normally closed valves available to isolate; indirect RCS connection; given this scenario, flow path is also smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMHV-8843	Indirect connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMV-8815	RCS connection; standby system; normally closed valve IC; when system pressure boundary is compromised, no longer an RCS connection. Assessed with valves EMHV-8801A, EMHV-8801B.	II,A #11	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-88 (cont)	EMV-151	RCS connection; standby system; piping rated for RCS pressure; dominating flow path through valves EMHV-8801A, EMHV-8801B; large number of normally closed valves available to isolate; indirect RCS connection; given this scenario, flow path is also smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-89	ENHV-06	No direct connection to RCS; penetration flow path connects open system IC to closed system OC; normally closed valve OC. Assessed with valve ENV-013.	I,C #4	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	ENV-076	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	ENV-013	No direct connection to RCS; penetration flow path connects open system IC to closed system OC; normally closed valve IC. Assessed with valve ENHV-06.	I,C #4	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-91	N/A	2 lines within one penetration; connection to RCS; hydraulic sensor IC, LIS OC per line; 3/16" line.	II,A #9	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-92	EMHV-8964	RCS connection; standby system; normally closed valve OC; multiple extra valves upstream that also provide isolation (WCGS P&ID drawing M-12EM01, Rev. 23). Assessed with valves EMHV-8871, EMV-038.	II,A #1	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMV-153	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMHV-8871	RCS connection; standby system; normally closed valve IC; when system pressure boundary is compromised, no longer an RCS connection, flow path is smaller in size than that required to result in a large release, therefore is considered a 'small line' and given 168 hour CT. Assessed with valves EMHV-8964, EMV-038.	II,A #1	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	EMV-038	RCS connection; standby system; normally closed valve OC. Assessed with valves EMHV-8964, EMHV-8871.	II,A #1	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-93	SJHV-5	RCS connection; standby system; normally open valve IC; when system pressure boundary is compromised, no longer an RCS connection, flow path is smaller in size than that required to result in a large release, therefore is considered a 'small line' and given 168 hour CT. Assessed with valves SJHV-6, SJV-069, SJHV-127; Chose CT for an SOV based on guideline B of Section 9.1 of Reference 1.	II,A #30b	System pressure boundary maintained System pressure boundary compromised	48 hrs 168 hrs	168 hrs 168 hrs	48 hrs 168 hrs
	SJHV-6	RCS connection; standby system; normally open valve OC. Assessed with valves SJHV-5, SJV-069, SJHV-127; Chose CT for an SOV based on guideline B of Section 9.1 of Reference 1.	II,A #30b	System pressure boundary maintained System pressure boundary compromised	48 hrs 48 hrs	168 hrs 168 hrs	48 hrs 48 hrs
	SJV-069	RCS connection; standby system; normally closed valve OC. Assessed with valves SJHV-5, SJHV-6, SJHV-127; Chose CT for an SOV based on guideline B of Section 9.1 of Reference 1.	II,A #3	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	SJHV-127	RCS connection; standby system; normally closed valve OC. Assessed with valves SJHV-5, SJHV-6, SJV-069; Chose CT for an SOV based on guideline B of Section 9.1 of Reference 1.	II,A #3	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-95	SJHV-18	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	SJHV-19	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	SJV-066	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-97	GSHV-18	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSHV-17	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSV-036	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSHV-33	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSHV-34	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSV-052	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-98	KBV-001	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	KBV-002	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-99	GSHV-3	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSHV-4	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSHV-5	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSV-029	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSHV-36	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSHV-37	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSV-056	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-101	GSHV-12	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSHV-13	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSHV-14	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSV-033	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSHV-31	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSHV-32	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
	GSV-050	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
P-103	Pressure Transmitter	No isolation valves involved in penetration; flow path smaller in size than that required to result in a large release	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
P-104	Pressure Transmitter	No isolation valves involved in penetration; flow path smaller in size than that required to result in a large release	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
E-256	Pressure Transmitter	No isolation valves involved in penetration; flow path smaller in size than that required to result in a large release	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs
V-160	GTHZ-9	These penetrations have additional specs under 3.6.3. Normally closed valve OC; valves 11 and 12 are intermittently opened to provide for containment min-purge during power operation. Assessed with valves GTHZ-8, GTHZ-12, GTHZ-11. Chose CT for an AOV based on guideline B of Section 9.1 of Reference 1.	I,A #15 or I,A #15a if valves are open	System pressure boundary maintained System pressure boundary compromised or if valve is open: System pressure boundary maintained System pressure boundary compromised	12 hrs 12 hrs or: 24 hrs 24 hrs	168 hrs 168 hrs or: 168 hrs 168 hrs	12 hrs 12 hrs or: 24 hrs 24 hrs
	GTHZ-8	These penetrations have additional specs under 3.6.3. Normally closed valve IC; valves 11 and 12 are intermittently opened to provide for containment min-purge during power operation. Assessed with valves GTHZ-9, GTHZ-12, GTHZ-11. Chose CT for an AOV based on guideline B of Section 9.1 of Reference 1.	I,A #15 or I,A #15a if valves are open	System pressure boundary maintained System pressure boundary compromised or if valve is open: System pressure boundary maintained System pressure boundary compromised	12 hrs 12 hrs or: 24 hrs 24 hrs	168 hrs 168 hrs or: 168 hrs 168 hrs	12 hrs 12 hrs or: 24 hrs 24 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ALERF @ CT:	Justified CT
V-160 (cont)	GTHZ-12	These penetrations have additional specs under 3.6.3. Normally closed valve OC; this valve is intermittently opened to provide for containment min-purge during power operation. Assessed with valves GTHZ-9, GTHZ-8, GTHZ-11. Chose CT for an AOV based on guideline B of Section 9.1 of Reference 1.	I,A #15 or I,A #15a if valves are open	System pressure boundary maintained System pressure boundary compromised or if valve is open: System pressure boundary maintained System pressure boundary compromised	12 hrs 12 hrs or: 48 hrs 48 hrs	168 hrs 168 hrs or: 168 hrs 168 hrs	12 hrs 12 hrs or: 48 hrs 48 hrs
	GTHZ-11	These penetrations have additional specs under 3.6.3. Normally closed valve IC; this valve is intermittently opened to provide for containment min-purge during power operation. Assessed with valves GTHZ-9, GTHZ-8, GTHZ-12. Chose CT for an AOV based on guideline B of Section 9.1 of Reference 1.	I,A #15 or I,A #15a if valves are open	System pressure boundary maintained System pressure boundary compromised or if valve is open: System pressure boundary maintained System pressure boundary compromised	12 hrs 12 hrs or: 48 hrs 48 hrs	168 hrs 168 hrs or: 168 hrs 168 hrs	12 hrs 12 hrs or: 48 hrs 48 hrs
	GTV0223	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ALERF @ CT:	Justified CT
V-161	GTHZ-7	These penetrations have additional specs under 3.6.3. Normally closed valve IC; valves 5 and 4 are intermittently opened to provide for containment min-purge during power operation. Assessed with valves GTHZ-5, GTHZ-4, GTHZ-6. Chose CT for an AOV based on guideline B of Section 9.1 of Reference 1.	I,A #15 or I,A #15a if valves are open	System pressure boundary maintained System pressure boundary compromised or if valve is open: System pressure boundary maintained System pressure boundary compromised	12 hrs 12 hrs or: 24 hrs 24 hrs	168 hrs 168 hrs or: 168 hrs 168 hrs	12 hrs 12 hrs or: 24 hrs 24 hrs
	GTHZ-5	These penetrations have additional specs under 3.6.3. Normally closed valve IC; this valve is intermittently opened to provide for containment min-purge during power operation. Assessed with valves GTHZ-7, GTHZ-4, GTHZ-6. Chose CT for an AOV based on guideline B of Section 9.1 of Reference 1.	I,A #15 or I,A #15a if valves are open	System pressure boundary maintained System pressure boundary compromised or if valve is open: System pressure boundary maintained System pressure boundary compromised	12 hrs 12 hrs or: 48 hrs 48 hrs	168 hrs 168 hrs or: 168 hrs 168 hrs	12 hrs 12 hrs or: 48 hrs 48 hrs
	GTHZ-4	These penetrations have additional specs under 3.6.3. Normally closed valve OC; this valve is intermittently opened to provide for containment min-purge during power operation. Assessed with valves GTHZ-7, GTHZ-5, GTHZ-6. Chose CT for an AOV based on guideline B of Section 9.1 of Reference 1.	I,A #15 or I,A #15a if valves are open	System pressure boundary maintained System pressure boundary compromised or if valve is open: System pressure boundary maintained System pressure boundary compromised	12 hrs 12 hrs or: 48 hrs 48 hrs	168 hrs 168 hrs or: 168 hrs 168 hrs	12 hrs 12 hrs or: 48 hrs 48 hrs

WCGS Containment Isolation Valve Completion Time Results (cont.)							
Penetration #	Valve	Grouping Explanation	Group & Calc #	Maintenance Activity Type	ICLERP @ CT:	ΔLERF @ CT:	Justified CT
V-161 (cont)	GTHZ-6	These penetrations have additional specs under 3.6.3. Normally closed valve OC; valves 5 and 4 are intermittently opened to provide for containment min-purge during power operation. Assessed with valves GTHZ-7, GTHZ-5, GTHZ-4. Chose CT for an AOV based on guideline B of Section 9.1 of Reference 1.	IA #15 or IA #15a if valves are open	System pressure boundary maintained System pressure boundary compromised or if valve is open: System pressure boundary maintained System pressure boundary compromised	12 hrs 12 hrs or: 24 hrs 24 hrs	168 hrs 168 hrs or: 168 hrs 168 hrs	12 hrs 12 hrs or: 24 hrs 24 hrs
	GTV0222	No direct connection to RCS; flow path smaller in size than that required to result in a large release.	small line	System pressure boundary maintained System pressure boundary compromised	168 hrs 168 hrs	168 hrs 168 hrs	168 hrs 168 hrs

ATTACHMENT III
MARKUP OF TECHNICAL SPECIFICATION PAGES

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

NOTES

1. Penetration flow path(s) except for containment shutdown purge valve flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. NOTE Only applicable to penetration flow paths with two containment isolation valves.</p> <p>One or more penetration flow paths with one containment isolation valve inoperable except for purge valve leakage not within limit.</p> <p>(CIV)</p>	<p>A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.</p> <p><u>AND</u></p>	<p>4 hours</p> <p>INSERT 1</p> <p>(continued)</p>

INSERT 1

4 hours for Category 1 CIVs

AND

8 hours for Category 2 CIVs

AND

12 hours for Category 3 CIVs

AND

24 hours for Category 4 CIVs

AND

48 hours for Category 5 CIVs

AND

72 hours for Category 6 CIVs

AND

7 days for Category 7 CIVs

*No changes this page.
 Included for continuity/information.*

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. (continued)</p>	<p>A.2</p> <p style="text-align: center;">NOTES</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by administrative means. <hr/> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days for isolation devices outside containment</p> <p>AND</p> <p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. -----NOTE----- Only applicable to penetration flow paths with two containment isolation valves. -----</p> <p>One or more penetration flow paths with two containment isolation valves inoperable except for containment purge valve leakage not within limit.</p>	<p>B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p>	<p>1 hour</p>
<p>C. -----NOTE----- Only applicable to penetration flow paths with only one containment isolation valve and a closed system. -----</p> <p>One or more penetration flow paths with one containment isolation valve inoperable.</p>	<p>C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve or blind flange.</p> <p>AND</p>	<p>72 hours</p>
<p>C. Two or more penetration flow paths with one containment isolation valve inoperable for reasons other than Condition D.</p>	<p>C.1 Isolate all but one penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p>	<p>4 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. (continued)</p>	<p>C.2</p> <p style="text-align: center;">-----NOTES-----</p> <p>1. Isolation devices in high radiation areas may be verified by use of administrative means.</p> <p>2. Isolation devices that are locked, sealed, or otherwise secured may be verified by administrative means.</p> <p style="text-align: center;">-----</p> <p>Verify the affected penetration flow path is isolated.</p>	<p>Once per 31 days</p>
<p>D. One or more penetration flow paths with one or more containment purge valves not within leakage limits.</p>	<p>D.1</p> <p>Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p> <p><u>AND</u></p>	<p>24 hours</p> <p style="text-align: right;">(continued)</p>

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3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

NOTES

1. Penetration flow path(s) except for containment shutdown purge valve flow paths may be unisolated intermittently under administrative controls.
2. Separate Condition entry is allowed for each penetration flow path.
3. Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One penetration flow path with one containment isolation valve (CIV) inoperable except for purge valve leakage not within limit.</p>	<p>A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.</p> <p style="text-align: center;"><u>AND</u></p>	<p>4 hours for Category 1 CIVs</p> <p style="text-align: center;"><u>AND</u></p> <p>8 hours for Category 2 CIVs</p> <p style="text-align: center;"><u>AND</u></p> <p>12 hours for Category 3 CIVs</p> <p style="text-align: center;"><u>AND</u></p> <p style="text-align: right;">(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. (continued)</p>		<p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment</p>
<p>B. NOTE Only applicable to penetration flow paths with two containment isolation valves.</p> <hr/> <p>One or more penetration flow paths with two containment isolation valves inoperable except for containment purge valve leakage not within limit.</p>	<p>B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p>	<p>1 hour</p>
<p>C. Two or more penetration flow paths with one containment isolation valve inoperable for reasons other than Condition D.</p>	<p>C.1 Isolate all but one penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.</p>	<p>4 hours</p> <p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	D.3 Perform SR 3.6.3.6 or SR 3.6.3.7 for the resilient seal purge valves closed to comply with Required Action D.1.	Once per 92 days
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3.	6 hours
	<u>AND</u> E.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.3.1 Verify each containment shutdown purge valve is sealed closed or closed and blind flange installed except for one purge valve in a penetration flow path while in Condition D of this LCO.	Once per 31 days for isolation devices outside containment <u>AND</u> Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.3.2	<p>Verify each containment mini-purge valve is closed, except when the containment mini-purge valves are open for pressure control, ALARA or air quality considerations for personnel entry, or for Surveillances that require the valves to be open.</p>	31 days
SR 3.6.3.3	<p style="text-align: center;">NOTE</p> <p>Valves and blind flanges in high radiation areas may be verified by use of administrative controls.</p> <hr/> <p>Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.</p>	31 days
SR 3.6.3.4	<p style="text-align: center;">NOTE</p> <p>Valves and blind flanges in high radiation areas may be verified by use of administrative means.</p> <hr/> <p>Verify each containment isolation manual valve and blind flange that is located inside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.</p>	Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days
SR 3.6.3.5	<p>Verify the isolation time of each automatic power operated containment isolation valve is within limits.</p>	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.6.3.6</p> <hr/> <p style="text-align: center;">NOTE</p> <p>Only required to be performed when containment shutdown purge valve blind flanges are installed.</p> <hr/> <p>Perform leakage rate testing for containment shutdown purge valves with resilient seals and associated blind flanges.</p>	<p>24 months</p> <p><u>AND</u></p> <p>Following each reinstallation of the blind flange</p>
<p>SR 3.6.3.7</p> <hr/> <p style="text-align: center;">NOTE</p> <p>Only required to be performed for the containment shutdown purge valves when associated blind flanges are removed.</p> <hr/> <p>Perform leakage rate testing for containment mini-purge and shutdown purge valves with resilient seals.</p>	<p>184 days</p> <p><u>AND</u></p> <p>Within 92 days after opening the valve</p>
<p>SR 3.6.3.8</p> <p>Verify each automatic containment isolation valve that is not locked, sealed or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal.</p>	<p>18 months</p>

3.6 CONTAINMENT SYSTEMS

3.6.4 Containment Pressure

LCO 3.6.4 Containment pressure shall be ≥ -0.3 psig and $\leq + 1.5$ psig.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment pressure not within limits.	A.1 Restore containment pressure to within limits.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.4.1 Verify containment pressure is within limits.	12 hours

3.6 CONTAINMENT SYSTEMS

3.6.5 Containment Air Temperature

LCO 3.6.5 Containment average air temperature shall be $\leq 120^{\circ}\text{F}$.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Containment average air temperature not within limit.	A.1 Restore containment average air temperature to within limit.	8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.5.1 Verify containment average air temperature is within limit.	24 hours

3.6 CONTAINMENT SYSTEMS

3.6.6 Containment Spray and Cooling Systems

LCO 3.6.6 Two containment spray trains and two containment cooling trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One containment spray train inoperable.	A.1 Restore containment spray train to OPERABLE status.	72 hours <u>AND</u> 10 days from discovery of failure to meet the LCO
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. <u>AND</u> B.2 Be in MODE 5.	6 hours 84 hours
C. One containment cooling train inoperable.	C.1 Restore containment cooling train to OPERABLE status.	7 days <u>AND</u> 10 days from discovery of failure to meet the LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two containment cooling trains inoperable.	D.1 Restore one containment cooling train to OPERABLE status.	72 hours
E. Required Action and associated Completion Time of Condition C or D not met.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 5.	6 hours 36 hours
F. Two containment spray trains inoperable. <u>OR</u> Any combination of three or more trains inoperable.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.6.1 Verify each containment spray manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 day
SR 3.6.6.2 Operate each containment cooling train fan unit for ≥ 15 minutes.	31 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.3	Not Used.	
SR 3.6.6.4	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.6.6.5	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.6.6.6	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	18 months
SR 3.6.6.7	Verify each containment cooling train starts automatically and minimum cooling water flow rate is established on an actual or simulated actuation signal.	18 months
SR 3.6.6.8	Verify each spray nozzle is unobstructed.	10 years

3.6 CONTAINMENT SYSTEMS

3.6.7 Spray Additive System

LCO 3.6.7 The Spray Additive System shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spray Additive System inoperable.	A.1 Restore Spray Additive System to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	84 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.7.1 Verify each spray additive manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.7.2	Verify spray additive tank solution volume is ≥ 4340 gal and ≤ 4540 gal.	184 days
SR 3.6.7.3	Verify spray additive tank solution concentration is $\geq 28\%$ and $\leq 31\%$ by weight.	184 days
SR 3.6.7.4	Verify each spray additive automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.6.7.5	Verify spray additive flow rate from each solution's flow path.	5 years

3.6 CONTAINMENT SYSTEMS

3.6.8 Hydrogen Recombiners

LCO 3.6.8 Two hydrogen recombiners shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One hydrogen recombiner inoperable.</p>	<p>A.1 NOTE LCO 3.0.4 is not applicable.</p> <hr/> <p>Restore hydrogen recombiner to OPERABLE status.</p>	<p>30 days</p>
<p>B. Two hydrogen recombiners inoperable.</p>	<p>B.1 Verify by administrative means that the hydrogen control function is maintained.</p> <p><u>AND</u></p> <p>B.2 Restore one hydrogen recombiner to OPERABLE status.</p>	<p>1 hour</p> <p><u>AND</u></p> <p>Once per 12 hours thereafter</p> <p>7 days</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time not met.	C.1 Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.8.1 Perform a system functional test for each hydrogen recombiner.	18 months
SR 3.6.8.2 Visually examine each hydrogen recombiner enclosure and verify there is no evidence of abnormal conditions.	18 months
SR 3.6.8.3 Perform a resistance to ground test for each heater phase.	18 months

ATTACHMENT V
PROPOSED BASES CHANGES (for Information only)

BASES

ACTIONS
(continued)

In the event the containment isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria, Note 4 directs entry into the applicable Conditions and Required Actions of LCO 3.6.1.

A.1 and A.2

In the event one containment isolation valve in one ~~of those~~ penetration flow paths is inoperable except for purge valve leakage not within limit, the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve (this includes power operated valves with power removed), a blind flange, or a check valve with flow through the valve secured. For a penetration flow path isolated in accordance with Required Action A.1, the device used to isolate the penetration should be the closest available one to containment. The isolation barrier utilized to satisfy Required Action A.1 must have been demonstrated to meet the leakage requirements of SR 3.6.1.1. Required Action A.1 must be completed within 4 hours. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting containment OPERABILITY during MODES 1, 2, 3, and 4.

the Completion Times specified for each Category of containment Isolation valves identified in Table B 3.6.3-1. The Completion Times are justified in Reference 8.

an
specified

For affected penetration flow paths that cannot be restored to OPERABLE status within the 4 hour Completion Time and that have been isolated in accordance with Required Action A.1, the affected penetration flow paths must be verified to be isolated on a periodic basis. This is necessary to ensure that containment penetrations required to be isolated following an accident and no longer capable of being automatically isolated will be in the isolation position should an event occur. This Required Action does not require any testing or device manipulation. Rather, it involves verification, through a system walkdown (which may include the use of local or remote indicators), that those isolation devices outside containment and capable of being mispositioned are in the correct position. The Completion Time of "once per 31 days for isolation devices outside containment" is appropriate considering the fact that the devices are operated under administrative controls and the probability of their misalignment is low. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

Condition A has been modified by a Note indicating that this condition is only applicable to those penetration flow paths with two containment

BASES

ACTIONS

A.1 and A.2 (continued)

isolation valves ^{and} for penetration flow paths with only one containment isolation valve and a closed system, Condition C provides the appropriate actions.

A (insert text from page B.3.6.3-7)

Required Action A.2 is modified by two Notes. Note 1 applies to isolation devices located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of misalignment of these devices once they have been verified to be in the proper position, is small.

B.1

With two containment isolation valves in one or more penetration flow paths inoperable, the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve (this includes power operated valves with power removed), and a blind flange. For a penetration flow path isolated in accordance with Required Action B.1, the device used to isolate the penetration should be the closest available one to containment. The isolation barrier utilized to satisfy Required Action B.1 must have been demonstrated to meet the leakage requirements of SR 3.6.1.1. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1. In the event the affected penetration is isolated in accordance with Required Action B.1, the affected penetration must be verified to be isolated on a periodic basis per Required Action A.2, which remains in effect. This periodic verification is necessary to assure that penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration flow path is isolated is appropriate considering the fact that the valves are operated under administrative control and the probability of their misalignment is low.

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two containment isolation valves. For penetration flow paths with only one containment isolation valve and a closed system, Condition C provides the appropriate Required Actions.

BASES

ACTIONS
(continued)

INSERT B-1

C.1 and C.2

With one or more penetration flow paths with one containment isolation valve inoperable, the inoperable valve flow path must be restored to OPERABLE status or the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. For a penetration flow path isolated in accordance with Required Action C.1, the device used to isolate the penetration should be the closest available one to containment. The isolation barrier utilized to satisfy Required Action C.1 must have been demonstrated to meet the leakage requirements of SR 3.6.1.1. A check valve may not be used to isolate the affected penetration flow path. Required Action C.1 must be completed within the 72 hour Completion Time. The specified time period is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of maintaining containment OPERABILITY during MODES 1, 2, 3, and 4.

Move to A on
page B 3.6.3-6

The closed system must meet the requirement of Reference 5. The Containment Spray System and ECCS are closed ESF-grade systems outside containment, which meet the requirements of Reference 5, and serve as the second containment isolation barrier (Ref. 6). In the event the affected penetration flow path is isolated in accordance with Required Action C.1, the affected penetration flow path must be verified to be isolated on a periodic basis. This periodic verification is necessary to assure that containment penetrations requiring isolation following an accident are isolated. The Completion Time of once per 31 days for verifying that each affected penetration flow path is isolated is appropriate because the valves are operated under administrative controls and the probability of their misalignment is low.

Condition C is modified by a Note indicating that this Condition is only applicable to those penetration flow paths with only one containment isolation valve and a closed system. This Note is necessary since this Condition is written specifically to address these penetration flow paths. For penetration flow paths with two containment isolation valves, Conditions A and B provide the appropriate Required Actions.

Required Action C.2 is modified by two Notes. Note 1 applies to valves and blind flanges located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices

INSERT B-1

C.1

In the event one containment isolation valve in two or more penetration flow paths is inoperable, except for purge valve or shield building bypass leakage not within limit, all but one of the affected penetration flow path(s) must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic containment isolation valve, a closed manual valve, a blind flange, and a check valve with flow through the valve secured. For a penetration flow path isolated in accordance with C.1, the device used to isolate the penetration should be the closest available one to containment. Required Action C.1 must be completed within 4 hours. For the penetration flow paths isolated in accordance with Required Action C.1, the affected penetration(s) must be verified to be isolated on a periodic basis per Required Action A.2, which remains in effect. This periodic verification is necessary to assure that the penetrations requiring isolation following an accident are isolated. The 4 hour Completion Time is reasonable, considering the time required to isolate the penetration and the relative importance of supporting Containment OPERABILITY during MODES 1, 2, 3, and 4.

BASES

ACTIONS

C.1 and C.2 (continued)

to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is small.

D.1, D.2, and D.3

In the event one or more containment shutdown or mini-purge valves in one or more penetration flow paths are not within the leakage limits, leakage must be restored to within limits, or the affected penetration flow path must be isolated. The method of isolation must be by the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, closed manual valve (this includes power operated valves with power removed), or blind flange. A containment shutdown purge or mini-purge valve with resilient seals utilized to satisfy Required Action D.1 must have been demonstrated to meet the leakage requirements of SR 3.6.3.6 or SR 3.6.3.7. The specified Completion Time is reasonable, considering that one containment purge valve remains closed so that a gross breach of containment does not exist.

In accordance with Required Action D.2, this penetration flow path must be verified to be isolated on a periodic basis. The periodic verification is necessary to ensure that containment penetrations required to be isolated following an accident, which are no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or valve manipulation. Rather, it involves verification, through a system walkdown (which may include the use of local or remote indicators), that those isolation devices outside containment capable of being mispositioned are in the correct position. For the isolation devices inside containment, the time period specified as "prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the isolation devices and other administrative controls that will ensure that isolation device misalignment is an unlikely possibility.

For the containment purge valve with resilient seal that is isolated in accordance with Required Action D.1, SR 3.6.3.6 or SR 3.6.3.7 must be performed at least once every 92 days. This assures that degradation of the resilient seal is detected and confirms that the leakage rate of the containment purge valve does not increase during the time the penetration is isolated. The normal Frequency for SR 3.6.3.7, 184 days, is based on an NRC initiative, Multi-Plant Action No. B-20 (Ref. 3). Since more reliance is placed on a single valve while in this Condition, it is

BASES

REFERENCES
(continued)

6. NUREG-0881, "Safety Evaluation Report related to the operation of Wolf Creek Generating Station, Unit No. 1," Section 6.2.3, April 1982.
7. NRC letter dated March 29, 2001, "Relief Request from the Requirements of ASME Code, Section XI, Related to Code Case OMN-1 for Wolf Creek Generating Station (TAC NO. MB0982)."

8. WCAP-15791-P, Rev.1, "Risk-Informed Evaluation of Extensions to Containment Isolation Valve Completion Times," April 2004.

INSERT B-2, TABLE B 3.6.3-1

INSERT B-2

TABLE B 3.6.3-1
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CONTAINMENT ISOLATION VALVES -- COMPLETION TIMES

<u>VALVE</u>	<u>PENETRATION NO.</u>	<u>CATEGORY/COMPLETION TIME</u>	
BBHV-8026	P-62	Category 7	7 days
BBHV-8027	P-62	Category 7	7 days
BBHV-8351A	P-41	Category 7	7 days
BBHV-8351B	P-22	Category 7	7 days
BBHV-8351C	P-39	Category 7	7 days
BBHV-8351D	P-40	Category 7	7 days
BBV-118	P-41	Category 7	7 days
BBV-148	P-22	Category 7	7 days
BBV-178	P-39	Category 7	7 days
BBV-208	P-40	Category 7	7 days
BBV-245	P-41	Category 7	7 days
BBV-246	P-22	Category 7	7 days
BBV-247	P-39	Category 7	7 days
BBV-248	P-40	Category 7	7 days
BBV-352	P-41	Category 7	7 days
BBV-354	P-22	Category 7	7 days
BBV-356	P-39	Category 7	7 days
BBV-358	P-40	Category 7	7 days
BG-8381	P-80	Category 7	7 days
BGHV-8100	P-24	Category 7	7 days
BGHV-8105	P-80	Category 7	7 days
BGHV-8112	P-24	Category 7	7 days
BGHV-8152	P-23	Category 4	24 hours
BGHV-8160	P-23	Category 4	24 hours
BGV-135	P-24	Category 7	7 days
BGV-342	P-80	Category 7	7 days
BGV-363	P-23	Category 7	7 days
BGV-457	P-24	Category 7	7 days
BL-8046	P-25	Category 7	7 days
BLHV-8047	P-25	Category 7	7 days
BLV-054	P-25	Category 7	7 days
BMV-045	P-78	Category 4	24 hours
BMV-046	P-78	Category 4	24 hours
BMV-302	P-78	Category 7	7 days
ECV-083	P-53	Category 4	24 hours
ECV-084	P-53	Category 4	24 hours
ECV-085	P-53	Category 7	7 days
ECV-086	P-54	Category 7	7 days
ECV-087	P-54	Category 4	24 hours
ECV-088	P-54	Category 4	24 hours
ECV-094	P-55	Category 7	7 days
ECV-095	P-55	Category 4	24 hours
ECV-096	P-55	Category 4	24 hours
EFHV-31	P-71	Category 7	7 days

TABLE B 3.6.3-1
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CONTAINMENT ISOLATION VALVES – COMPLETION TIMES

<u>VALVE</u>	<u>PENETRATION NO.</u>	<u>CATEGORY/COMPLETION TIME</u>	
EFHV-32	P-28	Category 7	7 days
EFHV-33	P-71	Category 6	72 hours
EFHV-34	P-28	Category 6	72 hours
EFHV-45	P-73	Category 6	72 hours
EFHV-46	P-29	Category 6	72 hours
EFHV-49	P-73	Category 7	7 days
EFHV-50	P-29	Category 7	7 days
EFV-276	P-71	Category 7	7 days
EFV-277	P-73	Category 7	7 days
EFV-278	P-28	Category 7	7 days
EFV-279	P-29	Category 7	7 days
EGHV-127	P-74	Category 7	7 days
EGHV-130	P-75	Category 4	24 hours
EGHV-131	P-75	Category 6	72 hours
EGHV-132	P-76	Category 4	24 hours
EGHV-133	P-76	Category 6	72 hours
EGHV-58	P-74	Category 7	7 days
EGHV-59	P-75	Category 7	7 days
EGHV-60	P-75	Category 6	72 hours
EGHV-61	P-76	Category 7	7 days
EGHV-62	P-76	Category 6	72 hours
EGV-090	P-74	Category 7	7 days
EGV-204	P-74	Category 7	7 days
EGV-371	P-76	Category 7	7 days
EGV-372	P-75	Category 7	7 days
EJ-8708A	P-79	Category 2	8 hours
EJ-8708B	P-52	Category 2	8 hours
EJ-8841A	P-21	Category 6	72 hours
EJ-8841B	P-21	Category 6	72 hours
EJHCV-8825	P-21	Category 7	7 days
EJHCV-8890A	P-82	Category 7	7 days
EJHCV-8890B	P-27	Category 7	7 days
EJHV-23	P-15	Category 7	7 days
EJHV-24	P-14	Category 7	7 days
EJHV-25	P-15	Category 7	7 days
EJHV-26	P-14	Category 7	7 days
EJHV-8701A	P-79	Category 1	4 hours
EJHV-8701B	P-52	Category 1	4 hours
EJHV-8809A	P-82	Category 1	4 hours
EJHV-8809B	P-27	Category 1	4 hours
EJHV-8811A	P-15	Category 1	4 hours
EJHV-8811B	P-14	Category 1	4 hours
EJHV-8840	P-21	Category 6	72 hours
EJV-054	P-82	Category 1	4 hours
EJV-056	P-21	Category 6	72 hours
EJV-058	P-27	Category 1	4 hours

TABLE B 3.6.3-1
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CONTAINMENT ISOLATION VALVES – COMPLETION TIMES

<u>VALVE</u>	<u>PENETRATION NO.</u>	<u>CATEGORY/COMPLETION TIME</u>	
EJV-086	P-27	Category 7	7 days
EJV-088, -090	P-27	Category 7	7 days
EJV-118, 120	P-21	Category 7	7 days
EJV-122	P-21	Category 7	7 days
EJV-124	P-21	Category 7	7 days
EJV-132	P-82	Category 7	7 days
EJV-134, -136	P-82	Category 7	7 days
EJV-154	P-79	Category 7	7 days
EJV-166	P-27	Category 7	7 days
EJV-171, -172, -173, -174	P-82	Category 7	7 days
EJV-175, -176, -177, -178	P-21	Category 7	7 days
EJV-179, -180, -181, -182	P-27	Category 7	7 days
EJV-187	P-15	Category 7	7 days
EJV-189	P-14	Category 7	7 days
EMHV-8801A	P-88	Category 7	7 days
EMHV-8801B	P-88	Category 7	7 days
EMHV-8802A	P-87	Category 6	72 hours
EMHV-8802B	P-48	Category 6	72 hours
EMHV-8823	P-49	Category 7	7 days
EMHV-8824	P-48	Category 7	7 days
EMHV-8835	P-49	Category 1	4 hours
EMHV-8843	P-88	Category 7	7 days
EMHV-8871	P-92	Category 7	7 days
EMHV-8881	P-87	Category 7	7 days
EMHV-8888	P-58	Category 7	7 days
EMHV-8964	P-92	Category 7	7 days
EMV-001	P-87	Category 6	72 hours
EMV-002	P-87	Category 6	72 hours
EMV-003	P-48	Category 6	72 hours
EMV-004	P-48	Category 6	72 hours
EMV-006	P-58	Category 7	7 days
EMV-038	P-92	Category 7	7 days
EMV-051	P-87	Category 6	72 hours
EMV-052, -053, -055, -056, -184, -185	P-87	Category 7	7 days
EMV-059	P-48	Category 6	72 hours
EMV-060, -061, -063, -064,	P-48	Category 7	7 days
EMV-067	P-49	Category 1	4 hours
EMV-068, -069, -070, -071, -072, -073, -074, -075	P-49	Category 7	7 days
EMV-077	P-88	Category 7	7 days
EMV-123	P-58	Category 7	7 days
EMV-151	P-88	Category 7	7 days
EMV-153	P-92	Category 7	7 days
EMV-162, -163, -164, -165, -166, -167, -168	P-49	Category 7	7 days

TABLE B 3.6.3-1
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CONTAINMENT ISOLATION VALVES – COMPLETION TIMES

<u>VALVE</u>	<u>PENETRATION NO.</u>	<u>CATEGORY/COMPLETION TIME</u>	
EMV-169, -217	P-48	Category 7	7 days
EMV-170, -172	P-48	Category 7	7 days
EMV-182	P-58	Category 7	7 days
EMV-186, -187	P-87	Category 7	7 days
EMV-218	P-49	Category 7	7 days
EMV-8815	P-88	Category 7	7 days
ENHV-06	P-89	Category 7	7 days
ENHV-01	P-16	Category 1	4 hours
ENHV-07	P-13	Category 1	4 hours
ENHV-12	P-66	Category 7	7 days
ENV-013	P-89	Category 7	7 days
ENV-017	P-66	Category 7	7 days
ENV-076	P-89	Category 7	7 days
ENV-080	P-66	Category 7	7 days
EP-8818A	P-82	Category 1	4 hours
EP-8818B	P-82	Category 1	4 hours
EP-8818C	P-27	Category 1	4 hours
EP-8818D	P-27	Category 1	4 hours
EPHV-8880	P-45	Category 7	7 days
EPV-010	P-49	Category 1	4 hours
EPV-020	P-49	Category 1	4 hours
EPV-030	P-49	Category 1	4 hours
EPV-040	P-49	Category 1	4 hours
EPV-043	P-45	Category 7	7 days
EPV-046	P-45	Category 7	7 days
GPV-010	P-34	Category 7	7 days
GPV-011	P-51	Category 7	7 days
GPV-012	P-51	Category 7	7 days
GSHV-12	P-101	Category 7	7 days
GSHV-13	P-101	Category 7	7 days
GSHV-14	P-101	Category 7	7 days
GSHV-17	P-97	Category 7	7 days
GSHV-18	P-97	Category 7	7 days
GSHV-20	P-65	Category 4	24 hours
GSHV-21	P-65	Category 4	24 hours
GSHV-3	P-99	Category 7	7 days
GSHV-31	P-101	Category 7	7 days
GSHV-32	P-101	Category 7	7 days
GSHV-33	P-97	Category 7	7 days
GSHV-34	P-97	Category 7	7 days
GSHV-36	P-99	Category 7	7 days
GSHV-37	P-99	Category 7	7 days
GSHV-38	P-56	Category 7	7 days
GSHV-39	P-56	Category 7	7 days
GSHV-4	P-99	Category 7	7 days
GSHV-5	P-99	Category 7	7 days

TABLE B 3.6.3-1
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CONTAINMENT ISOLATION VALVES – COMPLETION TIMES

<u>VALVE</u>	<u>PENETRATION NO.</u>	<u>CATEGORY/COMPLETION TIME</u>	
GSHV-8	P-56	Category 7	7 days
GSHV-9	P-56	Category 7	7 days
GSV-029	P-99	Category 7	7 days
GSV-032	P-56	Category 7	7 days
GSV-033	P-99	Category 7	7 days
GSV-036	P-97	Category 7	7 days
GSV-041	P-65	Category 7	7 days
GSV-050	P-101	Category 7	7 days
GSV-052	P-97	Category 7	7 days
GSV-056	P-101	Category 7	7 days
GSV-058	P-56	Category 7	7 days
GTHZ-11	V-160	Category 3	12 hours
GTHZ-12	V-160	Category 3	12 hours
GTHZ-4	V-161	Category 3	12 hours
GTHZ-5	V-161	Category 3	12 hours
GTHZ-6	V-161	Category 3	12 hours
GTHZ-7	V-161	Category 3	12 hours
GTHZ-8	V-160	Category 3	12 hours
GTHZ-9	V-160	Category 3	12 hours
GTV-222	V-161	Category 7	7 days
GTV-223	V-160	Category 7	7 days
HBHV-7126	P-44	Category 7	7 days
HBHV-7136	P-26	Category 6	72 hours
HBHV-7150	P-44	Category 7	7 days
HBHV-7176	P-26	Category 5	48 hours
HBV-419	P-26	Category 7	7 days
HBV-420	P-44	Category 7	7 days
HDV-016	P-43	Category 7	7 days
HDV-017	P-43	Category 7	7 days
HDV-023	P-43	Category 7	7 days
KAFV-29	P-30	Category 7	7 days
KAV-039	P-63	Category 7	7 days
KAV-118	P-63	Category 7	7 days
KAV-163	P-63	Category 7	7 days
KAV-204	P-30	Category 7	7 days
KAV-218	P-30	Category 7	7 days
KBV-001	P-98	Category 7	7 days
KBV-002	P-98	Category 7	7 days
KCHV-253	P-67	Category 7	7 days
KCV-431	P-67	Category 7	7 days
KCV-478	P-67	Category 7	7 days
LFFV-95	P-32	Category 7	7 days
LFFV-96	P-32	Category 7	7 days
LFV-093	P-32	Category 7	7 days
SJHV-12	P-69	Category 4	24 hours
SJHV-127	P-93	Category 7	7 days

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CONTAINMENT ISOLATION VALVES – COMPLETION TIMES

<u>VALVE</u>	<u>PENETRATION NO.</u>	<u>CATEGORY/COMPLETION TIME</u>	
SJHV-128	P-64	Category 3	12 hours
SJHV-129	P-64	Category 7	7 days
SJHV-13	P-69	Category 4	24 hours
SJHV-130	P-64	Category 7	7 days
SJHV-131	P-57	Category 7	7 days
SJHV-132	P-57	Category 7	7 days
SJHV-18	P-95	Category 7	7 days
SJHV-19	P-95	Category 7	7 days
SJHV-5	P-93	Category 5	48 hours
SJHV-6	P-93	Category 5	48 hours
SJV-066	P-95	Category 7	7 days
SJV-069	P-93	Category 7	7 days
SJV-071	P-69	Category 7	7 days
SJV-106	P-64	Category 7	7 days
SJV-111	P-57	Category 7	7 days
SJV-114	P-57	Category 7	7 days

LIST OF COMMITMENTS

The following table identifies those actions committed to by Wolf Creek Nuclear Operating Corporation (WCNOC) in this document. Any other statements in this submittal are provided for information purposes and are not considered to be commitments. Please direct questions regarding these commitments to Mr. Kevin Moles, Manager Regulatory Affairs at Wolf Creek Generating Station, (620) 364-4126.

COMMITMENT	Due Date/Event
WCNOC requests approval of the proposed license amendment by August 31, 2005. Once approved, this amendment will be implemented within 90 days.	Within 90 days of NRC approval.