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U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station OP1-17
Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION
PROPOSED AMENDMENT NO. 232 TO LICENSE NPF-14 AND PROPOSED AMENDMENT NO. 197 TO LICENSE NPF-22:
H_2O_2 ANALYZER PENETRATION
PLA-5218

Docket Nos. 50-387 and 50-388

The purpose of this letter is to propose changes to the Susquehanna Steam Electric Station Unit 1 and Unit 2 Technical Specifications and to request approval to deviate from the guidance of Standard Review Plan Section 6.2.4.

Enclosure A to this letter is the "Safety Assessment" supporting this change. Enclosure B is the No significant Hazards Considerations evaluations performed in accordance with the criteria of 10 CFR 50.92 and the Environmental Assessment. Enclosure C to this letter contains the applicable pages of the Susquehanna SES Unit 1 and Unit 2 Technical Specifications marked to show the proposed changes. To assist in your review, this enclosure also contains a copy of the applicable pages of the Susquehanna SES Unit 1 and Unit 2 Technical Specifications Bases marked to show the associated changes to the bases. Enclosure D contains the "camera ready" version of the revised Technical Specification pages. The proposed change has been approved by the Susquehanna SES Plant Operations Review Committee and reviewed by the Susquehanna Review Committee.

We request NRC complete its review of this change and deviation by February 1, 2001 with the changes effective upon startup following the Unit 2 10th Refueling and Inspection Outage.

A001

Should you have any questions regarding this submittal, please contact Mr. C. T. Coddington at (610) 774-4019.

Sincerely,

R. G. Byram

copy: NRC Region I
Mr. S. Hansell, NRC Sr. Resident Inspector
Mr. R. G. Schaaf, NRC Project Manager
Mr. W. P. Dornsife, PA DEP

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of :

PPL Susquehanna, LLC : Docket No. 50-388

PROPOSED AMENDMENT NO. 197 TO LICENSE NPF-22:
H_2O_2 ANALYZER PENETRATION
SUSQUEHANNA STEAM ELECTRIC STATION
UNIT NO. 2

Licensee, PPL Susquehanna, LLC, hereby files a revision to its Facility Operating License No. NPF-22 dated March 23, 1984.

This amendment contains a revision to the Susquehanna SES Unit 2 Technical Specifications.

PPL Susquehanna, LLC
BY:

R. G. Byram
Sr. Vice-President and Chief Nuclear Officer

Sworn to and subscribed before me
this 8th day of August 2000.

Notary Public

NOTARIAL SEAL
FRANCINE A. GREENZWEIG, Notary Public
City of Allentown, Lehigh County, PA
My Commission Expires Oct. 29, 2002

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of	:	
PPL Susquehanna, LLC	:	Docket No. 50-387

PROPOSED AMENDMENT NO. 232 TO LICENSE NPF-14:
H_2O_2 ANALYZER PENETRATION
SUSQUEHANNA STEAM ELECTRIC STATION
UNIT NO. 1

Licensee, PPL Susquehanna, LLC, hereby files a revision to its Facility Operating License No. NPF-14 dated July 17, 1982.

This amendment contains a revision to the Susquehanna SES Unit 1 Technical Specifications.

PPL Susquehanna, LLC
BY:

R. G. Byram
Sr. Vice-President and Chief Nuclear Officer

Sworn to and subscribed before me
this 8th day of August, 2000.

Francine A. Greenzweig

Notary Public

NOTARIAL SEAL
FRANCINE A. GREENZWEIG, Notary Public
City of Allentown, Lehigh County, PA
My Commission Expires Oct. 29, 2002

ENCLOSURE A TO PLA-5218

SAFETY ASSESSMENT

SAFETY ASSESSMENT

H_2O_2 ANALYZER PENETRATION

BACKGROUND

Due to the unique containment isolation design for the H_2O_2 Analyzer penetrations, the existing Conditions in Limiting Condition for Operation (LCO) 3.6.1.3 do not completely describe the required actions, should an associated Primary Containment Isolation Valve (PCIV) become inoperable. The purpose of this change is to provide the required actions associated with the H_2O_2 Analyzer penetration PCIVs. Also, this change requests the approval to use closed system boundary valves that do not completely meet the guidance described in Standard Review Plan Section 6.2.4.

Description of the Proposed Changes

The principal change to Technical Specifications is the creation of a new condition under LCO 3.6.1.3 to address the unique containment isolation features of the H_2O_2 Analyzer penetrations. This condition describes the actions to be taken when one or more H_2O_2 Analyzer penetrations have one or two Primary Containment Isolation Valves inoperable. The actions are the same as those already identified for PCIVs in LCO 3.6.1.3. The use of 72 hours is consistent with the completion time for Condition C, which relies upon a closed system as the redundant barrier. Since the containment isolation barriers for the H_2O_2 Analyzer penetrations consist of two PCIVs and a closed system, the new condition combines the actions associated with a penetration comprised of two PCIVs, with the completion time for a penetration that utilizes a closed system as a redundant barrier. The use of a 72 hour completion time is based upon the reliability provided by a closed system.

The other changes to this LCO are editorial changes (i.e., re-labeling of conditions) due to the fact that the new condition is being inserted. This includes adding a statement to Conditions A and B to note that these conditions do not apply to the H_2O_2 Analyzer penetrations. Also, since the new condition is being inserted as Condition D, existing Conditions D through G must be re-labeled as E through H. Other editorial changes are being made to the existing conditions to account for the impact of re-labeling the existing conditions.

Included as part of this change, is a request for approval to utilize boundary valves as part of the H_2O_2 Analyzer closed systems that do not meet all of the guidelines contained in NUREG-75/087 USNRC Standard Review Plan (SRP) Section 6.2.4, Revision 1, September 1975 for closed systems outside primary containment. Specifically, the valves between the H_2O_2 Analyzer system and Post Accident Sampling System (PASS) are part of the closed system boundary. SRP 6.2.4, Paragraph II.3.e permits the use of a closed piping system outside primary containment as a redundant containment isolation barrier provided: (1) the system has a temperature and pressure rating at least equal to that of the containment; (2) is missile protected; (3) is Seismic Category I; and (4) is designed in accordance with Safety Class 2. The boundary valves between PASS and the H_2O_2 Analyzer system meet all of these requirements with the exception of the electrical power supply for the valves, which is not Class 1E. Consequently, these valves do not meet all of the requirements for Safety Class 2. Therefore, NRC approval of the use of a non-Class 1E powered valve in a Class 1E application is being requested in order to document an exception to PPL's FSAR commitments regarding the design of closed systems.

The following changes to the Technical Specification Bases are being made to ensure that sufficient detail is provided to address the unique features associated with these penetrations.The description of the changes to the Technical Specification Bases are being provided to assist the NRC in its review. The following is a detailed description of the changes:

- The Background section of B3.6.1.1 is revised to explain the primary containment isolation barriers for the H_2O_2 Analyzer penetrations, i.e., two PCIVs and a closed system, and to identify the PASS/ H_2O_2 Analyzer containment interface.

- A new table (B3.6.1.1-2) is being added to identify the intermediate isolation valves for use as the containment boundary when the H_2O_2 Analyzer panels are isolated and/or vented.

- SRP 6.2.4 is added to the list of references for B3.6.1.1.

- The addition of a note to Technical Specification Bases Table B3.6.1.3-1 identifying that a redundant containment isolation barrier for the H_2O_2 Analyzer PCIVs is a closed system that is tested in accordance with the Leakage Rate Test Program. The table is also revised to identify this note as being applicable to all of the H_2O_2 Analyzer PCIVs listed in the table.

- The Background section of B3.6.1.3 is revised to explain the primary containment isolation barriers for the H_2O_2 Analyzer penetrations, i.e., two PCIVs and a closed system. In addition, the single failure implications for the PCIVs are addressed. The exemption to having fully qualified (Class 1E powered) boundary valves between the H_2O_2 System and PASS is also addressed.

- The Applicable Safety Analysis section of B3.6.1.3 is revised to note that the single failure criterion for the H_2O_2 Analyzer penetration is satisfied by the combination of the PCIVs and the closed system. A description of the single failure is also being added.

- In B3.6.1.3 LCO Actions A (with one PCIV inoperable, close and deactivate at least one automatic valve for penetrations with two PCIVs) and B (with two PCIVs inoperable, close and deactivate at least one automatic valve for penetrations with two PCIVs) have been revised to state that these Actions are not applicable to the H_2O_2 Analyzer penetrations. These Actions have also been modified to state that the new Condition D is the appropriate Condition for the H_2O_2 Analyzer penetrations.

- In B3.6.1.3, a new Condition D was added to address the required actions associated with the H_2O_2 Analyzer penetrations provided the closed system is operable. Additionally, a note is being added to explain that the H_2O_2 Analyzer PCIVs must be deactivated by pulling the fuse for the power supply, and either de-terminating the power cables at the solenoid valve, or jumpering the field side of the fused conductors of the power cables to ground.

- In B3.6.1.3, the existing LCO Actions D, E, F, G and H have been renumbered due to the addition of new Condition D.

SAFETY ANALYSIS

The primary purpose of the proposed changes is to identify the required actions for the H_2O_2 Analyzer penetrations in the event that one or more of the PCIVs becomes inoperable. It also identifies that the isolation barriers for the penetrations consist of two PCIVs and a closed system.

Various deficiencies have been identified with the manner in which the containment boundary for the H_2O_2 Analyzer penetrations is described in the Technical Specification Bases, and the means by which leak rate testing was performed on the system. Specifically, it was reported that neither Technical Specifications Bases Table (B3.6.1.3)

nor FSAR Tables (6.2-12 and 6.2-22) identified that the H_2O_2 Analyzer PCIVs are susceptible to a single electrical failure, nor did they indicate that the redundant barrier to the valves was a closed system. Consequently, the H_2O_2 Analyzer system boundary was being tested as a system that may contain radioactive fluid post-accident (Technical Specification 5.5.2), rather than to meet 10CFR50, Appendix J requirements. Furthermore, the potential for a single failure to prevent both PCIVs from closing or causing both valves to go open was not considered with regard to deactivating closed PCIVs in accordance with Technical Specifications; in order to ensure that an H_2O_2 Analyzer PCIV remains closed, it is necessary to pull the fuse and either de-terminate the wires at the valve or jumper the power side of the solenoid to ground. Licensee Event Report 50-387/00-001-00 (dated March 3, 2000) was written due to these identified deficiencies.

The H_2O_2 Analyzer PCIVs and associated closed systems have two safety functions. The PCIVs have an opening safety function to permit use of the H_2O_2 Analyzer systems post accident to provide the operators with information so that manual actions can be taken to mitigate combustible gas build-up. They have a safety function to close, in order to maintain primary containment integrity post accident in the event of leakage from the H_2O_2 Analyzer system in excess of that assumed in the DBA LOCA Dose analysis. The H_2O_2 Analyzer closed system has a safety function to maintain integrity. This fulfills both the containment integrity and combustible gas monitoring safety functions.

The safety function to monitor combustible gas build-up post accident is not affected by the proposed changes, since no restrictions are placed upon the PCIVs being open unless there is a system breach. If such a condition existed, the capability to monitor combustible gas build-up would be provided by the redundant H_2O_2 Analyzer Panel. This position is commensurate with the current licensing basis of the system, as described in FSAR Sections 6.2.5, 7.5.1b.2, and Table 7.5-3, as well as Technical Specification Bases B3.3.3.1.

There are a total of five, one inch diameter supply and return lines for each division of H_2O_2 Analyzers. Each of the ten affected lines penetrating primary containment has two PCIVs, located just outside primary containment. While two PCIVs are provided on each line, a single active failure within the electrical power supplies to these valves, could result in both valves failing to close or failing to remain closed. Furthermore, this same single failure could simultaneously affect all of the PCIVs within an H_2O_2 Analyzer division. These valves are designed to be powered from the same electrical division in order to assure that a single failure could not result in the loss of both divisions of H_2O_2 Analyzers. The H_2O_2 Analyzers are required to monitor the buildup of combustible gases inside primary containment post-accident, so that actions can be taken to mitigate this condition. Consequently, the pressure boundary of the H_2O_2 Analyzer systems provides

the primary containment isolation barrier for these penetrations in the event of a single failure of the H_2O_2 Analyzer PCIVs. While these PCIVs are not redundant to each other electrically, they are redundant to each other mechanically. Thus, if one of the PCIVs were to become inoperable mechanically (e.g., mechanical binding), the other PCIV would be capable of automatic closure, providing two redundant containment isolation barriers (i.e., the remaining PCIV and the closed system.)

FSAR Section 6.2.4.3.3.6 states that the post-LOCA sampling lines are equipped with two solenoid operated isolation valves in series. It further states that, since the H_2O_2 Analyzers are in service post accident, the sampling lines are an extension of primary containment, and that the containment isolation valves are "conditional". It also identifies that the sampling lines are designed commensurate with their function as an extension of primary containment (i.e., Safety Class 2, Seismic Category I, missile protected). No explanation of the term "conditional" is provided in the FSAR. However, given that the piping system is an extension of primary containment, it can be treated as a closed system outside containment, since the requirements are the same.

Evidence to support the fact that the containment isolation provisions for the H_2O_2 Analyzer penetrations included two valves and a closed system can be found in prior license amendments associated with the re-piping of the Containment Radiation Monitors (CRMs), which were originally supplied by and returned to these penetrations. Based upon the correspondence associated with these amendments, it is clear that the NRC was aware of the fact that the PCIVs were not single failure proof electrically, but that this was found to be acceptable. In License Amendment 72 (U2) and 101 (U1), the NRC stated that the exemption to GDC 56 for the H_2O_2 Analyzer penetrations, as described in FSAR Section 6.2.4.3.3.6, was for two valves outside primary containment. In letters to the NRC in support of Technical Specification changes for the CRM modifications, PPL described the electrical design for the affected isolation valves, and noted that the NRC had previously approved this design. In License Amendments 111 (U2) and 141 (U1), the NRC stated that the isolation system for the CRMs (two valves powered from different electrical divisions) was equal to or an improvement in the design of the systems which are currently installed at the plant (i.e., H_2O_2 Analyzer penetrations.) Based upon this information and the description in the FSAR, it can be concluded that NRC approval was due to the fact that the H_2O_2 Analyzer system was maintained as an extension of containment (i.e., designed as a closed system and tested in accordance with 10CFR50, Appendix J.)

Therefore, all of these lines, up to and including the H_2O_2 Analyzer panels, are extensions of primary containment (i.e., closed systems), and are required to be leak rate tested in accordance with the Susquehanna Leakage Rate Test Program. The H_2O_2 Analyzer closed system boundary consists of those components, piping, tubing, fittings, and valves

which meet the Standard Review Plan (SRP) Section 6.2.4 with the exception of the boundary valves between the H_2O_2 system and PASS. SRP 6.2.4, Paragraph II.3.e permits the use of a closed piping system outside primary containment as a redundant containment isolation barrier provided: (1) the system has a temperature and pressure rating at least equal to that of the containment; (2) is missile protected; (3) is Seismic Category I; and (4) is designed in accordance with Safety Class 2. The boundary valves between PASS and the H_2O_2 Analyzer system meet all of these requirements with the exception of the electrical power supply for the valves, which is not Class 1E. Consequently, these valves do not meet all of the requirements for Safety Class 2. Single failure criteria requires the consideration of a single failure of Class 1E equipment, and those credible consequential failures of non-Class 1E equipment that could affect the safety function of Class 1E components. In this case, the safety function would be to ensure that containment isolation could be provided for the H_2O_2 Analyzer penetrations.

Since the boundary valves are non-Class 1E powered, a risk assessment was performed to determine if there were any credible failures of this non-Class 1E equipment that could prevent the affected penetrations from performing their safety function. Based on our risk assessment, the fact that these valves are not powered from a Class 1E source is not risk significant. The risk assessment concluded that given a DBA LOCA, the probability of leakage from primary containment through the PASS solenoid valve is significantly less than the probability of two motor operated valves failing to close due to a common cause failure. Thus, there are no credible failures of non-Class 1E equipment that must be considered concurrent with the single failure of Class 1E equipment, and the containment isolation function for the penetration is preserved through the use of the H_2O_2 Analyzer closed system as currently designed.

PPL's risk assessment concluded that given that a source term is present in the reactor due to a Design Bases LOCA, the probability of leakage from the primary containment through the PASS solenoid valve is 1.19E-10. This value is significantly less than the probability of a licensed isolation system, which consists of a penetration with two motor operated valves (MOVs), failing to close due to a common cause failure (1.4E-4 per NUREG-1150 and 4.4E-5 per PPL risk assessment). Therefore, the event is a non-credible event and is bounded by a licensed event of the failure of two MOVs. Providing a Class 1E power source to the affected PASS solenoid valves would not decrease the likelihood of failure.

The H_2O_2 Analyzer closed system boundary is included in the Susquehanna Leakage Rate Test Program. PASS is not included in this boundary, since it does not fully meet the requirements of SRP Section 6.2.4 (i.e., not Seismic Category I). The containment boundary for the H_2O_2 Analyzer closed system stops at the PASS solenoid valves (SV-1(2)2361, SV-1(2)2365, SV-1(2)2366, SV-1(2)2368, & SV-1(2)2369), which isolate

PASS from H_2O_2 Analyzer sample piping. These valves also denote the Seismic Category I boundary between the H_2O_2 Analyzer system and PASS. This is further substantiated by FSAR Section 18.1.21.3.2.2, which states that containment isolation for PASS is provided by the H_2O_2 Analyzer PCIVs.

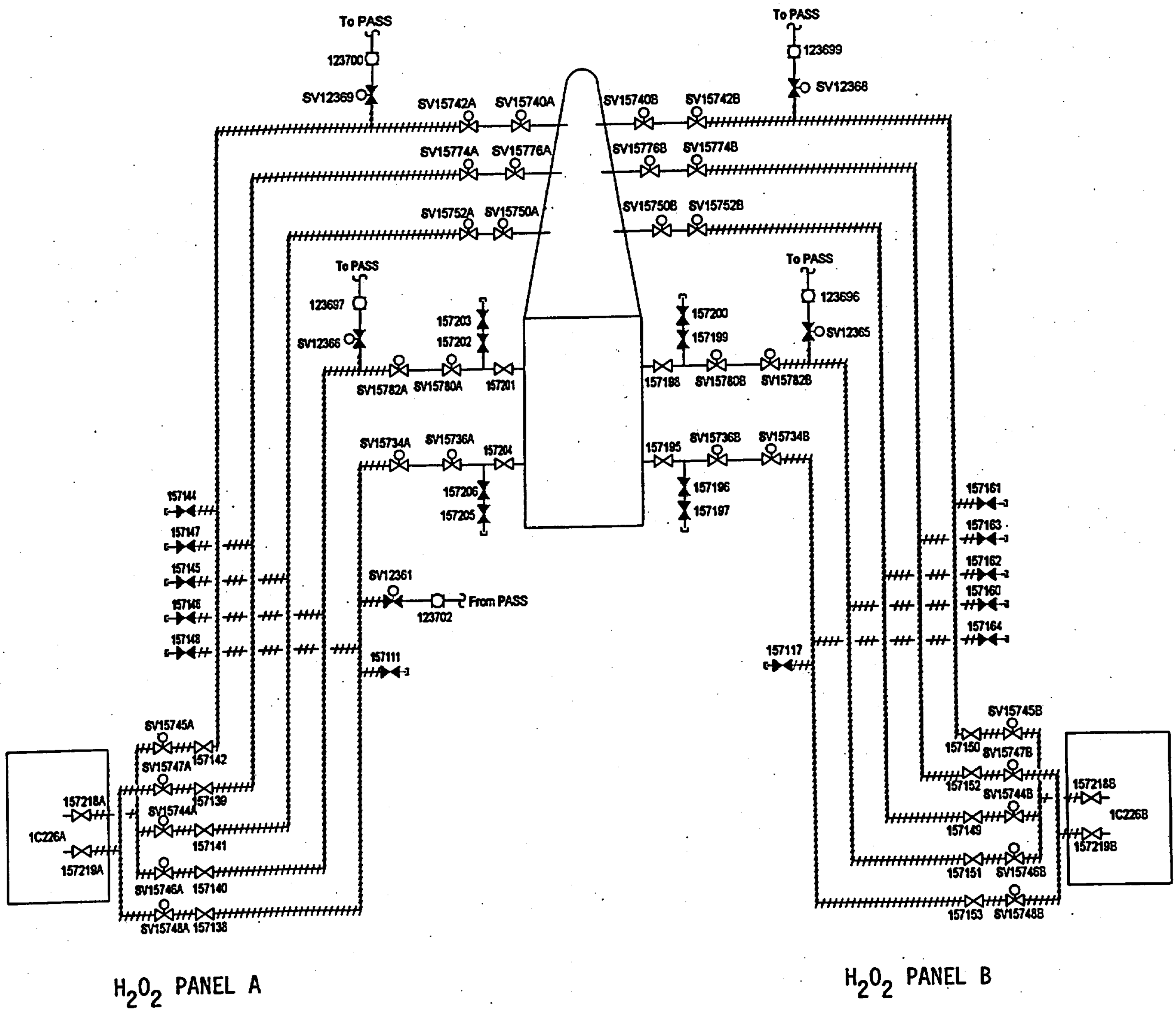
The proposed Technical Specification changes will provide the necessary clarification to ensure that the primary containment isolation barriers for the H_2O_2 Analyzer penetrations are completely identified and will provide for appropriate conservative actions to ensure primary containment integrity. The acceptability of utilizing a closed system as the redundant containment isolation barrier for the H_2O_2 Analyzer penetrations has already been reviewed as part of the original licensing process, as discussed above.

The proposed changes to Technical Specifications and Technical Specification Bases have no impact upon the safety function of the H_2O_2 Analyzer PCIVs and closed system. The safety function of these components is to maintain primary containment integrity by limiting leakage following an accident to within that assumed in the DBA LOCA Dose Analysis. The H_2O_2 Analyzer PCIVs and closed system will be maintained and leak rate tested in accordance with the Leakage Rate Test Program, thereby assuring that leakage from these components is maintained within the required limits. The design of these components is such that they meet the applicable design requirements with the exception of the PASS closed system boundary valves discussed above. However, as noted above, the potential for a consequential failure of these valves has been evaluated and determined to be not credible. Thus, the proposed changes have no impact upon the H_2O_2 Analyzer PCIVs and closed system to perform their containment isolation function.

CONCLUSIONS

NRC approval of the proposed change and deviation does not involve any reduction in the margin of safety.

H_2O_2 ANALYZER CLOSED SYSTEM



ENCLOSURE B TO PLA-5218

NO SIGNIFICANT HAZARDS CONSIDERATIONS AND ENVIRONMENTAL ASSESSMENT

NO SIGNIFICANT HAZARDS CONSIDERATIONS AND ENVIRONMENTAL ASSESSMENT

H_2O_2 ANALYZER PENETRATIONS

PPL has evaluated the proposed Technical Specification change and proposed deviation from the SRP guidance in accordance with the criteria specified by 10 CFR 50.92 and has determined that the proposed changes and deviation do not involve a significant hazards consideration. The criteria and conclusions of our evaluation are presented below.

1. **The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.**

   The proposed change adds a condition to LCO 3.6.1.3 to address the unique design of the H_2O_2 analyzer penetration. The H_2O_2 analyzer penetration isolation design requires that both PCIVs and the closed system be operable in order to support the single failure criteria and containment integrity. As part of the proposed change, an exemption to NUREG-75/087 guidance on closed systems for having all closed system boundary valves to be powered from a Class 1E power source is being requested. The proposed changes to Technical Specifications and Technical Specification Bases have no impact upon the safety functions of the H_2O_2 Analyzer PCIVs and closed system. The safety functions of these components are to maintain primary containment integrity by limiting leakage following an accident to within that assumed in the DBA LOCA Dose Analysis and to open to permit use of the H_2O_2 Analyzer systems post accident. The H_2O_2 Analyzer PCIVs and closed system will be maintained and leak rate tested in accordance with the Leakage Rate Test Program, thereby assuring that leakage from these components is maintained within the required limits. The design of these components is such that they meet the applicable design requirements with the exception of the PASS closed system boundary valves discussed above. However, the potential for a consequential failure of these valves has been evaluated and determined to be not credible. Thus, the proposed changes have no impact upon the H_2O_2 Analyzer PCIVs and closed system to perform their containment isolation function. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. **The proposed change does not create the possibiity of a new or different kind of accident from any accident previously evaluated.**

   As discussed above, the proposed change to the Technical Specifications does not impact upon the safety function of the H_2O_2 Analyzer PCIVs and closed system. The safety functions of these components are to maintain primary containment integrity by limiting leakage following an accident to within that assumed in the DBA LOCA Dose Analysis and to open to permit use of the H_2O_2 Analyzer systems post accident. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. **The proposed change does not involve a significant reduction in a margin of safety.**

   The proposed change does not affect the safety function of any plant system or component, and does not have any impact on plant operation. The proposed change does not involve a significant reduction in the margin of safety as currently defined in the bases of the applicable Technical Specification section. Therefore, the proposed change does not involve a significant reduction in the margin of safety.

ENVIRONMENTAL CONSEQUENCES

An environmental assessment is not required for the proposed change because the requested change conforms to the criteria for actions eligible for categorical exclusion as specified in 10 CFR 51.22(c)(9). The requested change will have no impact on the environment. The proposed change does not involve a significant hazards consideration as discussed above. The proposed change does not involve a significant change in the types or significant increase in the amounts of any effluent that may be released offsite. In addition, the proposed change does not involve a significant increase in the individual or cumulative occupational radiation exposure.

ENCLOSURE C TO PLA-5218

TECHNICAL SPECIFICATION MARK-UPs

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."

ACTIONS

------------------------------------NOTES------------------------------------

1. Penetration 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 PCIVs.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria in MODES 1, 2, and 3.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs, except for the H_2O_2 Analyzer penetrations. -------------------- One or more penetration flow paths with one PCIV inoperable except for purge valve leakage not within limit.	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. AND	4 hours except for main steam line AND 8 hours for main steam line
		(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs (except for the H_2O_2 Analyzer penetrations). -------------------- One or more penetration flow paths with two PCIVs inoperable except for purge valve leakage not within limit.	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.	1 hour
C. ---------NOTE--------- Only applicable to penetration flow paths with only one PCIV. -------------------- One or more penetration flow paths with one PCIV inoperable.	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.	72 hours except for excess flow check valves (EFCVs) <u>AND</u> 12 hours for EFCVs
	<u>AND</u>		
	C.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. -------------------- Verify the affected penetration flow path is isolated.	Once per 31 days
INSERT A →			
~~D.~~ E. Secondary containment bypass leakage rate not within limit.	~~D.1~~ E.1	Restore leakage rate to within limit.	4 hours

(continued)

INSERT A

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. -----------NOTE------------- Only applicable to the H_2O_2 Analyzer penetrations ------------------------------- One or more H_2O_2 Analyzer penetrations with one or two PCIVs inoperable	D.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.	72 hours
	AND	
	D.2 Verify the affected penetration flow path is isolated.	Once per 31 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F ~~E~~. One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limit.	F ~~E~~.1 Restore the valve leakage to within valve leakage limit.	24 hours
G ~~F~~. Required Action and associated Completion Time of Condition A, B, C, D, ~~or~~ E or F not met in MODE 1, 2, or 3.	G ~~F~~.1 Be in MODE 3. <u>AND</u> G ~~F~~.2 Be in MODE 4.	12 hours 36 hours
H ~~G~~. Required Action and associated Completion Time of Condition A, B, C, D, ~~or~~ E or F not met for PCIV(s) required to be OPERABLE during MODE 4, 5 or Operations with the potential for draining the reactor vessel (OPDRVs).	H ~~G~~.1 Initiate action to suspend OPDRVs. <u>OR</u> H ~~G~~.2 Initiate action to restore valve(s) to OPERABLE status.	Immediately Immediately

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."

ACTIONS

------------------------------------NOTES------------------------------------

1. Penetration 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 PCIVs.
4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria in MODES 1, 2, and 3.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs except for the H_2O_2 Analyzer penetrations. -------------------- One or more penetration flow paths with one PCIV inoperable except for purge valve leakage not within limit.	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. AND	4 hours except for main steam line AND 8 hours for main steam line

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs, except for the H2O2 Analyzer penetrations --------------------- One or more penetration flow paths with two PCIVs inoperable except for purge valve leakage not within limit.	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.	1 hour
C. ---------NOTE--------- Only applicable to penetration flow paths with only one PCIV. --------------------- One or more penetration flow paths with one PCIV inoperable.	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.	72 hours except for excess flow check valves (EFCVs) AND 12 hours for EFCVs
	AND		
INSERT B →	C.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days

(continued)

INSERT B

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. -----------NOTE------------- Only applicable to the H_2O_2 Analyzer penetrations. ------------------------------- One or more H_2O_2 Analyzer penetrations with one or two PCIVs inoperable.	D.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.	72 hours
	AND	
	D.2 Verify the affected penetration flow path is isolated.	Once per 31 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Secondary containment bypass leakage rate not within limit.	D.1	Restore leakage rate to within limit.	4 hours
E. One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limit.	E.1	Restore the valve leakage to within valve leakage limit.	24 hours
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met in MODE 1, 2, or 3.	F.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	F.2	Be in MODE 4.	36 hours
G. Required Action and associated Completion Time of Condition A, B, C, D, or E not met for PCIV(s) required to be OPERABLE during MODE 4, 5 or Operations with the potential for draining the reactor vessel (OPDRVs).	G.1	Initiate action to suspend OPDRVs.	Immediately
	<u>OR</u>		
	G.2	Initiate action to restore valve(s) to OPERABLE status.	Immediately

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.1 Primary Containment

BASES

BACKGROUND

The function of the primary containment is to isolate and contain fission products released from the Reactor Primary System following a Design Basis Loss of Coolant Accident and to confine the postulated release of radioactive material. The primary containment consists of a steel lined, reinforced concrete vessel, which surrounds the Reactor Primary System and provides an essentially leak tight barrier against an uncontrolled release of radioactive material to the environment.

The isolation devices for the penetrations in the primary containment boundary are a part of the containment leak tight barrier. To maintain this leak tight barrier:

a. All penetrations required to be closed during accident conditions are either:

   1. capable of being closed by an OPERABLE automatic containment isolation system, or

   2. closed by manual valves, blind flanges, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)";

b. The primary containment air lock is OPERABLE, except as provided in LCO 3.6.1.2, "Primary Containment Air Lock"; and

c. All equipment hatches are closed.

Several instruments connect to the primary containment atmosphere and are considered extensions of the primary containment. The leak rate tested instrument isolation valves identified in the Leakage Rate Test Program should be used as the primary containment boundary when the instruments are isolated and/or vented. Table B 3.6.1.1-1 contains the listing of the instruments and isolation valves.

Insert A →

(continued)

INSERT A

BACKGROUND

The H_2O_2 Analyzer lines beyond the PCIVs, up to and including the components within the H_2O_2 Analyzer panels, are extensions of primary containment (i.e., closed system), and are required to be leak rate tested in accordance with the Leakage Rate Test Program. The H_2O_2 Analyzer closed system boundary is identified in the Leakage Rate Test Program, and consists of components, piping, tubing, fittings, and valves which meet the design guidance of Reference 7. Within the H_2O_2 Analyzer panels, the boundary ends at the first normally closed valve. The closed system boundary between PASS and the H_2O_2 Analyzer system ends at the Seismic Category I boundary between the two systems. This boundary occurs at the process sampling solenoid operated isolation valves (SV-12361, SV-12365, SV-12366, SV-12368, and SV-12369). These solenoid operated isolation valves do not fully meet the guidance of Reference 7 for closed system boundary valves in that they are not powered from a Class 1E power source. Based upon a risk determination, operating these valves as closed system boundary valves is not risk significant. These normally closed valves are required to be leakage rate tested in accordance with the Leakage Rate Test Program, since they form part of the closed system boundary for the H_2O_2 Analyzers. These valves are "closed system boundary valves" and may be opened under administrative control, as delineated in Technical Requirements Manual (TRM) Bases 3.6.4. Opening of these valves to permit testing of PASS in Modes 1, 2, and 3 is permitted in accordance with TRO 3.6.4.

When the H_2O_2 Analyzer panels are isolated and/or vented, the panel isolation valves identified in the Leakage Rate Test Program should be used as the boundary of the extension of primary containment. Table B 3.6.1.1-2 contains a listing of the affected H_2O_2 Analyzer penetrations and panel isolation valves.

BASES

REFERENCES (continued)

5. ANSI/ANS 56.8-1994

6. Final Policy Statement on Technical Specifications Improvements July 22, 1993 (58 FR 39132)

7. Standard Review Plan 6.2.4, Rev.1, September 1975

TABLE B 3.6.1.1-2
H_2O_2 ANALYZER PANEL ISOLATION VALVES

PENETRATION NUMBER	PANEL ISOLATION VALVE[a]
X-60A, X-88B, X-221A, X-238A	157138 157139 157140 157141 157142
X-80C, X-233, X-238B	157149 157150 157151 157152 157153

(a) Only those valves listed in this table with current leak rate test results, as identified in the Leakage Rate Test Program, may be used as isolation valves.

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.3 Primary Containment Isolation Valves (PCIVs)

BASES

BACKGROUND

The function of the PCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs) to within limits. Primary containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a DBA.

The OPERABILITY requirements for PCIVs help ensure that an adequate primary containment boundary is maintained during and after an accident by minimizing potential paths to the environment. Therefore, the OPERABILITY requirements provide assurance that primary containment function assumed in the safety analyses will be maintained. These 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 limits assumed in the safety analyses. One of these barriers may be a closed system.

Insert B →

The drywell vent and purge lines are 24 inches in diameter; the suppression chamber vent and purge lines are 18 inches in diameter. The containment purge valves are normally maintained closed in MODES 1, 2, and 3 to ensure the primary containment boundary is maintained. The outboard isolation valves have 2 inch bypass lines around them for use during normal reactor operation.

(continued)

INSERT B

BACKGROUND

For each division of H_2O_2 Analyzers, the lines, up to and including the first normally closed valves within the H_2O_2 Analyzer panels, are extensions of primary containment (i.e., closed system), and are required to be leak rate tested in accordance with the Leakage Rate Test Program. The H_2O_2 Analyzer closed system boundary is identified in the Leakage Rate Test Program. The closed system boundary consists of those components, piping, tubing, fittings, and valves, which meet the guidance of Reference 6. The closed system provides a secondary barrier in the event of a single failure of the PCIVs, as described below. The closed system boundary between PASS and the H_2O_2 Analyzer system ends at the process sampling solenoid operated isolation valves between the systems (SV-12361, SV-12365, SV-12366, SV-12368, and SV-12369). These solenoid operated isolation valves do not fully meet the guidance of Reference 6 for closed system boundary valves in that they are not powered from a Class 1E power source. However, based upon a risk determination, operating these valves as closed system boundary valves is not risk significant. These valves also form the end of the Seismic Category I boundary between the systems. These process sampling solenoid operated isolation valves are normally closed and are required to be leak rate tested in accordance with the Leakage Rate Test Program as part of the closed system for the H_2O_2 Analyzer system. These valves are "closed system boundary valves" and may be opened under administrative control, as delineated in Technical Requirements Manual (TRM) Bases 3.6.4. Opening of these valves to permit testing of PASS in Modes 1, 2, and 3 is permitted in accordance with TRO 3.6.4.

Each H_2O_2 Analyzer Sampling line penetrating primary containment has two PCIVs, located just outside primary containment. While two PCIVs are provided on each line, a single active failure of a relay in the control circuitry for these valves, could result in both valves failing to close or failing to remain closed. Furthermore, a single failure (a hot short in the common raceway to all the valves) could simultaneously affect all of the PCIVs within a H_2O_2 Analyzer division. Therefore, the containment isolation barriers for these penetrations consist of two PCIVs and a closed system. For situations where one or both PCIVs are inoperable, the ACTIONS to be taken are similar to the ACTIONS for a single PCIV backed by a closed system.

BASES

APPLICABLE SAFETY ANALYSES (continued)

due to failure in the control circuit associated with each valve. The primary containment purge valve design precludes a single failure from compromising the primary containment boundary as long as the system is operated in accordance with this LCO.

INSERT C →

PCIVs satisfy Criterion 3 of the NRC Policy Statement. (Ref. 2)

LCO

PCIVs form a part of the primary containment boundary. The PCIV safety function is related to minimizing the loss of reactor coolant inventory and establishing the primary containment boundary during a DBA.

The power operated, automatic isolation valves are required to have isolation times within limits and actuate on an automatic isolation signal. The valves covered by this LCO are listed in Table B 3.6.1.3-1.

The normally closed PCIVs are considered OPERABLE when manual valves are closed or open in accordance with appropriate administrative controls, automatic valves are in their closed position, blind flanges are in place, and closed systems are intact. These passive isolation valves and devices are those listed in Table B 3.6.1.3-1.

Purge valves with resilient seals, secondary containment bypass valves, MSIVs, and hydrostatically tested valves must meet additional leakage rate requirements. Other PCIV leakage rates are addressed by LCO 3.6.1.1, "Primary Containment," as Type B or C testing.

This LCO provides assurance that the PCIVs will perform their designed safety functions to minimize the loss of reactor coolant inventory and establish the primary containment boundary during accidents.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause a release of radioactive material to primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, most PCIVs are not required to be

(continued)

INSERT C

APPLICABLE SAFETY ANALYSIS

Both H_2O_2 Analyzer PCIVs may not be able to close given a single failure in the control circuitry of the valves. The single failure is caused by a "hot short" in the cables/raceway to the PCIVs that causes both PCIVs for a given penetration to remain open or to open when required to be closed. This failure is required to be considered in accordance with IEEE-279 as discussed in FSAR Section 7.3.2a. However, the single failure criterion for containment isolation of the H_2O_2 Analyzer penetrations is satisfied by virtue of the combination of the associated PCIVs and the closed system formed by the H_2O_2 Analyzer piping system as discussed in the BACKGROUND section above.

The closed system boundary between PASS and the H_2O_2 Analyzer system ends at the process sampling solenoid operated isolation valves between the systems (SV-12361, SV-12365, SV-12366, SV-12368, and SV-12369). The closed system is not fully qualified to the guidance of Reference 6 in that the closed system boundary valves between the H_2O_2 system and PASS are not powered from a Class 1E power source. However, based upon a risk determination, the use of these valves is considered to have no risk significance. This exemption to the requirement of Reference 6 for the closed system boundary is documented in License Amendment No. .

BASES

ACTIONS

A.1 and A.2 (continued)

except for the H_2O_2 Analyzer penetrations

Condition A is modified by a Note indicating that this Condition is only applicable to those penetration flow paths with two PCIVs. For penetration flow paths with one PCIV, Condition C provides the appropriate Required Actions.

Required Action A.2 is modified by a Note that applies to isolation devices located in high radiation areas, and allows them to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is low.

For the H_2O_2 Analyzer Penetrations, Condition D provides the appropriate Required Actions

B.1

With one or more penetration flow paths with two PCIVs inoperable except for purge valve leakage not within limit, either the inoperable PCIVs must be restored to OPERABLE status or 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, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1.1.

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two PCIVs. For penetration flow paths with one PCIV, Condition C provides the appropriate Required Actions.

except for the H_2O_2 Analyzer penetrations

For the H_2O_2 Analyzer Penetrations, Condition D provides the appropriate Required Actions.

C.1 and C.2

With one or more penetration flow paths with one PCIV inoperable, the inoperable valve 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

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

automatic valve, a closed manual valve, and a blind flange. A check valve may not be used to isolate the affected penetration. Required Action C.1 must be completed within the 72 hour Completion Time. The Completion Time of 72 hours is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of supporting primary containment OPERABILITY during MODES 1, 2, and 3. The closed system must meet the requirements of Reference 6. For the Excess Flow Check Valves (EFCV), the Completion Time of 12 hours is reasonable considering the instrument and the small pipe diameter of penetration (hence, reliability) to act as a penetration isolation boundary and the small pipe diameter of the affected penetrations. In the event the affected penetration flow path is isolated in accordance with Required Action C.1, the affected penetration must be verified to be isolated on a periodic basis. This is necessary to ensure that primary containment penetrations required to be isolated following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration 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 penetration flow paths with only one PCIV. For penetration flow paths with two PCIVs and the H_2 O_2 Analyzer Penetrations, Conditions A, ~~and~~ B, and D provide the appropriate Required Actions.

Required Action C.2 is modified by a Note that applies to valves and blind flanges located in high radiation areas and allows them to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is low.

Insert D ⟶

(continued)

INSERT D

D.1 and D.2

With one or more H_2O_2 Analyzer penetrations with one or both PCIVs inoperable, the inoperable valve(s) 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. A check valve may not be used to isolate the affected penetration. Required Action D.1 must be completed within the 72 hour Completion Time. The Completion Time of 72 hours is reasonable considering the unique design of the H_2O_2 Analyzer penetrations. The containment isolation barriers for these penetrations consist of two PCIVs and a closed system. In addition, the Completion Time of 72 hours is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of supporting primary containment OPERABILITY during MODES 1, 2, and 3. In the event the affected penetration flow path is isolated in accordance with Required Action D.1, the affected penetration must be verified to be isolated on a periodic basis. This is necessary to ensure that primary containment penetrations required to be isolated following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration is isolated is appropriate because the valves are operated under administrative controls and the probability of their misalignment is low.

When an H_2O_2 Analyzer penetration PCIV is to be closed and deactivated in accordance with Condition D, this must be accomplished by pulling the fuse for the power supply, and either determinating the power cables at the solenoid valve, or jumpering of the power side of the solenoid to ground.

The OPERABILITY requirements for the closed system are discussed in Technical Requirements Manual (TRM) Bases 3.6.4. In the event that either one or both of the PCIVs and the closed system are inoperable, the Required Actions of TRO 3.6.4, Condition B apply.

Condition D is modified by a Note indicating that this Condition is only applicable to the H2O2 Analyzer penetrations.

BASES

ACTIONS (continued)

~~D~~ E.1

With the secondary containment bypass leakage rate not within limit, the assumptions of the safety analysis may not be met. Therefore, the leakage must be restored to within limit within 4 hours. Restoration can be accomplished by isolating the penetration that caused the limit to be exceeded by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. When a penetration is isolated, the leakage rate for the isolated penetration is assumed to be the actual pathway leakage through the isolation device. If two isolation devices are used to isolate the penetration, the leakage rate is assumed to be the lesser actual pathway leakage of the two devices. The 4 hour Completion Time is reasonable considering the time required to restore the leakage by isolating the penetration and the relative importance of secondary containment bypass leakage to the overall containment function.

~~E~~ F.1

In the event one or more containment purge valves are not within the purge valve leakage limits, purge valve leakage must be restored to within limits. The 24 hour Completion Time is reasonable, considering that one containment purge valve remains closed, except as controlled by SR 3.6.1.3.1 so that a gross breach of containment does not exist.

~~F~~ G.1 and ~~F~~ G.2

If any Required Action and associated Completion Time cannot be met in MODE 1, 2, or 3, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(continued)

BASES

ACTIONS (continued)

H.1 and H.2

If any Required Action and associated Completion Time cannot be met, the unit must be placed in a condition in which the LCO does not apply. If applicable, action must be immediately initiated to suspend operations with a potential for draining the reactor vessel (OPDRVs) to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended or valve(s) are restored to OPERABLE status. If suspending an OPDRV would result in closing the residual heat removal (RHR) shutdown cooling isolation valves, an alternative Required Action is provided to immediately initiate action to restore the valve(s) to OPERABLE status. This allows RHR to remain in service while actions are being taken to restore the valve.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.1

This SR ensures that the primary containment purge valves are closed as required or, if open, open for an allowable reason. If a purge valve is open in violation of this SR, the valve is considered inoperable. If the inoperable valve is not otherwise known to have excessive leakage when closed, it is not considered to have leakage outside of limits. The SR is also modified by Note 1, stating that primary containment purge valves are only required to be closed in MODES 1, 2, and 3. If a LOCA inside primary containment occurs in these MODES, the purge valves may not be capable of closing before the pressure pulse affects systems downstream of the purge valves, or the release of radioactive material will exceed limits prior to the purge valves closing. At other times when the purge valves are required to be capable of closing (e.g., during handling of irradiated fuel), pressurization concerns are not present and the purge valves are allowed to be open. The SR is modified by Note 2 stating that the SR is not required to be met when the purge valves are open for the stated reasons. The Note states that these valves may be opened for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open. The vent and purge valves are capable of closing in the environment following a LOCA. Therefore, these valves are allowed to be open for

(continued)

Table B 3.6.1.3-1
Primary Containment Isolation Valve
(Page 1 of 11)

Plant System	Valve Number	Valve Description	Type of Valve	Isolation Signal LCO 3.3.6.1 Function No. (Maximum Isolation Time (Seconds))
Containment Atmospheric Control	1-57-193 (d)	ILRT	Manual	N/A
	1-57-194 (d)	ILRT	Manual	N/A
	HV-15703	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-15704	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-15705	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-15711	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-15713	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-15714	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-15721	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-15722	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-15723	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-15724	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-15725	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-15766 (a)	Suppression Pool Cleanup	Automatic Valve	2.b, 2.d (30)
	HV-15768 (a)	Suppression Pool Cleanup	Automatic Valve	2.b, 2.d (30)
	SV-157100 A	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d
	SV-157100 B	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d
	SV-157101 A	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d
	SV-157101 B	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d
	SV-157102 A	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d
	SV-157102 B	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d
	SV-157103 A	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d
	SV-157103 B	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d
	SV-157104	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d
	SV-157105	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d
	SV-157106	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d
	SV-157107	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d
	SV-15734 A (c)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15734 B (c)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15736 A (c)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15736 B (c)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15737	Nitrogen Makeup	Automatic Valve	2.b, 2.d, 2.e

Table B 3.6.1.3-1 (continued)
Primary Containment Isolation Valve
(Page 2 of 11)

Plant System	Valve Number	Valve Description	Type of Valve	Isolation Signal LCO 3.3.6.1 Function No. (Maximum Isolation Time (Seconds))
Containment Atmospheric Control (continued)	SV-15738	Nitrogen Makeup	Automatic Valve	2.b, 2.d, 2.e
	SV-15740 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15740 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15742 [illegible] (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15742 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15750 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15750 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15752 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15752 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15767	Nitrogen Makeup	Automatic Valve	2.b, 2.d, 2.e
	SV-15774 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15774 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15776 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15776 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15780 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15780 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15782 [illegible] (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15782 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-15789	Nitrogen Makeup	Automatic Valve	2.b, 2.d, 2.e
Containment Instrument Gas	1-26-072 (d)	Containment Instrument Gas	Manual Check	N/A
	1-26-074 (d)	Containment Instrument Gas	Manual Check	N/A
	1-26-152 (d)	Containment Instrument Gas	Manual Check	N/A
	1-26-154 (d)	Containment Instrument Gas	Manual Check	N/A
	1-26-164 (d)	Containment Instrument Gas	Manual Check	N/A
	HV-12603	Containment Instrument Gas	Automatic Valve	2.c, 2.d (20)
	SV-12605	Containment Instrument Gas	Automatic Valve	2.c, 2.d
	SV-12651	Containment Instrument Gas	Automatic Valve	2.c, 2.d
	SV-12654 A	Containment Instrument Gas	Power Operated	N/A
	SV-12654 B	Containment Instrument Gas	Power Operated	N/A
	SV-12661	Containment Instrument Gas	Automatic Valve	2.c, 2.d
	SV-12671	Containment Instrument Gas	Automatic Valve	2.c, 2.d
Core Spray	HV-152F001 A (b)(c)	CS Suction Valve	Power Operated	N/A
	HV-152F001 B (b)(c)	CS Suction Valve	Power Operated	N/A
	HV-152F005 A	CS Injection	Power Operated	N/A
	HV-152F005 B	CS Injection Valve	Power Operated	N/A
	HV-152F006 A	CS Injection Valve	Air Operated Check Valve	N/A
	HV-152F006 B	CS Injection Valve	Air Operated Check Valve	N/A
	HV-152F015 A (b)(c)	CS Test Valve	Automatic Valve	2.c, 2.d (80)
	HV-152F015 B (b)(c)	CS Test Valve	Automatic Valve	2.c, 2.d (80)

Table B 3.6.1.3-1 (continued)
Primary Containment Isolation Valve
(Page 11 of 11)

Plant System	Valve Number	Valve Description	Type of Valve	Isolation Signal LCO 3.3.6.1 Function No. (Maximum Isolation Time (Seconds))
TIP System (continued)	C51-J004 A (Ball Valve)	TIP Ball Valves	Automatic Valve	2.a, 2.d (5)
	C51-J004 B (Ball Valve)	TIP Ball Valves	Automatic Valve	2.a, 2.d (5)
	C51-J004 C (Ball Valve)	TIP Ball Valves	Automatic Valve	2.a, 2.d (5)
	C51-J004 D (Ball Valve)	TIP Ball Valves	Automatic Valve	2.a, 2.d (5)
	C51-J004 E (Ball Valve)	TIP Ball Valves	Automatic Valve	2.a, 2.d (5)

(a) Isolation barrier remains water filled or a water seal remains in the line post-LOCA, isolation valve is tested with water. Isolation valve leakage is not included in 0.60 L_a total Type B and C tests.

(b) Redundant isolation boundary for this valve is provided by the closed system whose integrity is verified by Type A test.

(c) Containment Isolation Valves are not Type C tested. Containment bypass leakage is prevented since the line terminates below the minimum water level in the Suppression Chamber. Refer to the IST Program.

(d) LCO 3.3.3.1, "PAM Instrumentation", Table 3.3.3.1-1, Function 6, does not apply since these are relief valves, check valves, manual valves or deactivated and closed.

Insert E →

INSERT E

(e) The containment isolation barriers for the penetration associated with this valve consists of two PCIVs and a closed system. The closed system provides a redundant isolation boundary for both PCIVs, and its integrity is required to be verified by the Leakage Rate Test Program.

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.1 Primary Containment

BASES

BACKGROUND

The function of the primary containment is to isolate and contain fission products released from the Reactor Primary System following a Design Basis Loss of Coolant Accident confine the postulated release of radioactive material. The primary containment consists of a steel lined, reinforced concrete vessel, which surrounds the Reactor Primary System and provides an essentially leak tight barrier against an uncontrolled release of radioactive material to the environment.

The isolation devices for the penetrations in the primary containment boundary are a part of the containment leak tight barrier. To maintain this leak tight barrier:

a. All penetrations required to be closed during accident conditions are either:

   1. capable of being closed by an OPERABLE automatic containment isolation system, or

   2. closed by manual valves, blind flanges, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)";

b. The primary containment air lock is OPERABLE, except as provided in LCO 3.6.1.2, "Primary Containment Air Lock"; and

c. All equipment hatches are closed.

Several instruments connect to the primary containment atmosphere and are considered extensions of the primary containment. The leak rate tested instrument isolation valves identified in the Leakage Rate Test Program should be used as the primary containment boundary when the instruments are isolated and/or vented. Table B 3.6.1.1-1 contains the listing of the instruments and isolation valves.

INSERT B →

(continued)

INSERT F

BACKGROUND

The H_2O_2 Analyzer lines beyond the PCIVs, up to and including the components within the H_2O_2 Analyzer panels, are extensions of primary containment (i.e., closed system), and are required to be leak rate tested in accordance with the Leakage Rate Test Program. The H_2O_2 Analyzer closed system boundary is identified in the Leakage Rate Test Program, and consists of components, piping, tubing, fittings, and valves which meet the design guidance of Reference 7. Within the H_2O_2 Analyzer panels, the boundary ends at the first normally closed valve. The closed system boundary between PASS and the H_2O_2 Analyzer system ends at the Seismic Category I boundary between the two systems. This boundary occurs at the process sampling solenoid operated isolation valves (SV-22361, SV-22365, SV-22366, SV-22368, and SV-22369). These solenoid operated isolation valves do not fully meet the guidance of Reference 7 for closed system boundary valves in that they are not powered from a Class 1E power source. Based upon a risk determination, operating these valves as closed system boundary valves is not risk significant. These normally closed valves are required to be leakage rate tested in accordance with the Leakage Rate Test Program, since they form part of the closed system boundary for the H_2O_2 Analyzers. These valves are "closed system boundary valves" and may be opened under administrative control, as delineated in Technical Requirements Manual (TRM) Bases 3.6.4. Opening of these valves to permit testing of PASS in Modes 1, 2, and 3 is permitted in accordance with TRO 3.6.4.

When the H_2O_2 Analyzer panels are isolated and/or vented, the panel isolation valves identified in the Leakage Rate Test Program should be used as the boundary of the extension of primary containment. Table B 3.6.1.1-2 contains a listing of the affected H_2O_2 Analyzer penetrations and panel isolation valves.

BASES

REFERENCES (continued)

5. ANSI/ANS 56.8-1994

6. Final Policy Statement on Technical Specifications Improvements July 22, 1993 (58 FR 39132)

7. Standard Review Plan 6.2.4, Rev. 1, September 1975

TABLE B 3.6.1.1-2
H_2O_2 ANALYZER PANEL ISOLATION VALVES

PENETRATION NUMBER	PANEL ISOLATION VALVE[a]
X-60A, X-88B, X-221A, X-238A	257138 257139 257140 257141 257142
X-80C, X-221B, X-238B	257149 257150 257151 257152 257153

(a) Only those valves listed in this table with current leak rate test results, as identified in the Leakage Rate Test Program, may be used as isolation valves.

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1.3 Primary Containment Isolation Valves (PCIVs)

BASES

BACKGROUND

The function of the PCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs) to within limits. Primary containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a DBA.

The OPERABILITY requirements for PCIVs help ensure that an adequate primary containment boundary is maintained during and after an accident by minimizing potential paths to the environment. Therefore, the OPERABILITY requirements provide assurance that primary containment function assumed in the safety analyses will be maintained. These 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 limits assumed in the safety analyses. One of these barriers may be a closed system.

INSERT G →

The drywell vent and purge lines are 24 inches in diameter; the suppression chamber vent and purge lines are 18 inches in diameter. The containment purge valves are normally maintained closed in MODES 1, 2, and 3 to ensure the primary containment boundary is maintained. The outboard isolation valves have 2 inch bypass lines around them for use during normal reactor operation.

(continued)

INSERT G

BACKGROUND

For each division of H_2O_2 Analyzers, the lines, up to and including the first normally closed valves within the H_2O_2 Analyzer panels, are extensions of primary containment (i.e., closed system), and are required to be leak rate tested in accordance with the Leakage Rate Test Program. The H_2O_2 Analyzer closed system boundary is identified in the Leakage Rate Test Program. The closed system boundary consists of those components, piping, tubing, fittings, and valves, which meet the guidance of Reference 6. The closed system provides a secondary barrier in the event of a single failure of the PCIVs, as described below. The closed system boundary between PASS and the H_2O_2 Analyzer system ends at the process sampling solenoid operated isolation valves between the systems (SV-22361, SV-22365, SV-22366, SV-22368, and SV-22369). These solenoid operated isolation valves do not fully meet the guidance of Reference 6 for closed system boundary valves in that they are not powered from a Class 1E power source. However, based upon a risk determination, operating these valves as closed system boundary valves is not risk significant. These valves also form the end of the Seismic Category I boundary between the systems. These process sampling solenoid operated isolation valves are normally closed and are required to be leak rate tested in accordance with the Leakage Rate Test Program as part of the closed system for the H_2O_2 Analyzer system. These valves are "closed system boundary valves" and may be opened under administrative control, as delineated in Technical Requirements Manual (TRM) Bases 3.6.4. Opening of these valves to permit testing of PASS in Modes 1, 2, and 3 is permitted in accordance with TRO 3.6.4.

Each H_2O_2 Analyzer Sampling line penetrating primary containment has two PCIVs, located just outside primary containment. While two PCIVs are provided on each line, a single active failure of a relay in the control circuitry for these valves, could result in both valves failing to close or failing to remain closed. Furthermore, a single failure (a hot short in the common raceway to all the valves) could simultaneously affect all of the PCIVs within a H_2O_2 Analyzer division. Therefore, the containment isolation barriers for these penetrations consist of two PCIVs and a closed system. For situations where one or both PCIVs are inoperable, the ACTIONS to be taken are similar to the ACTIONS for a single PCIV backed by a closed system.

BASES

APPLICABLE SAFETY ANALYSES (continued)

due to failure in the control circuit associated with each valve. The primary containment purge valve design precludes a single failure from compromising the primary containment boundary as long as the system is operated in accordance with this LCO.

INSERT H →

PCIVs satisfy Criterion 3 of the NRC Policy Statement. (Ref. 2)

LCO

PCIVs form a part of the primary containment boundary. The PCIV safety function is related to minimizing the loss of reactor coolant inventory and establishing the primary containment boundary during a DBA.

The power operated, automatic isolation valves are required to have isolation times within limits and actuate on an automatic isolation signal. The valves covered by this LCO are listed in Table B 3.6.1.3-1.

The normally closed PCIVs are considered OPERABLE when manual valves are closed or open in accordance with appropriate administrative controls, automatic valves are in their closed position, blind flanges are in place, and closed systems are intact. These passive isolation valves and devices are those listed in Table B 3.6.1.3-1.

Purge valves with resilient seals, secondary containment bypass valves, MSIVs, and hydrostatically tested valves must meet additional leakage rate requirements. Other PCIV leakage rates are addressed by LCO 3.6.1.1, "Primary Containment," as Type B or C testing.

This LCO provides assurance that the PCIVs will perform their designed safety functions to minimize the loss of reactor coolant inventory and establish the primary containment boundary during accidents.

APPLICABILITY

In MODES 1, 2, and 3, a DBA could cause a release of radioactive material to primary containment. In MODES 4 and 5, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, most PCIVs are not required to be

(continued)

INSERT H

APPLICABLE SAFETY ANALYSIS

Both H_2O_2 Analyzer PCIVs may not be able to close given a single failure in the control circuitry of the valves. The single failure is caused by a "hot short" in the cables/raceway to the PCIVs that causes both PCIVs for a given penetration to remain open or to open when required to be closed. This failure is required to be considered in accordance with IEEE-279 as discussed in FSAR Section 7.3.2a. However, the single failure criterion for containment isolation of the H_2O_2 Analyzer penetrations is satisfied by virtue of the combination of the associated PCIVs and the closed system formed by the H_2O_2 Analyzer piping system as discussed in the BACKGROUND section above.

The closed system boundary between PASS and the H_2O_2 Analyzer system ends at the process sampling solenoid operated isolation valves between the systems (SV-22361, SV-22365, SV-22366, SV-22368, and SV-22369). The closed system is not fully qualified to the guidance of Reference 6 in that the closed system boundary valves between the H_2O_2 system and PASS are not powered from a Class 1E power source. However, based upon a risk determination, the use of these valves is considered to have no risk significance. This exemption to the requirement of Reference 6 for the closed system boundary is documented in License Amendment No. .

BASES

ACTIONS

A.1 and A.2 (continued)

Condition A is modified by a Note indicating that this Condition is only applicable to those penetration flow paths with two PCIVs except for the H_2O_2 Analyzer penetrations. For penetration flow paths with one PCIV, Condition C provides the appropriate Required Actions. For the H_2O_2 Analyzer Penetrations, Condition D provides the appropriate Required Actions. Required Action A.2 is modified by a Note that applies to isolation devices located in high radiation areas, and allows them to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is low.

B.1

With one or more penetration flow paths with two PCIVs inoperable except for purge valve leakage not within limit, either the inoperable PCIVs must be restored to OPERABLE status or 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, and a blind flange. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1.1.

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two PCIVs except for the H_2O_2 Analyzer penetrations. For penetration flow paths with one PCIV, Condition C provides the appropriate Required Actions. For the H_2O_2 Analyzer penetrations, Condition D provides the appropriate Required Actions.

C.1 and C.2

With one or more penetration flow paths with one PCIV inoperable, the inoperable valve 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

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

automatic valve, a closed manual valve, and a blind flange. A check valve may not be used to isolate the affected penetration. Required Action C.1 must be completed within the 72 hour Completion Time. The Completion Time of 72 hours is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of supporting primary containment OPERABILITY during MODES 1, 2, and 3. The closed system must meet the requirements of Reference 6. For the Excess Flow Check Valves (EFCV), the Completion Time of 12 hours is reasonable considering the instrument and the small pipe diameter of penetration (hence, reliability) to act as a penetration isolation boundary and the small pipe diameter of the affected penetrations. In the event the affected penetration flow path is isolated in accordance with Required Action C.1, the affected penetration must be verified to be isolated on a periodic basis. This is necessary to ensure that primary containment penetrations required to be isolated following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration 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 penetration flow paths with only one PCIV. For penetration flow paths with two PCIVs, and the H_2O_2 Analyzer penetrations, Conditions A, ~~and~~ B, and D provide the appropriate Required Actions.

Required Action C.2 is modified by a Note that applies to valves and blind flanges located in high radiation areas and allows them to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is low.

Insert I →

(continued)

INSERT I

D.1 and D.2

With one or more H_2O_2 Analyzer penetrations with one or both PCIVs inoperable, the inoperable valve(s) 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. A check valve may not be used to isolate the affected penetration. Required Action D.1 must be completed within the 72 hour Completion Time. The Completion Time of 72 hours is reasonable considering the unique design of the H_2O_2 Analyzer penetrations. The containment isolation barriers for these penetrations consist of two PCIVs and a closed system. In addition, the Completion Time of 72 hours is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of supporting primary containment OPERABILITY during MODES 1, 2, and 3. In the event the affected penetration flow path is isolated in accordance with Required Action D.1, the affected penetration must be verified to be isolated on a periodic basis. This is necessary to ensure that primary containment penetrations required to be isolated following an accident are isolated. The Completion Time of once per 31 days for verifying each affected penetration is isolated is appropriate because the valves are operated under administrative controls and the probability of their misalignment is low.

When an H_2O_2 Analyzer penetration PCIV is to be closed and deactivated in accordance with Condition D, this must be accomplished by pulling the fuse for the power supply, and either determinating the power cables at the solenoid valve, or jumpering of the power side of the solenoid to ground.

The OPERABILITY requirements for the closed system are discussed in Technical Requirements Manual (TRM) Bases 3.6.4. In the event that either one or both of the PCIVs and the closed system are inoperable, the Required Actions of TRO 3.6.4, Condition B apply.

Condition D is modified by a Note indicating that this Condition is only applicable to the H2O2 Analyzer penetrations.

BASES

ACTIONS (continued)

E ~~D~~.1

With the secondary containment bypass leakage rate not within limit, the assumptions of the safety analysis may not be met. Therefore, the leakage must be restored to within limit within 4 hours. Restoration can be accomplished by isolating the penetration that caused the limit to be exceeded by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. When a penetration is isolated, the leakage rate for the isolated penetration is assumed to be the actual pathway leakage through the isolation device. If two isolation devices are used to isolate the penetration, the leakage rate is assumed to be the lesser actual pathway leakage of the two devices. The 4 hour Completion Time is reasonable considering the time required to restore the leakage by isolating the penetration and the relative importance of secondary containment bypass leakage to the overall containment function.

F ~~E~~.1

In the event one or more containment purge valves are not within the purge valve leakage limits, purge valve leakage must be restored to within limits. The 24 hour Completion Time is reasonable, considering that one containment purge valve remains closed, except as controlled by SR 3.6.1.3.1 so that a gross breach of containment does not exist.

G ~~F~~.1 and G ~~F~~.2

If any Required Action and associated Completion Time cannot be met in MODE 1, 2, or 3, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

(continued)

BASES

ACTIONS (continued)

H.1 and H.2

If any Required Action and associated Completion Time cannot be met, the unit must be placed in a condition in which the LCO does not apply. If applicable, action must be immediately initiated to suspend operations with a potential for draining the reactor vessel (OPDRVs) to minimize the probability of a vessel draindown and subsequent potential for fission product release. Actions must continue until OPDRVs are suspended or valve(s) are restored to OPERABLE status. If suspending an OPDRV would result in closing the residual heat removal (RHR) shutdown cooling isolation valves, an alternative Required Action is provided to immediately initiate action to restore the valve(s) to OPERABLE status. This allows RHR to remain in service while actions are being taken to restore the valve.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.1

This SR ensures that the primary containment purge valves are closed as required or, if open, open for an allowable reason. If a purge valve is open in violation of this SR, the valve is considered inoperable. If the inoperable valve is not otherwise known to have excessive leakage when closed, it is not considered to have leakage outside of limits. The SR is also modified by Note 1, stating that primary containment purge valves are only required to be closed in MODES 1, 2, and 3. If a LOCA inside primary containment occurs in these MODES, the purge valves may not be capable of closing before the pressure pulse affects systems downstream of the purge valves, or the release of radioactive material will exceed limits prior to the purge valves closing. At other times when the purge valves are required to be capable of closing (e.g., during handling of irradiated fuel), pressurization concerns are not present and the purge valves are allowed to be open. The SR is modified by Note 2 stating that the SR is not required to be met when the purge valves are open for the stated reasons. The Note states that these valves may be opened for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open. The vent and purge valves are capable of closing in the environment following

(continued)

Table B 3.6.1.3-1
Primary Containment Isolation Valve
(Page 1 of 10)

Plant System	Valve Number	Valve Description	Type of Valve	Isolation Signal LCO 3.3.6.1 Function No. (Maximum Isolation Time (Seconds))
Containment Atmospheric Control	2-57-199 (d)	ILRT	Manual	N/A
	2-57-200 (d)	ILRT	Manual	N/A
	HV-25703	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-25704	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-25705	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-25711	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-25713	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-25714	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-25721	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-25722	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-25723	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-25724	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-25725	Containment Purge	Automatic Valve	2.b, 2.d, 2.e (15)
	HV-25766 (a)	Suppression Pool Cleanup	Automatic Valve	2.b, 2.d (35)
	HV-25768 (a)	Suppression Pool Cleanup	Automatic Valve	2.b, 2.d (30)
	SV-257100 A	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d, 2.f
	SV-257100 B	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d, 2.f
	SV-257101 A	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d, 2.f
	SV-257101 B	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d, 2.f
	SV-257102 A	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d, 2.f
	SV-257102 B	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d, 2.f
	SV-257103 A	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d, 2.f
	SV-257103 B	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d, 2.f
	SV-257104	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d, 2.f
	SV-257105	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d, 2.f
	SV-257106	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d, 2.f
	SV-257107	Containment Radiation Detection Syst	Automatic Valve	2.b, 2.d, 2.f
	SV-25734 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25734 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25736 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25736 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25737	Nitrogen Makeup	Automatic Valve	2.b, 2.d, 2.e

Table B 3.6.1.3-1 (continued)
Primary Containment Isolation Valve
(Page 2 of 10)

Plant System	Valve Number	Valve Description	Type of Valve	Isolation Signal LCO 3.3.6.1 Function No. (Maximum Isolation Time (Seconds))
Containment Atmospheric Control (continued)	SV-25738	Nitrogen Makeup	Automatic Valve	2.b, 2.d, 2.e
	SV-25740 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25740 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25742 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25742 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25750 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25750 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25752 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25752 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25767	Nitrogen Makeup	Automatic Valve	2.b, 2.d, 2.e
	SV-25774 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25774 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25776 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25776 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25780 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25780 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25782 A (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25782 B (e)	Containment Atmosphere Sample	Automatic Valve	2.b, 2.d
	SV-25789	Nitrogen Makeup	Automatic Valve	2.b, 2.d, 2.e
Containment Instrument Gas	2-26-072 (d)	Containment Instrument Gas	Manual Check	N/A
	2-26-074 (d)	Containment Instrument Gas	Manual Check	N/A
	2-26-152 (d)	Containment Instrument Gas	Manual Check	N/A
	2-26-154 (d)	Containment Instrument Gas	Manual Check	N/A
	2-26-164 (d)	Containment Instrument Gas	Manual Check	N/A
	HV-22603	Containment Instrument Gas	Automatic Valve	2.c, 2.d (20)
	SV-22605	Containment Instrument Gas	Automatic Valve	2.c, 2.d
	SV-22651	Containment Instrument Gas	Automatic Valve	2.c, 2.d
	SV-22654 A	Containment Instrument Gas	Power Operated	N/A
	SV-22654 B	Containment Instrument Gas	Power Operated	N/A
	SV-22661	Containment Instrument Gas	Automatic Valve	2.b, 2.d
	SV-22671	Containment Instrument Gas	Automatic Valve	2.b, 2.d
Core Spray	HV-252F001 A (b)(c)	CS Suction	Power Operated	N/A
	HV-252F001 B (b)(c)	CS Suction	Power Operated	N/A
	HV-252F005 A	CS Injection	Power Operated	N/A
	HV-252F005 B	CS Injection	Power Operated	N/A
	HV-252F006 A	CS Injection	Air Operated Check Valve	N/A
	HV-252F006 B	CS Injection	Air Operated Check Valve	N/A
	HV-252F015 A (b)(c)	CS Test	Automatic Valve	2.c, 2.d (80)
	HV-252F015 B (b)(c)	CS Test	Automatic Valve	2.c, 2.d (80)
	HV-252F031 A (b)(c)	CS Minimum Recirculation Flow	Power Operated	N/A
	HV-252F031 B (b)(c)	CS Minimum Recirculation Flow	Power Operated	N/A

Table B 3.6.1.3-1 (continued)
Primary Containment Isolation Valve
(Page 10 of 10)

Plant System	Valve Number	Valve Description	Type of Valve	Isolation Signal LCO 3.3.6.1 Function No. (Maximum Isolation Time (Seconds))
RWCU (continued)	HV-244F004 (a)	RWCU Suction	Automatic Valve	5.a, 5.b, 5.c, 5.d, 5.e, 5.f, 5.g (30)
	XV-24411 A	RWCU	Excess Flow Check Valve	N/A
	XV-24411 B	RWCU	Excess Flow Check Valve	N/A
	XV-24411 C	RWCU	Excess Flow Check Valve	N/A
	XV-24411 D	RWCU	Excess Flow Check Valve	N/A
	XV-244F046	RWCU	Excess Flow Check Valve	N/A
	HV-24182 A	RWCU Return	Power Operated	N/A
	HV-24182 B	RWCU Return	Power Operated	N/A
SLCS	248F007 (a)(d)	SLCS	Manual Check	N/A
	HV-248F006 (a)	SLCS	Power Operated Check Valve	N/A
TIP System	C51-J004 A (Ball Valve)	TIP Ball Valves	Automatic Valve	2.a, 2.d (5)
	C51-J004 B (Ball Valve)	TIP Ball Valves	Automatic Valve	2.a, 2.d (5)
	C51-J004 C (Ball Valve)	TIP Ball Valves	Automatic Valve	2.a, 2.d (5)
	C51-J004 D (Ball Valve)	TIP Ball Valves	Automatic Valve	2.a, 2.d (5)
	C51-J004 E (Ball Valve)	TIP Ball Valves	Automatic Valve	2.a, 2.d (5)
	C51-J004 A (Shear Valve)	TIP Shear Valves	Squib Valve	N/A
	C51-J004 B (Shear Valve)	TIP Shear Valves	Squib Valve	N/A
	C51-J004 C (Shear Valve)	TIP Shear Valves	Squib Valve	N/A
	C51-J004 D (Shear Valve)	TIP Shear Valves	Squib Valve	N/A
	C51-J004 E (Shear Valve)	TIP Shear Valves	Squib Valve	N/A

(a) Isolation barrier remains filled or a water seal remains in the line post-LOCA, isolation valve is tested with water. Isolation valve leakage is not included in 0.60 L_a total Type B and C tests.

(b) Redundant isolation boundary for this valve is provided by the closed system whose integrity is verified by Type A test.

(c) Containment Isolation Valves are not Type C tested. Containment bypass leakage is prevented since the line terminates below the minimum water level in the Suppression Chamber. Refer to the IST Program.

(d) LCO 3.3.3.1, "PAM Instrumentation", Table 3.3.3.1-1, Function 6, (PCIV Position) does not apply since these are relief valves, check valves, manual valves or deactivated and closed.

Insert J →

INSERT J

(e) The containment isolation barriers for the penetration associated with this valve consists of two PCIVs and a closed system. The closed system provides a redundant isolation boundary for both PCIVs, and its integrity is required to be verified by the Leakage Rate Test Program.

ENCLOSURE D TO PLA-5218

"CAMERA-READY" TECHNICAL SPECIFICATION PAGES

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."

ACTIONS

------------------------------------NOTES------------------------------------

1. Penetration 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 PCIVs.

4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria in MODES 1, 2, and 3.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs except for the H_2O_2 Analyzer penetrations. --------------------- One or more penetration flow paths with one PCIV inoperable except for purge valve leakage not within limit.	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.	4 hours except for main steam line <u>AND</u> 8 hours for main steam line
	<u>AND</u>		(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs except for the H_2O_2 Analyzer penetrations. --------------------- One or more penetration flow paths with two PCIVs inoperable except for purge valve leakage not within limit.	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.	1 hour
C. ---------NOTE--------- Only applicable to penetration flow paths with only one PCIV. --------------------- One or more penetration flow paths with one PCIV inoperable.	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.	72 hours except for excess flow check valves (EFCVs) <u>AND</u> 12 hours for EFCVs
	<u>AND</u>		
	C.2	--------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. ---------NOTE--------- Only applicable to the H_2O_2 Analyzer penetrations. --------------------- One or more H_2O_2 Analyzer penetrations with one or two PCIVs inoperable.	D.1	Isolate the affected penetration flow path by the use of at least one closed and de-activated automatic valve, closed manual valve or blind flange.	72 hours
	AND		
	D.2	Verify the affected penetration flow path is isolated.	Once per 31 days
E. Secondary containment bypass leakage rate not within limit.	E.1	Restore leakage rate to within limit.	4 hours
F. One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limit.	F.1	Restore the valve leakage to within valve leakage limit.	24 hours
G. Required Action and associated Completion Time of Condition A, B, C, D, E, or F not met in MODE 1, 2, or 3.	G.1	Be in MODE 3.	12 hours
	AND		
	G.2	Be in MODE 4.	36 hours
H. Required Action and associated CompletionTime of Condition A, B, C, D, E or F not met for PCIV(s) required to be OPERABLE during MODE 4, 5 or Operations with the potential for draining the reactor vessel (OPDRVs).	H.1	Initiate action to suspend OPDRVs.	Immediately
	OR		
	H.2	Initiate action to restore valve(s) to OPERABLE status.	Immediately

3.6 CONTAINMENT SYSTEMS

3.6.1.3 Primary Containment Isolation Valves (PCIVs)

LCO 3.6.1.3 Each PCIV shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
When associated instrumentation is required to be OPERABLE per LCO 3.3.6.1, "Primary Containment Isolation Instrumentation."

ACTIONS

------------------------------------NOTES------------------------------------

1. Penetration 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 PCIVs.

4. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment," when PCIV leakage results in exceeding overall containment leakage rate acceptance criteria in MODES 1, 2, and 3.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs except for the H_2 O_2 Analyzer penetrations. --------------------- One or more penetration flow paths with one PCIV inoperable except for purge valve leakage not within limit.	A.1 AND	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.	4 hours except for main steam line AND 8 hours for main steam line (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs except for the H_2 O_2 Analyzer penetrations. --------------------- One or more penetration flow paths with two PCIVs inoperable except for purge valve leakage not within limit.	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.	1 hour
C. ---------NOTE--------- Only applicable to penetration flow paths with only one PCIV. --------------------- One or more penetration flow paths with one PCIV inoperable.	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.	72 hours except for excess flow check valves (EFCVs) <u>AND</u> 12 hours for EFCVs
	<u>AND</u>	
	C.2 --------NOTE--------- Isolation devices in high radiation areas may be verified by use of administrative means. --------------------- Verify the affected penetration flow path is isolated.	Once per 31 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. ---------NOTE--------- Only applicable to the H_2 O_2 Analyzer penetrations. --------------------- One or more H_2 O_2 Analyzer penetrations with one or two PCIVs inoperable.	D.1	Isolate the affected penetration flow path by the use of at least one closed and de-activated automatic valve, closed manual valve or blind flange.	72 hours
	<u>AND</u>		
	D.2	Verify the affected penetration flow path is isolated.	Once per 31 days
E. Secondary containment bypass leakage rate not within limit.	E.1	Restore leakage rate to within limit.	4 hours
F. One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limit.	F.1	Restore the valve leakage to within valve leakage limit.	24 hours
G. Required Action and associated Completion Time of Condition A, B, C, D, E or F not met in MODE 1, 2, or 3.	G.1	Be in MODE 3.	12 hours
	<u>AND</u>		
	G.2	Be in MODE 4.	36 hours
H. Required Action and associated Completion Time of Condition A, B, C, D, E or F not met for PCIV(s) required to be OPERABLE during MODE 4, 5 or Operations with the potential for draining the reactor vessel (OPDRVs).	H.1	Initiate action to suspend OPDRVs.	Immediately
	<u>OR</u>		
	G.2	Initiate action to restore valve(s) to OPERABLE status.	Immediately