



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PA 19406-2713**

May 14, 2018

EA-17-198

Mr. Peter P. Sena, III  
Chief Nuclear Officer  
PSEG Nuclear LLC – N09  
P.O. Box 236  
Hancocks Bridge, NJ 08038

**SUBJECT: RESPONSE TO CONTESTED NON-CITED VIOLATION DOCUMENTED IN  
U.S. NUCLEAR REGULATORY COMMISSION INSPECTION REPORT  
05000272/2017003 AND ASSOCIATED BACKFIT CLAIMS**

Dear Mr. Sena:

On December 14, 2017, PSEG Nuclear LLC (PSEG) provided a written response (ML17348A477)<sup>1</sup> to the U.S. Nuclear Regulatory Commission (NRC) Inspection Report 05000272/2017003 and 05000311/2017003 (ML17319A152) issued on November 14, 2017, concerning an inspection completed at the Salem Generating Station (Salem) Unit 1. Specifically, the letter contested a Green non-cited violation (NCV) 05000272/2017003-02 that was issued because PSEG did not ensure that the backup air particulate detector (APD) containment isolation valves (CIV), those associated with penetrations required to be closed during accident conditions, were unisolated intermittently under appropriate administrative controls in accordance with Technical Specification (TS) 3.6.3.1. Your letter stated that the administrative controls PSEG put in place to govern these open CIVs had been, in fact, adequate. You also asserted that this NCV was based, in part, upon new staff positions and, as such, you challenged the NCV as a backfit. The details of the NRC review of your response and claims are provided in the Enclosure and are summarized below.

The NRC acknowledged receipt of your December 14, 2017, letter in our January 8, 2018, response letter to PSEG (ML18009A953) in which we stated our intent to perform an independent assessment of your assertions. This letter transmits our assessment of the original enforcement decision that dispositioned this issue as a non-cited violation of Technical Specifications 3.6.1.1 and 3.6.3.1, to determine if it was valid. This review was performed by NRC staff members who possess relevant regulatory knowledge, but who did not participate in the inspection documented in Inspection Report 05000272/2017003, which contained the contested violation. In addition, the staff engaged the Committee to Review Generic Requirements (CRGR) to ensure that the proposed response was consistent with agency policy and guidance for addressing backfit claims. The NRC confirmed that PSEG did not implement adequate administrative controls as described in TS Bases 3.6.3.1. Specifically, the NRC determined that PSEG did not station a dedicated operator at the valve controls to close the air

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<sup>1</sup> Designation refers to an Agencywide Documents Access and Management System (ADAMS) accession number. Documents referenced in this letter are publicly-available using the accession number in ADAMS at <https://adams.nrc.gov/wba/> For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov).

particulate detector (APD) backup containment isolation valves (CIVs) to isolate the containment if required. The intent of the administrative controls is to allow for penetrations to be opened intermittently without operable automatic CIVs; the administrative actions, if implemented adequately, would result in rapid isolation of the penetration by a dedicated individual. In this case, the NRC determined that the administrative controls, as actually implemented by PSEG, would not have restored containment integrity in a timely manner during accident conditions. Thus, these controls were inadequate for the opening of these valves. This inadequacy, which persisted for 21 days, constituted a violation of the requirements of TS 3.6.1.1, through the failure to implement effective administrative controls with TS 3.6.3.1. Thus, the original NCV stated in NRC Inspection Report 05000272/2017003 and 05000311/2017003 issued on November 14, 2017 is upheld, as modified in the conclusion section of the enclosure.

The NRC determined that the NCV was not a backfit because the description of these administrative controls in the Salem Technical Specification Bases does not represent a new standard or a change in interpretation. However, this review did identify that the NCV, as documented, could result in confusion regarding the need for a dose consequence analysis associated with administrative controls. The NRC determined the dose consequence analysis completed by PSEG in response to inspector questions and referenced in the NCV documentation was not required. Therefore, the enforcement section of the original violation and associated inspection report will be re-issued under separate correspondence to remove reference to the dose consequence analysis completed by PSEG. Should you wish to appeal this denial of your claim of a backfit, your appeal should be submitted in writing, within 30 days of the date of this letter, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement; and the NRC Resident Inspector at the Salem Generating Station.

In accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and PSEG's December 14, 2017, response will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Jimi T. Yerokun, Director  
Division of Reactor Safety

Docket Nos. 50-272  
License Nos. DPR-70

P. Sena

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Enclosure: NRC Staff Assessment of Contested  
NCV 05000272/2017003-02 and  
Associated Backfit Claims

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**SUBJECT: RESPONSE TO CONTESTED NON-CITED VIOLATION DOCUMENTED IN U.S. NUCLEAR REGULATORY COMMISSION INSPECTION REPORT 05000272/2017003 AND ASSOCIATED BACKFIT CLAIMS**

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DATE	04/05/2018	04/11/2018	04/11/2018	04/11/2018	04/06/2018

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DATE	04/11/2018	04/09/2018	04/10/2018	05/11/2018	

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**NRC STAFF ASSESSMENT OF CONTESTED NCV 05000272/2017003-02  
AND ASSOCIATED BACKFIT CLAIMS**

The NRC staff reviewed the information provided in PSEG's letter and enclosure dated December 14, 2017 (ML17348A477), to determine whether non-cited violation (NCV) 05000272/2017003-02 remains valid. This review was performed by NRC staff members who possess relevant regulatory knowledge, but who did not participate in the inspection documented in Inspection Report 05000272/2017003 (ML17319A152). A second, previously uninvolved NRC staff member, who possesses relevant regulatory knowledge, independently reviewed PSEG's backfit claims. In performing this assessment, the NRC reviewers relied upon the documents listed in the Reference Section of this Enclosure and consulted with other NRC staff members, also independent from the original enforcement decision, including members of the Office of Nuclear Reactor Regulation (NRR).

**A. BACKGROUND**

On November 14, 2017, the NRC issued Inspection Report 05000272/2017003 documenting a Green NCV of Technical Specifications (TS) Limiting Condition for Operation (LCO) 3.6.1.1, "Containment Integrity," when PSEG did not ensure that the air particulate detector (APD) backup containment isolation valves (CIVs), associated with penetrations required to be closed during accident conditions, were unisolated intermittently under appropriate administrative controls. Specifically, backup manual CIVs associated with the APD sampling system were opened and left continuously open for 21 days, under tagging instructions that would have resulted in an actual open penetration outside of containment during certain design basis accidents; further, PSEG had not evaluated the adequacy of the tagging instruction to ensure that radiological dose consequences would remain in conformance with the licensing basis. Technical Specification (TS) compliance was restored on January 4, 2017, when PSEG restored the normal APD sample valve configuration.

In a December 14, 2017 letter, PSEG asserts that the tagging instructions and other guidance established were sufficient to ensure that the requirements of Technical Specification 3.6.3.1 and 3.6.1.1 were met and denied this NCV. Attachment 1 to PSEG's letter also raises additional considerations related to unintended safety consequences and backfit concerns. This assessment was performed to review the entire range of PSEG's assertions, including the backfit claims.

**B. ORIGINAL ENFORCEMENT DECISION**

Inspection Report 05000272/2017003 described the violation as follows:

Technical Specification LCO 3.6.1.1 action statement requires that without primary containment integrity, restore containment integrity within one hour or be in at least Mode 3 within the next six hours and Mode 5 within the following 30 hours. TS 1.7 defines CONTAINMENT INTEGRITY as all penetrations required to be closed during accident conditions are either capable of being closed automatically, or otherwise closed by manual valves, except for valves that are open under administrative control as permitted by TS 3.6.3.1.

Technical Specification 3.6.3.1, Action 1, requires that with one or more containment isolation valves inoperable, maintain at least one isolation valve operable in each affected penetration

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that is open, and within four hours either restore the inoperable valve(s) or isolate the affected penetration, or be in at least Mode 3 within the next six hours and in Mode 5 within the following 30 hours. Action 1 is modified by Note 1, which states that penetration flow paths, except for the containment purge valves, may be unisolated intermittently under administrative controls.

Contrary to the above, from December 8, 2016, to January 4, 2017, PSEG did not ensure that the APD backup CIVs, associated with penetrations required to be closed during accident conditions, were unisolated intermittently under appropriate administrative controls. Specifically, the CIVs were opened continuously for this 21 day period, without entry into LCO Action 3.6.3.1, Action 1. Additionally, the administrative controls applied consisted of a tagging instruction and a turnover note for one of the two licensed operators at the controls to remotely close the CIVs from the control room in accordance with the emergency operating procedure (EOP). The valve configuration would have resulted in an actual open pathway outside of containment during design basis accidents; however, PSEG had not evaluated the adequacy of the tagging instruction to ensure radiological dose consequences would remain in conformance with the licensing basis. PSEG entered this issue in the CAP as NOTFs 20751423 and 20777663. TS compliance was restored on January 4, 2017, when PSEG restored the normal APD sample valve configuration. Because this violation was of very low safety significance (Green), and was entered into PSEG's CAP, this issue was treated as an NCV consistent with Section 2.3.2.a of the Enforcement Policy.

### **C. LICENSEE POSITION**

PSEG describes the function of containment APD monitors and the actual valve alignment in detecting the presence of radionuclides in the containment atmosphere. The APD is located outside of containment and is supplied with containment air through two one-inch diameter sample lines. One sample line is equipped with normally open air operated CIVs identified as 1VC7, 8, 11 and 12 that automatically close in response to accident conditions. These valves include inboard and outboard CIVs which will automatically close if a Containment Phase A signal (4 psig – nominal) is received. A parallel flow path is also provided that is equipped with normally closed air operated valves (AOV) identified as 1VC9, 10, 13 and 14. These are the backup remote operated CIVs described in the NCV. These backup CIVs can be closed remotely from the control room by operation of multiple switches and will not automatically close if a Containment Phase A signal is received. These backup CIVs are the valves in question for compliance with Technical Specification 3.6.3.1.

In the December 14, 2017 letter, PSEG respectfully requested that this NCV be withdrawn because, as they assert, the administrative controls put in place to govern the opening of these remote manual CIVs were adequate. They also noted that operating in a manner that keeps important monitoring equipment like the APD in service promoted public health and safety, and the unintended consequence of this violation could adversely impact safety by encouraging licensees to disable such equipment.

On April 9, 2018, PSEG issued Licensee Event Report (LER) 2016-06-01, in which they revised the duration that the backup CIVs were open. Specifically, they stated that on December 8, 2016, the Containment Air Particulate Detector (APD), Normal Containment Isolation Valves (CIV) were closed to support a planned maintenance activity and the backup manual isolation valves were opened under administrative controls. On December 29, 2016, a Temporary Lift to the Work Clearance Document was performed that restored power back to the Normal Containment Isolation Valves (CIV). Once power was restored, the CIVs were surveilled

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satisfactorily and the backup isolation valves were closed. The backup isolation valves were open for 21 days. On January 4, 2017, a full release of the Work Clearance Document was performed. The 27 days addressed in the NCV takes into account the start date of the work window (December 8, 2016) until the Work Clearance Document was fully released (January 4, 2017). The 27 day period was also documented in LER 2016-06-00. Thus, the actual duration the backup CIVs were continuously open was 21 days and this document was revised to reflect that duration.

#### **D. NRC STAFF REVIEW**

The NRC staff carefully reviewed PSEG's position as it applied to the following circumstances related to the validity of NCV 05000272/2017003-02.

##### PSEG Review Points:

##### 1. Adequacy of the Tagging Instructions

PSEG asserts that the tagging instructions were written to comply with the TS bases of LCO 3.6.3.1 (B3.6.3.1). The TS bases provide a description of appropriate administrative controls that include stationing a dedicated operator in constant communication with the control room, at the valve controls, with instructions to close the valves in an accident situation and in an environment that does not preclude successful operation. Here, PSEG considers the dedicated operator to be a control room operator, who was required to be in the control room by technical specifications and was provided with instructions to manually close the remote-manual CIVs through the normal response path within emergency operation procedures (EOPs) if a Phase A containment isolation signal occurs. PSEG asserts by virtue of the Salem licensing basis, the operator's presence in the control room met the administrative requirements for constant communication and for a safe environment to enable the action.

The NRC reviewers note that LCO 3.6.3.1 requires that each CIV be operable when operating in modes 1, 2, 3 and 4. Note 1 to this LCO allows intermittently opening CIVs under administrative controls. The basis section of this LCO (B3.6.3.1) explains that opening of locked or sealed closed CIVs on an intermittent basis under administrative controls includes three considerations:

- 1) Stationing a dedicated individual, who is in constant communication with the control room, at the valve controls;
- 2) Instructing the dedicated individual to close the valves in an accident situation; and,
- 3) Assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside of containment.

The NRC reviewers find that the administrative controls provided by PSEG did not fully meet the TS Bases because the operator was not dedicated, and as stated in the TS bases, was not stationed at the valve controls to close the valves upon a containment isolation signal. In this context, that dedicated operator's primary function should have been to close the valve immediately without delay, if a containment Phase A condition occurred. In this instance, there was no unique operator that was designated to close these valves; further, an operator had not been stationed at the valve controls for this capability throughout the

entire 21 day duration when the administrative controls were in place. This action, as implied by a "control room operator," was a shared responsibility by all operators on shift and was discussed during routine shift turnover, along with many other plant status items and plant conditions. The TS basis intent of providing the ability to open penetrations, without automatic CIVs, assumes that a dedicated operator is stationed in the field in continuous communication with the control room who could be directed to close the unisolated containment isolation penetration flowpath immediately without delay, if conditions warranted it. To provide adequate protection, PSEG would have had to designate an operator in the control room whose primary function would have been to rapidly close these valves upon recognition of a Phase A containment isolation signal. This was not performed, and thus, the established administrative controls were inconsistent with the description of appropriate administrative controls as contained in TS B3.6.3.1.

The NRC performed a historical search of NRC violation history to determine if there were any similar events related to licensees' failure to implement adequate administrative controls for TS-related containment isolation valves. A similar issue was identified as occurring at Tennessee Valley Authority (TVA) Watts Bar Unit 1 facility, and was documented in Notice of Violation (NOV) 50-390/96-11-02 (Accession Nos.: Legacy Library (LL) 9612170331, (LL) 9701060232 and ML072610656). This NOV documented that, contrary to the TS, a dedicated operator was not stationed at the valve controls when intermittently un-isolating a penetration in accordance with TS 3.6.3. In their response, TVA acknowledged that operations personnel did not consult the TS 3.6.3 basis for the definition of administrative controls which resulted in them failing to station an operator with no other duties at the valve controls. The NRC determined this to be similar to the current case for which there was likewise no dedicated operator stationed at the valve controls.

## 2. Adequacy of the Technical Evaluation

PSEG argues that a technical evaluation of radiological dose consequences or timing of the manual action to close the remote manual CIVs was not required. The NRC reviewers agree that there is not an explicit requirement to perform radiological dose consequence assessment in the TS. This technical evaluation would not be needed if appropriate administrative controls were established, because the applicable open penetration paths would be isolated in a rapid manner to protect containment integrity.

## 3. Sufficiency of Emergency Operating Procedure (EOP) Guidance

In Reference 2, PSEG construes the position of the NRC inspectors to be that the technical evaluation was inadequate because it assumed the expected time for operators to reach a step in the EOPs mandating verification of Phase A isolation would be ten (10) minutes, instead of thirty seconds. The NRC stated that a number of steps preceding step 10 of 1-EOP-TRIP-1, "Reactor Trip or Safety Injection" would divert operators to other EOPs.

Step 10 directs operators to verify that 1VC7, 8, 11 and 12 (the automatic CIVs) are closed. However, the EOP flow path directs operators to close the remote-manual CIVs for each diversion out of 1-EOP- TRIP-1 as detailed below:

- Step 2 of 1-EOP-TRIP-1 directs operators to confirm that the reactor is tripped. If the reactor is not tripped, they are directed to functional recovery procedure, 1- EOP-FRSM-1, "Response to Nuclear Power Generation", to take higher priority actions



related to anticipated transient without scram (ATWS). Step 7 of 1-EOP- FRSM-1 directs operators to 1-EOP-APPX-3, "SI Verification". Step 3 of 1-EOP- APPX-3 directs operators to close Phase A CIVs.

- Step 4 of 1-EOP-TRIP-1 directs operators to 1-EOP-LOPA-1 "Loss of all AC Power", if all 4kV vital electric buses are not energized. Step 22 of 1-EOP-LOPA-1 directs operators to close the automatic CIVs. At this point, the tagging instructions would alert operators that the remote-manual CIVs should be closed.
- Step 5 of 1-EOP-TRIP-1 directs operators to 1-EOP-TRIP-2, "Reactor Trip Response" only if a safety injection (SI) is not required, in which case a Phase A actuation is neither required nor desired. A continuous action step in 1-EOP- TRIP- 2 returns operators to 1-EOP-TRIP-1 if a SI has been initiated. Therefore, operators would return to a procedure that directs verification of Phase A actuations.

Each diversion prior to 1-EOP-TRIP-1, step 10 addresses higher priority accident symptoms and directs verification of Phase A actuations at the most appropriate time.

The NRC reviewers discussed the timing for the completion of the procedure steps for each of these EOPs with an NRC Operations Engineer to estimate the timing of completing these steps. Historically, experience indicates that the implementation of each of these procedures would have taken by reasonably proficient licensed operators in the area of several minutes, potentially up to 10 minutes. Their conclusion is that a Phase A containment isolation would likely have been verified or manually completed in less than 10 minutes from event initiation.

Reference 9, Table 6.2-10 provides the required closure time of less than 10 seconds for the APD CIVs that would normally receive a closure signal during a containment Phase A isolation actuation. To provide an equivalent level of protection Salem operators would have to have implemented the administrative controls effectively with a dedicated operator at the station controls rapidly closing the backup manual CIVs, thereby minimizing any impact of a release prior to the closure function. It is recognized that 10 seconds would not be achievable in the establishment of these controls, but that a dedicated stationed operator would have nonetheless ensured relatively rapid closure.

The EOPs were written assuming that an open containment isolation pathway did not exist; however, in these circumstances, a steam-water mixture at 47 psig containment pressure would result in an almost immediate breach of containment integrity through this pathway based on a configuration created by PSEG for work control purposes. This is why implementing appropriate administrative controls as designated in the TS basis with the intent of prompt isolation precludes the need for review of timing considerations of EOPs, dose assessments, and any other technical evaluations.

#### 4. LCO 3.6.3.1 and Associated Notes

PSEG asserts that the NRC stated the action statement with LCO 3.6.3.1 must be entered to take advantage of Note 1 because the notes appear below the line that separates the LCO and associated applicability from the required actions to be taken if the LCO is not met

while operating in an applicable Mode. The location of the Note in the Salem LCO is consistent with NUREG-1431, "Standard Technical Specifications Westinghouse Plants."

PSEG contends that this interpretation set forth in the NCV is contrary to Salem's longstanding practice of invoking Note 3 to the same LCO when opening containment pressure vacuum relief valves 1VC5 and 1VC6 to reduce containment pressure. They note that this activity was conducted thousands of times over the life of the plant without entering the action statements of LCO 3.6.3.1.

The Salem TS states that containment integrity exists, in part, when:

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

- 1) Capable of being closed by an OPERABLE containment automatic isolation valve system, or
- 2) Closed by manual valves, blind flanges, or deactivated automatic valves secured in their closed positions, except for valves that are open under administrative control as permitted by Specification 3.6.3.1.

From this definition, it follows that in order for containment integrity to exist, open manual isolation valves are required to be under the administrative controls as permitted by Specification 3.6.3.1. LCO 3.6.3.1 requires that CIVs are operable. According to the Salem Technical Requirements Manual, the remote manual backup valves are CIVs and, as such, are required to be operable. However, PSEG asserts that at no time during this maintenance activity were the valves inoperable. They also assert that the backup CIVs were open and capable of being closed by a dedicated reactor operator in the control room, who was given adequate instructions and an environmentally secure location.

The NRC agrees with this assertion that the Note regarding administrative controls may be applied to an open manual isolation valve without a corresponding entry into the LCO 3.6.3.1 action statements. These valves are not designed with an automatic closure feature that is tested and timed in accordance with the normal surveillance program. However, the definition of containment integrity invokes the application of administrative controls for an open manual isolation valve. Therefore, invoking Note 1 for administrative controls would be acceptable without TS entry, and the containment pressure vacuum relief valves implementation of Note 3 would also allow this without TS entry.

## 5. Backfit Claims

In Reference 2 and as confirmed in a telephone conversation held between the NRC and PSEG on February 16, 2018, PSEG makes the following three specific backfit claims. An independent backfit reviewer was assigned to review PSEG's backfit claims in accordance with Management Directive 8.4, "Management of Facility-Specific Backfitting and Information Collection" (ML12059A460).

### a. Evaluating Dose Consequences

Given the structure of the NCV as written, PSEG claims it is being required to take corrective actions that include evaluating dose consequences whenever CIVs are opened under administrative controls.

In reviewing this contention, the NRC backfit reviewers agreed that an explicit requirement to perform radiological dose consequence assessment when opening CIVs under administrative controls as described in the TS and TS Bases does not exist. The backfit reviewers acknowledge that requiring a dose consequences assessment to open the CIVs under administrative controls as allowed by the TS would represent a new or different staff position and imposing this as a requirement upon PSEG would constitute a backfit. To ensure that the discussion of the dose analysis in the enforcement section of the NCV is not misconstrued or interpreted as a backfit, it will be removed from the revised enforcement section of NCV 05000272/2017003-02.

b. Application of a Thirty Second Time Limit

Given the structure of the NCV, as issued, PSEG claims it is being required to apply a thirty second time limit to manually close a CIV that is opened under administrative controls.

In reviewing this contention, the NRC backfit reviewers recognize that there is not a specific requirement to close remote CIVs within 30 seconds to meet the application of effective administrative controls as described in the TS Bases 3.6.3.1. Under appropriate administrative controls, in the case of an event that necessitates primary containment isolation, the intent is rapid isolation, where actions are taken with primary duties of a dedicated operator to implement isolation when a containment isolation signal is recognized at the onset of the accident. Imposing a 30 second time limit as a requirement upon the PSEG would represent a new or different staff position and would constitute a backfit.

The reviewers did not find any reference to 30 seconds in the enforcement section of the NCV 05000272/2017003-02 that would necessitate removal to avoid a fixed time limit construed or interpreted as a backfit.

c. Interpretation of Intermittent Inconsistent with Past Station Practices

Given the structure of the NCV, as issued, PSEG claims that the NRC invoked an interpretation of intermittent that was inconsistent with long-standing station precedent.

The backfit reviewers evaluated the violation, as restated in the beginning of this evaluation, and did not identify any additional requirements implied or imposed on PSEG. Specifically, as cited in the original NCV:

“PSEG did not ensure that the APD backup CIVs, associated with penetrations required to be closed during accident conditions, were unisolated intermittently under appropriate administrative controls.”

The TS allowance of intermittent operation, however, is conditioned upon the application of appropriate administrative controls specified in the TS Bases. Given that appropriate administrative controls which included a dedicated operator were not employed, the condition of the valves could not be returned to their closed base state when a containment isolation signal would be required to be recognized at the onset of the

accident as described in the TS bases. The backfit reviewer concluded that this did not represent a new or different staff position. Hence, this did not represent a backfit in accordance with 10 CFR 50.109. Further, the NRC reviewers note that PSEG provides no evidence to support the position that the NRC had previously issued or relied upon a definition of "intermittent" otherwise inconsistent with common usage.

## E. CONCLUSION

LCO 3.6.1.1 requires that CONTAINMENT INTEGRITY be maintained when operating in modes 1, 2, 3 and 4. Surveillance requirement (SR) 4.6.1.1.a1 is associated with this LCO and requires that each containment manual valve or blind flange that is located outside containment and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.

Furthermore, LCO 3.6.3.1 requires that each CIV be operable when operating in Modes 1, 2, 3 and 4. Note 1 to this LCO allows intermittently opening CIVs under administrative controls. The basis section of TS for this LCO explains that opening of locked or sealed closed CIVs on an intermittent basis under administrative controls includes three considerations:

1. Stationing a dedicated individual, who is in constant communication with the control room, at the valve controls;
2. Instructing the dedicated individual to close the valves in an accident situation; and
3. Assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside of containment.

As stated in the Enforcement section of Reference 1, "Contrary to the above, from December 8, 2016, to January 4, 2017, PSEG did not ensure that the APD backup CIVs, associated with penetrations required to be closed during accident conditions, were unisolated intermittently under appropriate administrative controls".

Specifically, this review found that the valves were not open on an intermittent basis with appropriate administrative controls applied. The administrative controls appropriate for this condition are described in the Salem Technical Specification Bases and these controls do not represent a new standard or a change in interpretation. The intent of the TS bases is such that if valves are open under administrative controls, but do not have automatic closure signals during a postulated safety injection or design bases accident, they are to be opened intermittently with assurance that a dedicated operator will be in place to isolate them as a primary duty of that operator when an accident signal occurs. Additionally, intermittently un-isolating these valves, which do not receive automatic closure, is allowed; this recognizes that redundancy is lost in the automatic closure capability of a CIV and, as such, allowance for intermittent reliance on operator action to ensure the containment integrity must be maintained.

In this case, if PSEG had established administrative controls as described in the TS bases, they would have met the intent of the TS and there would have been no potential impact on the design bases or current licensing bases for the facility. It is recognized that following the above would have resulted in a dedicated operator being assigned, with his or her primary duty to isolate the containment penetration as soon as an accident was recognized by closing the valves immediately at the valve controls. This would have resulted in a rapid isolation of the path in a timeframe consistent with the current licensing basis.

This review also determined the dose consequence analysis completed by PSEG in response to inspector questions and referenced in the NCV documentation was not required. Consistent with NRC Inspection Manual Chapter (IMC) 0611.05.02.a, information on the dose consequences was added to the description section of the finding documentation to enable an informed, independent reader to understand the actual or potential impact to safety from this NCV. However, IMC 0611.05.04.b.1 states, in part, that the enforcement section should document the disposition of the violation by stating what requirement was violated and how it was violated. The dose consequence analysis was not required and should not have been included in the enforcement section of the four-part finding documentation. Therefore, consistent with IMC 0611.13.04, the original violation and associated inspection report will be re-issued under separate correspondence to remove reference to the dose consequence analysis completed by PSEG from the enforcement section of the documentation for NCV 05000272/2017003-02. The enforcement section of the finding documentation will also be revised to indicate that the administrative controls implemented by PSEG were not adequate when compared to those described in TS Bases 3.6.3.1.

Therefore, the reviewers conclude that PSEG's failure to adequately implement the requirements for stationing a dedicated operator to close the backup CIVs and their continuous opening of these valves for 21 days was a non-cited violation of the requirements in TS 3.6.3. Also, to ensure the backfit claims made by PSEG in Section 6.a. were adequately addressed, any reference to not evaluating the adequacy of the tagging instruction to ensure radiological dose consequences would remain in conformance with the licensing basis are hereby removed from the enforcement section below. Thus, the enforcement section of the original NCV stated in NRC Inspection Report 05000272/2017003 and 05000311/2017003 issued on November 14, 2017, is upheld, with the following modifications:

#### Revised Enforcement Section of NCV 05000272/2017003-02

“Technical Specification LCO 3.6.1.1 action statement requires that without primary containment integrity, restore containment integrity within one hour or be in at least Mode 3 within the next six hours and Mode 5 within the following 30 hours. TS 1.7 defines CONTAINMENT INTEGRITY as all penetrations required to be closed during accident conditions are either capable of being closed automatically, or otherwise closed by manual valves, except for valves that are open under administrative control as permitted by TS 3.6.3.1.

Technical Specification 3.6.3.1, Action 1, requires that with one or more containment isolation valves inoperable, maintain at least one isolation valve operable in each affected penetration that is open, and within four hours either restore the inoperable valve(s) or isolate the affected penetration, or be in at least Mode 3 within the next six hours and in Mode 5 within the following 30 hours. Action 1 is modified by Note 1, which states penetration flow paths, except for the containment purge valves, may be unisolated intermittently under administrative controls.

Contrary to the above, from December 8, 2016, to December 29, 2016, PSEG did not ensure that the pathway containing the APD backup CIVs, associated with penetrations required to be closed during accident conditions, were unisolated intermittently under appropriate administrative controls. Specifically, the TS Bases for TS 3.6.3.1 described stationing a dedicated operator at the valve controls, under continuous communication with the control room, such that rapid isolation of the valves would take place to ensure that the penetration pathway would have been isolated in a timely manner. PSEG entered this issue in the CAP as NOTFs 20751423 and 20777663. TS compliance was restored on December 29, 2016, when

Enclosure

PSEG restored the normal APD sample valve configuration. Because this violation was of very low safety significance (Green), and was entered into PSEG's CAP, this issue is being treated as an NCV consistent with Section 2.3.2.a of the Enforcement Policy. **(NCV 05000272/2017003-02, Violation of Containment Integrity Technical Specification)**"

## F. REFERENCES

U.S. Nuclear Regulatory Commission (NRC) Inspection Report 05000272/2017003 and 05000311/2017003 dated November 14, 2017 (ML17319A152).

PSEG Nuclear LLC (PSEG) written response to NRC Inspection Report 05000272/2017003 and 05000311/2017003, dated December 14, 2017 (ML17348A477)

U.S. Nuclear Regulatory Commission (NRC) Response Letter to Disputed Non Cited Violation dated January 8, 2018 (ML18009A953)

Charter Committee to Review Generic Requirements, Revision 8, March 2011, (ML110620618)

CRGR Informal Review Comments to Region I Regional Administrator (acting) David Lew, (ML18128A069)

"Technical specifications;" 10 CFR 50.36; 2017.

Salem Unit 1 Technical Specifications 1.7

Salem Unit 1 Technical Specifications 3.6.1.1.

Salem Unit 1 Technical Specifications 3.6.1.3

Notice of Violation 50-390/96-11-02 at Watts Bar Unit 1, which noted that a dedicated operator was not stationed when intermittently un-isolating a penetration in accordance with TS 3.6.3. (Accession Nos.: Legacy Library (LL) 9612170331, (LL) 9701060232 and ML072610656).

"Accident Source Term;" 10 CFR 50.67; 2017.

Salem Generating Station Updated Final Safety Analysis Report (UFSAR)

Safety Evaluation Report for Implementation of Accident Source Term Changes to select Salem Technical Specifications and UFSAR, dated February 17, 2006 (ML060040322).