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October 22, 1992

Dr. Thomas E. Murley, Director  
Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Attn: Document Control Desk

Subject: LaSalle County Station Units 1 and 2  
Failure of 2CM025A Valve  
NRC Docket Nos. 50-373 and 50-374

Reference: (a) B.L. Siegel letter to Commonwealth Edison Company, dated October 5, 1992; Summary of Meeting on Post-Accident Sampling System (PASS) Isolation Valves, August 27, 1992, and Follow-up Discussions with the Licensee, Received by Commonwealth Edison October 14, 1992.

Dear Dr. Murley;

This provides Commonwealth Edison Company's (CECo) response to concerns raised by the Nuclear Regulatory Commission (NRC) regarding the operation of Post-LOCA Containment Monitoring Valves. The valve are suppression chamber return valves for the Containment monitoring skids. Valve 2CM025A is representative of those valves and has been the subject of several discussions with your staff. At the conclusion of those discussions, CECo committed to formalizing its intent to take certain actions regarding the subject valves. Those actions are described in this letter.

CECo intends to take actions which it believes preserve the original intent of the plant's design ability to adequately protect the public health and safety. That intent is clear from the circumstance which led to installation of the Containment Monitoring skids--the post-TMI realization that it was necessary to public health and safety to be able to sample containment atmosphere for oxygen and hydrogen after a Loss of Coolant Accident (LOCA). This design was reviewed and approved as part of the FSAR review resulting in the issuance of the SER, NUREG 0519. The idea that containment integrity should override the need for post-LOCA monitoring is contrary to the original design of the skids and the Technical Specifications which implement that monitoring function. Therefore, the actions proposed will enhance plant operation but continue to permit post-LOCA monitoring of containment atmosphere, in the unlikely event that it should become necessary.

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## Background

To appreciate CECO's understanding of the safety role of the 2CM025A valve, it is first useful to review the system which contains it. Valve 2CM025A is part of the post-LOCA atmosphere sampling system. That system is connected to the drywell and suppression chamber air volumes by sampling system lines which penetrate the containment. The piping for those lines is considered to be an extension of the containment boundary since it must be available for long-term usage following a design-basis LOCA. Accordingly, the piping is designed and fabricated to the same quality standards as the containment. (See UFSAR section 6.2.4.2.2, Evaluation Against General Design Criterion 56.)

Valve 2CM025A is a normally closed solenoid operated valve, which energizes to close, and fails in the open position upon loss of electrical power. (See attached Figure 1.) There are two other similar valves for each Containment Monitoring skid. During accident conditions, Primary Containment Isolation System (PCIS) initiation logic operates the drywell supply valve (2CM022A) and suppression chamber return valve (2CM025A), and prevents manual operator actions from closing either valve until the PCIS signal is reset. Because these valves are required to remain open after a LOC, they are part of a system which constitutes a closed loop outside of the containment. Accordingly, they are left open for Type A testing, and are not presently subject to Type C test. (See UFSAR Table 6.2-21, Note 40.) These circumstances further reinforce the view that the ability to sample post-LOCA containment atmosphere was the primary concern and that containment integrity would be preserved through piping design and Type A testing.

Questions about the correct post-inoperability position of the 2CM025A valve arose after June 22, 1992 when the valve was declared inoperable based upon surveillance testing which required the valve to be opened. In accordance with Station procedures, an Operability Evaluation and a Technical Specification/License Clarification (No. 04-92) were performed on June 23, 1992. This evaluation determined that if valve 2CM025A was inoperable, it should be taken out-of-service in the isolation position, meaning the valve position after receiving a PCIS isolation signal. For this valve, that position is open. With the valve out-of-service open the Technical Specification Limiting Conditions for Operation for Containment Isolation Valves (3.6.3) and for Accident Monitoring Instrumentation (3.3.7.5) are both satisfied.

On August 5, 1992, the NRC informed Commonwealth Edison that they believed that the 2CM025A valve was a Primary Containment Isolation System (PCIS) valve and that it should be in the closed position when declared inoperable. Therefore, the NRC believed that LaSalle was not in compliance with Technical Specification 3.6.3. The NRC was given copies of the Operability Evaluation and the Technical Specification Clarification, and LaSalle further described their rationale as follows:

- The 2CM025A valve was believed to have been included in Table 3.6.3-1 for the sole purpose of ensuring that the PCIS logic interlock was tested. This belief was partially based upon the fact that valves 2CM025A and 2CM022A, which had PCIS interlocks, were included in the Table, while valve 2CM024A, which did not have the PCIS interlock but was similar in design function to valve 2CM022A, was not included in the table. This belief is further supported by the August 18, 1984 A. Schwencer letter to D. Farrar approving Amendment 18 to Operating License NPF-11, in which the SER states that "Valves 1CM023B & 2CM024A (sic) would be deleted from the list of containment isolation valves since these are, in fact, not containment valves."
- The LaSalle Safety Evaluation Report, NUREG 0519, Section 6.2.3, Containment Isolation System, implies that the current design is in compliance with alternate acceptance criteria for GDC 56.
- The CM piping can be considered an extension of the primary containment, as discussed in UFSAR section 6.2.4.2.2.
- The CM piping, which forms a closed loop outside of containment, is a barrier to prevent the release of radionuclides from the primary containment. The integrity of this barrier is verified by the Appendix J Type A test. During the test, the CM valves in question are in the open position, implying that the valve is not a part of the barrier.
- Footnote (h) to Technical Specification Table 3.6.3-1 states that no Appendix J Type C test is required for these valves.

The NRC agreed to consider LaSalle's position, and requested no further action on August 5, 1992.

### **NRC New Position**

On August 6, 1992, discussions between the NRC and CECO resulted in a tentative agreement that LaSalle was in compliance with Technical Specifications 3.6.3 and 3.3.7.5, and that the safety significance of the issue warranted no immediate action. Despite finding that CECO met all regulatory requirements, the NRC continued to maintain that the valves were PCIS valves, and therefore, did not concur with the present, approved design, which allowed the valves to automatically open upon receipt of a PCIS signal. Rather, without addressing how the original intent to ensure post-LOCA monitoring throughout an event would be maintained, the NRC requested CECO to develop options which would provide the control room operator with manual control of these valves. Despite CECO's concern that closure of these valves could prevent their reopening under accident conditions, three potential design changes which would enable operator action to close the valves during accident conditions were proposed to NRR on August 14, 1992. A fourth option, defeating the PCIS interlock in the valve logic, was verbally discussed with NRR on August 17, 1992.

On August 20, 1992, CECo and the NRC held a conference call, and we understand the NRC final position to be the following:

- The post-LOCA Hydrogen/Oxygen Sample system is not an extension of the Primary Containment.
- The three valves for each CM skid are considered Primary Containment Isolation Valves.
- GDC 56 requires one PCIS valve per penetration for closed loops outside containment.
- LaSalle is in compliance with the Technical Specifications, and the operability decision made was based in good faith and was reasonable based upon NRC review of the design documents.

### CECo Response

The NRC required CECo to make a verbal commitment within 7 days describing the actions to be taken to resolve this issue. They further required that a written commitment be provided within 30 days of the verbal commitment. During an August 27, 1992 meeting, CECo provided verbal commitments to resolve the issue. At that time, one issue was identified that required further resolution, as discussed in reference (a). During follow-up discussions, the date for submittal of written commitments was extended to approximately October 9, 1992. This letter formalizes the commitments from the August 27, 1992 meeting.

- The inoperable 2CM025A valve will be repaired during the first outage of sufficient duration after parts availability. (The inoperable 2CM025A valve was subsequently repaired during the Unit 2 forced outage (L2F18) which began on August 27, 1992.)
- Contingent upon approval of the Technical Specification Amendment Request, the isolation logic for valves 1/2CM022A, 1/2CM025A, 1/2CM021B, and 1/2CM026B will be modified to remove the PCIS interlock from the logic circuit. After modification, these valves will operate in an identical fashion to 1/2CM024A and 1/2CM023B in that their only method of operation will be remote manual operation from a control switch in the Main Control Room. The design change will be implemented on Unit 2 prior to the startup from the Unit 2 fifth refuel outage, L2R05, tentatively scheduled to begin in the Fall of 1993, and on Unit 1 prior to the startup from the Unit 1 sixth refuel outage, L1R06, tentatively scheduled to begin in the Spring of 1994.
- The valves will continue to fail open upon loss of power.
- The three isolation valves per skid will be in the open position for the Appendix J Type A test to test the piping integrity.
- The three isolation valves per skid will be Appendix J Type C tested from the reverse direction (skid toward containment). Both the 1CM025A and 2CM025A valves are presently installed such that the valve inlet port is away from the containment, providing a non-conservative Type C test. The orientation of both 1CM025A and 2CM025A will be changed such that the inlet port is towards the containment. This re-orientation will be implemented on both Unit 1 and Unit 2 during the first outage requiring a Type A test after each Units fifth refuel outage.



The existing Primary Containment Isolation Valve Technical Specification 3.6.3 specifically states that these valves did not require a Appendix J Type C test. A Type C test will now be required. Prior to the first Appendix J Type C test for the three valves per skid, LaSalle may perform maintenance on the valves prior to performing the Type C leak rate. After the first Type C test, normal testing procedures would be followed for these valves.

The methodology used to determine the Type A minimum path leakage value will be resolved under existing NRC TAC item M77481.

A Type C test will also be performed in the reverse direction (skid toward containment) on the two existing manual gate valves located on each CM skid.

The Technical Specifications will be amended to be consistent with the new design. The proposed Technical Specification amendment will be submitted to NRR by April 1, 1993, and will include the following changes to Table 3.6.3-1:

- \* Relocation of valves 1/2CM021B, 1/2CM022A, 1/2CM025A, and 1/2CM026B from the "Automatic Isolation Valve" section of the table to the "Other Isolation Valves" section to reflect removal of the automatic isolation signal interlock.
- \* Addition of valves 1/2CM024A and 1/2CM023B to the "Other Isolation Valves" section of the table.
- \* Revision of footnote (h) to eliminate the reference to the valve opening on a PCIS signal, to eliminate the exemption to Type C testing, and to add a reference to the valve fail position.

The UFSAR will be revised as a part of each Unit's logic modification to reflect the system changes and the revisions to the Technical Specification and the Bases. The UFSAR will reflect the position that should one of these PCIS valves become inoperable, the manual valves on the skid will be closed, and the Technical Specification for Primary Containment Isolation Valves will be satisfied.

These changes will provide additional assurance that the valves will maintain their integrity while preserving the post-LOCA monitoring function of the Containment Monitoring System.

As for the appropriate response to valve inoperability, CECO further proposed that during future operation, should one of the PCIS valves become inoperable, CECO will close and administratively control the manual valves located on the CM skid. This action maintains compliance with Technical Specification 3.6.1.1, Primary Containment Integrity, and because the manual skid valves may be reopened on an intermittent basis under administrative control per the \* footnote associated with Technical Specification 3.6.3.a.1.c), the administrative closure of the skid manual valves maintains compliance with Technical Specification 3.3.7.5, Accident Monitoring Instrumentation. During the August 27, 1992 meeting, the NRC requested further review of this point prior to agreement. Subsequent to the meeting, CECO and NRR discussed the following:

CECo stated that if the hydrogen/oxygen monitor had a leak, it would be a primary containment leak, would require either manual or remote valve isolation, would require the skid to be declared inoperable, and the appropriate Limiting Condition for Operation to be entered.

In the absence of a leak, closing the manual valves is a contingency, and the valves would only be reopened to protect the containment or to allow sampling. After the initiation of a LOCA, CECo would enter the appropriate Emergency Operating Procedure, LGA-3, dispatch operators to the local skids, open the manual valves, and start the skids within the 30 minutes committed to in response to NUREG 0737. However, subsequent to that action, using a conservative dose calculation, the reactor building would not be habitable, and CECo would not dispatch an operator to reclose the valves. Nonetheless, NRR contends that it is necessary to re-close these valves to re-establish primary containment. CECo's different view follows.

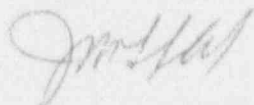
During a LOCA, if hydrogen/oxygen monitors on both Divisions are unavailable, CECo Emergency Procedures provide contingencies, requiring venting the containment. CECo believes that venting during a LOCA is a last resort which should not be the logical consequence of a deliberate but unnecessary action. Rather than taking actions which could require venting the containment, CECo believes that it is in the interests of public health and safety to open the manual valves on the skid to allow containment sampling consistent with the intent behind its design as an extension of the containment.

For these reasons, CECo believes that the intent of the original, approved design, which allows hydrogen monitoring of the containment, provides the greatest safety when compared to the conservative containment isolation function of a system designed to containment standards. Nevertheless, the NRC's position in reference (a) appears to elevate the priority of containment integrity over post-LOCA monitoring by requiring the post-LOCA containment monitoring skid to be considered inoperable whenever a local valve is closed to compensate for leaving an inoperable isolation valve in an open position, and that the skid will have to be restored to operability within 30 days.

The proposal could result in plant shutdown whenever the return to operability of the skid can be achieved only by the repair of an isolation valve. CECo believes that additional plant shutdowns and their adverse impacts on plant operation are not warranted under these circumstances. Rather, because this potential for additional shutdown is created by a new concern about containment integrity which is contrary to the design of the skids, CECo suggests that an agreement which accommodates that concern also should avoid unnecessary shutdowns. Accordingly, CECo proposes that post-LOCA containment monitoring be considered operable for Technical Specification purposes, despite the closure of a local valves, provided that the post-LOCA containment monitoring skid on the other Division is fully operable (without reliance on local valve operations). Under these conditions and because the manual isolation valves on the skid can always be opened immediately after the on-set of a LOCA, the system retains its primary safety function of post-LOCA monitoring while accommodating NRC concerns about containment integrity. In addition, CECo would also commit to restoring the operability of the containment valve no later than the next outage of sufficient duration after the valve became inoperable. In the event that post-maintenance testing requires containment pressurization to test the repair, the repairs will be conducted during the next refueling outage.

If there are any questions, please contact this office.

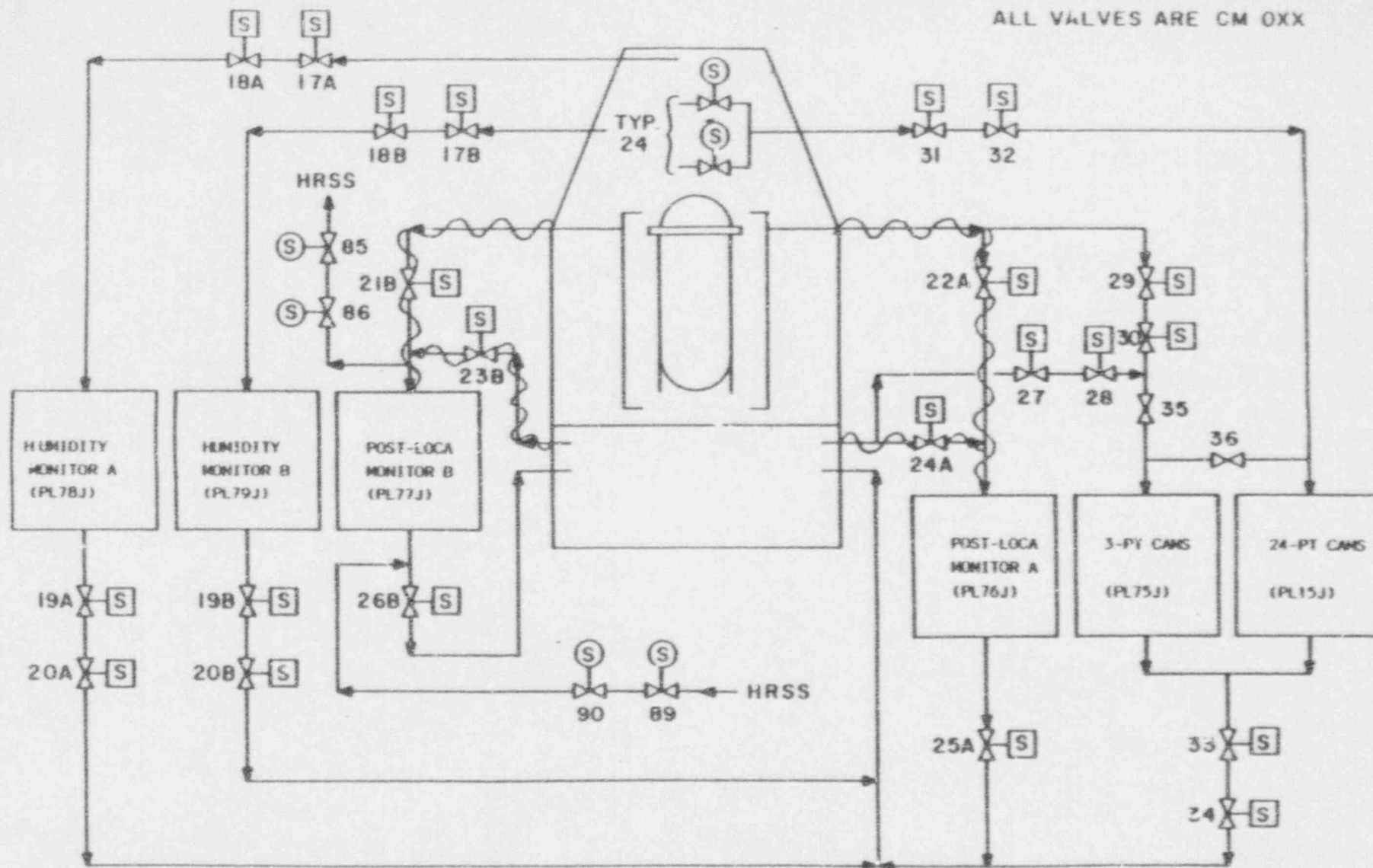
Respectfully,



JoAnn Shields  
Nuclear Licensing Administrator

Attachment: Figure 1

cc: A.B. Davis, Regional Administrator - RIII  
B.L. Siegel, Project Manager - NRR  
J. Pulsipher, Technical Staff - NRR  
D.L. Hills, Senior Resident Inspector - LSCS  
Office of Nuclear Facility Safety - IDNS



Containment Monitoring System Sample Flowpaths

FIGURE 1



TXX-92009  
Page 2 of 2

The RHR line has been monitored and data has been collected during the first operating cycle. Westinghouse has evaluated the data and concluded that further data collection is not necessary. The evaluation by Westinghouse is included in the enclosure. Therefore, we request that the continuation of data collection be suspended.

Sincerely,

William J. Cahill, Jr.

By: J. S. Marshall  
J. S. Marshall  
Generic Licensing Manager

CEJ/vld  
Enclosure

c - Mr. T. A. Bergman, NRR  
Mr. R. D. Martin, Region IV  
Resident Inspectors, CPSES (2)