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April 20, 1993

Dr. Thomas E. Murley
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attn: Document Control Desk

Subject: LaSalle County Station Units 1 and 2
Inservice Testing Program Relief Request Anomalies
NRC Docket Nos. 50-373 and 50-374

- References:
- (a) J.E. Dyer (USNRC) to T.J. Kovach (CECo), dated January 27, 1993, Review of Inservice Testing Program Relief Requests
 - (b) Generic Letter 89-04, "Guidance on Developing Acceptable Inservice Testing Programs", issued April 3, 1989
 - (c) LaSalle Station Inservice Testing Program
 - (d) P. Shemanski (USNRC) to H.E. Bliss (CECo), dated August 16, 1988, SER and TER

Dear Dr. Murley:

In response to the Staff's request contained in reference (a), please find enclosed CECo's response to the four significant anomalies identified therein.

These anomalies were described in the TER included as Appendix A of reference (a) and were identified as items 8, 9, 10 and 11. These anomalies are addressed in the following attachments, which include a description of the anomalies as well as an action summary:

- Attachment 1: Anomaly #8, RP-02
- Attachment 2: Anomaly #9, RP-08 (Includes Table)
- Attachment 3: Anomaly #10, CS-53
- Attachment 4: Anomaly #11, CS-54

The other lesser anomalies that were identified as items #1 through #7 will be responded to in the revised ten-year IST program report for LaSalle that is due before December 31, 1993.

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Dr. Thomas E. Murley

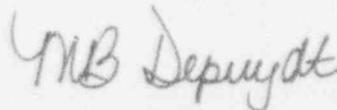
- 2 -

April 20, 1993

To the best of my knowledge and belief, the statements contained herein are true and correct. In some respects, these statements are not based on my personal knowledge, but upon information furnished by other Commonwealth Edison and contractor employees. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

Please direct any questions you may have concerning this response to this office.

Respectfully,



Mary Beth Depuydt
Nuclear Licensing Administrator

Attachments

cc: A.B. Davis, Regional Administrator-RIII
D Hills, Senior Resident Inspector-LSCS
R.L. Stransky, Project Manager-NRR
Office of Nuclear Safety-IDNS

ATTACHMENT 1

IST Program Relief Request RP-02

Description:

RP-02 requests relief from measuring and assessing flow rate, differential pressure, and inlet pressure for the emergency core cooling system pressure maintenance (keep-fill) pumps. The licensee monitors hydraulic condition of these pumps by observing discharge pressure. However, this testing may not adequately assess the operational readiness of these pumps as required by the Code. These pumps could have significant degradation and this condition may not be detected by the proposed testing. The inability to monitor for degradation and determine the operational readiness of safety-related pumps could allow a degraded pump to fail when called upon to perform its safety function. The licensee should respond to this staff concern within 90 days.

Action Summary:

LaSalle Station requested relief from the ASME Section XI, Subsection IWP-3100 requirement to measure water leg pump flow. As an alternative test, LaSalle Station proposed to measure and trend the pump discharge pressure, since maintenance of discharge pressure is the pump's safety function. In the SER/TER which approved the relief request, reference (d), it was stated that based on the water leg pump function "...there is actually no flow criteria on the pumps that could be used to determine whether the pump is satisfactorily performing its safety function".

In addition to measuring discharge pressure, LaSalle Station measures and trends pump inlet pressure and differential pressure in accordance with ASME Section XI, IWP-3100 requirements. To further monitor for degradation and determine operational readiness of the water leg pumps, vibration measurements are taken and trended per Relief Request RP-04. Measurements of inlet pressure, discharge pressure, differential pressure and vibration are taken on a quarterly basis.

LaSalle Station considers that detection of potential degradation and determination of operational readiness is adequately addressed without measuring flow. This conclusion is based on the quarterly measurement of all other required Section XI performance parameters and the safety function of the pumps themselves.

To clarify LaSalle's position, RP-02 will be revised to better state LaSalle's relief request and bases for relief, as stated above. This revised relief request will be part of the LaSalle Station 10-year IST Update to be submitted before December 31, 1993.

ATTACHMENT 2

IST Program Relief Request RP-08

Description:

RP-08 requests relief from the Code instrument full-scale range requirements for measuring RHR pump inlet pressure. Other facilities have requested relief from the full-scale range requirements of pump inlet pressure instruments and many of these requests have been approved. However, this case appears to involve a larger difference between the reference inlet pressures and the instrument full-scale ranges. Therefore, the inaccuracies introduced by using these instruments would be larger and may impair the licensee's ability to determine the operational readiness of these safety-related pumps.

The ranges of the installed gages (0-250 psi) are more than 30 times the normal pump inlet pressures (approximately 8 psi). Using these instruments for IST could introduce as much as +/-5 psi error (62.5% of the reference value) in the pump inlet pressure measurement. This error could affect the determination of pump differential pressure and could reduce the ability to assess the hydraulic condition of these pumps. The licensee has not described the effect of this inaccuracy on the calculation of differential pressure. Some utilities connect temporary test instruments for pump testing. The licensee should consider the need to use temporary gages for testing these pumps either quarterly or at some justifiable reduced frequency, such as during refueling outages. The licensee should respond to this staff concern within 90 days.

RP-09 addresses a similar situation for the HPCS pump inlet pressure gages. The licensee should also respond to this staff concern within 90 days.

Action Summary:

As noted in Reference (a), relief requests RP-08 and RP-09 were granted for use at LaSalle Station per the Inservice Testing Program SER/TER dated August 16, 1988. This TER states in Sections 3.3.1.2 and 3.6.1.2:

"The proposal to utilize existing instrumentation whose range is greater than three times reference value should provide sufficiently accurate data to utilize in the pump monitoring program to assess pump degradation."

LaSalle offers the following detailed discussion in support of the original approval. Additionally, a comparison table is included for easy reference.

The gages installed on the HPCS pump suction lines are calibrated to an accuracy of +/-0.5% of full scale, which is equivalent to +/-0.6 psi. The gages are readable to the nearest .5 psi. Using this information, the maximum error seen in the HPCS pump suction pressure reading is +/-0.6 psi, which is 15% of the reference value.

ATTACHMENT 2. RP-08 con't.

If a gage meeting the requirements of IWP-4120 were used (full scale of 12 psi, +/-2% accurate) the error would be 6% of the reference value. Thus the existing gages, at 15%, are only slightly less accurate in measuring the suction pressure. This translates to an additional error margin of approximately .1% of the differential pressure reference value when the existing gages are used to measure suction pressure. The increase in suction pressure accuracy gained by using a Code required gage would have a negligible effect on the calculation of pump differential pressure. Thus the existing suction pressure gages on the HPCS pumps do not impair or hinder LaSalle Station's ability to monitor for pump degradation.

The gages installed on the RHR pump suction lines are also accurate to +/- .5% of full scale, which is equivalent to +/-1.32 psi. These gages are readable to the nearest 2.5 psi or 1% of full scale. The instrument error may be up to 31% of the reference value. An error of 6% of suction pressure reference value would be introduced if a gage meeting the Code requirements were used. The difference in measurement between the existing gage and a Code gage would be +/-2 psi. This increased error margin of +/-2 psi represents 1.4% of the reference value of the calculated pump differential pressure. This additional error in suction pressure measurement does not significantly effect the differential pressure calculation and hence does not impair LaSalle's ability to determine RHR pump operability and monitor for degradation.

The attached table has been supplied to provide an easy format for comparison of the installed and Code gage accuracies. As can be seen in the table, the added accuracy acquired by using a Code suction gage would be negligible when determining differential pressures. LaSalle does not intend to replace these gages or supplement them with temporary instrumentation, as it is felt that there would be no value added by those actions.

ATTACHMENT 3

IST Program Relief Request CS-53

Description:

CS-53 involves the test frequency requirement of Section XI, IWV-3521, for the hydrogen recombiner water spray cooler supply check valves, 1(2)HG017A and 1(2)HG017B. The licensee proposes to verify the full-stroke open capability of these valves during the recombiner hot functional test every 12 months.

The Code requires a full-stroke exercise of safety-related check valves quarterly or during cold shutdowns. The licensee submitted CS-53 as a cold shutdown justification, however, the proposed alternate testing appears to exercise these valves once every 12 months. Although the time between cold shutdowns could possibly exceed 12 months, testing once every 12 months is not considered equivalent to the cold shutdown frequency. If these valves are not tested at cold shutdown as provided for in IWV-3521, this situation cannot be covered by a cold shutdown justification and a relief request must be submitted and approved. Additionally, CS-53 does not include an adequate technical justification for not full or part-stroke exercising these valves at the Code specified frequency.

The proposed testing verifies that these valves full-stroke exercise open in accordance with GL 89-04, Position 1. CS-53 demonstrates that performing the proposed testing quarterly or during cold shutdowns as required by the Code could cause equipment damage and shorten the useful life of the hydrogen recombiner. However, other testing methods that would not result in damage to the recombiner may be feasible at a Code required frequency. The licensee should evaluate other testing methods to determine if any are practical at a Code required frequency. Non-intrusive diagnostic techniques such as magnetics, ultrasonics, radiography, or acoustics should be considered as possible methods of verifying a full-stroke exercise of these valves. If it is determined that it is impractical to verify a full-stroke exercise of these valves quarterly or during cold shutdowns, they should be part-stroke exercised in accordance with the requirements of IWV-3522. The licensee should respond to these staff concerns within 90 days.

Action Summary:

In order to verify adequate flow through the water spray cooler supply check valves, the recombiner must be in operation, at normal temperatures. This ensures that a demand exists for adequate cooling water flow to maintain the temperature of the recombiner gas exiting the reaction chamber at less than 250 degrees F. Operating the hydrogen recombiners heaters to accommodate exercising the water supply check valves on a quarterly basis is not recommended by the manufacturer.

Attachment 3, CS-53 con't

Industry studies have indicated that the majority of check valve failures are due to flow related wear as the check valve oscillates in the flow stream. Normally the hydrogen recombiners are shutdown and the Hydrogen Recombiner Water Spray Cooler Supply valves 1(2)E12-F312A and 1(2)E12-F312B are closed. Therefore, the only time the check valves see flow is when the recombiners are operated for testing.

As regards non-intrusive testing, these valves are 1.5 inch swing check valves. Commonwealth Edison experience with non-intrusive monitoring of check valves less than 2 inches is that the methods do not provide consistent results, and are therefore unreliable.

Additionally, partial stroke exercising is not feasible. There is no flow or pressure instrumentation, nor pipe taps in the water supply line that could be used to verify valve operation. The only reliable method of determining proper valve operation is by monitoring the temperature of the recombined gas exiting the reaction chamber and ensuring the temperature is maintained within the manufacture's specifications.

LaSalle feels that verifying full stroke operation of these check valves on a 12 month basis provides adequate assurance of valve operability. LaSalle Station will delete cold shutdown justification CS-53 and submit a relief request. This action will be included in the submittal for the IST Program's 10 year update.

	<u>LaSalle HPCS Pumps</u>	<u>ASME Required Gage</u>	<u>LaSalle RHR Pumps</u>	<u>ASME Required Gage</u>
Full Scale Range	115 psig 30"HG - 100psig	12 psig	265 psig 30"HG - 250psig	24 psig
Gage Accuracy	+/- .5% of full scale (+/- .5%)115psig = +/- .6 psig	+/- 2% of full scale (+/- 2%)12psig = +/- .24psig	+/- .5% of full scale (+/- .5%)265psig = +/- 1.32 psig	+/- 2% of full scale (+/- 2%)24psig = +/- .48psig
Reference Value (RV) for Suction Pressure	4 psig	4 psig	8 psig	8 psig
Scale Increments	1 psig Resolution to .5 psig		5 psig Resolution to 2.5 psig	
% Error	(+/- .6psig) / (4psig)(100%) = 15% of RV	(+/- .24psig) / (4psig)(100%) = 6% of RV	(+/- 2.5psig) / (8psig)(100%) = 31% of RV	(+/- .48psig) / (8psig)(100%) = 6% of RV
<i>Difference in Accuracy for Suction Pressure</i>	(.6psig) - (.24psig) = .36psig		(2.5 psig) - (.48 psig) = 2.02 psig	
Reference Value (RV) for Differential Pressure	430 psig		130 psig	
<i>Increase in Accuracy for Differential Pressure</i>	(+/- .36psig) / (430 psig) (100%) = .1%		(+/- 2.02psig) / (130 psig) (100%) = 1.5%	

COMPARISON TABLE

PUMP GAGE ACCURACY VALUES

ATTACHMENT 4

IST Program Relief Request CS-54

Description:

CS-54 involves the test frequency requirement of Section XI, IWV-3521, for the hydrogen recombiner containment suction check valves, 1(2)HG007 and 1(2)HG016. The licensee proposes to verify the full-stroke open capability of these valves during the recombiner hot functional test every 6 months. The staff has the same concerns for CS-54 as for CS-53. The licensee should evaluate other testing methods to determine if any are practical at the Code required frequency and respond to this staff concern within 90 days.

Action Summary:

LaSalle Station has determined that quarterly full stroke exercise of these valves is possible by running the hydrogen recombiner blower and then verifying required flow. LaSalle Station will test these valves at the Code specified frequency. This action will be reflected in the submittal for the 10-year update.