Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690 - 0767

DCD

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Enclosure to DRP

January 18, 1988

Mr. A. Bert Davis
Regional Administrator
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: LaSalle County Station Units 1 and 2
Response to Confirmatory Action Letter
Regarding the LaSalle Unit 1 Main
Steam Isolation Valve (MSIV) Failure on
December 17, 1987
NRC Docket Nos. 50-373 and 50-374

References (a): A.B. Davis letter to Cordell Reed
dated December 18, 1987

(b): G.J. Diederich letter to M.J. Jordan
dated January 15, 1988, discussing
Testing MSIV's at LaSalle

Dear Mr. Davis:

The referenced letter transmitted the NRC Confirmatory Action Letter (CAL) regarding the LaSalle Unit 1 Main Steam Line Isolation Valve (MSIV) failure on December 17, 1987. The CAL stated that certain specified actions would be performed by Commonwealth Edison.

The enclosure provides a description of the actions taken and the results obtained from each of the CAL items.

Please direct any additional questions regarding this matter to this office.

Very truly yours

L. D. Butterfield
Nuclear Licensing Manager

lm

Enclosure

cc: Region III Inspector - LSCS

4099K

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ENCLOSURE

1. Replace the remaining solenoid valve assemblies on Unit 1 (the failed MSIV solenoid has been replaced).

   The remaining solenoid valve assemblies on Unit 1 were replaced on December 18, 1987, and satisfactority testing on December 19, 1987.

2. Perform an initial evaluation of the quality (i.e., moisture, oil, particulates) of the air system supplying the failed valve and the valves whose solenoid assemblies are being replaced by sampling the immediate supply to the solenoid assemblies.

   An initial evaluation of the quality of the air system supplying each of the Unit 1 MSIV's was performed on December 18, 1987. This was accomplished by disconnecting the air supply line for each valve and blowing air through a white filter medium. No presence of moisture or hydrocarbons was detected. Metallic particles were found in the intial sample which were attributed to breaking/making the piping connections. No contaminants were detected which could have caused the solenoid valve assembly failure.

3. Perform increased frequency testing of the MSIV's on Unit 1 as described in LaSalle Station letter to M.J. Jorday dated December 18, 1987.

   The testing frequency has been revised as the result of our investigations. The current testing program is described in a letter from G.J. Diederich to M.J. Jordan dated January 15, 1988. This letter is included as Appendix I.

   This increased frequency test program will also be applied to Unit 2.

   Tests were successfully performed on December 19 and 26, 1987 and on January 2, and 9, 1988, as outlined in the referenced letter.

4. Perform further analysis of the quality of the air system for the purpose of detecting contaminants which may degrade the solenoid assemblies.

   Samples of the air supplied to each MSIV were obtained by the Commonwealth Edison Station Materials Analysis Department (SMAD) on December 18, 1987. These samples were analyzed for moisture content and hydrocarbons. The results indicated a maximum condensed hydrocarbon content of 1.3 mg/m^3 and a dew point ranging from -41°F to -70°F. No contaminants were detected which could have caused the solenoid valve assembly failure.

5. Disassemble the removed valves and examine them for potential causes which could lead to failures similar to the one experienced. Four of these valves may be disassembled by the vendor (ASCO) at the vendor's location. The purpose of the examination is to determine a root cause for the failure.

   In addition to the failed valve, one outboard and two inboard MSIV solenoid valve assemblies were disassembled and inspected by LaSalle Station personnel on December 18, 1987.

   The remaining two inboard and two outboard MSIV solenoid valves were disassembled and inspected by the vendor (ASCO) at the vendor's facilities on December 21 and 22, 1987. The failed valve was also inspected by ASCO at their facilities.

   The results of the above inspections are described in Appendix II.

6. Perform a test of the dual solenoid valves on the Unit 2 MSIV's to determine if a similar problem exists on Unit 2.

   The Unit 2 MSIV solenoid valve assemblies were satisfactorily tested on December 19, 1987.

7. Submit to NRC Region III a formal report of your findings and conclusions within 30 days of receipt of this letter.

   The pilot solenoid valve associated with MSIV 1B21-F028C failed to change state when being de-energized because of a thin film between the core assembly and plug-nut, which acted as an adhesive, preventing the core assembly from moving. It is our opinion that the source of this thin film is the Dow 550 lubricating fluid which is applied by ASCO to the interface of the core assembly and plug-nut of the NP8323 solenoid valve with AC coils. The rate at which the Dow 550 degrades is exponentially related to the temperature which it is exposed.

   Discussion with ASCO supported the recommendations of ASCO Bulletin 8323 which states:

   > "While in service, operate the valve periodically to insure proper opening and closing."

   Therefore, a conservative cycling test frequency of once every three months for a period of six months followed by monthly tests will be performed for both Units 1 and 2. This surveillance is discussed in more detail in Reference (b).

CONFIRMATORY ACTION LETTER

UNITED STATES

NUCLEAR REGULATORY COMMISSION

REGION III

799 ROOSEVELT ROAD

GLEN ELLYN, ILLINOIS 60137

CMA

DEC 23

DEC 21 1987

CAL-RIII-87-026

Docket No. 50-373
Docket No. 50-374

Commonwealth Edison Company
ATTN: Mr. Cordell Reed
Senior Vice President
Post Office Box 767
Chicago, IL 60690

Gentlemen:

This letter confirms the telephone conversation between C. E. Norelius of this office and D. Galle of your staff on December 18, 1987, related to the Main Steam Isolation Valve (MSIV) failure (one outboard MSIV failed to remain shut) occurring at LaSalle Unit 1 on December 16, 1987. With regard to this event, we understand that you will:

1. Replace the remaining solenoid valve assemblies on Unit 1 (the failed MSIV solenoid has been replaced).

2. Perform an initial evaluation of the quality (i.e., moisture, oil, particulates) of the air system supplying the failed valve and the valves whose solenoid assemblies are being replaced by sampling the immediate supply to the solenoid assemblies.

3. Perform increased frequency testing of the MSIVs on Unit 1 as described in a LaSalle Station letter to M. Jordan dated December 18, 1987.

4. Perform further analysis of the quality of the air system for the purpose of detecting contaminants which may degrade the solenoid assemblies.

5. Disassemble the removed valves and examine them for potential causes which could lead to failures similar to the one experienced. Four of these valves may be disassembled by the vendor (ASCO) at the vendor's location. The purpose of the examination is to determine a root cause for the failure.

6. Perform a test of the dual solenoid valves on the Unit 2 MSIVs to determine if a similar problem exists on Unit 2.

7. Submit to NRC Region III a formal report of your findings and conclusions within 30 days of receipt of this letter.

Throughout this investigative effort, we understand that you will take those actions necessary to ensure that complete documentary evidence of the "as found" condition of equipment being inspected is maintained.

DEC 2 1 1987

We understand that actions 1 and 2 will be accomplished prior to startup of Unit 1 and that startup of Unit 1 will not occur without concurrence of the Regional Administrator or his designee. Items 3 thru 6 should be addressed promptly with item 6 being completed within 3 days of the date of this letter. Further, we understand that you will promptly notify the NRC of any finding relative to these actions or the performance of the MSIVs. Issuance of this Confirmatory Action Letter does not preclude the issuance of an order requiring implementation of the above commitments.

None of these actions should be construed to take precedence over actions which you feel necessary to ensure plant and personnel safety.

Please let us know immediately if your understanding differs from that set out above.

Sincerely,

A. B. Davis
Regional Administrator

cc: D. Butterfield, Nuclear
Licensing Manager
G. J. Diederich, Plant
Manager
DCD/DCB (RIDS)
Licensing Fee Management Branch
Resident Inspector, RIII
Richard Hubbard
J. W. McCaffrey, Chief, Public
Utilities Division
David Rosenblatt, Governor's
Office of Consumer Services
E. L. Jordan, AEOD
J. M. Taylor, DEDO
T. E. Murley, NRR
J. Lieberman, OE
R. Cooper, EDO
W. Lanning, NRR
F. Miraglia, NRR
G. Holahan, NRR
D. Crutchfield, NRR
J. Partlow, NRR
M. Jordan, SRI
J. Strasma, RIII
R. Lanksbury, RIII
J. Goldberg, OGC

APPENDIX I

January 15, 1988

TO: Mr. M. J. Jordan

SUBJECT: Testing of Main Steam Isolation Valves (MSIV's) on LaSalle County Station Units 1 and 2

REFERENCE: Letter from R. D. Bishop to M. J. Jordan Dated December 18, 1987

This letter supercedes the testing commitments described in the referenced letter.

Based on our investigation, the mechanism which caused the failure of the MSIV on December 17, 1987, is time dependent and random in nature. Available data indicates that the solenoid valve assemblies will function properly for a minimum of six months of unit operation prior to failure.

The above information, along with the satisfactory tests completed to date, has resulted in the Boiling Water Reactor Engineering Department (BWR-E) recommending a revision to the MSIV test frequency described in the referenced letter. The revised testing schedule is as follows.

1. Test the valves quarterly during the first six months of unit operation following replacement.

2. After the first six months of unit operation following replacement, test the valves monthly.

3. The scheduled testing will therefore proceed as follows:

   a. For Unit 1, the valves will be tested before or during the second refueling outage or prior to April 2, 1988, if the outage is postponed. The Unit 1 outboard valves were last tested January 9, 1988 and the inboard valves were last tested January 2, 1988.

   b. For Unit 2, the valves will be tested monthly until the second refueling outage or until replaced.

4. The above test frequencies will be subject to the normal Technical Specification allowance of section 4.0.2.

5. Our plans are to replace the solenoid valve assemblies on both units during their respective second refueling outages. Anytime the valves are replaced, the testing frequency will be returned to quarterly for the first six months of unit operation and monthly thereafter.

Testing of the MSIV's will be performed using the following procedure:

1. Turn MSIV control switch to OPEN SLOW TEST position.
2. Slow full close the MSIV using the test push button.
3. Turn MSIV control switch to the CLOSE position upon getting CLOSED indication.
4. Release test push button.
5. Observe MSIV does not reopen.
6. Reopen MSIV.

G. J. Diederich
Station Manager

GJD/RDB/kg

DOCUMENT ID 1787k

APPENDIX II

January 15, 1988

To: G. J. Diederich
LSCS Manager

Subject: CAL-RIII-87-026
Step Number 5

BWR Engineering has reviewed and approves Sargent & Lundy's Report CQD-038640, "Failure of MSIV Pilot Solenoid Valve 1B21-F028C," dated January 14, 1988. It provides a root cause for the failure and justification for continued operation of Units 1 and 2 up to their next refueling outages. This is based on the recommendation to institute a quarterly cycling interval for the six (6) months of ASCO pilot valve operation followed by monthly tests.

B. Rybak
LSCS Project Engineer

WJM:cf
Attachment
CC: J. S. Abel (1/1)
H. L. Massin (1/1)
R. D. Bishop (1/1)
T. A. Hammerich (1/1)
C. M. Allen (1/1)
J. Sinnappan (S&L) (1/0)