10 CFR 50.90

Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

October 10, 1990

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Subject: LaSalle County Station Units 1 and 2
Application for Amendment to Facility
Operating Licenses NPF-11 and NPF-18
Appendix A, Technical Specifications
NRC Docket Nos. 50-373 and 50-374

Dear Sirs:

Pursuant to 10CFR 50, Commonwealth Edison's LaSalle County Station is hereby applying for an amendment to Facility Operating Licenses NPF-11 and NPF-18 Appendix A, Technical Specifications. The purpose of this amendment request is to remove the Technical Specification requirements for the High Pressure Core Spray (HPCS) System Condensate Storage Tank (CST) Suction Valve, and to add containment isolation requirements for the planned, new Reactor Core Isolation Cooling (RCIC) system full flow test line to the suppression pool.

This modification is scheduled to be installed during the next refueling outage for each unit (Unit 1, February 1991, Unit 2, January 1992). Approval of this amendment is requested to support the upcoming Unit 1, February 1991 refueling outage.

Attachment A contains background information and justification for the proposed change. Attachment B contains the proposed changes to the Technical Specifications. The proposed change has been reviewed and approved by both on-site and off-site review in accordance with Commonwealth Edison Company Procedures. This amendment request has been evaluated in accordance with 10 CFR 50.92 (c) and was determined that no significant hazards consideration exists. That evaluation is documented in Attachment C.

Commonwealth Edison is notifying the State of Illinois of our application for this amendment by transmitting a copy of this letter and its attachments to the designated State Official.

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Please direct any questions you may have regarding this matter to this office.

Very Truly Yours,

Wayne E Morgan

W.E. Morgan
Nuclear Licensing Administrator

cc: Regional Administrator, RIII
Robert Pulsifer - Project Manager NRR
Senior Resident Inspector - LaSalle
Office of Nuclear Facility - IDNS

ZNLD/301

Signed before me on this 10 day
of October, 1990 by
Lynn M Wlodarski
Notary Public

" OFFICIAL SEAL "
LYNN M. WLODARSKI
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 6/25/94

ATTACHMENT A

LASALLE COUNTY STATION UNITS 1 AND 2

BACKGROUND AND DISCUSSION

BACKGROUND

LaSalle County Station has experienced two underground piping failures which have affected the Units 1 and 2 RCIC and HPCS systems. The first failure was detected during the preservice inspection and hydrostatic testing of the Unit 2 RCIC system suction lines from the Condensate Storage Tank. The leak was discovered in an elbow joint weld of an above ground portion of the suction line located immediately adjacent to the CST. The subsequent investigation revealed that the failure was probably due to intergranular corrosion. This failure raised concerns of possible weld cracks in the underground piping which could result in leakage and cause ground contamination. As a result, the RCIC system suction and full flow test return lines to the CST were replaced for both units. The lines were replaced with a heavier schedule piping which were wrapped with a material designed to reduce the potential for intergranular corrosion at the weld joints.

The second failure of underground piping at LaSalle Station was discovered in the HPCS full flow test return line to the CST in May of 1985. The failure was detected when water seepage was observed at ground level above the HPCS full flow test return line to the CST. Subsequent investigations revealed that there were several potential failures involving the HPCS full flow test return lines. The failure mechanism was determined to be a form of microbiological induced corrosion affecting primarily the weld material. The factors contributing to these failures were:

1) a susceptible type of weld material,
2) a failure of the pipe coatings, and
3) inadequate cathodic protection in the presence of iron oxidizing bacteria.

As originally designed, the HPCS system was capable of taking suction from either the CST or the suppression pool. Since, the UFSAR accident analysis did not take credit for the CST as a water source for the HPCS system, the short term corrective action was to isolate the leaking lines and align the HPCS system to take suction from the suppression pool. It was decided that the long term corrective action would be to permanently isolate and abandoned in place the HPCS system suction and full flow test lines to the CST.

In light of the experience with the HPCS underground piping failure caused by microbiological corrosion, an analysis was performed to evaluate the impact on plant operations of a failure of the RCIC underground piping. This evaluation determined that a failure of the piping could cause a loss of the system full flow test capability since RCIC unlike HPCS does not have a full flow test line to the suppression pool. This failure could severely restrict continued plant operations for an extended period of time while corrective actions were being taken. As a result the following actions are being taken:

1) Periodic tests are being performed to monitor the integrity of the underground RCIC piping. To date no failures have been detected.

2) Improvements to the current cathodic protection system have been taken and plans to install additional Deep Anode Systems that will help to minimize corrosion damage to the underground piping over the life time of the plant have been initiated.

3) A modification which will give full flow test capability to the suppression pool for the RCIC system has been planned. (Figure 1) If leakage should develop in the future this modification will allow the RCIC system to be tested with the use of the suppression pool suction and full flow test lines.

The modifications to the HPCS and RCIC systems will require several changes to be made to the technical specifications. In regards to the HPCS system the planned modification will eliminate the capability of automatically transferring the pump suction from the CST to the suppression pool on a low CST level or high suppression pool level signal. Since the HPCS system will be lined up permanently to the suppression pool, it will be necessary to eliminate the technical specification references to the HPCS system suction flow path transfer capability. In regards to the RCIC system the planned modifications will install a full flow test line to the suppression chamber. This will necessitate the addition of primary containment isolation requirements to the technical specifications to encompass the new full flow test valves that will be added to the system.

DISCUSSION

The HPCS and RCIC systems are designed to take suction from either the CST or the suppression pool. The normal line up for these systems, as described in the UFSAR, has the suction valve to the CST open and the suction valve to the suppression pool closed. With this configuration the CST provides an additional source of reactor grade water for normal operation and surveillance testing of the HPCS and RCIC systems. The CST is also available under accident conditions until either of the following occurs: 1) a CST low water level trip signal (which affects the RCIC and HPCS systems), or 2) a suppression pool high water level trip signal (which affects the HPCS system only), which causes a suction flow path transfer from the CST to the suppression pool. While, the UFSAR does describe the HPCS and RCIC system suction as normally lined up to the CST, the UFSAR does not take credit for this water supply in the accident analysis. The CST is intended to function under normal plant operating conditions only and has no safety design basis (UFSAR Paragraph 9.2.7.1.1). Therefore, the impact on plant safety of removing the flow path from the CST to the HPCS and RCIC system is minimal.

Proposed HPCS Amendments

Since the discovery of leakage from the HPCS system suction and full flow test lines to the CST, the lines have been isolated and administratively controlled. The HPCS system modifications will permanently isolate these lines making the current mode of operation permanent. As a result, the current technical specification requirements for the HPCS system suction flowpath transfer will no longer be required, therefore the following amendments to the technical specifications are being proposed (refer also to Attachment B):

- o Remove instrumentation requirements for the CST low level trip and suppression pool high water level trip from the ESF Division 3 requirements in Tables 3.3.3-1 (including ACTION 36), 3.3.3-2 and 4.3.3.1-1. Since, the HPCS system suction is permanently lined up to the suppression pool, neither of these trips are required for safe plant operation.

- o Remove Surveillance Requirement 4.5.1.c.3 which requires verification of the HPCS system suction flow path automatic transfer from the CST to the suppression pool. Since, the HPCS system suction flow is permanently lined up to the suppression pool there is no longer any need to test the automatic transfer capability.

- o Remove references to the CST from the HPCS system flow path requirements in Technical Specification Limiting Condition For Operation (LCO) 3.5.2.e. The CST flow path is not required for plant safety but was allowed to be used during shutdown as an alternate water source when the suppression pool was drained. This option is no longer available and will no longer be used.

- o Remove Surveillance Requirement 4.5.2.2 for verification of HPCS system operability by verifying the acceptability of the CST water level. With the LCO deleted this surveillance would no longer be required.

- o Remove the references to the CST from the suppression pool volume requirements in Technical Specification LCO 3.5.3.b. Since the CST is no longer available via the HPCS system flow path, exceptions to the suppression pool level requirements, that rely on the additional water volume contained in the CST, can no longer be allowed. Surveillance Requirement 4.5.3.2 must be amended to remove Paragraph "a" which refers back to the conditions being deleted from Technical Specification 3.5.3.b. Since, the remainder of Surveillance Requirement 4.5.3.2 is applicable only in Operational Condition 5, the reference to Operational Condition 4 is being removed.

- o Remove the reference to the CST from the bases for Technical Specifications 3/4.5.1 and 3/4.5.2.

- o Remove the reference to the HPCS suction valve transfer from Bases Figure B 3/4.6.2-1.

Proposed RCIC Amendments

The planned modification to install an RCIC system full flow test line to the suppression chamber, is being performed to minimize the impact on plant operations of any future RCIC underground piping failure. Technical Specification 3.7.3 requires the RCIC system to be operable and to have an operable flow path from the suppression pool to the reactor vessel. A failure of the RCIC underground lines to the CST would not necessarily render the system inoperable immediately because the specified flow path from the suppression pool to the reactor would be unaffected. However, if a failure involved the full flow test line to the CST, performance of the quarterly pump performance surveillance would be difficult (Surveillance Requirement 4.7.3.b). Under these conditions the only feasible means of performing this test would be by actual injection to the reactor vessel. Since, an RCIC system injection causes a trip of the main turbine and the feedwater pump turbines, reactor power would have to be reduced and the turbines would have to be shutdown prior to performing the surveillance. This would be a costly option in that it would require a power reduction outage every three months until repairs or modifications to the underground piping could be completed. The preferred and planned option (refer to Figure 1) is to install: 1) an additional full flow test line to the suppression pool for the RCIC system, and 2) to install a flanged joint downstream of the 1(2)E51-F059 valve where a blind flange can be installed. This option will increase the RCIC system flexibility, such that, an underground piping failure would have a minimal impact on plant operation and safety. This modification is scheduled to be installed during the next refueling outages for each unit. (Unit 1, February 1991, Unit 2, January 1992).

A result of these modifications, the technical specifications will have to be amended to add RCIC system full flow test valves 1(2)E51-F059, 1(2)E51-F362 and 1(2)E51-F363 to Table 3.6.3-1 "Primary Containment Isolation Valves." This amendment will help to ensure that primary containment integrity is maintained by instituting appropriate controls for operation and testing of these valves.

Penetrations into the primary containment are required to have two barriers between the primary containment environment and the outside environment, unless it can be demonstrated that the containment isolation provisions for a specific class of lines are acceptable on some other defined basis (GDC 56).

In the case of the RCIC system, which is normally in operation during post-accident conditions, the first barrier is a motor operated valve. The second barrier is the RCIC system itself which is considered to be a closed loop system (UFSAR Table 6.2-21 note 28). The new full flow test line will connect the area between valves 1(2)E51-F022 and 1(2)E51-F059 (refer to Figure 1) to the primary containment. If the system is lined up to the CST, the isolation valves on the new line to be installed (1(2)E51-F362 and 1(2)E51-F363), must be considered to be primary containment isolation valves, and must be locked closed. If the system is lined up to the suppression pool with manual valves 1(2)E51-F362 and 1(2)E51-F363 open then MOV 1(2)E51-F059 must be locked closed with a blind flange installed downstream of valve 1(2)E51-F059. In this configuration, valve 1(2)E51-F022 will become a primary containment isolation valve, and valve 1(2)E51-F022 will have a water seal on the outboard side. Therefore a water leak test is appropriate being consistent with similar configurations and UFSAR Table 6.2-21 note 29.

Under the proposed amendment the RCIC system will be allowed to conduct full flow tests either to the CST or the suppression pool. To maintain primary containment integrity only one test path will be in service at a time. Footnotes will be added to Table 3.6.3-1 to indicate that the primary containment isolation boundaries vary depending upon which flow path is being used (Refer to Figure 1).

PROPOSED ADMINISTRATIVE AMENDMENTS

The deletion of Footnote "****" located in Tables 4.3.3.1-1 and 3.6.3-1 of the Unit 1 technical specifications. These footnotes allowed several 18 month interval surveillance requirements to be waived on Unit 1 during the first cycle of operation. These footnotes are no longer required and should be deleted.

Figure 1

RCIC Full Flow Test Return To Suppression Pool

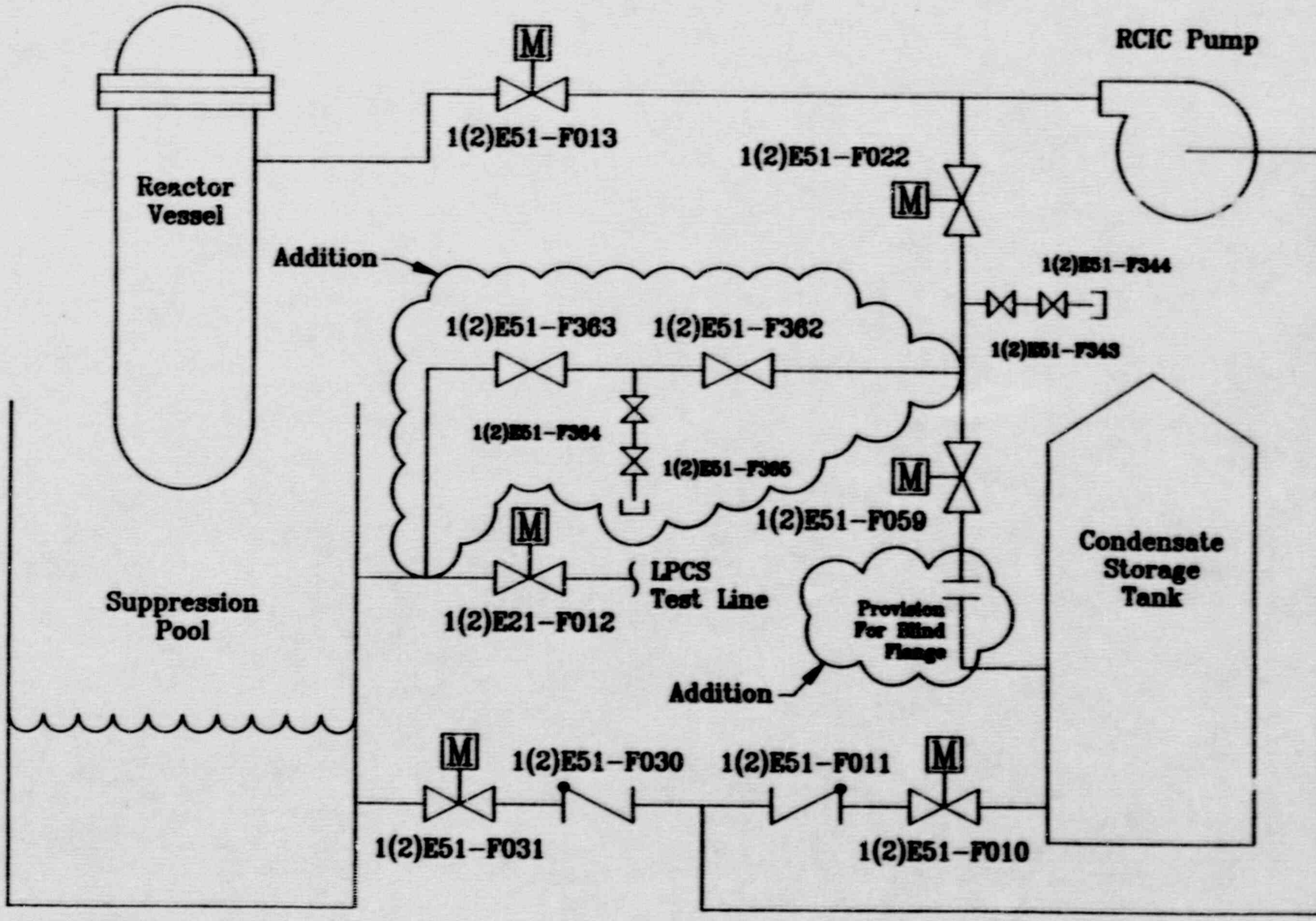

TABLE 6.2-21
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27. The Hydraulic Control Unit (HCU) is a factory-assembled engineered module of valves, tubing, piping, and stored water which controls a single control rod drive by the application of precisely timed sequences of pressures and flows to accomplish slow insertion or withdrawal of the control rods for power control, and rapid insertion for reactor scram.

    Although the hydraulic control unit, as a unit, is field installed and connected to process piping, many of its internal parts differ markedly from process piping components because of the more complex functions they must provide.

    Thus, although the codes and standards invoked by Groups A, B, C and D pressure integrity quality levels clearly apply at all levels to the interfaces between the HCU and the connecting conventional piping components (e.g., pipe nipples, fittings, simple hand valves, etc.), it is considered that they do not apply to the specialty parts (e.g., solenoid valves, pneumatic components, and instruments). The HCU shutoff (isolation) valves are Quality Group B.

    The design and construction specifications for the HCU do invoke such codes and standards as can be reasonably applied to individual parts in developing required quality levels, but these codes and standards are supplemented with additional requirements for these parts and for the remaining parts and details. For example, 1) all welds are penetrant tested (PT), 2) all socket welds are inspected for gaps between pipe and socket bottom, 3) all welding is performed by qualified welders, and 4) all work is done per written procedures. Quality Group D is generally applicable because the codes and standards involked by that group contain clauses which permit the use of manufacturer's standards and proven design techniques which are not explicitly defined within the codes of Quality Group A, B, or C. This is supplemented by the QC techniques.

28. These lines have been evaluated to an acceptable alternative design basis other than that specifically listed in GDC 56. This alternate basis is found in SRP 6.2.4.II.3.e, and the

evaluation to the criteria specified therein is as follows:

a. All lines are in engineered safety feature or engineered safety featured-related systems.

b. System reliability can readily be seen to be greater when only a single valve is provided, since the addition of another valve in series provides an additional potential point of failure, and, in the case of relief valve discharge lines, the installation of an additional valve is actually prohibited by the ASME Code.

c. The systems are closed outside containment.

d. A single active failure of these ESF systems can be accommodated.

e. The systems outside containment are protected from missiles consistent with their classification as ESF systems.

f. The systems are designed to Seismic Category I standards.

g. The systems are classified as Safety Class 2.

h. The design ratings of these systems meet or exceed those specified for the primary containment.

i. The leaktightness of these systems is assured by normal surveillance, inservice testing and leak detection monitoring.

j. The single valve on these lines is located outside containment.

29. These lines are always filled with water on the outboard side of the containment thereby forming a water seal. They are maintained at a pressure that is always higher than primary containment pressure by water leg pumps; thus, precluding any outleakage from primary containment. However, even if outleakage did occur it would be into an ESF system which forms a closed loop outside primary containment. Thus, any leakage from primary containment would return to primary containment through this closed loop.

TABLE 6.2-21
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These valves are under continuous leakage test because they are always subjected to a differential pressure acting across the seat. Leakage through these valves is continuously monitored by the pressure switches in the pump discharge lines, which have a low alarm setpoint in the main control room.

Even though a special leakage test is not merited on these valves for the reasons discussed above, a system leakage test to meet the requirements of Type C testing and as hereinafter described will be performed to ensure the leak-tightness of the ECCS and RCIC systems. The systems will be pressurized with water to a minimum pressure of 1.1 times P_a (peak drywell accident pressure) with the system totally isolated from primary containment. A leakage rate for the entire system will then be determined and compared to an acceptance limit based on site boundary dose considerations (10 CFR 100: ECCS subsystem leakage not to exceed 1 gpm times number of valves in the subsystem tested.

30. The leakages through the Main Steamline valves will not be included in establishing the acceptance limits for the combined leakage in accordance with the 10 CFR 50, Appendix J, Type B and C tests. Because the Main Steamlines are provided with a leakage control system, the leakage through these valves will not be added into the combined leakage rate. This exclusion is in accordance with Article III.C.3 of 10 CFR 50, Appendix J.

31. Although only one isolation valve signal is indicated for these valves, the valves also receive automatic signals from various system operational parameters. For example, the ECCS pump minimum flow valves close automatically when adequate flow is achieved in the system; the ECCS test lines close automatically on receipt of an accident signal. Although these signals are not considered isolation signals; and are therefore, excluded from this table, there are other system operation signals that control these valves to ensure their proper position for safe shutdown. Reference to the logic diagrams for these valves indicates which other signals close these valves.

32. To satisfy the requirements of General Design Criterion 56 and to perform their function, these instrument lines have been designed to meet the requirements of Regulatory Guide 1.11 (Safety Guide 11).

These lines are Seismic Category I and terminate in instruments that are Seismic Category I. They are provided with manual isolation valves and excess flow check valves.