



Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

January 13, 1995

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

**SUBJECT: LaSalle County Nuclear Power 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**

Pursuant to 10 CFR 50.90, ComEd proposes to amend Appendix A, Technical Specifications, of Facility Operating Licenses NPF-11 and NPF-18. The proposed change will revise the pressure alarm setpoint allowable values for the Emergency Core Cooling system (ECCS) and Reactor Core Isolation Cooling (RCIC) system "keep filled" pressure instrumentation channels. The purpose of the proposed change is to lower the setpoint allowable values for these parameters to more realistic values. A study performed by engineering concluded that the existing setpoint allowable values are higher than needed for verifying that the systems are full of water. Previous High Pressure Core Spray (HPCS) modifications replaced the condensate storage tank (CST) with the suppression pool as the source of water for HPCS. Somewhat similar RCIC modifications were performed that allow either the CST or the suppression pool as a source of water for RCIC. The HPCS and RCIC system setpoint allowable values need to be lowered to reflect these changes. The setpoint allowable values for the other ECCS (Low Pressure Core Spray (LPCS) and Low Pressure Coolant Injection (LPCI)) "keep filled" channels are being lowered to optimal values. Also, the term "setpoint" is being changed to "setpoint allowable value" to clarify the use of the values. Additionally, two administrative/editorial changes are included.

The proposed amendment request is subdivided as follows:

1. Attachment A gives a description and safety analysis of the proposed changes.
2. Attachment B includes the proposed changes to the Technical Specifications pages for LaSalle Units 1 and 2.
3. Attachment C describes ComEd's evaluation performed in accordance with 10 CFR 50.92 (c), which confirms that no significant hazard consideration is involved.

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- 4. Attachment D provides an Environmental Assessment Applicability Review.
- 5. Attachment E is CECo NED Nuclear Design Information Transmittal (NDIT) No. EIC-93-011-2, dated 6/3/94, summary report of the calculations that determine the ECCS system "Keep Filled" Alarm Ideal Setpoint and Technical Specification Allowable Values.

This proposed amendment has been reviewed and approved by ComEd On-Site and Off-Site Review in accordance with ComEd procedures.

There are no specific schedule requirements associated with this amendment proposal. Therefore, ComEd requests that this amendment be approved by the NRC within six months, i.e., NRC approval is desired by August of 1995.

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

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

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



Very truly yours,

A handwritten signature in cursive script that reads "Gary G. Benes".

Gary G. Benes
Nuclear Licensing Administrator

Subscribed and Sworn to before me
on this 13 day of
January, 1995.

Notary Public

Attachments:

- A. Description and Safety Analysis of the Proposed Changes
- B. Marked-Up Technical Specification Pages
- C. Evaluation of Significant Hazards Considerations
- D. Environmental Assessment Applicability Review
- E. CECo NED Nuclear Design Information Transmittal (NDIT) No. EIC-93-011-2, dated 6/3/94, summary report of the calculations that determine the ECCS system "Keep Filled" Alarm Ideal Setpoint and Technical Specification Allowable Values.

cc: J. B. Martin, Regional Administrator - RIII
P. G. Brochman, Senior Resident Inspector - LSCS
W. D. Reckley, Project Manager - NRR
Office of Nuclear Facility Safety - IDNS

ATTACHMENT A
DESCRIPTION OF SAFETY ANALYSIS OF THE PROPOSED CHANGES

Description of the Proposed Change

This proposed change involves pressure instrument channel setpoint allowable value revisions on the safety systems designed to provide cooling water to the vessel in off-normal situations. These systems include part of the Emergency Core Cooling system (ECCS). They are the Low Pressure Coolant Injection (LPCI) sub-systems A, B, and C, the Low Pressure Core Spray (LPCS) system, and the High Pressure Core Spray (HPCS) system. These three systems will be referred to as the ECCS in this submittal. In addition, this proposed change involves the Reactor Core Isolation Cooling (RCIC) system which provides core cooling if the reactor becomes isolated from the main condenser and emergency core cooling is not needed.

The ECCS is divided up into three divisions. ECCS division 1 consists of the LPCS system and sub-system A of LPCI. ECCS division 2 consists of LPCI sub-systems B and C. ECCS division 3 consists of the HPCS system.

One of the design requirements for the ECCS and the RCIC System is that cooling water flow to the vessel be initiated rapidly when the system is called on to perform its function. The lag between the process demand and initiation of flow into the reactor vessel can be minimized by always keeping the pump discharge lines full of water. Also, keeping the discharge lines full helps prevent water hammer in the piping system.

To ensure the lines are kept full, a water leg pump is provided for each ECCS division and for the RCIC system (refer to figure 1 for a simplified diagram of a typical water leg system setup). Indication is provided in the main control room as to whether these water leg pumps are operating, and a pressure switch on discharge lines of the ECCS and RCIC pumps provides an alarm in the Control Room on low discharge line pressure. This pressure instrumentation on the discharge line that performs this function is referred to as the "keep filled" pressure channel.

The operability of the "keep filled" pressure channels are ensured by a monthly channel functional test and an 18 month channel calibration which includes a verification of the alarm setpoints. These alarm setpoints have been used as setpoint allowable values, since no separate allowable value is provided in Technical Specifications.

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The proposed change will revise the pressure alarm setpoint allowable values for the ECCS and RCIC System "keep filled" pressure instrumentation channels. The HPCS and RCIC System setpoint allowable values require revision to reflect changes to the suction pressure at the water leg pump resulting from a change in suction source. The setpoint allowable values for the other ECCS (LPCS and LPCI) "keep filled" channels are being optimized. The channels are the same on each unit. The proposed setpoint allowable values for the corresponding channels on each unit are the same. The setpoint allowable value used is the more conservative value calculated of the two respective channels analyzed. Also, the term "setpoint" is being changed to "setpoint allowable value" to clarify the use of the values.

In addition, there are two administrative/editorial changes as follows:

1. Footnote * on page 3/4 5-4 of Unit 1 Technical Specifications is being deleted, because it is no longer applicable.
2. Footnote # on page 3/4 7-7 of both Unit 1 and Unit 2 Technical Specifications is being deleted, because it is no longer applicable.

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DESCRIPTION OF SAFETY ANALYSIS OF THE PROPOSED CHANGES

Description of the Current Operating License/Technical Specification Requirement

The current technical specification requirements for the ECCS and RCIC discharge line "keep filled" alarm setpoint allowable values for both units and the associated instrument numbers are listed below:

SYSTEM/ SUBSYSTEM	INSTRUMENT NUMBER	CURRENT SETPOINT ALLOWABLE VALUE	TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENT
LPCS	1(2)E21-N005B	≥ 55 psig	4.5.1.c.2.a)1)(a)
LPCI A	1(2)E12-N512A	≥ 55 psig	4.5.1.c.2.a)1)(b)
LPCI B	1(2)E12-N512B	≥ 55 psig	4.5.1.c.2.a)1)(b)
LPCI C	1(2)E12-N512C	≥ 55 psig	4.5.1.c.2.a)1)(b)
HPCS	1(2)E22-N013	≥ 63 psig	4.5.1.c.2.a)2)
RCIC	1(2)E51-N034	≥ 62 psig	4.7.3.c.3

The instruments which monitor the LPCI and LPCS discharge lines and activate the low pressure alarms are Static-O-Ring model 4N6-B45-NX-C1A-JJTTX7 or X12 pressure switches. These switches have a calibration range of 4 to 75 psig and are currently calibrated at 58.5 psig, decreasing, every refueling outage. The instrument which monitors the HPCS discharge line and activates the low pressure alarm is a Barton model 288A indicating pressure switch. This switch has a calibration range of 0 to 100 psig and is currently calibrated at 68.25 psig, decreasing (includes 3.75 psig of head correction), every refueling outage.

The instrument which monitors the RCIC line and activates the low pressure alarm is a Robertshaw model SP-222-C09 indicating pressure switch. This switch has a calibration range of 0 to 100 psig and is currently calibrated at 63 psig, decreasing, every refueling outage.

These pressure switches only perform an alarm function to monitor readiness of the safety system; they do not perform a safety related prevention or mitigation function nor a post accident instrumentation function.

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Bases for the Current Requirement

The function of the ECCS and RCIC discharge line "keep-filled" pressure alarms is to alert the operator when the pump discharge line piping may not be full of water. While ECCS and RCIC will not be prevented from actuating, the presence of this alarm may indicate that the system is not operable since the pump discharge lines must be maintained full to prevent damage to piping due to a water hammer and to start cooling at the earliest moment. If a ECCS or RCIC discharge line "keep filled" alarm is activated, system operability is determined by performing Surveillance Requirement 4.5.1.a.1, venting at the high point vent to verify that the system discharge piping is full of water.

Based on a review of the General Electric (GE) Design Specification Data Sheets for these systems, though not explicit, it appears the basis for the existing setpoint allowable values was to detect degradation or failure of the water leg pumps and not the minimum pressure necessary to ensure a water solid condition. This resulted in the current setpoint allowable values conservatively being 10 to 15 psig higher than optimal.

Also, Surveillance Requirement 4.5.1.c.2 values for the high pressure, low pressure and header delta P alarms, and the Surveillance Requirement 4.7.3.c.3 value for the low pressure alarm, are listed as "setpoints" with no separate setpoint allowable value stated.

Description of the Need for Amending the Technical Specification

A revision to the HPCS discharge "keep filled" alarm setpoint allowable value is required, because modifications completed to the HPCS piping of each unit has lowered the normal pressure maintained by the water leg pump in the pump discharge line.

HPCS modifications removed the condensate storage tank (CST) as a source of water for HPCS. This was accomplished by isolating the HPCS system suction and return lines from and to the CST. Unit 1 and 2 Technical Specification amendments 81 and 65, respectively, approved changes required per the modifications. (Reference a)

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Prior to these modifications, the HPCS water leg pumps normally took suction from the CST. The water leg pumps now take suction from the suppression pool. Since the suppression pool is at a lower level than the CST, these modifications reduced the net positive suction head (NPSH) available to these pumps. Using the average developed head of the water leg pump and the minimum allowable water levels in the suppression pool and CST, calculations indicate that the normal pressure at the pressure switch dropped approximately 11 psig, from 78 to 67 psig, due to these modifications. Since the switch is calibrated to trip at 68.25 psig decreasing including head correction (the existing calibration value is ≥ 66.75 psig with head correction), the alarm is normally activated although the system is full of water.

The need for revising the RCIC discharge "keep filled" alarm setpoint allowable value is similar to that described for HPCS. However, instead of removing the CST as a source of water, RCIC modifications revised the RCIC piping of each unit to allow the water leg pump to take a suction from either the CST or the suppression pool. Previously, the water leg pump could only take a suction from the CST. When the water leg pump takes a suction from the CST, pressure in the line is sufficient to prevent inadvertent actuation of the alarm. If the suction is switched to the suppression pool, the pressure in the line drops due to the decrease in the NPSH available at the pump. Using the average developed head of the water leg pump and the minimum allowable CST and suppression pool water levels, calculations show that the normal pressure at the pressure switch will drop approximately 12 psig, from 73 to 61 psig, when suction is switched from the CST to the suppression pool. Since the switch is calibrated to trip at 63 psig decreasing (the existing setpoint allowable value is ≥ 62 psig), the alarm will normally be activated if the water leg pump is taking suction from the suppression pool although the system would be full of water.

An analysis of the RCIC and HPCS systems concluded that discharge line "keep filled" alarm setpoint allowable values were much higher than needed for verifying that the system is full of water. Instead of basing the setpoint allowable value on the head of water between the switch elevation and the high point vent in the system, the setpoint allowable value was based on detecting water leg pump degradation or failure. As indicated in the previous two paragraphs, the HPCS and RCIC discharge line "keep filled" alarm instrumentation channels were set to trip approximately 10 to 15 psig below normal pressure at the pressure switch.

Thus, the existing setpoint allowable values for these systems impose additional unnecessary burdens on operating because they are required by Technical Specifications to verify, by venting at the high point vent, that the system is full of water each shift.

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A similar analysis of the LPCS and LPCI systems also concluded that the discharge line "keep filled" alarm setpoint allowable values were much higher than required for verifying that the systems are full of water. Like HPCS and RCIC, the Technical Specification setpoint allowable values for these systems was based on detecting a water leg pump failure and are currently set to trip approximately 10 to 15 psig below normal pressure at the pressure switch.

The failure of a ECCS or RCIC discharge line fill system will not go undetected by the proposed change, since water leg pump trips are annunciated in the control room. In addition, Section XI IST quarterly surveillances are performed on these pumps to check for degradation.

Also, Surveillance Requirement 4.5.1.c.2 values for the high pressure, low pressure and header delta P alarms, and the Surveillance Requirement 4.7.3.c.3 value for the low pressure alarm, are listed as "setpoints" with no separate setpoint allowable value stated.

Description of the Amended Technical Specification Requirement

The proposed technical specification amendment decreases the setpoint allowable values for the ECCS and RCIC discharge line "keep filled" alarms. The proposed setpoint allowable values are based on the pressure head due to the height of water from the centerline of the pump discharge nozzles to the high point vents. The following table summarizes the proposed changes:

SYSTEM	INSTRUMENT EQUIPMENT PIECE NUMBER	PROPOSED SETPOINT ALLOWABLE VALUE	TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENT
LPCS	1(2)E21-N005B	≥ 45.5 psig	4.5.1.c.2.a)1)(a)
LPCI A	1(2)E12-N512A	≥ 41.0 psig	4.5.1.c.2.a)1)(b)
LPCI B	1(2)E12-N512B	≥ 38.5 psig	4.5.1.c.2.a)1)(c)
LPCI C	1(2)E12-N512C	≥ 45.0 psig	4.5.1.c.2.a)1)(d)
HPCS	1(2)E22-N013	≥ 42.5 psig	4.5.1.c.2.a)2)
RCIC	1(2)E51-N034	≥ 29.0 psig	4.7.3.c.3

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Since the proposed setpoint allowable values and calibration setpoints are within the calibration range of the existing pressure switches, no hardware changes are required. The only plant changes that will be required to implement the changes in setpoint allowable values will be to recalibrate the pressure switches to the new trip setpoints.

The function and configuration of the ECCS and RCIC discharge line "keep filled" alarm instrumentation channels are not being changed.

Also, Surveillance Requirement 4.5.1.c.2 values for the high pressure, low pressure and header delta P alarms, and the Surveillance Requirement 4.7.3.c.3 value for the low pressure alarm, are proposed to be changed from "setpoints" to "setpoint allowable values" to clarify the use of the values given.

In addition to the setpoint allowable value changes, the following administrative/ editorial changes are being made:

1. Footnote * is being deleted from Unit 1 Technical Specification Surveillance Requirement 4.5.1.c.
2. Footnote # is being deleted from Unit 1 and Unit 2 Technical Specification 3.7.3 Applicability statement.

Bases for the Amended Technical Specification Request

The proposed ECCS and RCIC discharge line "keep filled" alarm setpoint allowable values are based on the head of water between the centerline of the pump discharge nozzle and the associated system high point vent. The analytical limit, setpoint allowable value, and calibration setpoint for each instrument channel were calculated in accordance with Engineering and Construction Procedures TID-E/I&C-10, "Procedure for Analysis of Instrument Channel Setpoint Error and Instrument Loop Accuracy," and TAD-E/I&C-20, "Basis for Analysis of Instrument Channel Setpoint Error and Instrument Loop Accuracy." These procedures are based on NRC Regulatory Guide 1.105, Revision 2, ANSI/ISA Standard S67.04-1988, and ISA Recommended Practice update with published version P67.04, Part II. Attachment E is CECo NED Nuclear Design Information Transmittal (NDIT) No. EIC-93-011-2, dated 6/3/94, summary report of the calculations that determine the ECCS system "Keep Filled" Alarm Ideal Setpoint and Technical Specification Allowable Values.

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The analytical limit for each discharge line "keep filled" alarm instrument channel was first determined by calculating the pressure head at the switch due to the height of water between the switch and the system high point vent plus measurement error. Since water density varies with temperature, the maximum density of water, which occurs at 39.2°F (4°C), was used in calculating the pressure heads.

The calibration setpoint for each instrument loop was then determined by adding the total instrument error to the analytical limit, since the ECCS and RCIC discharge line "keep filled" alarm instrument channels trip on decreasing pressure. Instrument errors that were considered in this calculation include, in part, repeatability, calibration, temperature, and drift.

The next step consisted of determining the "calibration" allowable value which is the equivalent technical specification setpoint allowable value at the switch location for each of the ECCS and RCIC discharge line "keep filled" alarm instrumentation channel. This value was calculated by subtracting the calibration errors, errors that occur during normal operation, and drift from the calibration setpoint. Since the LaSalle technical specification setpoint allowable values do not normally include head correction, the pressure head due to the height of water between the centerline of the pump discharge nozzles and the switch mounting elevations was used to adjust the "calibration" allowable values to determine the technical specification setpoint allowable values. These head correction values only varied from 0.3 to 1.3 psig, since these switches are mounted within a few feet above the pump discharge centerline elevations.

The failure of a ECCS or RCIC discharge line fill system will not go undetected by the proposed change, since water leg pump trips are annunciated in the control room. In addition, Section XI IST quarterly surveillances are performed on these pumps to check for degradation.

Also, Surveillance Requirement 4.5.1.c.2 values for the high pressure, low pressure and header delta P alarms, and the Surveillance Requirement 4.7.3.c.3 value for the low pressure alarm, are listed as "setpoints" which can be confusing. The calibration setpoint of the associated instruments must be set conservative with respect to setpoints stated in Technical Specifications with no separate setpoint allowable value stated. Changing the term "setpoint" to "setpoint allowable value" provides the clarification needed for the use of the values given in the Surveillance Requirements.

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In addition to the setpoint allowable value changes, the following administrative/editorial changes are being made:

1. Surveillance Requirement 4.5.1.c footnote * only applied to LaSalle Unit 1 cycle 1. Therefore, this out-of-date information is being removed.
2. Footnote # modified the RCIC Limiting Condition for Operation Applicability statement for Special Test Exception 3.10.7. Specification 3/4.10.7 was deleted by LaSalle Unit 1 amendment 58 (Reference b) and LaSalle Unit 2 amendment 41 (Reference c). Therefore, footnote # is no longer applicable.

Schedule

There are no specific schedule requirements associated with this amendment proposal. Therefore, ComEd requests that this amendment be approved by the NRC within six months, i.e., NRC approval is desired by August of 1995.

References

- a. Letter from B. L. Siegel, NRR, to T. J. Kovach; Issuance of Amendments (TAC 77812 and 77813). Amendment Nos. 81 and 65 to Facility Operating License Nos. NPF-11 and NPF-18, for LaSalle County Station, Units 1 and 2, respectively.
- b. Letter from P. C. Shemanski, NRR, to H. E. Bliss; Issuance of Amendment (TAC 66969). Amendment No. 58 to Facility Operating License NPF-11, for LaSalle County Station, Units 1.
- c. Letter from P. C. Shemanski, NRR, to H. E. Bliss; Issuance of Amendment (TAC 69368). Amendment No. 41 to Facility Operating License NPF-18, for LaSalle County Station, Units 2.

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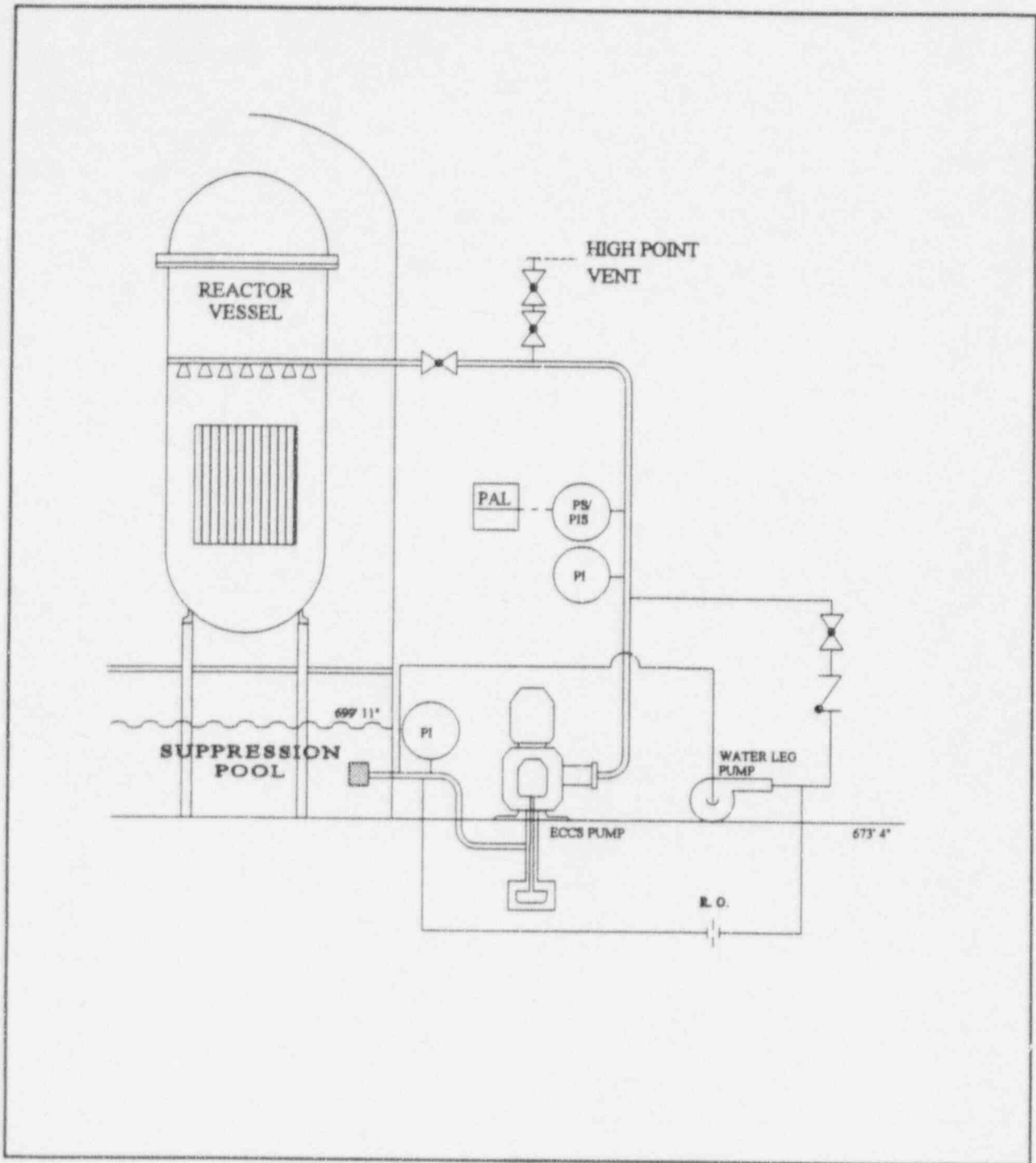


FIGURE 1
TYPICAL WATER LEG SYSTEM

**ATTACHMENT B
PROPOSED AMENDMENTS TO THE
LICENSE/TECHNICAL SPECIFICATIONS**

<u>NPF-11</u>	<u>NPF-18</u>
3/4 5-4	3/4 5-4*
3/4 5-5	3/4 5-5
INSERT A	INSERT A
3/4 7-7	3/4 7-7
3/4 7-8	3/4 7-8
B 3/4 5-1	B 3/4 5-1
INSERT B and C	INSERT B and C
B 3/4 5-2	B 3/4 5-2
INSERT D	INSERT D
B 3/4 7-1	B 3/4 7-1
INSERT E	INSERT E

* These pages do not have changes; they are included for information only.