



Commonwealth Edison

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

July 15, 1985

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: LaSalle County Station Units 1 and 2
Proposed Amendments to Technical
Specification for Facility Operating
License NPF-11 and NPF-18
Modification of ADS Logic
NRC Docket Nos. 50-373 and 50-374

- References (a): Unit 1 (NPF-11) License Condition 2.c.(30)(1)
(b): Unit 2 (NPF-18) License Condition 2.c.(18)(d)
(c): SER, SSER #1, SSER #3, and SSER #5 II.K.3.18
Modification of Automatic Depressurization
System Logic
(d): H. R. Pfeffer letter to T. E. Watts dated
September 29, 1983, ADS Logic - Technical
Specification Modifications and Timer Settings
(e): Modifications 1-1-84-3C and 1-2-84-69
(f): C. W. Schroeder letter to A. Schwencer dated
September 30, 1982 - Modification of Automatic
Depressurization System Logic
(g): C. W. Schroeder letter to H. R. Denton dated
July 1, 1983 - Modification of Automatic
Depressurization System Logic
(h): Original FSAR Appendix L.62.
(i): A. Schwencer letter to D. L. Farrar dated
April 11, 1983 - Modification of Automatic
Depressurization System Logic for LaSalle

8507240039 850715
PDR ADOCK 05000373
P PDR

Rec'd w/ check #150.00

Acc'd
3/39

July 15, 1985

- (j): UFSAR Section 15.6.4, Steam System Pipe Break Outside Containment
- (k): UFSAR Sections 6.3.3.7.8, 6.3.5.2 and 7.3.1.1.1.2
- (l): C. W. Schroeder letter to A. Schwencer dated March 9, 1982 - ADS Logic Modification and ATWS

Dear Mr. Denton:

Pursuant to 10 CFR 50.59, Commonwealth Edison proposes to amend Appendix A, Technical Specification, to Facility Operating License NPF-11 and NPF-18. These amendment changes are being submitted for your staff's review and approval in accordance with one of the conditions contained in the licenses.

Attachment A provides background and discussion. The proposed change is enclosed in Attachment B. The attached change has received both On-Site and Off-Site review and approval. We have reviewed this amendment request and find that no significant hazards consideration exists. Our review is documented in Attachment C. Attachment D is the circuit diagrams and Attachment E is a copy of Reference (d) above.

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

Since the logic required by these proposed changes is not yet installed for either unit, we request that these amendments become effective upon startup following the first refueling outage of each unit. This effective date is consistent with the referenced license condition.

Please note that your approval of this change is required prior to the installation of these modifications. In accordance with the requirements of 10 CFR 50.170, a fee remittance in the amount of \$150.00 is enclosed.

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

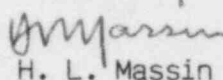
H. R. Denton

- 3 -

July 15, 1985

Three (3) signed originals and thirty-seven (37) copies of this transmittal and its attachments are provided for your use.

Very truly yours,



H. L. Massin
Nuclear Licensing Administrator

lm

Attachments A: Background and Discussion
B: Technical Specification Change to NPF-11 and NPF-18
C: Evaluation of Significant Hazards Consideration
D. Circuit Diagrams
E. Reference (d)

cc: Region III Inspector - LSCS
A. Bournia - NRR
G. Wright - State of Ill

SUBSCRIBED AND SWORN to
before me this _____ day
of _____, 1985

Notary Public

0329K

ATTACHMENT A

TECHNICAL SPECIFICATION CHANGE REQUEST

LASALLE COUNTY STATION UNITS 1 and 2

SUBJECT: Modification of the Automatic Depressurization System Logic

BACKGROUND: The automatic depressurization system (ADS), through seven safety/relief valves, functions as a backup to the operation of the high pressure coolant systems (feedwater, high pressure core spray (HPCS), reactor core isolation cooling (RCIC)) for protection against excessive fuel cladding heatup upon loss of coolant, over a range of steam or liquid line breaks inside the drywell. The ADS depressurizes the reactor vessel, allowing the operation of the low pressure coolant systems (condensate, low pressure core spray (LPCS), low pressure coolant injection (LPCI)). The present ADS design is activated automatically upon coincident signals of low reactor water level, high drywell pressure and low pressure ECCS pumps running. A time delay of approximately 2 minutes after receipt of these signals allows time for the water level to be restored by the high pressure coolant systems prior to automatic blowdown (reference (k)).

For transient events which do not directly produce a high drywell pressure signal and are further degraded by a loss of all high pressure coolant systems, adequate core cooling is assured by manual depressurization of the reactor vessel. The intent of NUREG 0737 item II.K.3.18 is to provide additional assurance of adequate core cooling for these additional events.

Commonwealth Edison participated with the BWR Owners' Group to evaluate possible ADS logic modifications. The results of these evaluations are documented in references (c) and (h). The first submittal was based on a BWR Owner's Group study which concluded that the intent of II.K.3.18 may be satisfied two ways: the ADS logic may be modified to automate depressurization for specific transients not producing a high drywell pressure signal, or the operator may be given specific guidance and training for performing manual actions under degraded conditions. LaSalle procedures developed from generic Emergency Procedure Guidelines provide the above mentioned guidance.

The second submittal (reference (1)) addressed the relationship of ADS logic modifications to transient events and specifically reserved Commonwealth Edison's judgment on ATWS recovery as differing from that discussed by the BWR Owners' Group and the reactor vendor. The third submittal (reference (f)) met the requirements of the Unit 1 license condition (reference (a)) part 2.C.30.(1)(a) which required evaluation of the alternative design modifications as proposed by the BWR Owners' Group. In this submittal, Commonwealth Edison committed to modify the ADS logic to bypass the high drywell pressure trip after a sustained low water level (level 1) signal and to add a manual bypass switch which could be used to inhibit the automatic depressurization system action if required.

Reference (i) provided the NRC finding that the proposed modifications were acceptable, provided the following:

- 1) Approval of the detail logic implementation.
- 2) A plant specific analysis must be provided to justify the bypass timer setting.
- 3) Technical Specifications must be provided for the bypass timer and manual inhibit switch.
- 4) The use of the inhibit switch must be addressed in the plant emergency procedures.
- 5) Installation on Unit 1 and Unit 2 must be completed prior to startup following the first refueling outage for each unit.

Reference (g) was submitted to provide information addressing item 1 above. The present submittal provides the information needed to address items 2 and 3 above. This submittal also will meet the requirements of reference (b) item (i) which required submittal of final circuit diagrams and an analysis of the bypass timer time delays prior to installation and provides proposed Technical Specifications (Attachment B) to meet item (iii) of reference (b).

DISCUSSION

Basis for the ADS timer setting.

The maximum and minimum settings for the ADS logic drywell pressure bypass timer (DPBT) are determined based upon minimizing the operator actions related to the ADS logic, minimizing the chance for unintentional ADS, and limiting the impact on the design basis ECCS analyses.

The maximum setting is based upon the UFSAR calculation of the design basis main steam line break outside primary containment. For this event, the HPCS is assumed to be unavailable (single worst failure) and the manual ADS is currently modeled at ten minutes after the event begins (reference (j)). Since this ADS logic modification further delays the ADS initiation for events where high drywell pressure does not occur, due to the 10 minutes required to bypass the high drywell pressure signal after the RPV level reaches level 1, a revised calculation was performed. The design goal of this calculation was to limit the PCT to approximately 1500°F so that this event doesn't become the limiting design basis accident (DBA) replacing the large LOCA. The analytical time setting for the DPBT acknowledges the standard ADS initiation delay of 120 seconds in addition to the DPBT along with this PCT analytical limit of 1500°F.

The minimum DPBT setting acknowledges that the operator should not be unduly burdened by having to repeatedly reset the ADS logic initiation delay during an event with sustained high drywell pressure. The time delay should be long enough to enable the operator to stabilize RPV water level near the top of the active fuel before he manually inhibits ADS with the inhibit switch that is also a part of this logic modification. With this approach, the operator has the option during the DPBT time interval of deciding to either manually inhibit ADS or prepare for RPV depressurization, depending upon whether the RPV water level is stabilized or whether it is decreasing, respectively.

Several assumptions were necessary with respect to operator actions and responses in establishing the minimum time delay value:

1. Given an ATWS event from full power with MSIV closure (currently at Level 2 but with ATWS-2A fix it is lowered to level 1), the water level would drop to just above the RPV level 1 setpoint and then increase due to HPCS initiation at level 2. Operator action is not expected until RPV water level is observed to be increasing. If the level has dropped below level 1, the operator is expected to allow the level to increase above level 1 before manually controlling level back to the normal range. This would allow DPBT to reset. Specific plant procedures on ADS will incorporate appropriate actions following the installation of the ADS logic modification.
2. Given a genuine ATWS event where MSIV closure occurs, the DPBT will start when water level decreases to level 1. Water level is manually controlled with HPCS per the Emergency Operating Procedures. A five minute interval is assumed adequately long for the operator to stabilize the RPV level using the Emergency Operating Procedures.

3. Events, other than ATWS, having a persistent high drywell pressure, are less time constraining for operator response than is the ATWS event described in 2 above, hence also fall within the five minute stabilization interval for level control.

The analytical limit for the maximum DPBT timer setting is set at 10 minutes (plus the existing 2 minute ADS initiation delay). Analysis provided in reference (d) resulted in a nominal Technical Specification setting of 9 minutes with an allowable setting of 9.5 minutes. These nominal trip setpoints and allowable values are derived after taking setpoint drift, accuracy and calibration precision into account. (5% setpoint accuracy, 0.1 minute calibration error and 0.5 minute drift is assumed based on manufacturer information.)

The proposed modification provides a bypass timer (9 minutes) which initiates at reactor vessel level 1. An alarm indicates when this bypass timer has started. After the set time delay the high drywell pressure permissive is bypassed and the existing 105 second timer initiates. Another alarm indicates that this timer has started. After this time delay, as before, the ADS solenoids are energized provided that at least one low pressure pump in that division is operating (discharge pressure above normal standby). This will further automate the ADS system by providing automatic ADS initiation, if required, for events such as a break external to the drywell or a stuck-open SRV. The bypass timers automatically reset when the low water level signal clears or the reset button is depressed. In addition, a manual inhibit switch is also included to allow the operator to inhibit ADS operation without repeatedly pressing the reset pushbutton. An indicating light and an annunciator alert the operator of the inhibit condition. The pressure relief function and the manual ADS or individual SRV control is not effected by this manual inhibit switch. This modification also allows the operator to manually initiate ADS without the low pressure ECCS pumps in that division operating. This provides additional flexibility in the use of the Emergency Operating Procedures (EOP) where the operator, for example, is instructed to perform an "emergency depressurization" to prevent containment damage. Although individual SRV control is available, the current logic requires at least one ECCS pump to be operating in the same division to permit manual initiation of the ADS system via the manual initiation pushbuttons. The proposed modification will facilitate implementation of the EOPs.

The seal-in feature has also been revised such that the seal-in occurs only if the final relays which energize the ADS solenoids are actually energized. This eliminates the possibility of inadvertent depressurization of the RPV if a low pressure ECCS pump is started and a previous seal-in has not been reset. Modifications 1-1-84-36 (Unit 1) and 1-2-84-69 (Unit 2) will be installed prior to startup after the first refueling outage in each unit as required by item 5 above and reference (b) item (i).

Revisions to procedures, including the EOPs, and the updated FSAR (reference (k)) will be controlled as part of the modification process.

A revision to Action 34 of Technical Specification Table 3.3.3-1 is also included in this request. This revision changes the word "valve" to "trip system". Since this specification is concerned with the instrumentation which actuates the ADS system and not the ADS valves themselves, action C of specification 3.3.3 applies. This change is required to make these actions consistent. Technical Specification 3.5.1 applies if an ADS valve(s) is inoperable. To clarify the distinction between ADS valve and ADS trip system footnote** has been added to specification 3.5.1 to refer the Technical Specification user to Specification 3.3.3 if an ADS trip system is inoperable. If an ADS valve is operable but an ADS trip system is inoperable, the ADS valves required for specification 3.5.1 are operable and the action of specification 3.3.3 applies. This change does not effect the intent of the present specifications.

This Technical Specification amendment must not be made effective until each unit's first refueling outage since operation with the present ADS design is not possible under the revised Technical Specification. Revised Technical Specification pages are provided as Attachment B. These pages reflect the requirements and setpoints as described herein.

However, approval of the ADS logic change is required prior to the installation of these modifications. This approval must be provided by NRR before each units refueling outage to prevent possible delay in installation of these modifications.