



**Commonwealth Edison**  
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 Address Reply to: Post Office Box 767  
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September 7, 1983

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  
 Degraded Voltage Modification  
 Unit 1 Operating License Condition 2.C.20  
NRC Docket Nos. 50-373 and 50-374

References (a): NUREG 0519, LaSalle County Station  
 SER Section 8.2.2.2.

(b): FSAR Section 8.2.3.3.

(c): NRC License NPF-11, Condition 2.C.20.

Dear Mr. Denton:

References (a) and (b) require us to add a second level of undervoltage protection to the 4160 volt ESF buses. After we carefully reviewed the design that we issued for construction against the requirements of SER section 8.2.2.2, we determined that the design for ESF Div. I and II may not meet position 2 which requires that load shedding of the emergency buses be automatically prevented when the onsite power sources (diesel generators) are supplying power to the buses. The preliminary design that we submitted to the NRC on February 20, 1981, did comply with this requirement because it provided automatic bypass of both the first and second levels of undervoltage protection (see page 8-6 of the SER). However, the present design does not provide automatic bypass of the first level of the undervoltage protection which initiates load shedding. Our interpretation of this requirement is that it only applies to the second level of undervoltage protection. Therefore, we would like to clarify this item with the NRC and request your concurrence with the design.

Enclosed please find the Unit 1 and 2 electrical schematic drawings affected by this design change. A list of the attached drawings is provided in Attachment A.

In the preliminary design both levels of undervoltage protection initiated the same action. The present design separates the functions of each undervoltage system. When the bus voltage drops below 92% of rated, the second level will trip the system auxiliary transformer (SAT), unit tie, and bus tie circuit breakers to isolate the bus, start the diesel generator, and prevent the ECCS pumps (LPCS and RHR) from starting. When

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the bus voltage drops below 60% of rated which occurs rapidly after the bus is isolated, the first level will initiate load shedding and allow the diesel generator output breaker to close. After the bus voltage returns to normal, both undervoltage protection systems deactivate and the emergency loads are allowed to start. The second level cannot reactivate until a SAT, unit tie, or bus tie breaker is closed.

Although load shedding can occur while the diesel generator is supplying power to the bus, loads will not be shed needlessly. As explained in the previous paragraph, only the first level of undervoltage protection can initiate load shedding, and the bus voltage must drop to about 60% of rated to activate it. At this voltage level the ECCS pump motors can only develop enough torque to drive the pumps at about 70% of rated speed, and the motor currents will increase by about 270%. If the overcurrent protective relays fail to trip the circuit breakers, the motors and generator will overheat and fail. Therefore, retaining the load shed feature increases the level of safety by preventing needless damage or trips and allowing the ECCS pumps to be available.

To the best of my knowledge and belief the statements contained herein and in the attachment 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.

Enclosed please find one signed original and forty (40) copies of this letter and five copies of the electrical schematic drawings.

If there are any further questions in this matter, please contact this office.

Very truly yours,

*P. H. Barnes for*

C. W. Schroeder  
Nuclear Licensing Administrator

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cc: NRC Resident Inspector - LSCS

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ATTACHMENT A

List of Attached Drawings

<u>Unit 1</u> <u>Drawing</u>	<u>Rev.</u>	<u>Unit 2</u> <u>Drawing</u>	<u>Rev.</u>
1E-0-4412AA	P1	1E-0-4412AB	P1
1E-1-4000B	H1	1E-2-4000B	G1
1E-1-4000PG	H2	1E-2-4000PG	G2
1E-1-4000PJ	H2	1E-2-4000PJ	G2
1E-1-4000PK	G2	1E-2-4000PK	C
1E-1-4005AJ	K2	1E-2-4005AJ	G2
1E-1-4005AK	J2	1E-2-4005AK	G2
1E-1-4005AL	F2	1E-2-4005AL	F2
1E-1-4005AM	J2	1E-2-4005AM	H
1E-1-4005AQ	G2	1E-2-4005AQ	G2
1E-1-4005AR	H2	1E-2-4005AR	G2
1E-1-4005AS	F2	1E-2-4005AS	E2
1E-1-4005AT	J2	1E-2-4005AT	H
1E-1-4005CS	E2	1E-2-4005CS	E2
1E-1-4005CT	E2	1E-2-4009AA	L1
1E-1-4009AA	R1	1E-2-4205AH	B1
1E-1-4205AH	B1	1E-2-4220AH	N
1E-1-4220AH	R2	1E-2-4220AK	J
1E-1-4220AK	S2	1E-2-4222AB	L
1E-1-4222AB	M1	1E-2-4223AA	M
1E-1-4223AA	J3	1E-2-4223AB	K
1E-1-4223AB	R2	1E-2-4223AC	L
1E-1-4223AC	N2		