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

November 28, 1979

Mr. James G. Keppler, Director
Directorate of Inspection and
Enforcement - Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: LaSalle County Station Units 1 and 2
Vent Stack - 10 CFR 50.55(e)
Supplemental Report
NRC Docket Nos. 50-373/374

Reference (a): G. Fiorelli letter to C. Reed dated
October 24, 1979

Dear Mr. Keppler:

Enclosed is the response to the request for additional information (Reference (a)) regarding the subject LaSalle County vent stack.

If you have any additional questions on this matter, please direct them to this office.

Very truly yours,

L. O. DelGeorge
Nuclear Licensing Administrator
LaSalle County Station

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cc: Director of Inspection & Enforcement

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ENCLOSURE

Response to NRC Concerns Regarding the
Defects in the LaSalle Ventilation Stack

1. As discussed in Sargent & Lundy's Report No. SAD-337, the effects of cracks and linear indications detected in the LaSalle Unit 1 & 2 stack ring girder have been carefully evaluated. The major confirmed crack in the southeast quadrant has been ground out. The other anomalies are linear indications detected by ultrasonic testing. These cracks or linear indications are the results of plate lamination and weld metal shrinkage. Such cracks or indications can only be initiated by the localized strains produced by weld metal shrinkage, which are many times higher than the yield strain of steel or strains due to design loads. The AISC Commentary on highly-restrained welded connections states that there are no known cases of lamellar tears (i.e., the indications referred to above) being initiated or propagated by design loads.

   In the calculation of stresses due to the design wind load, S&L has made further conservative assumptions by considering a large portion of the girder-to-stack shell joints ineffective or partially effective, to take into account the presence of discontinuities. Even with such a conservative assumption, analysis shows that the stresses under the 90 mph wind load are substantially below the code permissible stress. Considering the nature of the cracks and linear indications and the very low stresses under the design wind load, it is concluded that further initiation or propagation of cracks is not probable.

2. To further insure the safety of the structure, a weekly inspection program was initiated by Commonwealth Edison personnel at the LaSalle Station in May 1979. Inspection results have not shown any new cracks or propagation of old cracks. During the proposed repair, precautions will be taken to preclude or mitigate any deterioriation of the known cracking and other anomalies. As shown in S&L's Drawing No. S-1132, the stack and ring girder will be reinforced by adding stiffeners prior to any repair work. As such, the stack will always have capability to withstand 90 mph winds at any stage of repair. In addition, inspection of cracking will be made on a daily basis on days during which weiding or grinding of the stack is being conducted to insure the structural integrity of the stack during the course of the repair.

3. As discussed in Item 1, the stack in its present condition is capable of withstanding the effects of the 90 mph design wind. The only loading that can cause stack failure is the tornado wind. The stack repair is scheduled to begin in January, 1980 and is expected to be completed in April, 1980. The probability of a tornado striking and collapsing the stack in the area of the fuel storage vaults during this period is estimated to be 2×10^{-5}. This probability takes into account the occurrence of a tornado of 100 mph winds or greater in the

region of the station (which is 10^{-3}/yr/ square mile), the frequency of tornado occurrence during the period from December, 1979 through April, 1980 (0.34), the expected tornado damage area (0.2 square miles), and the probability of the stack falling into the fuel storage area (0.3). Because of this very low probability, we believe that the risk of damage to the new fuel in the event of stack failure is very remote. Given this insignificant risk probability, and considering the alternative temporary storage facilities available for the new fuel assemblies, transfer of this fuel from its current location is not prudent. Moreover, the additional handling involved with moving the fuel to and returning it from an alternate facility also presents risks of damage which are not justified given the remote probability of a tornado with stack damage in the period preceeding the completion of the repair.