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April 27, 1984

Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Limerick Generating Station, Units 1&2 Response to Procedures and System Review Branch Question

References: 1) S. L. Daltroff to A. Schwencer letter dated 1/19/84.
2) NRC and PECO telecon dated 2/24/84.

File: GOVT 1-1 (NRC)

Dear Mr. Schwencer:

As a result of the review of the information submitted with reference 1, the staff requested additional information in reference 2.

In response to this request, enclosed is the Summary Description of LGS Calculation No. 8031-1401, describing the resultant primary containment pressure effects due to inadvertent actuation of drywell sprays.

Sincerely,

John S. Kemper

RJS/gra/042484315

cc: See Attached Service List

B001
1/1

cc: Judge Lawrence Brenner	(w/enclosure)
Judge Richard F. Cole	(w/enclosure)
Troy B. Conner, Jr., Esq.	(w/enclosure)
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Atomic Safety & Licensing Appeal Board	(w/enclosure)
Atomic Safety & Licensing Board Panel	(w/enclosure)
Docket & Service Section	(w/enclosure)
Martha W. Bush, Esq.	(w/enclosure)
Mr. James Wiggins	(w/enclosure)
Mr. Timothy R. S. Campbell	(w/enclosure)
Ms. Phyllis Zitzer	(w/enclosure)

SUMMARY DESCRIPTION OF
LGS
CALCULATION NO. 8031-1401
(USED IN DEVELOPMENT OF EPG CALC #9)

Bechtel Calculation No. 8031-1401 was performed to determine the negative containment pressures resulting from actuation of the drywell sprays. FSAR Section 6.2.1.1.4 provides a description of this analysis and the results for the design basis case. This document summarizes the portion of Calculation No. 8031-1401 which considers another case that assumes a small break LOCA occurs during drywell purging and determines the resultant negative containment pressure due to actuation of the drywell sprays.

A small pipe break pressurizes the drywell at a slower rate than a large pipe break and this results in the purge valves staying open longer before they isolate due to high drywell pressure. This process allows more non-condensables to be purged from primary containment. The drywell will continue to be pressurized by the break after isolation and the remaining non-condensables are driven into the wetwell via the downcomers. The consequence of having less non-condensables in the wetwell is that the rate of pressure decrease in the drywell will be more rapid due to the reduced flow rate of non-condensables from the wetwell to the drywell via the vacuum breakers. Since there are less non-condensables available to the drywell, the final pressure in the drywell will be less than the final pressure in the aforementioned design basis case. Except for the portion of the calculation which determined the amount of non-condensables removed from primary containment, the methodology and assumptions used for this case are identical to the case described in the FSAR.

The drywell pressure transient and drywell purge valve flow characteristics and closure times were modeled to calculate the amount of non-condensables removed from primary containment. Since it was uncertain which size break would cause the greatest amount of non-condensables to be purged from primary containment, a spectrum of break sizes was postulated. From the results of all the cases run, 22,090 lbm was the least amount of non-condensables calculated to remain inside the primary containment following isolation. This mass is the amount of non-condensables in the suppression pool air space following the purge of drywell non-consensables to the wetwell, via the downcomers, due to drywell pressurization. Following initiation of the drywell sprays, a resultant negative pressure of -4.686 psig was calculated for this case, which is within the design pressure of -5 psig, even though this is not considered a design basis case.

This calculation is preliminary, since the data used for the suppression chamber to drywell vacuum breaker characteristics was based on preliminary test results. The calculation is currently being revised to incorporate recent vacuum breaker performance test data. The resultant negative pressure is not expected to exceed the design limit.