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July 22, 1983

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 and 2
Containment Systems Branch Open Item

Reference: Telecon between Philadelphia Electric Company and Containment Systems Branch on July 18, 1983

File: GOVT 1-1 (FSAR)

The attached draft page FSAR change to FSAR Section 6.2.4.3.1.3.2.3 is being made as a result of the referenced telecon.

The information contained on this draft FSAR page change will be incorporated into the FSAR, exactly as it appears on the attachments, in the revision scheduled for August, 1983.

Sincerely,

Eugene J. Bradley

JTR/gra/46

Attachment

Copy to: See Attached Service List

B001
1/1

cc: Judge Lawrence Brenner (w/o enclosure)
Judge Richard F. Cole (w/o enclosure)
Judge Peter A. Morris (w/o enclosure)
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Each gas sample line is provided with two solenoid valves in series, for containment isolation. The isolation signals to these valves may be overriden by using keylocked bypass switches.

Containment Hydrogen Recombiner Packages

In the event of a LOCA, hydrogen and oxygen may be generated inside the primary containment. To control the buildup of oxygen and prevent a combustible concentration from occurring, redundant containment hydrogen recombiners are provided, as described in Section 6.2.5. The process gas supply and return lines for the recombiner packages connect to the high-volume purge lines, inboard of the latter's containment isolation valves. The supply and return lines are each provided with a normally-closed, motor-operated butterfly valve for containment isolation. These valves may be operated from the control room during normal plant operation, and they automatically close upon receipt of a containment isolation signal. For operation of the recombiners after a LOCA, the isolation signals to these valves are overridden by using keylocked bypass switches. The portions of the recombiner system that would be exposed to the post-LOCA containment atmosphere have been designed to the same pressures and temperatures as the containment. Containment isolation is discussed further in Section 6.2.4.

Post-LOCA Purge

As a backup to the redundant oxygen recombiners, post-LOCA oxygen concentration can be controlled by purging the containment atmosphere. The post-LOCA purge is accomplished by the same method described above for the low-volume purge. Under post-LOCA conditions, however, the gases exhausted from the containment are processed through the RERS and the SGTS (both are described in Section 6.5.1) prior to release to the environment. The isolation signals to the containment isolation valves on the low-volume purge lines may be overridden by using keylocked bypass switches. Containment isolation is discussed further in Section 6.2.4.

Primary Containment Vacuum Relief Valve Assemblies

In order to limit the degree to which suppression chamber pressure can exceed drywell pressure, four primary containment vacuum relief valve assemblies are provided. The assemblies are located in the suppression chamber, each assembly being mounted on the side of a downcomer. Each assembly consists of two 24-inch (nominal diameter) vacuum relief valves mounted in series. When the suppression chamber pressure exceeds the drywell pressure by a specified amount, the vacuum relief valves open automatically, allowing gases from the suppression chamber to enter the downcomer and flow upward into the drywell, thereby equalizing pressure above and below the diaphragm slab.

d. Outboard suppression pool sample and return isolation valves SV-184, SV-185, SV-186, SV-190, and SV-195 are ganged on HS-187.

6.2.4.3.1.3.2.2 Drywell Equipment and Floor Drain Lines

The drywell equipment and floor drain lines are provided with two normally closed air-operated spring-closed valves located outside the primary containment. The inner valve is located directly on the containment. Both valves are automatically closed upon receipt of a containment isolation signal.

6.2.4.3.1.3.2.3 Containment Purge and Hydrogen Recombiner Lines

The high-volume purge lines for the drywell and suppression chamber are each provided with two isolation valves located outside the primary containment. The inboard valve in each line is a normally-closed, air-operated butterfly valve located as close as practical to the primary containment penetration. The outboard valve in each line is a normally-closed, motor-operated butterfly valve.

A description of the type and the arrangement of containment isolation valves used in the low-volume purge exhaust lines is provided in Section 9.4.5.1.2. - Insert B

Insert A

The high-volume purge lines are provided with debris screens located at the point where each purge line terminates inside the primary containment. The debris screens are designated as seismic Category I and are designed to withstand the maximum differential pressure across the screen that could result from a LOCA.

6.2.4.3.1.3.2.4 RCIC and HPCI Turbine Exhaust Vacuum Breaker Lines

These lines are provided with two normally open motor-operated remote manually actuated gate valves. The valves are automatically closed on receipt of an RCIC or HPCI isolation signal.

DRAFT

Insert A

The hydrogen recombiner lines connect to the high-volume purge lines between the containment penetration and the inboard isolation valve in the latter lines. Each of the recombiner lines is provided with a normally-closed, motor-operated butterfly valve that can be manually actuated from the control room. These isolation valves each receive automatic isolation signals. For operation of the recombiners after a LOCA, the isolation signals to these valves are over-ridden by using keylocked bypass switches.

The engineered safety feature recombiner system (Section 6.2.5) constitutes a closed system outside containment which is employed as a second containment isolation barrier. The use of single isolation valves on the recombiner supply and return lines ensures maximum system reliability (ie- the use of additional isolation valves would decrese system reliability). The containment isolation provisions for the recombiner lines meet all of the relevant design criteria in Regulatory Guide 1.141, ANSI Standard N-271 and Standard Review Plan 6.2.4, as described below:

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- The closed system does not communicate with either the secondary containment atmosphere or the environment.

- The closed system has been designed, fabricated, and installed in accordance with ASME Section III Class 2 requirements.

- The closed system has a design temperature and pressure at least equal to the containment design conditions.

- The closed system is designed as seismic Category I

- The system is designed to withstand the loads and environmental conditions accompanying a loss of coolant accident

- High energy and moderate energy pipe break effects will not affect hydrogen recombiner system continuity when the closed system is needed for containment isolation (see Section 3.6.2)

DRAFT

- The recombiner system is designed to be leak tight and will be periodically leak tested at the containment peak accident pressure.

- Any leakage from the system will be confined within the the secondary containment and will be diluted and filtered prior to release

- The closed system is protected from missiles (see Section 3.5)

Insert B

Each of these valves receive automatic isolation signals.