UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

March 10, 1980

Docket No. 50-334

Duquesne Light Company
ATTN: Mr. C. N. Dunn
Vice President
Operations Division
435 Sixth Avenue
Pittsburgh, Pennsylvania 15219

Gentlemen:

The enclosed IE Bulletin No. 80-05, "Vacuum Condition Resulting in Damage to Chemical Volume Control System (CVCS) Holdup Tanks," is forwarded to you for action. A written response is required. If you desire additional information regarding this matter, please contact this office.

Sincerely,

James M. Allan

Boyce H. Grier
Director

Enclosures:
1. IE Bulletin No. 80-05
2. List of Recently Issued IE Bulletins

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cc w/encls:
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ENCLOSURE 1

SSINS No.: 6820
Accession No.:
7912190687

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

IE Bulletin No. 80-05
Date: March 10, 1980

VACUUM CONDITION RESULTING IN DAMAGE TO CHEMICAL VOLUME CONTROL SYSTEM (CVCS) HOLDUP TANKS (SOMETIMES CALLED "CLEAN WASTE RECEIVER TANKS")

In July 1977, IE Circular No. 77-10 identified two instances which resulted in radioactive gaseous releases when tanks at Trojan and Rancho Seco buckled due to partial vacuum conditions. The Circular "recommended that you examine the systems of your reactor facility(ies) that contain low pressure process or holdup tanks and assure that adequate measures have been taken to protect against vacuum conditions that could result in tank inward buckling and failure with subsequent release of radioactive material or cause other detrimental effects with regard to overall safety of plant operations." Despite issuance of the Circular, similar events have subsequently occurred at Turkey Point 3 (LER's 78-17, 79-8, and 79-25) and Salem 1 (LER's 79-67 and 79-76).

The accident at TMI has re-emphasized the importance of protecting against unexpected radioactive release paths during abnormal conditions. The CVCS Holdup Tanks (HUT) represent such a path since normal letdown flow is directed into the CVCS which could add radioactive water to the HUT during abnormal conditions if fuel failures are present. It is also possible for the same "abnormal conditions" to cause HUT damage, since there is a greater probability of operational errors resulting from the combination of manual and automatic maneuvers made to respond to the abnormal condition. These errors could cause a partial vacuum to be drawn in the HUT, causing tank rupture and a release path that bypasses the normally present reactor vessel and containment barriers to such releases.

We note that both Turkey Point and Salem have elected to install vacuum breakers in their CVCS-HUTS. As specified by the required Actions below, you should consider installing vacuum protection in your plants, appropriately designed to preclude collapse of the tanks. Any proposed or already installed vacuum protection system must consider the necessity for precluding adverse effects due to operation or misoperation of the system (for example, creation of an explosive gas mixture if hydrogen gas is present in the HUT). Any proposed or already installed system must also include consideration of the following: (a) tanks with a cover gas must be able to admit the cover gas fast enough to keep up with the maximum rate of liquid removal from the tank; (b) vacuum relief valves must be covered by an acceptable surveillance program; (c) tanks that are located outside must have adequate freeze protection for the tank and for the vacuum relief system.

Actions to be taken by all PWR licensees and permit holders:

1. Review the design of all systems that contain low pressure or holdup tanks that can be valved to contain primary system water. Assure that adequate measures have been taken to protect against vacuum conditions that could result in tank damage with the potential for release of radioactive material or detrimental effects with regard to overall safety of plant operations.

2. Provide a listing of those systems reviewed in Item 1. Describe any measures that already exist for those systems to protect against vacuum conditions, and either: (1) explain why those measures are adequate in light of the events referenced above, or (2) identify corrective actions taken or planned to provide acceptable protection, and provide a schedule for any planned corrective actions.

Licensees of all operating power reactor facilities shall submit the information requested within 90 days of the date of this letter. Include in your response to this Bulletin, (a) your schedule for correcting these items, (b) if reactor operation is to continue prior to correcting identified deficiencies, include your justification for continued operation. Licensees with a construction permit shall also submit the design information requested within 90 days of the date of this letter.

Reports shall be submitted to the Director of the appropriate NRC Regional Office and a copy forwarded to the Director, NRC Office of Inspection and Enforcement, Washington, D.C. 20555.

Approved by GAO, B180225 (R0072): clearance expires 7-31-80. Approval was given under a blanket clearance specifically for identified generic problems.

ENCLOSURE 2

IE Bulletin No. 80-05
Date: March 10, 1980

RECENTLY ISSUED IE BULLETINS

Bulletin No.	Subject	Date Issued	Issued To
79-26	Boron Loss From BWR Control Blades	11/20/79	All BWR Power Reactor Facilities with an Operating License (OL)
79-27	Loss of Non-Class-1-E Instrumentation and Control Power System Bus During Operation	11/30/79	All Power Reactor Facilities with an OL and those nearing Licensing (for Action) All Power Reactor Facilities with a Construction Permit (CP) (for Information).
79-28	Possible Malfunction of NAMCO Model EA180 Limit Switches at Elevated Temperatures	12/7/79	All Power Reactor Facilities with an OL or CP
79-01B	Environmental Qualification of Class IE Equipment	1/14/80	All Power Reactors with an OL except SEP Plants
80-01	Operability of ADS Valve Pneumatic Supply	1/14/80	All BWRs with an OL
80-02	Inadequate Quality Assurance for Nuclear Supplied Equipment	1/21/80	All BWRs with an OL or CP
80-03	Loss of Charcoal From Standard Type II, 2 Inch, Tray Adsorber Cells	2/6/80	All Power Reactor Facilities with an OL or CP
80-04	Analysis of a PWR Main Steam Line Break with Continued Feedwater Addition	2/8/80	All Power Reactor Facilities with an (OL) or (CP)
79-01B	Environmental Qualification of Class IE Equipment	2/29/80	All Power Reactors with an OL except SEP Plants