



Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

August 20, 1993

Dr. Thomas E. Murley
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attn: Document Control Desk

Subject: Commonwealth Edison Company
10 CFR Part 21 Final Report (File 93-007)
Dresden/Quad Cities Station Emergency Operating Procedures
and Guidance Related to the Alignment of Post-LOCA
Decay Heat Removal Systems

Reference: (a) T.K. Schuster to T.E. Murley letter dated July 23, 1993

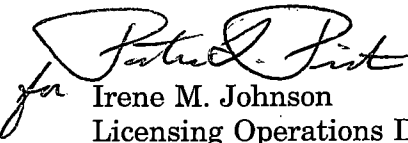
Dear Dr. Murley:

Attached to this letter is the final evaluation report on the concerns initiated by Commonwealth Edison Company (CECo) regarding the subject procedures and information provided by the Boiling Water Reactor Owners Group (BWROG) in Revision 4 of the BWROG Symptomatic Emergency Procedure Guidelines.

As stated in the Reference letter, CECo initially informed the NRC Staff that the ECCS may not be capable of achieving the required water level as specified in Dresden's Emergency Operating Procedures. CECo indicated in Reference (a) that review of this issue would be complete by August 22, 1993. After an extensive analysis, interviews with the users, and collective evaluation of the data, CECo has determined that the subject concern does not pose a substantial safety hazard nor is it a failure to comply with NRC regulations.

If there are any questions regarding this notification, please direct them to Luke Kim at (708) 663-7457.

Respectfully,


for Irene M. Johnson
Licensing Operations Director

Attachment: 10 CFR Part 21 Final Report

cc: J. Martin, Regional Administrator-RIII
J.E. Dyer, Directorate III-2 Director- NRR

k:mstrlet:10

9308260066 930820
PDR ADOCK 05000237
S PDR

IEP
11

**10 CFR Part 21 Final Evaluation Report
Dresden/Quad Cities Emergency Operating Procedures and Guidance
Related to the Alignment of Post-LOCA Decay Heat Removal Systems**

Applicability

This report is submitted in accordance with the requirements of 10 CFR Part 21, Section 21.21(a).

Identification of Facility and Component

Dresden Nuclear Generating Station Units 2 and 3
Quad Cities Nuclear Generating Station Units 1 and 2
Revision 4 of the BWROG Emergency Response Guidelines

Identification of Component Manufacturer/Supplier

General Electric Company
175 Curthner Avenue
M/C 171
San Jose, CA 95125

Nature of Defect

Various procedural inconsistencies and technical issues can result in the delay of alignment of the Containment Cooling Service Water (CCSW) heat exchanger for the Post-LOCA decay heat removal mode. These include the following:

- a. Depending on break size, location, and single failure assumption, ECCS systems may not be capable of establishing or maintaining vessel level above top of active fuel following a LOCA. This is due to the potential of water draining out of the break through the jet pumps. The top of the jet pump is below the top of active fuel.
- b. If the assumed single active failure is a diesel generator, then without offsite power it is not possible to align a CCSW pump without securing a LPCI pump. This limitation is based on the maximum diesel generator loading. The CCSW system must be initiated in order to establish long term decay heat removal.
- c. Generic Emergency Response Guidelines provided by General Electric in Revision 4 of the BWROG Symptomatic Emergency Procedure Guidelines (NEDO 31331) recommend that the LPCI pumps not be secured until vessel level reaches top of active fuel.

These conditions are internally inconsistent. The recommendations made in part c above could delay the alignment of post LOCA decay heat removal beyond the 10 minute period in the current licensing basis. This delay could challenge the peak suppression pool temperature analysis. Limiting post-LOCA suppression pool temperature ensures NPSH for the LPCI pumps, and maintains containment pressures low enough to allow the CCSW system to maintain a positive ΔP to the LPCI system in the LPCI heat exchanger, assuring that no leak path of radionuclides exists.

10 CFR Part 21 Final Evaluation Report
Dresden/Quad Cities Emergency Operating Procedures and Guidance
Related to the Alignment of Post-LOCA Decay Heat Removal Systems

Safety Significance

The safety significance of this issue is small. Analysis performed by CECo's Nuclear Fuel Services (NFS) Department and General Electric demonstrates that establishing CCSW later in the recovery process still results in acceptable NPSH conditions for the LPCI Pumps. Specifically, the analysis concludes the following:

- a. Top of active fuel level restoration will be possible for the majority of postulated break sizes and locations. Only recirc suction breaks of area approximately equal to or greater than the jet pump throat area will not be able to restore level.
- b. The procedural direction to initiate containment flooding has beneficial effects, but may not completely eliminate the need for prompt initiation of containment cooling, depending on the flooding rate achievable. The only negative consequences is the potential to introduce short delays in the initiation of containment cooling.
- c. Delays in initiation of containment flooding have been investigated and shown to be of small consequence. Operator procedures and training would assist the operator in recognizing and taking appropriate action in the event that suppression pool temperatures elevated to the point that NPSH limitations were in fact reached on the ECCS pumps.

ECCS acceptance criteria, specifically long term post-LOCA cooling, is still met after considering the delay of the initiation of CCSW. No other safety function is affected by this issue.

Time of Discovery

Commonwealth Edison Company first determined that the defect in the analysis could potentially adversely affect the licensing basis and that the defect could be reportable per 10 CFR 21 on January 12, 1993.

Number and Location of all Defective Components

The recommendations of Revision 4 of the BWROG Symptomatic Emergency Procedure Guidelines affect the Emergency Operation Procedures at Dresden Units 2 and 3 and Quad Cities Units 1 and 2. Commonwealth Edison has notified General Electric Company to determine whether other BWRs could be affected.

Corrective Actions:

Operations personnel have evaluated the potential defect, and made the appropriate changes to operator training to ensure that if core level cannot be established or maintained at or above the top of active fuel, then appropriate actions will be taken to ensure that CCSW is aligned in a timely fashion in conjunction with other recovery actions intended to flood containment and recover core level. (The BWR Owners Group and the NRC are currently addressing the generic issue of the differences between the UFSAR Accident Analysis and Emergency Procedures Analysis.)

**10 CFR Part 21 Final Evaluation Report
Dresden/Quad Cities Emergency Operating Procedures and Guidance
Related to the Alignment of Post-LOCA Decay Heat Removal Systems**

Contacts

Questions pertaining to this notification should be addressed to:

Luke F. Kim
Nuclear Engineering and Technology Services
Commonwealth Edison Company
1400 Opus Place, Suite 300
Downers Grove, Illinois 60515
(708) 663-7457