May 13, 1999

Mr. Oliver D. Kingsley, President
Nuclear Generation Group
Commonwealth Edison Company
Executive Towers West III
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - BYRON STATION, UNITS 1 AND 2 AND BRAIDWOOD STATION, UNITS 1 AND 2 (TAC NOS. MA2043, MA2044, MA2048 AND MA2049)

Dear Mr. Kingsley:

By letter dated May 29, 1998, Commonwealth Edison Company (ComEd) submitted an amendment request for Byron and Braidwood to credit automatic power-operated relief valve (PORV) operation for mitigation of inadvertent safety injection at power accident. Subsequently, ComEd requested incorporation of this amendment into the improved standard technical specification (ISTS) implementation. Following several conference calls between the staff and ComEd, it became apparent that the staff had issues which could not be resolved prior to ISTS implementation and the review of this request was deferred. Enclosed is a request for additional information documenting the staff's concerns. These questions were discussed with members of your staff on April 30, 1999. It was agreed that the responses would be provided 60 days after receipt.

1, offp

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Sincerely,
Original signed by
John B. Hickman, Project Manager
Project Directorate III-2
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-454, STN 50-455, STN 50-456, STN 50-457

Enclosure: As stated

cc w/encl: See next page

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P PDR

O. Kingsley
Commonwealth Edison Company

cc:

Ms. C. Sue Hauser, Project Manager
Westinghouse Electric Corporation
Energy Systems Business Unit
Post Office Box 355
Pittsburgh, Pennsylvania 15230

Joseph Gallo
Gallo & Ross
1025 Connecticut Ave., N.W., Suite 1014
Washington, DC 20036

Howard A. Learner
Environmental law and Policy
Center of the Midwest
35 East Wacker Dr., Suite 1300
Chicago, Illinois 60601

U.S. Nuclear Regulatory Commission
Byron Resident Inspectors Office
4448 N. German Church Road
Byron, Illinois 61010-9750

Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
801 Warrenville Road
Lisle, Illinois 60532-4351

Ms. Lorraine Creek
RR 1, Box 182
Manteno, Illinois 60950

Chairman, Ogle County Board
Post Office Box 357
Oregon, Illinois 61061

Mrs. Phillip B. Johnson
1907 Stratford Lane
Rockford, Illinois 61107

George L. Edgar
Morgan, Lewis and Bockius
1800 M Street, N.W.
Washington, DC 20036

Attorney General
500 S. Second Street
Springfield, Illinois 62701

Illinois Department of Nuclear Safety
Office of Nuclear Facility Safety
1035 Outer Park Drive
Springfield, Illinois 62704

Commonwealth Edison Company
Byron Station Manager
4450 N. German Church Road
Byron, Illinois 61010-9794

Commonwealth Edison Company
Site Vice President - Byron
4450 N. German Church Road
Byron, Illinois 61010-9794

U.S. Nuclear Regulatory Commission
Braidwood Resident Inspectors Office
RR 1, Box 79
Braceville, Illinois 60407

Mr. Ron Stephens
Illinois Emergency Services
and Disaster Agency
110 E. Adams Street
Springfield, Illinois 62706

Chairman
Will County Board of Supervisors
Will County Board Courthouse
Joliet, Illinois 60434

Commonwealth Edison Company
Braidwood Station Manager
RR 1, Box 84
Braceville, Illinois 60407-9619

Ms. Bridget Little Rorem
Appleseed Coordinator
117 N. Linden Street
Essex, Illinois 60935

Document Control Desk-Licensing
Commonwealth Edison Company
1400 Opus Place, Suite 400
Downers Grove, Illinois 60515

Commonwealth Edison Company
Site Vice President - Braidwood
RR 1, Box 84
Braceville, Illinois 60407-9619

Mr. David Helwig
Senior Vice President
Commonwealth Edison Company
Executive Towers West III
1400 Opus Place, Suite 900
Downers Grove, Illinois 60515

Mr. Gene H. Stanley
PWR Vice President
Commonwealth Edison Company
Executive Towers West III
1400 Opus Place, Suite 900
Downers Grove, Illinois 60515

Mr. Christopher Crane
BWR Vice President
Commonwealth Edison Company
Executive Towers West III
1400 Opus Place, Suite 900
Downers Grove, Illinois 60515

Mr. R. M. Krich
Vice President - Regulatory Services
Commonwealth Edison Company
Executive Towers West III
1400 Opus Place, Suite 500
Downers Grove, Illinois 60515

Commonwealth Edison Company
Reg. Assurance Supervisor - Braidwood
RR 1, Box 84
Braceville, Illinois 60407-9619

Commonwealth Edison Company
Reg. Assurance Supervisor - Byron
4450 N. German Church Road
Byron, Illinois 61010-9794

Ms. Pamela B. Strobel
Senior Vice President and General Counsel
Commonwealth Edison Company
P.O. Box 767
Chicago, Illinois 60690-0767

REQUEST FOR ADDITIONAL INFORMATION

REGARDING BYRON STATION, UNITS 1 AND 2

AND BRAIDWOOD STATION, UNITS 1 AND 2

CHANGE TO CREDIT AUTOMATIC POWER-OPERATED RELIEF VALVE (PORV)

OPERATION FOR MITIGATION OF INADVERTENT SAFETY INJECTION AT

POWER ACCIDENT

The following documents the basis for the staff's concerns that the Byron/Braidwood design does not meet the required single failure criterion.

On November 11, 1998, ComEd provided a set of seven drawings [6E-1-4031RY32, 01,15, 26, 16, 4030RY13, 17] in which the class 1E portion of pressure transmitter 1PT-0455 signal to the PORV solenoid 1RY455A was shown in yellow and the non-1E portion was shown in orange. The circuit shown by these two colors indicates that the safety signal from the class 1E transmitter and the isolation relay goes through a series of non-1E devices including relay PY455EX, whose output contact is considered class 1E, to initiate an automatic actuation of the associated PORV solenoid. An additional set of two drawings [6E-1-4031RY04, 13] for the signal from pressure transmitter 1PT-0458 was also provided with similar color scheme. This set, however, does not indicate actuation of a PORV solenoid.

The instrumentation circuit for an automatic operation of a PORV to mitigate the consequences of an inadvertant safety injection (SI) should meet the requirements set forth in IEEE-279 as required by 10 CFR 50.55a for protection systems. IEEE-279 explains design requirements for control and protection system interaction in section 4.7 and the single failure criterion in section 4.2. As per section 4.7.2 of IEEE-279, an isolation device is used to transmit a signal from protective system equipment for control system use such that no credible failure at the output of the isolation device, i.e., no failure or fault in the non-1E portion of the instrumentation circuit, shall affect the protective function of the associated class 1E system.

The isolation devices shown on the submittal drawings do not perform the function identified in section 4.7.2 of IEEE-279 and failure or a fault in any one of the several non-1E devices in the non-1E portion of the circuit will prevent automatic actuation of the PORV solenoid. Therefore, the circuit initiating automatic actuation of the PORV solenoid should, in its entirety, meet the single failure criterion of IEEE-279. Please address this issue. Incidently, the Salem Generating Station design involved similar problems of not meeting the single failure criterion in the automatic actuation circuit of its PORVs. The licensee incorporated several design modifications to meet the regulations.

An additional issue, unrelated to the single failure issue, concerns a data plot provided on November 18, 1998. Specifically, Figure 4, which plotted Pressurizer Water Volume, shows a high value of approximately 1870 ft^3. However, Table 5.4-9 in the Updated Final Safety Analysis Report (UFSAR) documents the internal volume of the pressurizer as 1800 ft^3. This discrepancy will need to be resolved.

ENCLOSURE