UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 5, 1996

50-237 50-254
249 373
265 374
295 454
304 456

Mr. D. L. Farrar
Manager, Nuclear Regulatory Services
Commonwealth Edison Company
Executive Towers West III
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - GENERIC LETTER 95-07, "PRESSURE LOCKING AND THERMAL BINDING OF SAFETY-RELATED POWER-OPERATED GATE VALVES," ZION STATION, UNITS 1 AND 2 (TAC NOS. M93541 AND M93542) 295, 304
QUAD CITIES STATION, UNITS 1 AND 2 (TAC NOS. M93509 AND M93510), 254, 265
BYRON STATION, UNITS 1 AND 2 (TAC NOS. M93441 AND M93442), AND 454, 455
BRAIDWOOD STATION, UNITS 1 AND 2 (TAC NOS. M93434 AND M93435), 456, 457
DRESDEN STATION, UNITS 2 AND 3 (TAC NOS. M93458 AND M93459), LASALLE 237, 249
COUNTY STATION, UNITS 1 AND 2 (TAC NOS. M93477 AND M93478) 373, 374

Dear Mr. Farrar:

On August 17, 1995, the NRC issued Generic Letter (GL) 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves," to request that licensees take actions to ensure that safety-related power-operated gate valves that are susceptible to pressure locking or thermal binding are capable of performing their safety functions. The staff is reviewing and evaluating Commonwealth Edison's response to GL 95-07 dated February 13, 1996. Additional information, as discussed in the enclosure, is requested for the staff to complete its review. This is in addition to the information requested in the staff's letter dated April 2, 1996. This request supersedes the request for LaSalle County Station dated May 20, 1996. We request that you respond within 30 days.

The information requested by this letter is within the scope of the overall burden estimated in Generic Letter 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves," which was a maximum of

DF01 1/1

120204

75 hours per response. This request is covered by Office of Management and Budget Clearance Number 3150-0011, which expires July 31, 1997.

Sincerely,

Donna M. Skay for

Clyde Y. Shiraki, Project Manager
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Docket Nos. 50-295, 50-304, 50-254,
50-265, 50-324, 50-454, 50-456,
50-457, 50-237, 50-249, 50-373, 50-374

Enclosure: RAI

cc w/encl: See next page

cc:

Michael I. Miller, Esquire
Sidley and Austin
One First National Plaza
Chicago, Illinois 60603

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

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

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

Mr. William P. Poirier, Director
Westinghouse Electric Corporation
Energy Systems Business Unit
Post Office Box 355, Bay 236 West
Pittsburgh, Pennsylvania 15230

Joseph Gallo
Gallo & Ross
1250 Eye St., N.W.
Suite 302
Washington, DC 20005

Howard A. Learner
Environmental law and Policy
Center of the Midwest
203 North LaSalle Street
Suite 1390
Chicago, Illinois 60601

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

Ms. Lorraine Creek
Rt. 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 Bochius
1800 M Street, N.W.
Washington, DC 20036

Attorney General
500 South Second Street
Springfield, Illinois 62701

EIS Review Coordinator
U.S. Environmental Protection Agency
77 W. Jackson Blvd.
Chicago, Illinois 60604-3590

Commonwealth Edison Company
Byron Station Manager
4450 North German Church Road
Byron, Illinois 61010

Kenneth Graesser, Site Vice President
Byron Station
Commonwealth Edison Station
4450 N. German Church Road
Byron, Illinois 61010

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

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

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

Commonwealth Edison Company
Braidwood Station Manager
Rt. 1, Box 84
Braceville, Illinois 60407

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

Site Vice President
Dresden Nuclear Power Station
6500 North Dresden Road
Morris, Illinois 60450-9765

Station Manager
Dresden Nuclear Power Station
6500 North Dresden Road
Morris, Illinois 60450-9765

U.S. Nuclear Regulatory Commission
Resident Inspectors Office
Dresden Station
6500 North Dresden Road
Morris, Illinois 60450-9766

Richard J. Singer
Manager - Nuclear
MidAmerican Energy Company
907 Walnut Street
P.O. Box 657
Des Moines, Iowa 50303

Brent E. Gale, Esq.
Vice President - Law and
MidAmerican Energy Company
Regulatory Affairs
One RiverCenter Place
106 East Second Street
P.O. Box 4350
Davenport, Iowa 52808

Chairman
Rock Island County Board
of Supervisors
1504 3rd Avenue
Rock Island County Office Bldg.
Rock Island, Illinois 61201

Chairman
Grundy County Board
Administration Building
1320 Union Street
Morris, Illinois 60450

Mr. L. William Pearce
Station Manager
Quad Cities Nuclear Power Station
22710 206th Avenue North
Cordova, Illinois 61242

U.S. Nuclear Regulatory Commission
Quad Cities Resident Inspectors Office
22712 206th Avenue North
Cordova, Illinois 61242

Phillip P. Steptoe, Esquire
Sidley and Austin
One First National Plaza
Chicago, Illinois 60603

Assistant Attorney General
100 West Randolph Street
Suite 12
Chicago, Illinois 60601

U.S. Nuclear Regulatory Commission
Resident Inspectors Office LaSalle Station
2605 N. 21st Road
Marseilles, Illinois 61341-9756

Chairman
LaSalle County Board of Supervisors
LaSalle County Courthouse
Ottawa, Illinois 61350

Chairman
Illinois Commerce Commission
Leland Building
527 East Capitol Avenue
Springfield, Illinois 62706

LaSalle Station Manager
LaSalle County Station
Rural Route 1
P.O. Box 220
Marseilles, Illinois 61341

Robert Cushing
Chief, Public Utilities Division
Illinois Attorney General's Office
100 West Randolph Street
Chicago, Illinois 60601

Dr. Cecil Lue-Hing
Director of Research and Development
Metropolitan Sanitary District
of Greater Chicago
100 East Erie Street
Chicago, Illinois 60611

Mayor of Zion
Zion, Illinois 60099

U.S. Nuclear Regulatory Commission
Zion Resident Inspectors Office
105 Shiloh Blvd.
Zion, Illinois 60099

Station Manager
Zion Nuclear Power Station
101 Shiloh Blvd.
Zion, Illinois 60099-2797

REQUEST FOR ADDITIONAL INFORMATION
ZION STATION, UNITS 1 AND 2, RESPONSE TO GENERIC LETTER 95-07, "PRESSURE LOCKING AND THERMAL BINDING OF SAFETY-RELATED POWER-OPERATED GATE VALVES"

1. Commonwealth Edison's (ComEd's) submittal discusses the potential susceptibility of valves 1(2)SI9011A,B, safety injection (SI) Pump Discharge to reactor coolant system (RCS) Hot Leg, to pressure locking under certain conditions, and states that a thrust calculation was performed which shows that the motor operated valves (MOVs) are capable of opening under pressure locking conditions. Please provide this calculation for the staff's review.

   In addition, ComEd's submittal states that a design change to install a new motor actuator is being reviewed for inclusion in upcoming refueling outages. Please provide specific information and calculations, if applicable, regarding the increase actuator thrust capability as compared to the thrust requirement under pressure locked conditions.

2. Regarding valves 1(2)RC8000A,B, Pressurizer Power Operated Relief Valve Block Valves, ComEd's submittal states that in a steam generator tube rupture scenario, the valves will be opened as quickly as possible after event initiation prior to significant cooldown. Has ComEd determined the postulated RCS pressure at the time the valve would be required to open and completed thrust requirement and actuator capability calculations assuming this pressure? If so, please provide these calculations for the staff's review.

   In addition, ComEd's submittal discusses the potential susceptibility of these valves to thermal binding with respect to low temperature overpressurization protection (LTOP). Commonwealth Edison's submittal states that these valves are not required to perform a safety function prior to implementing LTOP and that the valves are required to open prior to implementing LTOP. This wording is somewhat unclear. Please provide a more detailed explanation of the potential susceptibility of these valves to thermal binding.

ENCLOSURE

REQUEST FOR ADDITIONAL INFORMATION
QUAD CITIES STATION, UNITS 1 AND 2, RESPONSE TO GENERIC LETTER 95-07, "PRESSURE LOCKING AND THERMAL BINDING OF SAFETY-RELATED POWER-OPERATED GATE VALVES"

1. Regarding the potential susceptibility of valves 1(2)-2301-3, HPCI Turbine Steam Supply, to thermal binding, Commonwealth Edison's (ComEd's) submittal states that these valves are closed hot after stroke testing or high pressure coolant injection (HPCI) flow testing and remain hot prior to an initiation signal. Does ComEd have test data, such as temperature measurements of the valve body while open and later shut, to verify this assertion? If so, please provide these results for the staff's review.

2. In Attachment 1 to GL 95-07, the staff requested that licensees include consideration of the potential for gate valves to undergo pressure locking or thermal binding during surveillance testing. During workshops on GL 95-07 in each Region, the staff stated that if the closing and subsequent pressure locking or thermal binding of a safety related power operated gate valve during the performance of a test or surveillance would defeat the capability of the safety system or train, the appropriate technical specifications must be followed unless one of the following actions has been taken within the scope of GL 95-07:

   1. Verify that the valve is not susceptible to pressure locking or thermal binding while closed,
   2. Demonstrate that the actuator has sufficient capacity to overcome these phenomena, or
   3. Make appropriate hardware and/or procedural modifications to prevent pressure locking and thermal binding.

   The staff stated that normally open, safety-related power-operated gate valves which are closed for test or surveillance but which must be returned to the open position should be evaluated within the scope of GL 95-07. In Section 5.2.2, Valve Functional Review, ComEd's submittal states that inservice testing (IST) stroke time testing or other surveillances which cycle the valve are not to be included in the review. This appears to be inconsistent with the recommendations of GL 95-07. Please discuss how this specific GL 95-07 concern has been addressed.

3. Through review of operational experience feedback, the staff is aware of instances in which licensees have completed design or procedural modifications to preclude pressure locking or thermal binding which may have had an adverse impact on plant safety due to incomplete or incorrect evaluation of the potential effects of these modifications. Please describe evaluations and training for plant personnel that have been conducted for each design or procedural modification completed to address potential pressure locking or thermal binding concerns.

ENCLOSURE

REQUEST FOR ADDITIONAL INFORMATION
BYRON STATION, UNITS 1 AND 2, AND BRAIDWOOD STATION, UNITS 1 AND 2, RESPONSE TO GENERIC LETTER 95-07, "PRESSURE LOCKING AND THERMAL BINDING OF SAFETY-RELATED POWER-OPERATED GATE VALVES"

1. Regarding valves 1(2)RH8716A/B, RHR Crosstie Isolation, Commonwealth Edison's (ComEd's) submittal states that an operability assessment has been completed for these valves which concludes that the valves remain operable and no operability issue exists. Please provide the operability assessment for the staff's review, including any applicable heat transfer, thrust requirement, and actuator capability calculations which may have been performed as part of the operability assessment.

   In addition, the licensee's submittal states that corrective actions will be performed in accordance with the operability assessment. Please explain the corrective actions planned for these valves.

2. Regarding the following valves:

   1(2)RY8000A/B, Pressurizer PORV Isolation
   1(2)SI8801A/B, Charging Pump to RCS Cold Legs Isolation
   1(2)SI8802A/B, SI Pump to RCS Hot Leg Isolation
   1(2)SI8840, RHR to RCS Hot Legs Isolation

   Commonwealth Edison's submittal states that an operability assessment has been completed for these valves, which concludes that the valves remain operable and no operability issue exists. Please provide the operability assessment for the staff's review, including any applicable thrust requirement and actuator capability calculations performed as part of the operability assessment.

3. Through review of operational experience feedback, the staff is aware of instances in which licensees have completed design or procedural modifications to preclude pressure locking or thermal binding which may have had an adverse impact on plant safety due to incomplete or incorrect evaluation of the potential effects of these modifications. Please describe evaluations and training for plant personnel that have been conducted for each design or procedural modification completed to address potential pressure locking or thermal binding concerns.

ENCLOSURE

REQUEST FOR ADDITIONAL INFORMATION
DRESDEN STATION, UNITS 2 AND 3, RESPONSE TO GENERIC LETTER 95-07, "PRESSURE LOCKING AND THERMAL BINDING OF SAFETY-RELATED POWER-OPERATED GATE VALVES"

1. Valves 2(3)-2301-36, HPCI Suppression Pool Suction, if flexible-wedge, split-wedge, or double-disk gate valves, may be potentially susceptible to thermally-induced pressure locking caused by heat transfer from the suppression pool during a design basis event. Has the licensee evaluated the potential heat transfer from the suppression pool during a design basis event, and the associated thrust requirement/actuator capability calculations? If so, please provide these evaluations for the staff's review.

2. Valves 2(3)-2301-3, HPCI Turbine Steam Admission, if flexible-wedge, split-wedge, or double-disk gate valves, may be potentially susceptible to thermally-induced pressure locking if they exist in a configuration which may trap steam condensate. In addition, these valves, if flexible-wedge, split-wedge, or solid wedge gate valves, may be potentially susceptible to thermal binding if opened for HPCI testing, shut in a hot condition, allowed to cool, and subsequently required to open at a lower temperature. Please discuss the pressure locking/thermal binding evaluation completed for these valves.

3. In Attachment 1 to GL 95-07, the staff requested that licensees include consideration of the potential for gate valves to undergo pressure locking or thermal binding during surveillance testing. During workshops on GL 95-07 in each Region, the staff stated that if the closing and subsequent pressure locking or thermal binding of a safety related power operated gate valve during the performance of a test or surveillance would defeat the capability of the safety system or train, the appropriate technical specifications must be followed unless one of the following actions has been taken within the scope of GL 95-07:

   1. Verify that the valve is not susceptible to pressure locking or thermal binding while closed,
   2. Demonstrate that the actuator has sufficient capacity to overcome these phenomena, or
   3. Make appropriate hardware and/or procedural modifications to prevent pressure locking and thermal binding.

   The staff stated that normally open, safety-related power-operated gate valves which are closed for test or surveillance but which must be returned to the open position should be evaluated within the scope of GL 95-07. Please discuss if all valves which meet this criterion were included in the review, and the way in which potential pressure locking or thermal binding concerns were addressed.

ENCLOSURE

4. Through review of operational experience feedback, the staff is aware of instances in which licensees have completed design or procedural modifications to preclude pressure locking or thermal binding which may have had an adverse impact on plant safety due to incomplete or incorrect evaluation of the potential effects of these modifications. Please describe evaluations and training for plant personnel that have been conducted for each design or procedural modification completed to address potential pressure locking or thermal binding concerns.

REQUEST FOR ADDITIONAL INFORMATION
LASALLE COUNTY STATION, UNITS 1 AND 2, RESPONSE TO GENERIC LETTER 95-07, "PRESSURE LOCKING AND THERMAL BINDING OF SAFETY-RELATED POWER-OPERATED GATE VALVES"

1. In Attachment 1 to GL 95-07, the staff requested that licensees include consideration of the potential for gate valves to undergo pressure locking or thermal binding during surveillance testing. During workshops on GL 95-07 in each Region, the staff stated that if the closing and subsequent pressure locking or thermal binding of a safety related power operated gate valve during the performance of a test or surveillance would defeat the capability of the safety system or train, the appropriate technical specifications must be followed unless one of the following actions has been taken within the scope of GL 95-07:

   1. Verify that the valve is not susceptible to pressure locking or thermal binding while closed,
   2. Demonstrate that the actuator has sufficient capacity to overcome these phenomena, or
   3. Make appropriate hardware and/or procedural modifications to prevent pressure locking and thermal binding.

   The staff stated that normally open, safety-related power-operated gate valves which are closed for test or surveillance but which must be returned to the open position should be evaluated within the scope of GL 95-07. Please discuss if all valves which meet this criterion were included in the review, and the way in which potential pressure locking or thermal binding concerns were addressed.

2. Through review of operational experience feedback, the staff is aware of instances in which licensees have completed design or procedural modifications to preclude pressure locking or thermal binding which may have had an adverse impact on plant safety due to incomplete or incorrect evaluation of the potential effects of these modifications. Please describe evaluations and training for plant personnel that have been conducted for each design or procedural modification completed to address potential pressure locking or thermal binding concerns.

ENCLOSURE

75 hours per response. This request is covered by Office of Management and Budget Clearance Number 3150-0011, which expires July 31, 1997.

Sincerely,

Original signed by: Donna M. Skay for

Clyde Y. Shiraki, Project Manager
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Docket Nos. 50-295, 50-304, 50-254,
50-265, 50-324, 50-454, 50-456,
50-457, 50-237, 50-249, 50-373, 50-374

Enclosure: RAI

cc w/encl: See next page

Distribution:
Docket File
PUBLIC
PDIII-2 r/f
JRoe, JWR
EAdensam, EGA1
RCapra
CMoore
CShiraki
OGC, O15-B18
ACRS, T2-E26
LMiller, RIII
HRathbun, O7E23
REaton, O14C7
RAssa
GDick
JStang
DSkay
RPulsifer

DOCUMENT NAME: G:\RAI93542.RAI

To receive a copy of this document, indicate in the box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

OFFICE	LA:PDIII-2	E	PM:PDIII-2	E	D:PDIII-2	C				
NAME	CMOORE	for	CSHIRAKI:avl		RCAPRA					
DATE	05/5/96		05/5/96		05/5/96					

OFFICIAL RECORD COPY