

77RA



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

July 1, 1980

Docket No. 50-10

Mr. D. Louis Peoples
Director of Nuclear Licensing
Commonwealth Edison Company
Post Office Box 767
Chicago, Illinois 60690

Dear Mr. Peoples:

RE: SEP TOPIC III-10.A THERMAL OVERLOAD PROTECTION FOR MOTORS OF MOTOR OPERATED VALVES

Enclosed is a copy of our evaluation of Systematic Evaluation Program Topic III-10.A, Thermal Overload Protection for Motors of Motor Operated Valves. This assessment compares your facility, as described in Docket No. 50-10 with the criteria currently used by the regulatory staff for licensing new facilities. Please inform us if your as-built facility differs from the licensing basis assumed in our assessment.

We have discussed this assessment with your staff and believe the facts concerning your plant are correct. Therefore, our review of this topic is complete and this evaluation will be a basic input to the integrated safety assessment for your facility unless you identify changes needed to reflect the as-built conditions at your facility. This topic assessment may be revised in the future if your facility design is changed or if NRC criteria relating to this topic are modified before the integrated assessment is completed.

Sincerely,

Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing

Enclosure:
Completed SEP
Topic III-10.A

cc w/enclosure:
See next page

8007180438 P

Mr. D. Louis Peoples

- 2 -

July 1, 1980

cc w/enclosure:
Isham, Lincoln & Beale
Counselors at Law
One First National Plaza, 42nd Floor
Chicago, Illinois 60603

Mr. B. B. Stephenson
Plant Superintendent
Dresden Nuclear Power Station
Rural Route #1
Morris, Illinois 60450

U. S. Nuclear Regulatory Commission
Resident Inspectors Office
Dresden Station
RR #1
Morris, Illinois 60450

Susan N. Sekuler
Assistant Attorney General
Environmental Control Division
188 W. Randolph Street
Suite 2315
Chicago, Illinois 60601

Morris Public Library
604 Liberty Street
Morris, Illinois 60451

Chairman
Board of Supervisors of
Grundy County
Grundy County Courthouse
Morris, Illinois 60450

Department of Public Health
ATTN: Chief, Division of
Nuclear Safety
535 West Jefferson
Springfield, Illinois 62761

Director, Technical Assessment
Division
Office of Radiation Programs
(AW-459)
U. S. Environmental Protection
Agency
Crystal Mall #2
Arlington, Virginia 20460

U. S. Environmental Protection
Agency
Federal Activities Branch
Region V Office
ATTN: EIS COORDINATOR
230 South Dearborn Street
Chicago, Illinois 60604

Mr. Richard E. Schaffstall
KMC Incorporated
1747 Pennsylvania Avenue, NW
Washington, DC 20006

SEP TECHNICAL EVALUATION
TOPIC III-10.A

THERMAL-OVERLOAD PROTECTION FOR MOTORS
OF MOTOR-OPERATED VALVES

DRESDEN 1

TOPIC III-10.A Thermal-Overload Protection for Motors of Motor-Operated
Valves

The objective of this review is to provide assurance that the application of thermal-overload protection devices to motors associated with safety-related motor-operated valves do not result in needless hindrance of the valves to perform their safety functions.

In accordance with this objective, the application of either one of the two recommendations contained in Regulatory Guide 1.106, "Thermal-Overload Protection for Electric Motors on Motor-Operated Valves," is adequate. These recommendations are as follows:

- (1) Provided that the completion of the safety function is not jeopardized or that other safety systems are not degraded, (a) the thermal-overload protection devices should be continuously bypassed and temporarily placed in force only when the valve motors are undergoing periodic or maintenance testing, or (b) those thermal-overload protection devices that are normally in force during plant operation should be bypassed under accident conditions.
- (2) The trip setpoint of the thermal-overload protection devices should be established with all uncertainties resolved in favor of completing the safety-related action. With respect to those uncertainties, consideration should be given to (a) variations in the ambient temperature at the installed location of the overload

protection devices and the valve motors, (b) inaccuracies in motor heating data and the overload protection device trip characteristics and the matching of these two items, and (c) setpoint drift. In order to ensure continued functional reliability and the accuracy of the trip point, the thermal-overload protection device should be periodically tested.

In addition, the current licensing criteria require that:

- (3) In MOV designs that use a torque switch to limit the opening or closing of the valve, the automatic opening or closing signal should be used in conjunction with a corresponding limit switch.

DISCUSSION

On May 31, 1977, Commonwealth Edison stated that overload trips of essential equipment for HPCI and ESAP systems would be bypassed under LOCA conditions.⁴ Review of a sample of Dresden 1 drawings indicates that these bypasses have been incorporated.⁵⁻⁸ However, for the valves examined, valve travel is terminated by a torque switch rather than a limit switch.

EVALUATION

Thermal-overload protection for motor-operated valves at Dresden 1 does not comply with current licensing criteria. While thermal-overload devices for ESF valves are bypassed under LOCA conditions, torque switches rather than limit switches are used to terminate valve travel.

REFERENCES

1. IEEE Standard 179-1971, "Criteria for Protection Systems for Nuclear Power Generating Stations."

2. Branch Technical Position EICSB-27, "Design Criteria for Thermal Overload Protection for Motors of Motor-Operated Valves."
3. Regulatory Guide 1.106, "Thermal Overload Protection for Electric Motors on Motor-Operated Valves."
4. Letter, Commonwealth Edison (Turbak), to DOR (Davis), dated May 31, 1977.
5. Dresden 1 Drawing 12E-1420A, Revision B, dated 12-4-78.
6. Dresden 1 Drawing 12E-1420B, Revision B, dated 12-4-78.
7. Dresden 1 Drawing 12E-1421A, Revision B, dated 12-4-78.
8. Dresden 1 Drawing 12E-1421B, Revision B, dated 12-4-78.