

NRC PDR



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 V-11.A, REQUIREMENTS FOR ISOLATION OF HIGH AND LOW
PRESSURE SYSTEMS

Enclosed is a copy of our evaluation of Systematic Evaluation Program
Topic V-11.A, Requirements for Isolation of High and Low Pressure
Systems. 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 assess-
ment 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
Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing

Enclosure:
Completed SEP
Topic V-11.A

cc w/enclosure:
See next page

8007180 436

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, D. C. 20006

SEP TECHNICAL EVALUATION REPORT

REQUIREMENTS FOR ISOLATION OF HIGH AND LOW PRESSURE SYSTEMS

DRESDEN NUCLEAR STATION, UNIT 1

1.0 INTRODUCTION

The purpose of this review is to determine if the electrical, instrumentation, and control (EI&C) features used to isolate systems with a lower pressure rating than the reactor coolant primary system are in compliance with current licensing requirements as outlined in SEP Topic V-11A. Current guidance for isolation of high and low pressure systems is contained in Branch Technical Position (BTP) EICSB-3, BTP RSB-5-1, and the Standard Review Plant (SRP), Section 6.3.

2.0 CRITERIA

2.1 Residual Heat Removal (RHR) Systems. Isolation requirements for RHR systems contained in BTP RSB-5-1 are:

- (1) The suction side must be provided with the following isolation features:
 - (a) Two power-operated valves in series with position indicated in the control room.
 - (b) The valves must have independent and diverse interlocks to prevent opening if the reactor coolant system (RCS) pressure is above the design pressure of the RHR system.
 - (c) The valves must have independent and diverse interlocks to ensure at least one valve closes upon an increase in RCS pressure above the design pressure of the RHR system.
- (2) The discharge side must be provided with one of the following features:
 - (a) The valves, position indicators, and interlocks described in (1)(a) through (1)(c) above.
 - (b) One or more check valves in series with a normally-closed power-operated valve which has

its position indicated in the control room. If this valve is used for an Emergency Core Cooling System (ECCS) function, the valve must open upon receipt of a safety injection signal (SIS) when RCS pressure has decreased below RHR system design pressure.

- (c) Three check valves in series.
- (d) Two check valves in series, provided that both may be periodically checked for leak tightness and are checked at least annually.

2.2 Emergency Core Cooling System. Isolation requirements for FCCS are contained in SRP 6.3. Isolation of ECCS to prevent overpressurization must meet one of the following features:

- (1) One or more check valves in series with a normally-closed motor-operated valve (MOV) which is to be opened upon receipt of a SIS when RCS pressure is less than the ECCS design pressure
- (2) Three check valves in series
- (3) Two check valves in series, provided that both may be periodically checked for leak tightness and are checked at least annually.

2.3 Other Systems. All other low pressure systems interfacing with the RCS must meet the following isolation requirements from BTP EICSB-3:

- (1) At least two valves in series must be provided to isolate the system when RCS pressure is above the system design pressure and valve position should be provided in the control room
- (2) For systems with two MOVs, each MOV should have independent and diverse interlocks to prevent opening until RCS pressure is below the system design pressure and should automatically close when RCS pressure increases above system design pressure
- (3) For systems with one check valve and a MOV, the MOV should be interlocked to prevent opening if RCS pressure is above system design pressure and should automatically close whenever RCS pressure exceeds system design pressure.

3.0 DISCUSSION AND EVALUATION

There is one system at Dresden 1 which has a direct interface with the RCS and has a lower design pressure rating for all or part of the system than RCS design pressure. This system is the Core Spray (CS) system.

3.1 Core Spray System. The CS system consists of three pumps providing water to a single header via two parallel piping branches. Isolation of the two branches is provided by two MOVs in series with a check valve in each branch.

The MOVs open upon receipt of a CS system start signal when the RCS pressure has decreased to within the CS system design pressure (determined by ΔP indicator). The valves will not close if RCS pressure increases above system design pressure. Closure is accomplished only by operator action. There are no interlocks to prevent the operator from opening the CS system isolation valves from the control room or the local control station when RCS pressure exceeds CS system design pressure.

The CS system does not meet current licensing requirements for isolation of high and low pressure systems, contained in SRP 6.3, since there are no interlocks to prevent the operator from opening the isolation valves when RCS pressure exceeds system design pressure.

4.0 SUMMARY

The Dresden Nuclear Station, Unit 1 has one system with lower design pressure rating than the RCS which is directly connected to the RCS. The CS system does not meet current licensing criteria contained in SRP 6.3 for isolation of high and low pressure systems since there are no interlocks to prevent the operator from opening the isolation valves when RCS pressure exceeds CS system design pressure.

5.0 REFERENCES

1. NUREG-075/087, Branch Technical Positions EICSB-3, RSB-5-1; Standard Review Plan 6.3.
2. Dresden 1 Drawings M-600, 12E1001-9, -10, -11, and -12.
3. Final Hazard Summary Report, Dresden Nuclear Station, Unit 1.
4. License No. DPR-2, Supplement A to proposed change no. 17, Dresden Nuclear Station, Unit 1.