



Consumers
Power
Company

James W Cook

Vice President - Projects, Engineering
and Construction

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0453

82-07 #1

June 25, 1982

Mr J G Keppler, Regional Administrator
US Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND PROJECT -
DOCKET NOS 50-329 AND 50-330
Q-RELATED EQUIPMENT COOLED BY NON-Q HVAC SYSTEM
FILE: 0.4.9.63 SERIAL: 17529

On May 26, 1982, W R Bird and D T Perry notified Mr R C Knop of your staff of the potentially reportable 10CFR50.55(e) condition concerning safety-related equipment in the auxiliary building which are cooled by non-Q HVAC systems. This letter is an interim 50.55(e) report on this subject.

The attachments to this letter provide a description of the concern and a summary of the investigation and corrective actions being taken in regard to this problem.

Another report, either interim or final, will be sent on or before August 17, 1982.

James W. Cook

WRB/lr

CC: RJCook, NRC Resident Inspector
Midland Nuclear Plant

Document Control Desk, NRC
Washington, DC

Attachments: 1) MCAR-1, Report No 59, dated May 28, 1982
2) MCAR-59, Interim Report 1, dated June 10, 1982

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Serial 17529

82-07 #1

CC: CBechhoefer, ASLB Panel
RSDecker, ASLB Panel
FPCowan, ASLB Panel
JHarbour, ASLB Panel
AS&L Appeal Panel
MMCherry, Esq
MSinclair
BStamiris
CRStephens, USNRC
WDPaton, Esq, USNRC
FJKelley, Esq, Attorney General
SHFreeman, Esq, Asst Attorney General
WHMarshall
GJMerritt, Esq, TNK&J
Great Lakes QA Managers

QUALITY ASSURANCE PROGRAM
MANAGEMENT CORRECTIVE ACTION REPORT
MCAR-1

Attachment 1
Serial 17529
82-07 #1

00071964

REPORT NO.: 59

JOB NO.: 7220

Q NO.: _____

DATE: May 28, 1982

I DESCRIPTION* (Including References):

During engineering review of section 3.2 of the FSAR, it was discovered that some Q-related equipment/components are located in the auxiliary building (AB), cooled by a non-safety grade HVAC system. Following a LOCA concurrent with either a loss of offsite power or failure of the non-Q HVAC system, the cooling to the majority of the AB will be lost. This will result in a significant temperature rise in most of the AB. Two of several significant areas are rooms 506 and 507 at elevation 645'-0" which

RECOMMENDED ACTION* (Optional):

(continued)

1. Identify all affected equipment and areas.
2. Evaluate the need for and take appropriate corrective actions to ensure that the environmental temperature does not exceed the capability of the equipment operating temperature, following LOCA.
3. Determine the root cause and take appropriate action to preclude recurrence.
4. Issue an interim report by June 16, 1982.

REFERRED TO: ☒ Engineering ☐ Construction ☐ QA Management ☐ _____
☐ Procurement

Note: This condition was reported to the NRC by the client on May 26, 1982, as "potentially reportable."

ISSUED BY:

B. Meia 5/28/82

Project QA Engineer

Date

II REPORTABLE DEFICIENCY:

☐ NO

☒ YES

NOTIFIED CLIENT: May 26, 1982

by phone

Date

M. [Signature] 5/29/82

Date

III CAUSE:

CORRECTIVE ACTION TAKEN:

AUTHORIZED BY: _____
Date

AAPD DISTRIBUTION

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FORMAL REPORT TO CLIENT
(If Section II Applies)

Date

CORRECTIVE ACTION IMPLEMENTED

VERIFIED BY: _____

Project QA Engineer

Date

* Describe in space provided and attach reference document.

00071964

I. Description (continued)

contain all four of the safeguard HVAC system water chillers for the A and B trains of both reactor units' engineered safety features ventilation systems. The maximum calculated environmental temperature in these two rooms could reach 160F under which the safeguard chillers may not operate. Because all four safeguard chillers would be simultaneously affected by the excessive environmental temperature resulting from loss of the non-Q HVAC system, the entire chilled water system serving all ESF pump and equipment rooms could conceivably be lost.

The applicable requirements are described in general in FSAR Sections 9.4.5.1.1, Rev 41, and Response to Criterion 4, Rev 33, as follows:

9.4.5.1.1 - Safety Design Basis One - The engineered safety feature ventilation system (ESFVS) controls the air temperature within the auxiliary and radwaste area safety-related equipment areas to permit adequate air cooling for ESF pump installations including associated motor control centers and load centers.

Response to Criterion 4 - Environmental and Missile Design Bases - Structures, systems, and components important to safety are designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents, assuming that non-related cataclysmic events do not occur simultaneously.

074698

074470

SUBJECT: MCAR 59 Issued May 28, 1982

INTERIM REPORT NO. 1

DATE: June 10, 1982

PROJECT: Consumers Power Company
Midland Plant Units 1 and 2
Bechtel Job 7220

Description of Deficiency

Safety-related devices are located in portions of the auxiliary building (AB) which are cooled by non-Q HVAC systems. Loss of these non-Q HVAC systems (following various design basis accidents) concurrent with loss of offsite power could result in room environmental temperatures which could exceed the specified design temperature of 104F since the rooms are served by non-Q HVAC systems.

Summary of Investigation and Historical Background

A thorough review of the AB was conducted utilizing the project design drawings to identify and locate Class 1E electrical equipment, devices and instruments in the AB. The list of 60 affected areas is preliminary and is currently being verified by project engineering. This will provide assurance that the problem areas are identified and included in the scope of the corrective action.

Analysis of Safety Implication

Following an assumed design basis accident such as a LOCA or a safe shutdown earthquake simultaneous with a loss of offsite power, the cooling to the majority of the AB would be lost. This could result in a rise in the room temperature above the design temperature of 104F. The preliminary predicted maximum environmental room temperatures in the non-Q cooled portions of the AB, assuming a design basis accident simultaneous with a loss of offsite power, ranges from 120 to 200F. Under these conditions, the safety-related equipment in these rooms may not be reliable. In many instances both trains of redundant Q equipment are affected by the loss of the non-Q HVAC system. Consequently, the capability of the safety-related equipment to mitigate the consequences of the design basis accident and/or achieve and maintain a safe shutdown of the plant is indeterminate.

074698

MCAR 59

Interim Report No. 1 074470

Date:

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Probable Cause

The root cause of these discrepancies is still under investigation and will be addressed in the next report.

Corrective Action

- 1) Project engineering is reviewing the safety function of the Q devices in the areas already identified to evaluate the safety-related implications of the equipments' failure following the design basis accidents. Should the evaluation indicate that failure of the equipment could adversely affect the capability of the plant systems to mitigate the consequences of the accident or achieve and maintain a safe shutdown, corrective action would be implemented on a case-by-case basis. These actions could include the following:
 - a) Upgrade selected AB HVAC systems to Q status to limit the effect of the peak room temperature within the current environmental qualification envelope of the equipment.
 - b) Relocate the Class 1E device to another area where the predicted peak environmental temperature is within the environmental qualification envelope of the equipment.
 - c) Replace the Class 1E device, which does not qualify for the predicted peak room temperature, with one that qualifies.
 - d) Qualify the existing Class 1E device for temperatures greater than or equal to the calculated peak room environmental temperature.
- 2) Project drawings identifying the areas of the AB which are ESF cooled have been prepared, are being coordinated, and will be issued for use indicating that Q devices shall be located only in areas which are cooled by Q HVAC systems, unless qualification data indicates that the component has the ability to operate in elevated temperature environments.

MCAR 59

Interim Report No. 074470 074698

Date:

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Reportability

This deficiency was reported to the NRC on May 26, 1982, as potentially reportable under 10 CFR 50.55(e) by W.R. Bird of Consumers Power Company.

Submitted by:

T.G. Ballweg
T.G. Ballweg
Mechanical Group Supervisor

Approved by:

E.M. Hughes
E.M. Hughes
Project Engineer

Concurrence by:

M.T. Fravel
M.T. Fravel
Chief Mechanical Engineer

Concurrence by:

E.H. Smith
E.H. Smith
Engineering Manager

Concurrence by:

M.A. Dietrich
M.A. Dietrich
Project Quality Assurance
Engineer

TGB/PL/am(M)