Central Files

# INDIANA & MICHIGAN ELECTRIC COMPANY

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BOWLING GREEN STATION
NEW YORK, N. Y. 10004

JUN 17 1980

June 13, 1980
AEP:NRC:00382

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74

Subject: Vacuum Condition Resulting In Damage To CVCS Holdup Tanks

Mr. James G. Keppler, Director
Office of Inspection and Enforcement
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

This letter and its attachment are our response to IE Bulletin No. 80-05 received March 13, 1980 which stressed the importance of examining all low pressure or holdup tanks which could be valved to contain primary system water and determine whether adequate measures existed to prevent vacuum conditions which could result in damage to the tank and thereby unexpected releases of radioactivity. An extension until June 16, 1980 was granted over the telephone by a member of your Staff to submit the response to the bulletin.

The attachment indicates our belief that there is adequate protection to prevent damage to any tanks by vacuum conditions and the resultant release of unexpected radioactivity.

Very truly yours,

John E. Dolan

John E. Dolan
Vice President

JED:em

cc: (Attached)

AO I 2 GD

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cc: R. C. Callen
C. Charnoff
R. S. Hunter
R. W. Jurgensen
D. V. Shaller - Bridgman

ATTACHMENT

TO

AEP:NRC:00382

RESPONSE TO ACTION ITEM 1:

A design review was made of all systems that contain low pressure (tanks) or holdup tanks that can be valved to contain primary system water and of the existing measures which protect against vacuum conditions that could result in tank damage having the potential to release radioactive material or produce detrimental effects with regard to overall safety of plant operations in order to determine whether these existing measures are adequate. Our review shows that these measures are adequate to protect against vacuum conditions that could result in tank damage.

RESPONSE TO ACTION ITEM 2:

Table 1 lists the systems reviewed, the tanks associated with these systems and the existing measures to protect against vacuum conditions that could cause tank damage. There are no vacuum breaker type systems installed in any of the tanks reviewed which eliminates the possible adverse considerations or effects associated with such equipment.

As indicated, all the tanks have adequate protection either by virtue of being adequately vented to the atmosphere or by having the capability to withstand full vacuum conditions, i.e., atmospheric pressure or greater, except the Chemical Volume Control System (CVCS) holdup tanks which can withstand only partial vacuum conditions.

The protective measures presently in effect are adequate to prevent vacuum conditions occurring in the CVCS holdup tanks which could potentially result in a breach of tank integrity or otherwise damage the tank.

The gas spaces of the CVCS holdup tanks are interconnected to the Gaseous Waste Disposal System vent header (low pressure). Normally, cover gas is supplied to the CVCS holdup tanks recycle header. If the cover gas is not available from the waste gas decay holdup tanks or conditions are such that the normal cover gas supply system cannot admit gas at a fast enough rate, then the alternate cover gas supply compensates for liquid being removed from the CVCS holdup ganks for the entire range of pump capacities. The alternate or "backup" cover gas supply is from the Nitrogen Supply Manifold of the Reactor Gas Nitrogen Supply System. Liquid is removed from the CVCS holdup tanks using either a boric acid evaporator feed pump or the CVCS holdup tanks recirculation pump.

When using a boric acid evaporator feed pump which has a maximum capacity of 30 gpm, either cover gas system can supply gas at a sufficient rate to compensate for liquid being removed from the CVCS tanks, thus avoiding tank damage.

When using the CVCS holdup tank recirculation pump at or near its maximum capacity of 500 gpm (transferring liquid out of the CVCS holdup tanks), the alternate cover gas system is capable of admitting sufficient cover gas to maintain tank pressure in this mode of operation. A low CVCS holdup tank vent header pressure alarm is provided to warn of possible low pressure as well as an interlock to trip the CVCS holdup tank recirculation pump on extreme low holdup tank vent header pressure. Sufficient precautions have been listed in Plant Operations Procedures to warn the operator of possible low pressure conditions when placing the CVCS holdup tanks and/or recirculation pump in service.

In view of the above mentioned design and procedural considerations, it is extremely unlikely that a CVCS holdup tank will be damaged sufficiently to allow release of its contents. In any event, the liquid would be contained within the tank area which is designed as part of the auxiliary building sump below ground level.

## TABLE 1

## SYSTEMS AND COMPONENTS EXAMINED

| SYSTEM | TANK OF COMPONENT | EXISTING PROTECTIVE MEASURES |
|---|---|---|
| Reactor Coolant | Pressurizer Relief Tank | A |
| CVCS - Letdown and Charging | Volume Control Tank | A |
| CVCS - Boron Makeup | Boric Acid Storage Tanks | B |
| CVCS - Holdup | CVCS Holup Tanks | C & D |
| CVCS - Boron Recovery | Boric Acid Evaporator | A |
| | Monitor Tanks | B |
| Waste Disposal | Reactor Coolant Drain Tank | A |
| | Waste Holdup Tanks | B |
| | Radwaste Evaporator | A |
| | Sump Tanks | A |
| | Spent Resin Storage Tank | B |
| ECCS | Refueling Water Storage Tank (RWST) | B & E |

EXISTING PROTECTIVE MEASURES

A - Tanks capable of withstand full vacuum conditions.

B - Tanks vented to atmosphere.

C - Tanks capable of withstanding only partial vacuum conditions.

D - Tanks have a normal gas supply from the Gaseous Waste Disposal System Vent Header, an alternate cover gas supply from the Reactor Gas Systems - Nitrogen Supply Manifold, a low pressure alarm, and an interlock to trip the CVCS holdup tanks recirculation pump on extreme low tank vent head pressure.

E - Tank (located outside) has adequate protection from freezing the fluid contained within the tank.