Office of Inspection and Enforcement  
Attn: Mr. Thomas E. Hurley  
Regional Administrator  
Region I  
US Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, PA 19406

Dear Sir:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)  
Operating License No. DPR-73  
Docket No. 50-320  
Licensee Event Report 83-035/99X-0

Attached please find Licensee Event Report 83-035/99X-0 concerning the failure of MSA Ultra Filters on July 20, 1983.

Please note, under the applicable Technical Specifications at the time of the failure, this is not a reportable event since no specifications were violated. However, given the circumstances of the event, we are reporting this event as a special event.

Sincerely,

/s/ J. J. Barton for  
B. K. Kanga  
Director, TMI-2

BKK/RDW/dtf

Attachments

CC: Mr. L. H. Barrett, Deputy Program Director - TMI Program Office  
Dr. B. J. Snyder, Program Director - TMI Program Office
On July 20, 1983, 36 Mine Safety Appliances (MSA) Ultra Filters were discovered to have penetration levels in excess of the allowable 0.03% based on results from the Air Techniques Q-127 respirator filter testing device at TMI. The filters were sent to MSA for further testing. 50 additional MSA filters were tested during the week of July 25, 1983. Three (3) failures were found; these were sent to Air Techniques. Test results from MSA and Air Techniques confirmed TMI's readings. This event is not reportable pursuant to TMI's Technical Specifications. 

Based on a discussion with the filter manufacturer, the cause of the event appears to be due to an adhesive separation between the filter media and the filter base. Only MSA ultra filters which have been tested and found acceptable will be issued for field use. This LER will be updated upon receipt of formal documentation from the manufacturer, if necessary.

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CAUSE DESCRIPTION AND CORRECTIVE ACTIONS:

Based on a discussion with the filter manufacturer, the cause of the event appears to be due to an adhesive separation between the filter media and the filter base. Only MSA ultra filters which have been tested and found acceptable will be issued for field use. This LER will be updated upon receipt of formal documentation from the manufacturer, if necessary.
I. EXPLANATION OF THE OCCURRENCE

The following event is not reportable pursuant to TMI-2's Interim Recovery Technical Specifications; however, given the nature of the event, CPUNC is reporting this event as a special report.

During the week of July 18, 1983, an Air Techniques Q-127 respirator filter testing device was placed into operation at TMI. Initial filter testing revealed satisfactory test results for all makes/types of filters utilized with the exception of the Mine Safety Appliances (MSA) ultra filter. A sample of 144 MSA ultra filters, manufactured during the period of May - July, 1981, were tested on July 20, 1983. Of the 144 filters tested, 36 (25 percent) exhibited penetration levels in excess of the allowable 0.03 percent. The 0.03 percent corresponds to a 99.97 percent removal efficiency of thermally generated 0.3 um dioctyl phthalate (DOP). The 36 filters of concern were sent to the MSA factory for testing and evaluation on July 22, 1983. Subsequently, test results from TMI were confirmed by MSA on August 9, 1983.

During the week of July 25, 1983, 50 additional MSA ultra filters, manufactured during the May - July, 1981, timeframe, were tested with only 3 failures observed. Of these 50 filters, 20 (including the 3 failures) were sent to the respirator filter testing machine manufacturer, Air Techniques Inc., on August 3, 1983, in order to verify the accuracy of the recently installed filter testing device. At this time, test results from MSA had not yet been received. The leakage readings observed at Air Techniques confirmed TMI's leakage readings (i.e., the average difference of TMI's readings minus the average difference of Air Techniques' readings was less than 0.001 percent). Ten of the 20 filters tested at Unit 2 and Air Techniques (including the 3 failures) were delivered to the NRC on August 4, 1983, for additional testing at Los Alamos Scientific Laboratory (LASL). Test results from LASL were consistent with those of TMI and Air Techniques.

Leakage rates for the 39 defective filters ranged between 0.03 percent to 1.148 percent with the majority in the range of 0.03 percent and 0.06 percent.

Additionally, an unopened case of 36 MSA ultra filters manufactured during the May - July, 1981, timeframe were delivered to the NRC on July 29, 1983, for testing at LASL. Test results received from LASL indicated no failures in this group.

TMI-1 was advised of this event due to the fact that MSA ultra filters are used by Unit 1 and Unit 2 personnel.
II. CAUSE OF THE OCCURRENCE

Based on a discussion with the filter manufacturer, the cause of the failures is believed to be due to an adhesive separation between the filter media and the filter base, thereby resulting in bypassing of the filter media.

III. CIRCUMSTANCES SURROUNDING THE OCCURRENCE

Prior to the installation of the respirator filter testing device at TNT, manufacturer tested filters were issued to personnel and then discarded after use. The function of the filter testing device is to test each filter after use and reissue those which do not exceed the allowable penetration criteria, thus reducing the amount of filter replacements.

IV. CORRECTIVE ACTIONS TAKEN OR TO BE TAKEN

Immediate

Only MSA ultra filters which have been tested and found acceptable will be issued for field use in either Unit 1 or Unit 2.

Long-Term

This report will be updated, if necessary, upon receipt of formal documentation from the filter manufacturer concerning this event.

V. COMPONENT FAILURE DATA

Ultra filter - Mine Safety Appliances
(Part No. 464807)
Mr. E. L. Blake, Jr.
Shaw, Pittman, Potts & Trowbridge
1800 H Street, NW
Washington, DC  20036

Mr. George Kulynych
Babcock and Wilcox, Inc.
P.O. Box 1260
Lynchburg, VA  24505

US Nuclear Regulatory Commission
c/o Document Management Branch
Washington, DC  20555

Mr. Willis Bixby
Department of Energy (DOE)
Building 400 - TMI

Mr. Harold Burton
EG&G
Building 400 - TMI

Df. Steven Long, Director
Power Plant Siting Program
Department of Natural Resources
Tawes State Office, Building B-3
580 Taylor Avenue
Annapolis, MD  21401

Mr. Thomas Gerusky, Director
Bureau of Radiation Protection
PA Department of Environmental Resources
Fulton National Bank Building
Harrisburg, PA  17120

American Nuclear Insurers
Attn: Mr. P. R. Fox
The Exchange, Suite 245
270 Farmington Avenue
Farmington, CT  06032

Cover Letter Only

Mr. T. F. Hartley, Jr.
Marsh and McLennan, Inc.
1221 Avenue of the Americas
New York, NY  10020

LER's Only

INPO Records Center
Suite 1500
1100 Circle 75 Parkway
Atlanta, GA  30339

P. Walsh
Technical Functions
GPU Parsippany - Cherry Hill Building
November 30, 1983
4410-83-L-0280.

Office of Inspection and Enforcement
Attn: Dr. T. E. Murley
Regional Administrator
US Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Dear Sir:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
Licensee Event Report 82-035/01L-1

Attached please find revised Licensee Event Report 82-035/01L-1 concerning the inoperable Reactor Building Sump Level Indicator on November 10, 1982.

This event concerns Section 3.3.3.6 and is considered reportable under Section 6.9.1.8(b) of the Interim Recovery Technical Specifications.

Sincerely,

/s/ B. K. Kanga

B. K. Kanga
Director, TMI-2

BKK/RDW/jep

Attachment

CC: Mr. L. H. Barrett, Deputy Program Director - TMI Program Office
Dr. B. J. Snyder, Program Director - TMI Program Office
At 1120 hours on November 10, 1982, the Reactor Building Sump Level Indicator was observed to be reading high. Due to this anomaly, the indicator was declared inoperable. This event is considered reportable per Tech Spec 6.9.1.8(b) due to entry in and exceeding the timeclock of Spec 3.3.3.6. This event had no effect on the health and safety of the public.

This event was believed to be caused by a buildup of sludge in the end of the RB Sump Level Indicator. The indicator's line was blown free with 20 lbs. of pressure. An evaluation of the RB Sump Level Indicator was performed and it was determined to be satisfactory. Additionally, the Sump Level Indicator will be blown down monthly to prevent clogging.
LER 82-035/01L-1
EVENT DATE - November 10, 1982

I. EXPLANATION OF THE OCCURRENCE

At 1120 hours on November 10, 1982, the Reactor Building (RB) Sump Level Indicator was observed to be reading high at an indicated twenty-four (24) inches of water on RBS-LTI-6000. (At the time, it was expected that there should have only been three to five inches of water.) An investigation was initiated to determine the cause of the high reading and correct the situation.

Due to this anomaly, the RB Sump Level Indicator was declared inoperable. This condition placed the unit in the Action Statement of Technical Specification 3.3.3.6. At 1900 hours on November 10, 1982, the eight hour timeclock of the Tech Spec Action Statement was exceeded, thus warranting a prompt report pursuant to Section 6.9.1.8(b) of the Recovery Technical Specifications.

The RB Sump Level Indication was returned to service at 1900 hours on November 12, 1982.

II. CAUSE OF THE OCCURRENCE

The cause of this event has been attributed to a buildup of sludge in the end of the "B" Sump Level's tygon tubing. The level instrument is of the bubbler type with its sensing line (tygon tubing) located on the RB basement floor. The buildup of sludge in the tube is attributed to the recently performed RB decon spraying evolutions in the vicinity of the level indicator's tygon tubing.

III. CIRCUMSTANCES SURROUNDING THE OCCURRENCE

At the time of the occurrence, the Unit 2 facility was in a long term cold shutdown state. The reactor decay heat was being removed via loss to ambient. Throughout the event there was no effect on the Reactor Coolant System or the core.

IV. CORRECTIVE ACTIONS TAKEN OR TO BE TAKEN

Immediate - On November 10, 1982, the cause was believed to be a plugged line and confirmatory actions were initiated. These actions included:

- The bubbler pressure was raised to 10 lbs. in an attempt to blow the tubing clear. However, no change in indication was observed (November 10, 1982).
The bubbler instrumentation was checked by setting up a test rig which duplicated the bubbler tube arrangement in a controlled, known set of conditions (November 10, 1982).

Another attempt to blow the line free was made with 20 lbs. of pressure. This time the level indication reduced from approximately 7 inches to .5 inches H₂O (November 10, 1982).

On November 12, 1982, the level instrument was returned to service after a preliminary water balance calculation, a visual inspection during an RB entry, and careful tracking of the inleakage and outleakage for the RB verified the level indication was appropriate and operable. The preliminary water balance calculation was verified by a more detailed calculation performed on November 13, 1982.

In addition, samples were taken from the groundwater monitoring stations on November 13, 1982, to determine if any significant changes had occurred which would indicate a Reactor Building leak. These samples and samples taken subsequent to November 13, 1982, have shown no abnormal changes in groundwater tritium activity.

Long-term - GPUNC has monitored the RB Sump Level bubbler system for approximately one year. The results of this monitoring have demonstrated that the present installation is providing reliable RB Sump water level indication. GPUNC has, therefore, determined that the present system is satisfactory.

In order to alleviate occurrences of this reportable event, the bubbler line will be blown down once a month in order to prevent clogging of the RB Sump level's tygon tubing.

V. COMPONENT FAILURE DATA

N/A
TMI-2 bcc list
(external distribution)

Shaw, Pittman, Potts & Trowbridge
Attn: Mr. E. L. Blake
1800 H Street, NW
Washington, DC 20036

Babcock and Wilcox, Inc.
Attn: Mr. George Kulynych
P.O. Box 1260
Lynchburg, VA 24505

US Nuclear Regulatory Commission
c/o Document Management Branch
Washington, DC 20555

Department of Energy (DOE)
Attn: Mr. Willis Sixby
Building 400 - TMI

EG&G
Attn: Mr. Harold Burton
Building 400 - TMI

Department of Natural Resources
Power Plant Siting Program
Attn: Dr. Steven Long, Director
Tawes State Office, Building B-3
580 Taylor Avenue
Annapolis, MD 21401

Bureau of Radiation Protection
PA Department of Environmental Resources
Attn: Mr. Thomas Gerusky, Director
Fulton National Bank Building
Harrisburg, PA 17120

America Nuclear Insurers
Attn: Mr. P. R. Fox
The Exchange, Suite 245
270 Farmington Avenue
Farmington, CT 06032

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New York, NY 10020

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1100 Circle 75 Parkway
Atlanta, GA 30339

GPUNC Parsippany - Cherry Hill Building
Attn: Mr. P. Walsh
Technical Functions Department