

December 30, 1992

Docket No. 50-346

LICENSEE: TOLEDO EDISON COMPANY
FACILITY: DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1
SUBJECT: SUMMARY OF MEETING HELD ON DECEMBER 15, 1992
TO DISCUSS A PROPOSED ALTERNATIVE TO SFAS IN
MODE 6 (TAC NO. M84153)

On December 15, 1992, NRC staff members met at Rockville, Maryland, with employees of Toledo Edison Company (TE) to discuss a proposed amendment that would allow an alternative to the safety features actuation system (SFAS) in Mode 6 (refueling) for the Davis-Besse Nuclear Power Station, Unit 1. A list of attendees is included as enclosure 1. The handouts used at the meeting are included as enclosure 2.

The current operation of the containment purge system in Mode 6 including SFAS isolation and the proposed alternate method of system isolation in Mode 6 in accordance with the proposed license amendment dated July 28, 1992 were discussed. TE stated that the consequences of the fuel handling accident remain acceptable and in fact do not change as a result of this proposal. The NRC staff had the following two questions at the close of the meeting. What is the power supply for the noble gas monitor RE5052C? What was the amount of containment purge system operation in Mode 6 during the last refueling outage? TE stated that it would obtain that information for the staff.

ORIGINAL SIGNED BY

Jon B. Hopkins, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

DISTRIBUTION

Enclosures:
As stated
cc w/enclosure:
See next page

| | |
|-------------------|-----------------|
| Docket File | OGC |
| NRC & Local PDRs | EJordan |
| PD3-3 Reading | JMinns |
| TMurley/FMiraglia | BMarcus |
| JPartlow | ACRS(10) |
| JRoe | GGrant, EDO |
| TKing | Region III, DRP |
| JHannon | |
| PKreutzer | |
| JHopkins | |

| OFFICE | PDIII-3:LA:DRPW | PDIII-3:PM:DRPW | PDIII-3:PD:DRPW |
|--------|----------------------|---------------------|--------------------|
| NAME | PKreutzer <i>JBH</i> | JBHopkins/jbh/baj | JHannon <i>JBH</i> |
| DATE | 12/30/92 | 12/30/92 <i>JBH</i> | 12/30/92 |

OFFICIAL RECORD

DOCUMENT NAME: g:\davisbes\db1215.mts

9301050358 921230
PDR ADOCK 05000346
P PDR

NRC FILE CENTER COPY

DF01



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

December 30, 1992

Docket No. 50-346

LICENSEE: TOLEDO EDISON COMPANY
FACILITY: DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1
SUBJECT: SUMMARY OF MEETING HELD ON DECEMBER 15, 1992
TO DISCUSS A PROPOSED ALTERNATIVE TO SFAS IN
MODE 6 (TAC NO. M84153)

On December 15, 1992, NRC staff members met at Rockville, Maryland, with employees of Toledo Edison Company (TE) to discuss a proposed amendment that would allow an alternative to the safety features actuation system (SFAS) in Mode 6 (refueling) for the Davis-Besse Nuclear Power Station, Unit 1. A list of attendees is included as enclosure 1. The handouts used at the meeting are included as enclosure 2.

The current operation of the containment purge system in Mode 6 including SFAS isolation and the proposed alternate method of system isolation in Mode 6 in accordance with the proposed license amendment dated July 28, 1992 were discussed. TE stated that the consequences of the fuel handling accident remain acceptable and in fact do not change as a result of this proposal. The NRC staff had the following two questions at the close of the meeting. What is the power supply for the noble gas monitor RE5052C? What was the amount of containment purge system operation in Mode 6 during the last refueling outage? TE stated that it would obtain that information for the staff.

A handwritten signature in cursive script, reading "Jon B. Hopkins, Sr.", is positioned above the typed name.

Jon B. Hopkins, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc w/enclosure:
See next page

Davis-Besse Nuclear Power Station
Toledo Edison Company

Unit No. 1

cc:

Mary E. O'Reilly
Centerior Energy Corporation
300 Madison Avenue
Toledo, Ohio 43652

Radiological Health Program
Ohio Department of Health
Post Office Box 118
Columbus, Ohio 43266-0149

Mr. Robert W. Schrauder
Manager, Nuclear Licensing
Toledo Edison Company
300 Madison Avenue
Toledo, Ohio 43652

Attorney General
Department of Attorney
General
30 East Broad Street
Columbus, Ohio 43215

Gerald Charnoff, Esq.
Shaw, Pittman, Potts
and Trowbridge
2300 N Street, N.W.
Washington, D.C. 20037

Mr. James W. Harris, Director
Division of Power Generation
Ohio Department of Industrial Regulations
P. O. Box 825
Columbus, Ohio 43216

Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Ohio Environmental Protection Agency
DERR--Compliance Unit
ATTN: Zack A. Clayton
P. O. Box 1049
Columbus, Ohio 43266-0149

Mr. Robert B. Borsum
Babcock & Wilcox
Nuclear Power Generation Division
1700 Rockville Pike, Suite 525
Rockville, MD 20852

President, Board of Ottawa
County Commissioners
Port Clinton, Ohio 43452

Resident Inspector
U. S. Nuclear Regulatory Commission
5503 N. State Route 2
Oak Harbor, Ohio 43449

State of Ohio
Public Utilities Commission
180 East Broad Street
Columbus, Ohio 43266-0573

Mr. Murray R. Edelman
Executive Vice President -
Power Generation
Centerior Service Company
6200 Oak Tree Boulevard
Independence, Ohio 44101

Mr. James R. Williams
State Liaison to the NRC
Adjutant General's Department
Office of Emergency Management Agency
2825 West Granville Road
Columbus, Ohio 43235-2712

Mr. Donald C. Shelton, Vice President
Nuclear - Davis-Besse
Centerior Service Company
c/o Toledo Edison Company
300 Madison Avenue
Toledo, Ohio 43652

Enclosure 1

ATTENDEES

December 15, 1992

NAME

ORGANIZATION

J. Hopkins
D. Wuokko
J. Wood
J. Minns
B. Marcus
C. Rupp
A. Zarkesh

NRC
TE
TE
NRC
NRC
TE
TE



CENTERIOR
ENERGY

DAVIS-BESSE NUCLEAR POWER STATION

Toledo Edison / NRC Meeting

on

Revising Technical Specification Requirements for Safety Features Actuation System During Refueling Outages

**NRC Headquarters
Rockville, MD
December 15, 1992**

AGENDA

- Purpose of Meeting
- Safety Features Actuation System Design
- Safety Analysis Report
- Present System Operation
- Refueling Technical Specification Requirements
- Alternate System Operation
- Proposed Technical Specification Changes

PURPOSE

Present Davis-Besse's proposal to modify the Safety Features Actuation System (SFAS) refueling outage TS requirements. An alternative to SFAS would be provided to mitigate releases from the refueling design basis accident (fuel handling accident).

Change would:

- Allow removal of SFAS from service during refueling outages and maintenance to be performed more easily.
- Provide an option that would not relocate SFAS Area Radiation Monitors into containment with resulting wear and tear.
- Reduce potential for inadvertent SFAS actuations during refueling outages.
- Increase flexibility in outage activity scheduling.
- Provide an alternate means to SFAS for restricting the accidental release of radioactivity..
- Retain present SFAS refueling outage TS requirement as an alternate method.

SFAS DESIGN

- Safety Features Actuation System (SFAS)
 - Design Basis: Prevent or limit fission product and energy release from the core, isolate the containment vessel, and initiate the engineered safety features equipment.
 - Four independent and redundant sensor channels
 - Diverse Inputs, Monitoring: Containment radiation levels
containment vessel pressure
reactor coolant pressure
borated water storage tank level
 - Sensor channels are coupled to four independent and redundant logic channels which actuate (on a two-out-of-four basis) two independent and redundant component trains
 - Sensors, logic and relays de-energize to trip

SAFETY ANALYSIS REPORT

- Refueling Design Basis Accident: Fuel Handling Accident Inside Containment
- SAR Section 15.4.7.3 Addresses Radiological Consequences of Fuel Handling Accident Inside Containment:
 - Does not credit containment isolation
 - Does not credit any filtration prior to release to atmosphere
 - Potential doses are well within guideline values of 10CFR Part 100:

| DOSE | PART 100 | DAVIS-BESSE | |
|------------------|----------|----------------------------|-----------------------|
| | | EXCLUSION AREA BOUNDARY | LPZ BOUNDARY |
| Thyroid (rem) | 300 | 44.7 | 2.33 |
| Whole Body (rem) | 25 | 0.17 | 8.86×10^{-3} |

PRESENT SYSTEM OPERATION (Refer to Drawing)

- **Four SFAS Area Radiation Monitors are relocated from containment annulus to inside containment vessel during refueling outages to maximize sensitivity for a fuel handling accident.**
- **To Purge in Mode 6 (During Core Alterations or Fuel Movement)**
 - Containment Purge Supply and Exhaust Fans are started.
 - Containment Isolation Valves (CIVs) CV5005, CV5006, CV5007 and CV5008 are opened.
 - Supply air passes through two volume control dampers (CV5062 and CV5013)
 - Purge air passes through HEPA filter and charcoal filter to station vent.

PRESENT SYSTEM OPERATION (Refer to Drawing)

- **In Event of High Airborne Radiation Inside Containment (During Core Alterations or Fuel Movement):**
 - Detected by GFAS area radiation monitors
 - Purge supply and exhaust fans shutdown in response to SFAS signal closing associated dampers
 - CIVs CV5005, CV5006, CV5007 and CV5008 close by SFAS signal
 - Emergency Ventilation System (EVS) started by SFAS signal
 - Bypass Damper (CV5061) to the EVS opens on high radiation level detected by RE5052

REFUELING SFAS TS REQUIREMENTS

- **TS 3/4.3.2; SFAS Instrumentation**

Requires SFAS high containment radiation instrumentation for containment isolation and manual actuation to be operable during core alterations or movement of irradiated fuel within containment (to meet TS 3/4.9.4 requirements).

- **TS 3/4.9.4, Refueling Operations - Containment Penetrations**

Requires closure of containment purge and exhaust isolation valves during core alterations or movement of irradiated fuel within containment upon an isolation signal.

- **TS 3/4.9.9, Refueling Operations - Containment Purge and Exhaust Isolation System**

Requires containment purge and exhaust isolation system closure capability on SFAS high containment radiation signal.

ALTERNATE SYSTEM OPERATION (Refer to Drawing)

- **Utilize existing Containment Purge and Exhaust System Noble Gas Monitor RE5052C (Located in the Containment Purge Exhaust Fan Suction)**
 - RE5052C is required by Offsite Dose Calculation Manual
 - Shiftly channel check performed
 - Monthly source check performed
 - Quarterly functional test performed (including stopping of supply and exhaust fans and closure or opening of dampers)
- **In Event of High Airborne Radiation, the Following Occurs Automatically:**
 - Purge supply and exhaust fans shutdown
 - Outside air intake volume control damper (CV5003A) and purge supply fan discharge volume control damper (CV5003B) close
 - Volume control damper upstream of the purge air exhaust filter (CV5062) and the purge exhaust fan discharge volume control damper (CV5013) close
 - Volume control damper in bypass duct to EVS (CV5061) opens. EVS filter inlet dampers (CV5024 and CV5025) remain closed until EVS fans are started manually from control room.
- **Additional Control Room Actions Can Be Taken:**
 - Shut containment purge and exhaust isolation valves from control room

PROPOSED TS CHANGES

- **TS 3/4.3.2, SFAS Instrumentation**

- Add use of Containment Purge and Exhaust System Noble Gas Monitor (RE5052C) as an alternative to SFAS to meet TS 3/4.9.4 requirements

- **TS 3/4.9.4, Refueling Operations - Containment Penetrations**

- Revise Limiting Condition for Operation and Surveillance Requirements to allow use of either the SFAS or Monitor 5052C in restricting release of radioactivity

- **TS 3/4.9.9, Refueling Operations - Containment Purge and Exhaust Isolation System**

- Relocate requirements to TS 3/4.9.4 to eliminate duplication.
- Change requirement for SFAS - initiated Containment Purge and Exhaust Isolation System consistent with TS 3/4.3.2 and 3/4.9.4 changes.

Safety Features Actuation System

Level 1

Start EVS

Containment Vessel Purge and Sample Valve Isolation

Level 2

Start HPI

Start Containment Air Cooler at Low speed

Start Component Cooling Water Pumps

Close Containment Vacuum Relief Valves

Start Service Water

Open Containment Spray Isolation Valve

Start EDG

Isolate Containment

Level 3

Start Decay Heat/Low Pressure Injection Pumps and line valves up

Other misc. isolations

Level 4

Start Containment Spray

More misc Isolations

Level 5

Indication of need to transfer suction from BWST to Emergency Sump

Safety Features Actuation System

Five different actuations:

Level 1

Containment radiation twice background
Reactor coolant pressure low (1650 psig)
Containment vessel pressure high (18.4 psia)

Level 2

Reactor coolant pressure low (1650 psig)
Containment vessel pressure high (18.4 psia)

Level 3

Reactor coolant pressure low-low (450 psig)
Containment vessel pressure high (18.4 psia)

Level 4

Containment pressure high-high (38.4 psia)

Level 5

BWST level low (8 ft)

