



Public Service Electric and Gas Company P.O. Box E Hancocks Bridge, New Jersey 08038

Salem Generating Station

August 30, 1984

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Dear Sir:

LICENSE NO. DPR-75
DOCKET NO. 50-311
REPORTABLE OCCURRENCE 82-041/03X-1
SUPPLEMENTAL REPORT

Pursuant to the requirements of Salem Generating Station
Unit No. 2 Technical Specifications, Section 6.9.1.9.b,
we are submitting supplemental Licensee Event Report for
Reportable Occurrence 82-041/03X-1.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "J. M. Zupko, Jr.", is written above the typed name.

J. M. Zupko, Jr.
General Manager -
Salem Operations

JR:k11

CC: Distribution

The Energy People

IE22
1/1

Report Number: 82-041/03X-1
Report Date: 08/30/84
Occurrence Date: 05/16/82
Facility: Salem Generating Station Unit 2
Public Service Electric & Gas Company
Hancock's Bridge, New Jersey 08038

IDENTIFICATION OF OCCURRENCE:

No. 22 and 24 Containment Fan Coil Units - Inoperable

This report was initiated by Incident Reports 82-125 and 82-128

CONDITIONS PRIOR TO OCCURRENCE:

Mode 1 - Rx Power 100 % - Unit Load 1150 MWe

DESCRIPTION OF OCCURRENCE:

On May 16, 1982, during routine power operation, the Control Room Operator observed that No. 24 Containment Fan Coil Unit (CFCU) tripped shortly after being started in the high speed mode. No. 24 CFCU was declared inoperable, and at 1515 hours, Action Statement 3.6.2.3.a. was entered.

Later that week, on May 19, 1982, the Control Room Operator observed that the service water flow to No. 22 CFCU (in the low speed mode) was less than required by the Technical Specifications. No. 22 CFCU was declared inoperable, and at 0530 hours, with No. 24 CFCU still inoperable, Action Statement 3.6.2.3.b. was entered.

Redundant CFCU's and both Containment Spray Systems were operable throughout the occurrence.

APPARENT CAUSE OF OCCURRENCE:

No. 24 CFCU high speed supply breaker tripped due to a low overload trip setpoint. The low service water flow to No. 22 CFCU resulted from American oysters (*Crassostrea virginica*) plugging Cavitrol Valve 22SW57 tube bundle. It appears that larval oysters were drawn into the Service Water System, and passed through the strainers (0.10 mesh). The oysters attached themselves to piping walls, and thrived in low flow portions of the system. The oysters were released from their points of attachment during system operational transient events (pump shifts, lineup changes, etc.) and periodic chlorination. The larger oysters could not pass through the valve tube bundles, thereby restricting flow.

Other occurrences, involving oysters restricting flow to the CFCU's, were later noted (see LER's 82-046/03L, 82-049/03L, 82-050/03L, 82-058/03L and 82-117/03L).

ANALYSIS OF OCCURRENCE:

The CFCU's operate in conjunction with the containment spray systems to remove heat and radioactive contamination from the containment atmosphere, in the event of a design basis accident. Operability of the equipment is necessary to ensure offsite radiation dose is maintained within the limits prescribed by the Code of Federal Regulations, 10CFR 100. As noted, containment cooling capability was provided by the redundant equipment. These occurrences involved no undue risk to the health or safety of the public. Because the events constituted operation in a degraded mode, they were reportable in accordance with Technical Specification 6.9.1.9.b.

Technical Specification Action Statement 3.6.2.3.a. states:

With one group of containmenmt cooling fans inoperable, and both containment spray systems operable, restore the inoperable group of cooling fans to operable status within seven (7) days, or be in at least hot standby within the next six (6) hours, and in cold shutdown within thirty (30) hours.

Technical Specification Action Statement 3.6.2.3.b. states:

With two groups of containment cooling fans inoperable, and both containment spray systems operable, restore at least one group of inoperable cooling fans to operable status within seventy-two (72) hours, or be in at least hot standby within the next six (6) hours and in cold shutdown within the following thirty (30) hours.

CORRECTIVE ACTION:

No. 24 CFCU overload trip was properly adjusted, and the unit was satisfactorily tested. At 0314 hours, May 20, 1982, the CFCU was declared operable, and Action Statement 3.6.2.3.b. was terminated.

The oysters were removed from the tube bundle of Valve 22SW57, service water flow was restored to normal and No. 22 CFCU was satisfactorily tested. The unit was declared operable at 0330 hours, May 22, 1982, and Action Statement 3.6.2.3.a. was terminated.

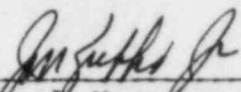
Because of the large number of 1982 occurrences, involving the inoperability of the CFCU's due to reduced service water flow, (see LER 82-083/03X-2), a detailed engineering investigation was performed. As a result, during the 1983 refueling outage, extensive cleaning of the Service Water System was performed. Silt and large amounts of oysters were removed. The cleaning was followed by a test chlorination, flushes and inspections. A Safety Evaluation was performed, and demonstrated that the Unit could be operated safely until the biofouling is fully eliminated. Additional flushes and inspections were performed, which confirmed this conclusion. Monitoring, flushes, and in-service inspections are continuing until evaluation confirms the problem has been eliminated.

CORRECTIVE ACTION: (cont'd)

A chlorination program to eliminate oysters and prevent the reinfestation of the Service Water System has been developed. Continuous chlorination at increased levels is currently being performed. To ensure compliance with the New Jersey Pollutant Discharge Elimination System permit requirements, a permanent sampling system has been installed.

During the 1983 refueling shutdown of Salem Unit 1, a small amount of biofouling of the Unit 1 Service Water System was also observed. Parallel measures were taken to correct the problem in that Unit. An inspection of Unit 1 Service Water System, during the 1984 refueling outage, revealed that the new chlorination and flushing program has been effective in preventing the reinfestation of marine growth.

Prepared By J. L. Rupp



General Manager -
Salem Operations

SORC Meeting No. 84-103