



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

Salem Generating Station

August 18, 1982

Mr. R. C. Haynes
Regional Administrator
USNRC
Region 1
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Mr. Haynes:

LICENSE NO. DPR-75
DOCKET NO. 50-311
REPORTABLE OCCURRENCE 82-074/01T

Pursuant to the requirements of Salem Generating Station
Unit No. 2, Technical Specifications, Section 6.9.1.8.c,
we are submitting Licensee Event Report for Reportable
Occurrence 82-074/01T. This report is required within
fourteen (14) days of the occurrence.

Sincerely yours,

H. J. Midura
General Manager -
Salem Operations

RF:ks

CC: Distribution

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The Energy People

IE22

10-2189 (20M) 11-81

Report Number: 82-074/01T
Report Date: 08-18-82
Occurrence Date: 08-13-82
Facility: Salem Generating Station, Unit 2
Public Service Electric & Gas Company
Hancocks Bridge, New Jersey 08038

IDENTIFICATION OF OCCURRENCE:

Containment Service Water Leak - No. 25 Containment Fan Coil Unit.

This report was initiated by Incident Reports 82-213, 214, and 215.

CONDITIONS PRIOR TO OCCURRENCE:

Mode 1 - Rx Power 82% - Unit Load 900 MWe.

DESCRIPTION OF OCCURRENCE:

At 1931 hours, August 13, 1982, during routine operation, the Control Room Operator noticed an increase of leakage to the containment sump as determined by operation of the containment sump pump. Since the leakage was not identified and greater than 1 GPM, Technical Specification Action Statement 3.4.7.2.b was entered for unidentified Reactor Coolant System (RCS) leakage. A containment entry was made to identify the leakage and at 2037 hours, a 1.0 GPM service water leak was observed emanating from the cooling coils on No. 25 Containment Fan Coil Unit (CFCU). Service water to the CFCU was immediately isolated, the unit was declared inoperable, and Action Statement 3.6.2.3.a was entered. Prompt notification to the NRC was made, with written confirmation transmitted on August 16, 1982. With unidentified leakage less than 1 GPM, Action Statement 3.4.7.2.b was terminated. The containment spray systems were both operable throughout the occurrence. Identified leakage was less than the Technical Specification limit of 10 GPM, and no Reactor Coolant Pressure boundary leakage was observed.

At 1000 hours, August 14, 1982, No. 22 CFCU was declared inoperable due to a similar cooling coil leak, and Action Statement 3.6.2.3.b was entered (see LER 82-075/01T).

DESIGNATION OF APPARENT CAUSE OF OCCURRENCE:

The leakage was due to the failure of the CFCU cooling coils. The coils are fabricated from copper-nickel alloy which is susceptible to erosion by the silt laden service water. Similar failures of other CFCU's have been noted, with most leaks occurring at bends where erosion is more significant. Corrosion involving dissimilar metals in the service water piping may also be involved.

ANALYSIS OF OCCURRENCE:

Primary containment is a design feature which ensures that the release of radioactive materials in the event of accident conditions will be restricted such that site boundary radiation doses will be within the limits of 10CFR100. NRC IE Bulletin 80-24 requires that any service water leak inside the containment be considered as a degradation of the containment boundary. If containment pressure increased to the design pressure of 47 psig during the accident, there is a possibility of the release of radioactivity through the service water discharge. The occurrence, therefore, constituted an abnormal degradation of the primary containment and is reportable in accordance with Technical Specification 6.9.1.8.c.

The RCS leakage limits are based on ensuring the ability of detecting leakage from the Reactor Coolant Pressure boundary. The boundary is one of the several design features which prevent the release of radioactive fission products to the environment (the others are the fuel cladding and primary containment). Action Statement 3.4.6.2.b requires: with any pressure boundary leakage, be in at least hot standby within 6 hours and in cold shutdown within the following 30 hours; with any RCS leakage greater than any one of the Technical Specification limits, excluding pressure boundary leakage, reduce the leakage rate to within limits within 4 hours, or be in at least hot standby within the next 6 hours and in cold shutdown within the following 30 hours.

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 either all fan coil groups or of both containment spray systems is necessary to ensure offsite radiation dose is maintained within the limits of 10CFR100.

Because the leakage was immediately isolated, containment integrity was maintained. The fuel cladding was intact and thus redundant fission product barriers existed. Finally, containment cooling capability was provided by the containment spray systems. The occurrence, therefore, involved no risk to the health or safety of the public. Due to the loss of redundancy in design and engineered safety features, the event constituted operation in a degraded mode permitted by the limiting conditions for operation.

Action Statement 3.6.2.3.a requires:

With one group of containment cooling fans inoperable, restore the inoperable group of cooling fans to operable status within the next 7 days, or be in hot standby within the next 6 hours and in cold shutdown within the following 30 hours.

ANALYSIS OF OCCURRENCE: (continued)

Action Statement 3.6.2.3.b requires:

With two groups of containment cooling fans inoperable, restore at least one group of cooling fans to operable status within 72 hours, or be in at least hot standby within the next 6 hours and in cold shutdown within the following 30 hours.

CORRECTIVE ACTION:

As noted, the leakage was immediately isolated, and prompt notification performed in accordance with Technical Specification 6.9.1.8. The unidentified leakage was determined to be less than 1.0 GPM and Action Statement 3.4.7.2.b was terminated within the specified interval. The leaky cooler was repaired by installation of blanks in the service water flanges, and leakage was stopped. The CFCU was returned to operation and satisfactorily tested. At 1825 hours, August 14, the unit was declared operable, and Action Statement 3.6.2.3.b was terminated. Action Statement 3.6.2.3.a remained in effect due to the inoperability of No. 22 CFCU; it was terminated at 0250 hours, August 15, 1982 within the 7 day time period specified.

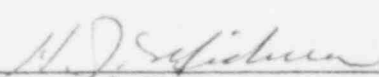
Design Change Request 2EC-0505 has been issued to replace the CFCU cooling coils with coils manufactured of AL-6X steel, for improved erosion and corrosion resistance in the service water environment. This change is scheduled for implementation during the next refueling outage. A commitment to submit a Supplemental Report upon completion was made in LER 82-070/01T.

FAILURE DATA:

Containment service water leaks due to erosion of Service Water System components on CFCU's have occurred five times since January 1, 1982.

Westinghouse Electric Corporation
Containment Fan Coil Unit
U-Tube Cooling Coil

Prepared By R. Frahm


General Manager -
Salem Operations

SORC Meeting No. 82-77