



Public Service Electric and Gas Company P.O. Box #168 Hancocks Bridge, New Jersey 08038

December 10, 1981

Mr. R. C. Haynes  
Director of USNRC  
Office of Inspection and Enforcement  
Region 1  
631 Park Avenue  
King of Prussia, Pennsylvania 19406

Dear Mr. Haynes:

LICENSE NO. DPR-75  
DOCKET NO. 50-311  
REPORTABLE OCCURRENCE 81-119/03L

Pursuant to the requirements of Salem Generating Station  
Unit No. 2, Technical Specifications, Section 6.9.1.9.b,  
we are submitting Licensee Event Report for Reportable  
Occurrence 81-119/03L. This report is required within  
thirty (30) days of the occurrence.

Sincerely yours,

H. J. Midura  
General Manager -  
Salem Operations

CC: Distribution

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PDR ADOCK 05000311  
S PDR

The Energy People



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Report Number: 81-119/03L  
Report Date: 12-10-81  
Occurrence Date: 11-11-81, 11-17-81, 11-18-81, and 11-22-81  
Facility: Salem Generating Station, Unit 2  
Public Service Electric & Gas Company  
Hancocks Bridge, New Jersey 08038

IDENTIFICATION OF OCCURRENCE:

Nuclear Instrumentation - Power Range Channel N-43 - Inoperable.

This report was initiated by Incident Reports 81-457, 81-463, 81-464, 81-465, and 81-475.

CONDITIONS PRIOR TO OCCURRENCE:

11-11-81	Mode 1 - Rx Power 100% - Unit Load 1150 MWe
11-17-81	Mode 1 - Rx Power 50% - Unit Load 540 MWe
11-17-81	Mode 1 - Rx Power 94% - Unit Load 1100 MWe
11-18-81	Mode 1 - Rx Power 86% - Unit Load 1000 MWe
11-22-81	Mode 1 - Rx Power 50% - Unit Load 580 MWe

DESCRIPTION OF OCCURRENCE, APPARENT CAUSE, AND CORRECTIVE ACTION:

From November 11, 1981 through November 28, 1981 malfunctions in Power Range Channel N-43 Nuclear Instrumentation caused a series of related incidents.

On November 11, 1981, after a Quadrant Power Tilt Ratio (QPTR) calculation, it was determined that the QPTR was 1.03. Channel N-43 was low by 3%. At 1430 hours Action Statement 3.2.4.a was entered, and, accordingly, reactor power was reduced to 90%. In order to correct Channel N-43, the summing amplifier was recalibrated and tested satisfactorily. The QPTR was recalculated satisfactorily, and at 0825 hours, November 12, 1981 Action Statement 3.2.4.a was terminated.

On November 17, 1981, after reaching 50% reactor power, following a startup from a trip the previous day, the QPTR was again calculated. Again it was determined to be 1.03. At 0230 hours Action Statement 3.2.4.a was entered, and reactor power was held at 50%. After holding the reactor power constant for one hour, the QPTR was recalculated and found to be within specification at 1.02. At 0338 hours Action Statement 3.2.4.a was terminated.

Later in the day a QPTR Surveillance calculation determined QPTR was out of specification at 1.03. At 1250 hours, November 17, 1981 Action Statement 3.2.4.a was entered. Flux mapping was performed, and established the QPTR as satisfactory. Since N-43 was the channel which caused the QPTR to be out of specification, due to full power current drift it was declared inoperable at 1030 hours, November 18, 1981, and Action Statement 3.3.1 Action 2 was entered. All associated bistables were placed in the tripped condition within one hour. A QPTR calculation was then performed utilizing the three remaining operable channels. The results were satisfactory and at 1115 hours, November 18, 1981 Action Statement 3.2.4.a was terminated.

A plateau calibration was performed on Channel N-43. The channel was then recalibrated utilizing new full power currents. QPTR calibrations were performed at least once every 12 hours, as required by Technical Specifications. At 2250 hours, November 18, 1981, Channel N-43 was tested satisfactorily and declared operable, and Action Statement 3.3.1 Action 2 was terminated.

The instrument manufacturer was contacted concerning the problems being experienced. They indicated that another plant with similar instrumentation was experiencing similar problems which had been diagnosed as premature detector aging. Their recommendation was to change the detector if problems continued to occur.

At 2320 hours, November 22, 1981, Power Range Channel N-43 was declared inoperable due to current drift, indicating detector degradation, and Action Statement 3.3.1 Action 2 was entered. The associated bistables were placed in the tripped condition as required by Technical Specifications. All requirements of Technical Specification 3.3.1 Action 2 were met.

On November 24, 1981 the reactor tripped. While the unit was shutdown, according to the manufacturer's recommendation, the upper and lower detectors of Channel N-43 were replaced and recalibrated. The channel was tested satisfactorily and declared operable. At 0327 hours, November 28, 1981 Action Statement 3.3.1 Action 2 was terminated.

ANALYSIS OF OCCURRENCE:

Technical Specification 3.2.4.a requires:

With the Quadrant Power Tilt Ratio (QPTR) determined to exceed 1.02 but less than or equal to 1.09, calculate the QPTR at least once per hour until either the QPTR is reduced to within its limit, or thermal power is reduced to less than 50% of rated thermal power. Within 2 hours either reduce the QPTR to within its limit, or reduce thermal power at least 3% from rated thermal power for each 1% of indicated QPTR in excess of 1.0.

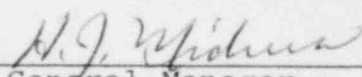
Technical Specification 3.3.1 Action 2 requires:

With the number of operable channels one less than the total number of channels, startup and/or power operation may proceed provided the following conditions are satisfied: a) the operable channel is placed in the tripped condition within one hour; d) the Quadrant Power Tilt Ratio is verified at least once per 12 hours when thermal power is greater than 75% of rated thermal power.

FAILURE DATA:

Westinghouse Electric Corporation  
Power Range Detector

Prepared By F. Dickey

  
General Manager -  
Salem Operations

SORC Meeting No. 81-125