NRC FORM 366
(7-77)

U. S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

CONTROL BLOCK: | | | | | | | (1)

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

01 LICENSEE CODE (2)	N J S G S 1
LICENSE NUMBER (3)	0 0 - 0 0 0 0 0 - 0 0
LICENSE TYPE (4)	4 1 1 1 1
CAT (5)	

CON'T 01 REPORT SOURCE (6)	L
DOCKET NUMBER (7)	0 5 0 0 0 2 7 2
EVENT DATE (8)	1 1 1 4 8 3
REPORT DATE (9)	1 1 2 3 8 3

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

02 On November 14, 1983, while performing functionals, Radiation Monitoring Channel 1R11A
03 failed to isolate containment ventilation. The remaining channels indicated the same
04 problem. It was determined that this condition existed during a pressure relief.
05 Containment isolation and indication of radioactivity levels were operable during the
06 occurrence. There was no impact on the health or safety of the public. The event is
07 reportable in accordance with Technical Specification 6.9.1.8b.
08

09	
SYSTEM CODE (11)	B B
CAUSE CODE (12)	E
CAUSE SUBCODE (13)	E
COMPONENT CODE (14)	I N S T R U
COMP. SUBCODE (15)	E
VALVE SUBCODE (16)	Z

(17) LER/RO REPORT NUMBER	
EVENT YEAR	8 3
	—
SEQUENTIAL REPORT NO.	0 5 3
	/
OCCURRENCE CODE	0 1
REPORT TYPE	T
	—
REVISION NO.	0

ACTION TAKEN (18)	E
FUTURE ACTION (19)	F
EFFECT ON PLANT (20)	Z
SHUTDOWN METHOD (21)	Z
HOURS (22)	0 0 0 0
ATTACHMENT SUBMITTED (23)	Y
NPRD-4 FORM SUB. (24)	Y
PRIME COMP. SUPPLIER (25)	A
COMPONENT MANUFACTURER (26)	Y 1 1 5

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

10 Channel 1R41A was exhibiting an isolation signal, but did not indicate this;
11 consequently, the signal was reset causing all channels to be blocked. Design Change
12 DCR 1EC-1790 will display this condition on an alarm in the control room.
13
14

15	
FACILITY STATUS (28)	E
% POWER (29)	1 0 0
OTHER STATUS (30)	N/A
METHOD OF DISCOVERY (31)	B
DISCOVERY DESCRIPTION (32)	Functional Check

16	
ACTIVITY RELEASED (33)	Z
CONTENT OF RELEASE (34)	Z
AMOUNT OF ACTIVITY (35)	N/A
LOCATION OF RELEASE (36)	N/A

17 PERSONNEL EXPOSURES	
NUMBER (37)	0 0 0
TYPE (38)	Z
DESCRIPTION (39)	N/A

18 PERSONNEL INJURIES	
NUMBER (40)	0 0 0
DESCRIPTION (41)	N/A

19 LOSS OF OR DAMAGE TO FACILITY (43)	
TYPE (42)	Z
DESCRIPTION	N/A

IE22

20 PUBLICITY	
ISSUED (44)	N
DESCRIPTION (45)	N/A

NRC USE ONLY

NAME OF PREPARER J. L. Rupp PHONE: (609) 339-6000

PSE&G

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

Salem Generating Station

November 23, 1983

Dr. Thomas E. Murley
Regional Administrator
USNRC
Region 1
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Dr. Murley:

LICENSE NO. DPR-70
DOCKET NO. 50-272
REPORTABLE OCCURRENCE 83-053/01T

Pursuant to the requirements of Salem Generating Station Unit No. 1 Technical Specifications, Section 6.9.1.8b, we are submitting Licensee Event Report for Reportable Occurrence 83-053/01T. This report is required within fourteen (14) days of the occurrence.

Sincerely yours,

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

JR:kll

CC: Distribution

Report Number: 83-053/01T

Report Date: 11-23-83

Occurrence Date: 11-14-83

Facility: Salem Generating Station Unit 1
Public Service Electric & Gas Company
Hancock's Bridge, New Jersey 08038

IDENTIFICATION OF OCCURRENCE:

Radiation Monitoring Instrumentation - Initiation Signal to Containment Ventilation Isolation - Inoperable

This report was initiated by Incident Report 83-204

CONDITIONS PRIOR TO OCCURRENCE:

Mode 1 - Rx Power 100 % - Unit Load 1145 MWe

DESCRIPTION OF OCCURRENCE:

At 1620 hours, November 14, 1983, during routine power operation, Technical Specification Action Statements 3.3.3.1b and 3.4.6.1a were entered and routine functional checks were performed on Radiation Monitor Channel 1R11A. During these checks it was discovered that Containment Ventilation Isolation was not actuated with the insertion of the high radiation test signal into the channel. Further testing indicated the same problem with the other Radiation Monitoring Channels (1R12A, 1R12B, 1R41A, 1R41B and 1R41C). The extent of the problem with the monitors was not immediately known; the Radiation Monitoring Channels were declared inoperable and the Chemistry Department was notified to obtain and analyze grab samples every twenty-four (24) hours in accordance with Technical Specification 3.4.6.1 while investigation continued.

It was discovered that Radiation Monitoring Channel 1R41A was exhibiting a constant containment ventilation isolation signal. This signal was not actuating Containment Ventilation Isolation; and in addition, the channel was blocking actuation signals from the other radiation monitoring channels. The constant "locked-in" signal was cleared, the setpoints were reinserted and a functional test was performed on 1R41A with the channel exhibiting satisfactory results. The output from the channel was blocked, using the output block switch, to prevent recurrence.

The functional check of Radiation Monitoring Channel 1R11A was again performed, this time with satisfactory results; the channel actuated Containment Ventilation Isolation with a high radiation test signal. Channels 1R12A and 1R12B were tested; they too actuated Containment Ventilation Isolation with a high radiation test signal. Channels 1R11A, 1R12A and 1R12B were restored to operation and Technical Specification Action Statements 3.3.3.1b and 3.4.6.1a were terminated at 1845 hours, November 14, 1983.

DESCRIPTION OF OCCURRENCE: (cont'd)

The investigation continued and on the following day, November 15, 1983, it was discovered that Radiation Monitoring Channels 1R41B and 1R41C could conceivably block the actuation signals from the other channels, if they were to fail in the same manner as did Channel 1R41A. The output block switches for these channels were also placed in the block position to prevent a similar occurrence. It was also determined that the time that the high radiation actuation signals from the channels were blocked was after the hour of 1135, November 14, 1983. When this was established, a review of the operating logs revealed that a pressure relief had been performed between the hours of 1319 and 1413 on November 14, 1983. This pressure relief was performed before the action statements were entered to perform the functional check of 1R11A. The NRC Resident Inspectors were immediately notified of the potential reportable occurrence in accordance with Technical Specification 6.9.1.8b. This verbal report was followed by written confirmation to the NRC Regional Administrator the following day.

APPARENT CAUSE OF OCCURRENCE:

At 1135 hours, November 14, 1983, functional checks of Radiation Monitoring Channels 1R41A, 1R41B and 1R41C were satisfactorily completed. After the functional tests were completed, the operator reset Train "A" and "B" Containment Ventilation Isolation signal to safeguards.

The 1R41 channels are not wired to the "CONTAINMENT VENTILATION ISOLATION RESET WITH ACTUATION" alarm on the overhead annunciator in the control room, as are the 1R11 and 1R12 channels; because of this, the only way of knowing that an isolation actuation signal from the 1R41 channels is present is by indication on the instrument drawers or the repeaters in the control room.

No alarm indication was visible on the instrument drawers or in the control room. Unknown to the operator, Channel 1R41A was exhibiting a continuous Containment Ventilation Isolation signal. With an isolation actuation signal present and the signal to safeguards reset, the isolation signals from the other radiation monitoring channels were blocked.

ANALYSIS OF OCCURRENCE:

The Radiation Monitoring System ensures that the levels of airborne particulate, gaseous and radioactive iodine levels inside of the containment are continually monitored. The system will provide indication of activity levels, alarms and automatic isolation signals to the Containment Ventilation Isolation System. The system also functions as a Reactor Coolant System (RCS) leak detection system.

ANALYSIS OF OCCURRENCE: (cont'd)

Technical Specification Action Statement 3.3.3.1 Actions 20 and 22 require:

> With one of the leak detection systems inoperable, operation may continue for up to 30 days provided grab samples of the containment atmosphere are obtained and analyzed at least once per 24 hours when the required gaseous and/or particulate radioactivity monitoring system is inoperable; otherwise, be in at least hot standby within the next 6 hours and in cold shutdown within the following 30 hours.
>
> With the Containment Ventilation Isolation System inoperable, close each of the purge and pressure - vacuum relief penetrations providing direct access from the containment atmosphere to the outside atmosphere.

The redundant RCS leakage detection systems were in operation throughout the occurrence. Although a pressure relief was performed, the failure of the radiation monitors affected only the automatic isolation signal to the Containment Ventilation Isolation System. Indication of activity levels and associated alarm functions were operable during the pressure relief operation. Remote manual control of the Containment Ventilation Isolation Valves was maintained in the control room and isolation could have been accomplished in the event that airborne radioactivity values exceeded allowable limits. The airborne radioactivity levels never exceeded allowable limits. Automatic containment isolation was available in the event of a safety injection or high containment pressure; the Containment Isolation Valves would have shut upon signals from these conditions. The functional requirements of the Containment Isolation System was not affected by this occurrence. There was no impact on the health or safety of the public due to this event. Since operation of the unit was less conservative than the least conservative aspect of the limiting condition for operation established in the technical specifications, the event is reportable in accordance with Technical Specification 6.9.1.8b.

CORRECTIVE ACTION:

Radiation Monitoring Channels 1R11A, 1R12A and 1R12B were restored to normal operation and Technical Specification Action Statements 3.3.3.1b and 3.4.6.1a were terminated at 1845 hours, November 14, 1983.

At approximately 1615 hours, November 15, 1983, shortly after discovering that the automatic initiation signal from the radiation monitors to the Containment Ventilation Isolation System may have been inoperable during a pressure relief which had been performed on the previous day, the NRC Resident Inspectors were informed. Written confirmation of that verbal report was sent at approximately 0930 hours, November 16, 1983.

CORRECTIVE ACTION: (cont'd)

The outputs from Radiation Monitoring Channels 1R41A, 1R41B and 1R41C were blocked and will stay blocked until reliable indication of Containment Ventilation Isolation actuation signal outputs can be obtained.

Design Change Request (DCR) 1EC-1790 is being formulated. This DCR will wire the outputs from the 1R41 channels to the existing alarm, "CONTAINMENT VENTILATION ISOLATION RESET WITH ACTUATION SIGNAL", on the overhead annunciator in the control room. A supplemental report will be issued upon installation of the design change.

The indicating light on the instrument drawer did not indicate the isolation actuation signal. The light is not wired directly to the relay for the isolation signal; under certain conditions within the circuitry, the alarm may or may not be actuated upon an isolation actuation signal from the radiation monitor. An engineering investigation of this problem will be performed and appropriate action taken based on the results.

FAILURE DATA:

Radiation Monitor - 1R41A
Victoreen Inc.
860 Series

Prepared By J. Rupp

General Manager -
Salem Operations

SORC Meeting No. 83-145