

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Salem Generating Station - Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 2 7 2				PAGE (3) 1 OF 0 5										
TITLE (4) Waste Gas Holdup System Not Continuously Sampled For Oxygen																								
EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)														
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES				DOCKET NUMBER(S)											
0	9	1	9	8	5	8	5	0	1	0	0	1	0	1	8	8	5	0	5	0	0	0		
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 8: (Check one or more of the following) (11)																						
POWER LEVEL (10)		20.402(b)				20.406(c)				80.73(a)(2)(iv)				73.71(b)										
1		20.406(a)(1)(i)				80.36(e)(1)				80.73(a)(2)(v)				73.71(e)										
1 0 1 0		20.406(a)(1)(ii)				80.36(e)(2)				80.73(a)(2)(vi)				OTHER (Specify in Abstract below and in Text, NRC Form 386A)										
		20.406(a)(1)(iii)				80.73(a)(2)(ii)				80.73(a)(2)(vii)(A)														
		20.406(a)(1)(iv)				80.73(a)(2)(iii)				80.73(a)(2)(vii)(B)														
		20.406(a)(1)(v)				80.73(a)(2)(iv)				80.73(a)(2)(ix)														
LICENSEE CONTACT FOR THIS LER (12)																								
NAME J. L. Rupp - Operations Licensing Engineer										TELEPHONE NUMBER 6 0 9 3 3 9 - 4 3 0 9														
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																								
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS														
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR								
YES (If yes, complete EXPECTED SUBMISSION DATE)												X NO												

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On September 19, 1985, it was discovered that the in-service Waste Gas Decay Tank (WGDT) was not being continuously sampled for oxygen content as required by the Technical Specifications. The event was caused by an incorrect valve lineup which apparently occurred on September 15, 1985, following sampling of No. 13 WGDT. The event was therefore attributed to personnel error and failure to follow procedures. The valve lineup was corrected, and the oxygen content of the WGDT's was confirmed to be less than two percent, as required by the Technical Specifications. This event revealed the need for additional training in the operation of the newly designed gas analyzer system. As a result, a basic "user friendly" troubleshooting guide, for each alarm and condition which could occur on the Waste Gas Analyzer System, is being developed. In addition, both the initial and continuing training programs for licensed and non-licensed operators and for chemistry personnel will be upgraded to provide more familiarity with system capabilities, system operation and "trouble" alarm response. Two system design changes are also being considered for implementation. These improvements to the system design should eliminate confusion when responding to gas analyzer alarms, and allow personnel to more readily detect potential problems associated with the sample flow path.

IE 22
118510240050 851018
PDR ADDOCK 05000272
S PDR

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Salem Generating Station	DOCKET NUMBER	LER NUMBER	PAGE
Unit 1	05000272	85-010-00	2 OF 5

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse - Pressurized Water Reactor

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

IDENTIFICATION OF OCCURRENCE:

Waste Gas Holdup System Not Continuously Sampled For Oxygen

Discovery Date: 09/19/85

Report Date: 10/18/85

This report was initiated by Incident Report No. 85-229

CONDITIONS PRIOR TO OCCURRENCE:

Mode 1 - Rx Power 100 % - Unit Load 1100 MWe

DESCRIPTION OF OCCURRENCE:

At 1510 hours, September 19, 1985, during a routine tour by the Technical Supervisor-Chemistry Department, a slight up-scale indication of percent oxygen concentration (1.2%) was observed on the oxygen strip chart associated with Unit 2 Waste Gas Analyzer. Although below the alarm setpoint of two percent (2%), the indication did not appear normal, and was questioned by the supervisor. The waste gas analyzers for both Unit 1 and Unit 2 are designed to sample and analyze various points in the Gaseous Radwaste Management Systems [WE] for both hydrogen and oxygen, automatically cycling between the sample points at three (3) minute intervals. Each analyzer has the capability of sampling from either Unit 1, Unit 2 or both Units. At the time of discovery, both analyzers were operating, each sampling the Waste Gas Management Systems of both Units.

The questionable indication on the strip chart corresponded to sample point No. 10 (Unit 1 Waste Gas Decay Tanks). The supervisor advanced the circuitry to this sample point and placed the analyzer on "hold". After three to four (3-4) minutes, the low flow alarm for the oxygen system flowrater energized on the local annunciator. Sample flow proceeded to zero, at which time, the supervisor placed the gas analyzer back in the automatic mode of operation. The analyzer automatically shifted to another sample point, and normal sample flow was restored. The supervisor then proceeded to verify the sample flow path from Unit 1 Waste Gas Decay Tanks (WGDT's) and discovered 11, 12 and 14WG106 valves (gas analyzer isolation valves from No. 11, 12 and 14 WGDT's) shut; 13WG106 (gas analyzer isolation valve from No. 13 WGDT) was open.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Salem Generating Station	DOCKET NUMBER	LER NUMBER	PAGE
Unit 1	05000272	85-010-00	3 OF 5

DESCRIPTION OF OCCURRENCE: (cont'd)

No. 12 WGDТ was in service at the time, which means (with 12WG106 shut) that neither gas analyzer was sampling the in-service WGDТ. The gas analyzer isolation valves were immediately opened. Both gas analyzers were verified to be receiving samples from Unit 1 WGDТ's, and oxygen content of the tanks was confirmed to be less than two percent (2%). The shift supervisor was then notified of the event, and an investigation ensued to determine the cause of the occurrence.

Technical Specification 3.11.2.5 requires the concentration of oxygen in the Waste Gas Holdup System be limited to less than, or equal to, two percent (2%) by volume, and requires the system to be continuously monitored. In the event that continuous monitoring is not possible, Technical Specification 3.3.3.9 Action No. 35 requires grab samples to be obtained every twenty-four (24) hours and analyzed within the following four (4) hours. The Waste Gas Holdup System is defined in Safety Evaluation S-2-N510-CSE-299 as the WGDТ portions of the Gaseous Radwaste Management Systems. Therefore, since the Unit 1 WGDТ's were not continuously sampled, the Unit 1 Waste Gas Holdup System was not continuously sampled, and grab samples were not obtained as required by the Technical Specifications.

APPARENT CAUSE OF OCCURRENCE:

On September 15, 1985, No. 13 WGDТ was sampled prior to discharging the contents of the tank to the atmosphere. In accordance with procedures, the gas analyzer isolation valves (11, 12 and 14WG106) from the other WGDТ's were shut to ensure that a sample was obtained from only No. 13 WGDТ. Although not substantiated by discussions with the chemistry technician who obtained the sample, it appears that the valves were inadvertently left shut at the completion of sampling No. 13 WGDТ, and the event is therefore attributed to personnel error and the failure to follow procedures.

The slight up-scale indication of oxygen on the strip chart was erroneous. The gas analyzer utilizes a paramagnetic cell to detect the oxygen. This type of cell requires a relatively constant flow to respond correctly. If the flow is interrupted considerably (as was the case with the closed sample valves resulting in a no flow condition), an erroneous output will exist. This, in turn, results in a false indication of gas concentration.

During the investigation of this event, it was determined that both the equipment operators and chemistry technicians require additional training in the operation of the new gas analyzer system, and that improvements to the system design should be initiated to eliminate confusion when responding to gas analyzer alarms.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Salem Generating Station	DOCKET NUMBER	LER NUMBER	PAGE
Unit 1	05000272	85-010-00	4 OF 5

APPARENT CAUSE OF OCCURRENCE: (cont'd)

Explanation: When the low flow alarm is received on the local annunciator panel, it also provides a "GAS ANALYZER TROUBLE" alarm on the overhead annunciator in the control room. By the time an equipment operator arrives at the gas analyzer panel to respond to the alarm, the analyzer is sampling another point; i.e., it automatically shifts sample points every three (3) minutes. The equipment operator acknowledges the alarm and checks for low flow; however, flow is normal and the alarm is then cleared. When a chemistry technician is called to investigate, he finds the same conditions; i.e., gas analyzer functioning correctly with no apparent alarms.

ANALYSIS OF OCCURRENCE:

Compliance with Technical Specification 3.11.2.5 (continuous monitoring of the WGD'T's) is required to ensure that the concentration of potentially explosive gas mixtures in the Waste Gas Holdup System is maintained below the flammability limits for hydrogen and oxygen. Maintaining the concentration of oxygen and hydrogen below their flammability limits provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of General Design Criterion 60 of Appendix A to the Code of Federal Regulations, 10CFR Part 50.

Although Unit 1 WGD'T's themselves were not continuously sampled for oxygen for three (3) days, other portions of the Waste Gas Management System (including the Waste Holdup Tanks) were sampled. Since the WGD'T's provide the cover gas for the rest of the system, and because documentation confirms that oxygen content of the system remained below the two percent (2%) limit, it is reasonable to assume that the oxygen content of the WGD'T's did not exceed two percent (2%). However, because the requirements of Technical Specification 3.11.2.5 were not complied with, the event is reportable in accordance with the Code of Federal Regulations, 10CFR 50.73(a)(2)(i)(B).

CORRECTIVE ACTION:

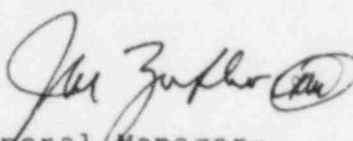
Immediate actions include the development of a basic "user friendly" troubleshooting guide, for each alarm and condition which could occur on the Waste Gas Analyzer System. This guide will be used by both Operations and Chemistry Department personnel, and will be completed, approved and in use no later than November 15, 1985. The existing training programs for the gas analyzer system are presently being evaluated. Both the initial and continuing training programs for licensed and non-licensed operators and for chemistry personnel will be upgraded to provide more familiarity with system capabilities, system operation and "trouble" alarm response.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Salem Generating Station	DOCKET NUMBER	LER NUMBER	PAGE
Unit 1	05000272	85-010-00	5 OF 5

CORRECTIVE ACTION: (cont'd)

In addition, there are two system design changes which are being considered for implementation at this time. One would automatically place the gas analyzer on "hold" when an alarm is received. The sample point at the time the alarm was received would be readily apparent to operators responding to the abnormal condition; thereby reducing the troubleshooting efforts required to identify the source and cause of the problem. The second design change is the separation of the oxygen and hydrogen low flow alarms on the local annunciator. Presently, when the low oxygen flow alarm is "locked in", a low hydrogen flow alarm is not possible since the local annunciator alarm is common to both. The separation of these two alarms would provide a redundant alarm to low flow conditions, and more readily alert personnel of a potential problem with the sample flow path.


General Manager-
Salem Operations

JLR:tns

SORC Mtg 85-144



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

Salem Generating Station

October 18, 1985

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

Dear Sir:

SALEM GENERATING STATION
LICENSE NO. DPR-70
DOCKET NO. 50-272
UNIT NO. 1
LICENSEE EVENT REPORT 85-010-00

This Licensee Event Report is being submitted pursuant to the requirements of 10CFR 50.73(a)(2)(i)(B). This report is required within thirty (30) days of discovery.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "J. M. Zupko, Jr.", enclosed in a circular mark.

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

JLR:ama

C Distribution