



Public Service Electric and Gas Company P.O. Box 236 Hancocks Bridge, New Jersey 08038-0236

Nuclear Business Unit

OCT 19 1998

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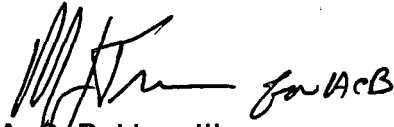
U. S. Nuclear Regulatory Commission  
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Washington, DC 20555

LER 272/98-014-00  
SALEM GENERATING STATION - UNIT 1  
FACILITY OPERATING LICENSE NO. DPR-70  
DOCKET NO. 50-272

Gentlemen:

This Licensee Event Report entitled "Technical Specification Non-compliance Caused By Improper Calibration Of The Liquid Radwaste Effluent Line Radiation Monitor (1R18)" is being submitted pursuant to the requirements of the Code of Federal Regulations \*\*\*\*10CFR50.73 (a)(2)(i)\*\*\*\*.

Sincerely,

  
A. C. Bakken III  
General Manager  
Salem Operations

Attachment

/rbk

C Distribution  
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The power is in your hands.

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

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05000272

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TITLE (4)

Technical Specification Non-compliance Caused By Improper Calibration Of The Liquid Radwaste Effluent Line Radiation Monitor (1R18)

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 NAME	DOCKET NUMBER
07	25	97	98	-- 014	-- 00	10	21	98		05000
										05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)					
		20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)	50.73(a)(2)(viii)
POWER LEVEL (10)	0	20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)	50.73(a)(2)(x)
		20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)	73.71
		20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)	OTHER
		20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
		20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Brooke Knieriem, Salem Licensing	(609) 339-1782

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

This LER documents a Technical Specification (TS) requirement non-compliance caused by the failure of maintenance technicians to correctly calibrate the Salem Unit 1, Liquid Radwaste Effluent Line Radiation Monitor (1R18).

This event is reportable under 10CFR50.73(a)(2)(i)(B), any operation or condition prohibited by TS. Contrary to TS 3.3.3.8, Radioactive Liquid Effluent Monitoring Instrumentation, technicians failed to correctly calibrate the Liquid Radwaste Effluent Line Radiation Monitor and thereby demonstrate the monitor's operability. The incorrect calibration caused the 1R18 to be inoperable from July 25, 1997 until August 21, 1998. Because station personnel were unaware that 1R18 was inoperable, compensatory actions required by TS 3.3.3.8 during radioactive effluent discharges were not carried out.

The apparent cause of this event was inattention to detail by maintenance personnel who performed the calibration. In the course of the calibration, technicians applied incorrect radioactive test source decay data, and did not recognize that recorded instrument count rate values were outside of the required tolerance band. In addition, the job supervisor did not adequately review the calibration documentation to verify that the calibration had been properly performed and that the recorded data was correct.

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

PLANT AND SYSTEM IDENTIFICATION

Westinghouse - Pressurized Water Reactor

Radioactive Liquid Effluent Monitoring Instrumentation {IL/MON}\*

\*Energy Industry Identification System (EIIS) codes and equipment function identifier codes appear as {SS/CC}

CONDITIONS PRIOR TO OCCURRENCE

Shutdown, Defueled

DESCRIPTION OF OCCURRENCE

On August 20, 1998, an NRC audit of Salem Generating Station's Radioactive Effluents Program revealed that the most recent channel calibration of the 1R18, Liquid Radwaste Effluent Line Radiation Monitor {IL/MON} performed on July 25, 1997, had been incorrectly performed.

TS 3.3.3.8, Radioactive Liquid Effluent Monitoring Instrumentation requires that an instrument calibration be performed on the 1R18 at least once per 18 months. During performance of the instrument calibration on July 25, 1997, maintenance technicians applied incorrect values from the calibration source decay tables. The technicians applied source decay values for May 1997 vice source decay values for July 1997. Additionally, the technician recorded "as left" values for the detected count rate for the R-15 source (one of the three calibration sources used as a part of the calibration procedure) that was outside of the tolerance band specified by the calibration procedure and failed to notice the out-of-tolerance condition. In addition, the out-of-tolerance values were not identified by the job supervisor during a subsequent review of the calibration data.

Because the calibration was improperly performed, the 1R18 was returned to service in an inoperable condition. This condition persisted until the 1R18 was correctly calibrated on August 21, 1998. During the performance of this calibration, all "as found" calibration data was within the required tolerance band. Therefore, 1R18 would have been capable of performing its design function. On September 23, 1998 a detailed investigation of the event was completed that determined that the event was reportable under 10CFR50.73(a)(2)(i).

TS 3.3.3.8 requires that with the 1R18 inoperable, effluent releases may continue provided that prior to initiating the release at least two independent samples are analyzed and at least two technically qualified members of the facility staff independently verify the release rate calculations and discharge valve lineup. Otherwise, the release of radioactive effluents via this pathway must be suspended. Because the plant staff was unaware that the 1R18 had been incorrectly calibrated and was therefore inoperable during the period from July 25, 1997 until August 20, 1998, these compensatory actions were not taken for discharges that occurred during that period when the 1R18 was not inoperable for other reasons.

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APPARENT CAUSE OF OCCURRENCE

The apparent cause of this occurrence was a lack of attention to detail and a failure to self-check on the part of the technicians that performed the calibration of the 1R18 on July 25, 1997. In addition, the job supervisor failed to adequately review the completed channel calibration documentation to verify that the calibration had been properly performed and that the recorded data was correct.

PRIOR SIMILAR OCCURRENCES

A review of LERs for Salem Units 1 and 2 and for the Hope Creek Generating Station identified one LER that discussed a similar occurrence. Salem Unit 1 LER 272/97-007-00, entitled "Failure To Perform Independent Verification Of Radioactive Release Lineup Required By Technical Specification 3.3.3.8", reported an event in which a Control Room Supervisor incorrectly marked a procedure step requiring independent verification of a radioactive effluent discharge valve lineup, as not applicable. The independent verification of the valve lineup was required at that time because the 1R18 radiation monitor was inoperable. The cause of this event was attributed to personnel error as a result of inattention to detail and a lack of self-verification on the part of the Control Room Supervisor.

SAFETY CONSEQUENCES AND IMPLICATIONS

Radioactive effluent monitoring instrumentation channels are calibrated and their setpoints are set to ensure that Technical Specification radioactive material concentration limits for liquid effluents released to unrestricted areas are not exceeded. In the case of 1R18, this is accomplished by providing an alarm and an automatic isolation of the effluent discharge in the event that effluent radiation levels exceed the 1R18 setpoint value.

In addition to the effluent monitoring channels, other measures are taken to limit discharge concentrations. These measures include sampling and analysis of the effluent prior to release, control of release rates based upon the activity to be discharged, and procedures to establish the release valve lineup.

In the event that a radioactive effluent monitoring channel is not operable, Technical Specifications require that for a radioactive effluent release to occur, compensatory measures must be taken to ensure that the concentration limits are not exceeded. These independent verifications ensure that TS limits are not exceeded when the final barrier to exceeding those limits, the radioactive effluent monitor, is not operable. In the case of 1R18, at least two independent samples must be analyzed in accordance with liquid effluent Technical Specification requirements. In addition, at least two technically qualified members of the facility staff must independently verify the release rate calculations and the discharge line valve lineup. Because plant staff was not aware that the 1R18 was inoperable from July 25, 1997 until August 21, 1998, these compensatory actions were not carried out for discharges that occurred when 1R18 was not inoperable for other reasons.

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Although compensatory measures were not taken as required by TS when the 1R18 was technically inoperable as a result of the improper calibration, effluent releases were conducted using procedurally controlled sampling, analyses, release rate determinations, and valve lineups. These actions in essence assure that releases are within allowable limits. In addition, the subsequent channel calibration performed on August 21, 1998 revealed that even though the wrong calibration data was used originally, all calibration data was within its required tolerance band. Therefore the 1R18 was capable of carrying out its design function to alert station personnel that release rate limits were being exceeded and to terminate the discharge.

Based upon the above, there is reasonable assurance that the health and safety of the general public were not affected by this event.

CORRECTIVE ACTIONS

1. A channel calibration was satisfactorily performed on the 1R18 on August 21, 1998 under Work Order 980820207.
2. The personnel involved in this event have been held accountable in accordance with PSE&G policies and procedures.
3. An independent assessment was performed of the latest channel calibration of the radioactive liquid effluent monitoring instruments that support the requirements of Technical Specification 3.3.3.8 for Salem Units 1 and 2. This assessment did not identify any other calibration errors that would affect the operability of these instruments. (PIR 980820207, CRQV 01)