

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

FACILITY NAME (1) SALEM GENERATING STATION, UNIT 2	DOCKET NUMBER (2) 05000311	PAGE (3) 1 OF 6
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TITLE (4)
Technical Specification Violation: Failure to analyze second sample with Radiation Monitor Inoperable

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	05	95	95	-- 005 --	00	08	04	95	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9) 5	POWER LEVEL (1) 0 %	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
		20.402(b)			20.405(c)			50.73(a)(2)(iv)		73.71(b)
		20.405(a)(1)(i)			50.36(c)(1)			50.73(a)(2)(v)		73.71(c)
		20.405(a)(1)(ii)			50.36(c)(2)			50.73(a)(2)(vii)		OTHER
		20.405(a)(1)(iii)			<input checked="" type="checkbox"/> 50.73(a)(2)(i) (B)			50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iv)			50.73(a)(2)(ii)			50.73(a)(2)(viii)(B)		
20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(x)				

LICENSEE CONTACT FOR THIS LER (12)

NAME G. Suey, Chemistry Manager	TELEPHONE NUMBER (Include Area Code) (609) 339-2830
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
—	—	—	—	—					

SUPPLEMENTAL REPORT EXPECTED (14)					EXPECTED SUBMISSION DATE (15)		
YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/>	NO			MONTH	DAY	YEAR

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

On July 5, 1995 at approximately 0022 hours, a liquid release for 22 CVCS Monitoring Tank was initiated. The release evolution was completed at 0343 (same day). Prior to the release, one liquid effluent monitor (2R18) had been inoperable (since 5/6/95) and Technical Specification (TS) Action statement (3.3.3.8, Action B) was entered. This TS Action requires, in part that "prior to initiating a release, at least two independent samples are analyzed..." Prior to release, two independent samples were obtained from the monitoring tank. The first sample was analyzed for activity levels and manual release rate calculations were performed and independently verified. Release authorization was provided to Operations without analyzing and comparing the spectrum of the second sample with the first sample. This is in violation of the TS and procedure. Following the release, the technician advised the supervisor of the error on July 5, 1995 at approximately 0730 hours. The second sample was immediately analyzed and determined to be in agreement with the spectrum of the first sample. This event is attributed to personnel error. In addition, the procedures were enhanced to minimize the potential for human error. The Chemistry technician involved was disciplined and Chemistry department technicians were provided feedback and training.

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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

Energy Industry Identification System (EIIS) codes and component function identifier codes appear in the text as {XX/XX}.

Identification of Occurrence

Failure to analyze the second independent sample prior to releasing the contents of the Chemical Volume and Control System (CVCS) Monitoring Tank to the Service Water discharge header.

Event Date: July 5, 1995

Report Date July 26, 1995

This report was initiated by Incident Report No. 95-1065.

Conditions Prior to Occurrence:

Both Units were in a self-imposed extended shutdown

Mode 5 Reactor Power -0-% Unit Load -0- Mwe

Description of Occurrence

On July 5, 1995 at approximately 0022 hours, a liquid release from the 22 CVCS Monitoring Tank (CVCSMT){IL} was initiated. The release evolution was completed at 0343 (same day). Prior to the release, one liquid effluent monitor (2R18) had been inoperable (since 5/6/95) and Tech Spec Action statement (3.3.3.8, Action B) was entered. For one inoperable liquid effluent monitors, Tech Spec Action statement (3.3.3.8, Action B, Table 3.3-12, Note 26) requires, in part that "prior to initiating a release, at least two independent samples are analyzed...". Authorization for release of the tank contents was provided to Operations without analyzing and comparing the spectrum of the second sample with the first sample. Failure to perform the analysis of the second sample is in violation of the TS and procedure.

The CVCSMT stores the treated or low activity waste for analysis prior to discharging the waste through a monitored (2R18) line to the service water discharge header and then to the circulating water discharge. The analysis determines the quantity of radioactivity, with an isotopic breakdown of the constituent radionuclides.

Radiation Monitor (RM) channel 2R18 continuously monitors liquid radwaste released from Salem Unit 2. If a radiation alarm setpoint is exceeded or a

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Description of Occurrence (Cont'd)

monitor failure occurs, the channel initiates a closure signal to the 2WL51 valve thereby terminating the release in progress.

At the time of this event, the above RM was inoperable. Therefore, prior to initiating a release, two independent samples were obtained from the monitoring tank in accordance with TS Action statement (3.3.3.8, Action B, Table 3.3-12, Note 26). The first sample was analyzed by the Chemistry technician for activity levels. Manual release rate calculations were performed and independently verified by two independent and technically qualified members of the facility staff. The analysis determined that the quantity of radioactivity was below the allowable technical specification limit for release. The second sample was not analyzed until after the release evolution was completed.

Analysis of Occurrence

On July 4, 1995 at 1303, Chemistry Technicians completed the addition of hydrogen peroxide to Unit One Reactor Coolant System for crud burst in accordance with Procedure SC.CH-AD.RC-0413(Q). The purpose of this is to solubilize crud for cleanup via demineralizers, thereby reducing radiation levels. Samples are required approximately one hour after addition and after each start and stop (bump) of the Reactor Coolant Pump. A second addition was made at 1420 and sampling commenced at 1520. Additional samples were taken at 1610, 1635, and 1710 following bumping of each Reactor Coolant Pump (RCP). One other sample was taken during this shift at 2105.

At approximately 1730 (same day), the Unit 2 Nuclear Shift Supervisor (NSS) called and inquired about the status of 22 Chemical Volume Control System Monitoring Tank (CVCSMT) release samples. The shift technician was unaware of a pending need for a release from the monitor tank. There was no turnover from the previous shift stating release samples were needed (the previous shift technician also was unaware a release was needed). Once alerted, the shift technician found the release request in the Primary Chemistry Laboratory. At 1750 two independent samples were obtained from 22 CVCSMT and analysis started at 1757.

The shift technician returned to the Primary Lab and continued working on crud burst sample analysis and data entry while the CVCSMT sample was counting. The technician left the auxiliary building at approximately 1815 and returned shortly after 1830. Upon returning, he went to the Counting Room and checked the results of 22 CVCSMT. He prepared the liquid release initiation form in accordance with procedure SC.CH-TI.ZZ-0189(R), and performed the manual release rate calculations for liquid effluents in accordance with Form SC.CH-TI.ZZ-0189-3. He then forwarded the calculation to the other on-site

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Analysis of Occurrence (Cont'd)

qualified chemistry technician to perform the second independent verification of the release rate calculations.

At approximately 1950, the on-call Chemistry Supervisor was contacted at home by the shift technician to give release approval to Operations Department. The shift technician informed the supervisor that 2R18 RM was inoperable. The other on site chemistry technician performed the independent verification of the manual calculation. The release contained a warning message requiring the technician to contact a Chemistry Supervisor before proceeding. The warning message stated "the release may exceed projected quarterly dose criteria of T.S. 3.11.1.3 and may require processing prior to release". The Chemistry Supervisor discussed the technical specification with the technician. He asked the technician to verify the tank had been processed by the Boric Acid Evaporator or the Vendor Demineralizer/Filter. The technician reviewed procedure S2.OP-SO.WL-0002(Q) Attachment 2 page 1 of 12 and verified the tank had been processed. The Chemistry Supervisor provided written authorization for the release. Based on this written authorization, operations authorized and approved the release and the release evolution commenced.

The chemistry technician did not properly comply with all of the procedural requirements of SC.CH-TI.ZZ-0189(R). This procedure requires two independent samples be analyzed prior to initiation of a release.

On July 5, 1995 at approximately 0730, the shift technicians from July 4, 1995 informed the Counting Room Supervisor a mistake was made; the required second independent sample was not analyzed. The supervisor contacted the Control Room to see if the release of 22 CVCS MT could be stopped, but was informed the release had already occurred. The second sample was immediately analyzed and determined to be in agreement with the spectrum of the first sample.

Apparent Cause of Occurrence

The cause code classification "A", "personnel error" (per NUREG 1022) is attributed to this event. A contributing cause was determined to be self-imposed time pressure.

Prior Similar Occurrence

There are no previous similar events associated with the requirement to analyze the second independent sample prior to release.

Safety Significance

This condition is reportable pursuant to 10CFR50.73(a)(2)(i)(B) due to the failure to completely satisfy Technical Specification Action Statement 3.3.3.8(b) "Radioactive Liquid Effluent Monitoring Instrumentation" (Table 3.3-

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Safety Significance (Cont'd)

12, Action 26 (a) prior to the release. The second sample was analyzed after the release and determined to be in agreement with the spectrum of the first sample. The results of the analysis showed that the CVCSMT low activity waste was below the TS concentration limit for a liquid effluent release.

There was no Industrial Safety, radiological impact, or nuclear safety issues associated with this event. The nature of the violation was limited to "failure to analyze the second independent sample prior to initiating the release in accordance with Technical Specifications."

The CVCSMT stores the treated or low activity waste for analysis prior to discharging the waste through a monitored (2R18) line to the service water discharge header and then to the circulating water discharge. Channel 2R18 continuously monitors liquid radwaste released from Salem Unit 2. If a radiation alarm setpoint is exceeded or a monitor failure occurs, the channel initiates a closure signal to the 2WL51 isolation valve.

The 2R18 RM was declared inoperable since May 6, 1995 due to a RM System CPU and Software problem associated with the proper functioning of the overhead annunciator light and alarm. However, the RM was maintained and functional during this period. The RM (2R18) was calibrated April 11, 1995 and passed its functional check June 27, 1995. During the release evolution on July 5, 1995 the status of the RM (although declared inoperable) would have isolated the 2WL51 valve as designed upon detection of concentrations in excess of setpoint limits thereby terminating the release in progress. The Control Room would also have received a 2WL51 alarm, acknowledged the alarm and received a printout of the alarm condition.

Corrective Actions

Actions to correct the error and preclude future occurrences include the following:

1. The second sample was analyzed and determined to be in agreement with the first sample on July 5, 1995 at 0842 hours.
2. Chemistry Procedure SC.CH-TI.ZZ-0189(R), "Radiological Effluent Discharge Report Generation and Completion" has been revised to include a "checkoff" for the technician which states, "verify two independent samples have been analyzed, are in agreement, and spectrum attached" to release documents. This revision applies to both liquid and gaseous releases.

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Corrective Actions (Cont'd)

3. Operations procedures for liquid and gaseous releases are being revised to require a verification signature. This signature ensures that when a monitor is inoperable, a second independent sample is analyzed. This signature also provides for a second barrier which further precludes the possibility of human error.
4. On July 6, 1995 a Chemistry Department Stand-down was conducted for approximately 2.5 hours to discuss this event and other less significant events. Technicians provided feedback to supervision as to why they think this event occurred and what Chemistry can do as a department to prevent future events. Supervision introduced PARC, (Prioritize, Avoid, Relaxation, Control) to the technicians and received a commitment from them to use this concept. The technicians not present during the stand-down (e.g., vacation, ill, critical activities) were afforded the same opportunity during the Human Error Reduction Training conducted on 7/13 and 7/14/95.
5. On July 7, 1995, a "For Your Information (FYI)" bulletin was issued to Salem station personnel concerning this event. This FYI contained a brief analysis of the event and a discussion of defense barrier breakdowns. FYI's are a vehicle through which items considered important to PSE&G management are communicated to all station employees and facilitate supervisor and employee discussions and involvement, as applicable.
6. A review of the Chemistry workload vs. staffing was performed. Chemistry Supervision determined that adequate coverage was available.
7. On July 7, 1995 the technician involved was disciplined in accordance with the Positive Discipline Process for inadequate work performance.
8. Chemistry Technicians attended Chemistry specific Human Error Reduction Training similar to the training received by PSE&G management. This training provides the technicians with coping mechanisms for handling self-imposed and other job related pressures.
9. Those technicians who missed the Chemistry specific Human Error Reduction Training will discuss the concept of error reduction with their supervisor after they return.
10. Required reading of the LER by all Chemistry Technicians will be conducted upon issuance of the LER.
11. The new chemistry procedure revision will be reviewed with the Chemistry Technicians upon issuance.