

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1) SUSQUEHANNA STEAM ELECTRIC STATION - UNIT 1										DOCKET NUMBER (2) 0 5 0 0 0 3 8 7					PAGE (3) 1 OF 0 2		
TITLE (4) HIGH BACKGROUND RADIATION SURROUNDING SERVICE WATER RADIATION MONITOR																	
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 1	2 1	8 4	8 4	0 1 5	0 0	0 4	0 2	8 4					0 5 0 0 0				
OPERATING MODE (9) 5			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)														
POWER LEVEL (10) 0 0 0			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 (Specify in Abstract below and in Text, NRC Form 365A)					
			20.405(a)(1)(iii)			X 50.73(a)(2)(i)			50.73(a)(2)(viii)(A)								
			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)(ix)								
LICENSEE CONTACT FOR THIS LER (12) L.A. Kuczynski - Nuclear Plant Specialist III										TELEPHONE NUMBER AREA CODE 7 1 7 5 4 2 1 - 3 7 5 1 9							
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																	
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs							
B	*	M O I N	G O 8 0	N													
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 fifteen single-space typewritten lines) (16)

Background radiation in the area of the Service Water Radiation Monitor reached levels such that the monitor's high alarm setpoint could not ensure that the monitor would detect and alarm at 1 MPC Cs-137 equivalent. The monitor will be shielded so that it can perform its function properly. Based on plant conditions, service water samples and weekly cooling tower blowdown samples, it is considered that no discharges occurred at or near the Cs-137 MPC, except during times of monitored liquid radwaste releases.

8404100303 840402  
PDR ADDCK 05000387  
S PDR

\*System Codes Unavailable.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1) Susquehanna Steam Electric Station Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 8 7 8 4	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		— 0	1 5	— 0 0	0 2	OF	0 2

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

The initial setpoint calculation for the Service Water Radiation Monitor was not originally included in the Offsite Dose Calculation Manual (ODCM). (The Service Water Radiation Monitor is located at the Service Water piping discharge from the Fuel Pool Cooling Heat Exchangers.) Until this was corrected, the procedure which controls the once-per-18-month calibration of the monitor, as required by Technical Specification Table 4.3.7.10-1, Item 2.a, directed that the monitor's high alarm be set at three times background. This same procedure is also used to adjust the monitor's setpoints as necessary. For the first several months of plant operation, this methodology was extremely conservative. Background was initially 4 cps, resulting in a 12 cps high alarm setpoint. As the background increased and tripped the high alarm, grab samples were taken to verify that the Service Water remained uncontaminated and the high alarms setpoint was adjusted based on the new background. All of these setpoint adjustments were performed according to controlled procedures.

Until April 26, 1983, the high alarm setpoint was low enough to ensure that the service water exiting the fuel pool cooling heat exchangers contained less than the Cs-137 Maximum Permissible Concentration (MPC). (The Cs-137 MPC is calculated to be  $1.3E3$  cps above background, based upon the MPC for Cs-137 ( $2.0E-5$  uCi/ml) and an instrument efficiency of  $1.54E-8$  uCi/ml per cps.) After April 26, 1983, the Service Water Radiation Monitor high alarm setpoint ( $1.8E4$  cps) could not ensure that the service water discharge from the fuel pool cooling heat exchangers was less than 1 MPC Cs-137 equivalent due to the high background ( $6.0E3$  cps) in the area of the monitor.

On approximately December 12, 1983, the fuel pool cooling and cleanup system was put into service. From December 9 through 13, 1983, samples of service water from the discharge of the fuel pool heat exchangers were collected every 8 hours by procedures. All analyses showed contaminants to be less than the lower limit of detection (LLD). Eight hour samples were also collected during the following periods:

1/11/84 to 1/15/84 (hi rad. alarm received; samples taken until new setpoint was established).

1/20/84 to 2/20/84 (the ODCM was revised, effective 1/20/84 to include the Service Water Rad. Monitor; samples taken while the station responded to the change).

3/13/84 to present (samples taken due to concerns raised about detector effectiveness)

When this condition was first identified, it was determined to be reportable in the station's Semi-Annual Radioactive Effluent Release Report based on Tech. Spec. 8.3.7.10. Subsequent re-evaluation concluded that the provisions of 10CFR50.73(a)(2)(i) apply.

Based on plant conditions, service water samples and weekly cooling tower blowdown samples (all of which showed contaminants less than LLD except during periods of liquid radwaste discharge), it is not believed that any discharge occurred at or even near the Cs-137 Maximum Permissible Concentration.

Actions taken or planned include:

- Revising the monitor calibration procedure to be in accordance with the latest revision of the ODCM.
- Providing shielding around the monitor to protect it from varying background levels.



Pennsylvania Power & Light Company

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April 2, 1984

U.S. Nuclear Regulatory Commission  
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Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION  
LICENSEE EVENT REPORT 84-015-00  
ER 100450 FILE 841-23  
PLA-2164

Attached is Licensee Event Report 84-015. This event was determined reportable per 10CFR50.73(a)(2)(i) in that background radiation in the area of the Service Water Radiation Monitor reached levels such that the monitor's high alarm setpoint could not ensure that the service water discharge from the fuel pool cooling heat exchangers was less than 1 MPC Cs-137 equivalent. Plans are underway to shield the monitor so that it can perform its function properly.

H.W. Keiser  
Superintendent of Plant-Susquehanna

LAK/pjg

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