Portland General Electric Company
Trojan Nuclear Plant
71760 Columbia River Hwy
Rainier, Oregon 97048
(503) 556-3713

April 25, 1990
CPY-144-90

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

Gentlemen:

Licensee Event Report No. 90-10 is attached. This report discusses an event in which a chlorine detector failure caused isolation of the Control Room Normal Ventilation System.

Sincerely,

C. F. Yundt
General Manager
Trojan Nuclear Plant

c: Mr. John B. Martin
Regional Administrator, Region V
U.S. Nuclear Regulatory Commission

Mr. David Stewart-Smith
State of Oregon
Department of Energy

Mr. R. C. Barr
USNRC Resident Inspector
Trojan Nuclear Plant

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NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Trojan Nuclear Plant	0 5 0 0 0 3 4 4	1 OF 0 3

TITLE (4)

Chlorine Detector Failure Causes Isolation Of Control Room Normal Ventilation System

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 3	2 7	9 0	9 0	- 0 1 0	- 0 0		0 4	2 6	9 0	N/A	0 5 0 0 0
											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)	X	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 366A)	
			20.405(a)(1)(iii)		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)(x)			

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
E. W. Ford, Compliance Engineer	5 0 3 — 5 5 6 - 5 5 7 7

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	
D	V I	D E T	X 9 9 9	N							

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 March 27, 1990, the Trojan Nuclear Plant was shutdown in Mode 5. The 1990 refueling and maintenance outage was in progress. At 1346 the "B" train chlorine detector failed, causing isolation of the Control Room Normal Ventilation System, an Engineered Safety Features actuation. The cause of chlorine detector failure was a leaking membrane cap on the sensor probe which caused the probe to lose its electrolyte. It is suspected that the sensor probe membrane was damaged or the threads on the cap were not properly sealed when the detector was installed. This event had no effect upon public health and safety. The Control Room Normal Ventilation System responded, as designed, to isolate the control room from outside air when the chlorine detector failed. The failed chlorine detector probe was replaced on April 5, 1990. The chlorine detector vendor was contacted to obtain clarification on maintenance of the sensor probe. The information received will be incorporated into the chlorine detector technical manual for future reference. Additionally, the failed probe is being returned to the vendor for failure analysis. The results of the analysis will be reviewed for any further required corrective actions.

EVENT DESCRIPTION

On March 27, 1990, the Trojan Nuclear Plant was shutdown in Mode 5. The 1990 refueling and maintenance outage was in progress. At 1346 the "B" train chlorine detector [VI,DET] failed, causing isolation of the Control Room Normal Ventilation System [VI]. This is considered to be an event that resulted in an automatic actuation of an Engineered Safety Feature which is reportable under the requirements of 10 CFR 50.72(b)(2)(ii). At 1450 the Nuclear Regulatory Commission was notified of the event via the Emergency Notification System. This event is also considered reportable under the requirements of 10 CFR 50.73(a)(2)(iv). This report is submitted to fulfill those reporting requirements.

CAUSE

The cause of the Engineered Safety Feature actuation (isolation of the Control Room Normal Ventilation System) was the failure of the "B" train chlorine detector. The chlorine detection system is designed to isolate the Control Room Normal Ventilation System upon system failure or upon detection of chlorine in excess of pre-determined concentrations. Therefore, the actuation occurred in accordance with plant design.

The cause of chlorine detector failure was a leaking membrane cap on the sensor probe which caused the probe to lose its electrolyte. The chlorine detectors presently in use at the Trojan Nuclear Plant were installed earlier in the month because the response time of the original detectors was not adequate to meet the requirements of the plant toxic gas analysis. It is suspected that the sensor probe membrane was damaged or the threads on the cap were not properly sealed when the detector was installed.

EVENT ANALYSIS

This event had no effect upon public health and safety. The Control Room Normal Ventilation System responded, as required, to isolate the control room from outside air when the chlorine detector failed.

CORRECTIVE ACTIONS

The failed chlorine detector probe was replaced on April 5, 1990. The chlorine detector vendor (Sensidyne) was contacted to obtain clarification on maintenance of the sensor probe. The information received will be incorporated into the chlorine detector technical manual for future reference. Additionally, the failed probe is being returned to the vendor for failure analysis. The results of the analysis will be reviewed for any further required corrective actions.

PREVIOUS SIMILAR EVENTS

Three previous events were identified in which the Control Room Normal Ventilation System was isolated due to a toxic gas detector failure or because a spurious actuation signal was generated. These events were documented in Licensee Event Reports 88-07, 89-03 and 90-08.

This is the first Licensee Event Report identifying the failure of one of the new detectors.