

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) **Clinton Power Station** DOCKET NUMBER (2) **0 5 0 0 0 4 6 1** PAGE (3) **1 OF 0 3**

TITLE (4)
Control Room Ventilation Chlorine Mode Initiation Due to Chlorine Detector Failure

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)
09	30	86	86	003	00	10	23	86	None		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)	20.406(e)	<input checked="" type="checkbox"/> 80.73(a)(2)(iv)	73.71(b)
	20.406(a)(1)(i)	80.38(e)(1)	80.73(a)(2)(v)	73.71(e)
	20.406(a)(1)(ii)	80.38(e)(2)	80.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 365A)
	20.406(a)(1)(iii)	80.73(a)(2)(i)	80.73(a)(2)(vii)(A)	
	20.406(a)(1)(iv)	80.73(a)(2)(ii)	80.73(a)(2)(vii)(B)	
	20.406(a)(1)(v)	80.73(a)(2)(iii)	80.73(a)(2)(viii)	

LICENSEE CONTACT FOR THIS LER (12)
NAME **R. W. Morgenstern, Director-Plant Technical, Ext. 3210** TELEPHONE NUMBER **2 1 7 9 3 5 - 8 8 8 1**

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
B	V	I	DETP321	No					
B	V	I	DETP321	No					

SUPPLEMENTAL REPORT EXPECTED (14) YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15) MONTH DAY YEAR

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

On September 30, 1986, at 1455 hours, the Control Room Ventilation System (VC) train B shifted to the high chlorine mode of operation. The operator discovered a broken detector tape in one of the chlorine detectors. The operator rethreaded the tape which allowed the clearing of the alarm and return of the VC system to normal operation at 1530 hours. On October 2, 1986, at 0949 hours the VC system B train again shifted to the chlorine mode. The operator replaced the broken tape on another detector and returned the VC system to normal at 0958 hours. These failures were caused by excess spring tension on the detector heads causing excessive drag on the tape. The detector head tensions are being adjusted to prevent recurrence.

These failures occurred during initial fuel loading while the plant was in operational mode 5.

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TEXT (if more space is required, use additional NRC Form 305A's) (17)

DESCRIPTION OF EVENT

On September 30, 1986, at 1455 hours, with the plant in mode 5, 0% reactor power, ambient pressure and temperature, with the vessel head removed and initial fuel loading in progress, the Control Room received a high chlorine alarm for the Control Room Ventilation System (VC). Again on October 2, 1986, at 0949 hours, under the same plant conditions, another high chlorine alarm was received. In both cases the B train of the VC System, which was in the normal mode of operation, switched to the high chlorine mode of operation by closing the outside air intake dampers and the exhaust air dampers. An operator was sent to the chlorine detectors to determine the cause of the alarms. In each case the operator discovered that the chlorine detector CHEMCASSETTE tape was broken in the detector head. In both instances the tape was repaired and the detectors returned to service. The alarms were cleared and the VC System returned to the normal mode of operation by 1530 hours for the first event and by 0958 hours for the second event. A Maintenance Work Request was initiated after the second event to repair the faulty detectors. No other systems contributed to, or were affected by, this event.

ANALYSIS/CAUSE OF EVENT

The cause of both events was the breakage of the CHEMCASSETTE tapes in two of the four chlorine detectors. All of the detectors are identical MDA Scientific, Inc. Chlorine Detectors, Model 7040 FAN (Fast Acting Nuclear). The chlorine detector tapes are also manufactured by MDA Scientific, Inc. The tapes are paper impregnated with chemicals that react with chlorine to produce a stain. Optical detectors in the unit monitor the tape as it is pulled through the detector head where the tape is exposed to an air stream drawn from the outside air intakes. If a stain is detected the detector will alarm. The optics will also detect the lack of a tape in the head, which occurred in these instances, and will produce an alarm. Investigation revealed that the detector head tension was too tight, causing excessive drag on the detector tapes which caused the tapes to break. The root cause of these events was the excessive factory set tension on the chlorine detector heads which was greater than could be withstood by the tapes. This report is being submitted in accordance with 10CFR50.73(a)(2)(iv) due to the auto initiations of an Engineered Safety System.

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

SAFETY ASSESSMENT

During both events, all components of the Control Room Ventilation System responded per design. The detectors responded to the broken tape by failing in the alarm mode. The VC system responded appropriately to the detector alarm by automatically entering the high chlorine mode of operation which isolates the Control Room from the outside atmosphere by closing the makeup air intake dampers and the locker room exhaust dampers. The chlorine detection system is not required to be operable per Technical Specifications until initial fuel loading is complete and prior to placing the reactor mode switch into STARTUP; therefore, the safety of the plant was never compromised during these events. The consequences of this event would not be affected by any other plant operating mode.

CORRECTIVE ACTIONS

All the chlorine detector head tensions are being adjusted to ensure free movement of the detector tapes through the head without binding or using excessive force. The channel calibration surveillance procedure is being revised to include a check of the detector head tension. This corrective action should prevent future occurrences of this problem.

ADDITIONAL INFORMATION

No previous events of this type have been recorded as LERs for Clinton Power Station. The failed components were MDA Scientific, Inc. Chlorine Detectors, model 7040 FAN (Fast Acting Nuclear).

For further information of the above events contact R. W. Morgenstern, Director-Plant Technical at (217) 935-8881, Ext. 3210 or (alternate) J. F. Palchak, Supervisor-Plant Support Services, at Ext. 3203.