

APPROVED OMS NO.3150-0104
EXPIRES 8/31/96

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

No similar occurrences have been reported to the Commission in the last 5 years.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

UTILITY NAME (1)	DOCKET NO. (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQ. #	REV#			
VERMONT YANKEE NUCLEAR POWER STATION	05000271	89	-012	-00	02	OF	04

TEXT (If more space is required, use additional NRC Form 384A) (17)

DESCRIPTION OF EVENT:

On 3/3/89, with the plant shutdown for refueling, the West Switchgear Room CO₂ Suppression System (EIIS=KQ) initiated. The CO₂ initiation resulted in an initiation of the Control Room Toxic Gas Monitoring System (EIIS=VI).

The CO₂ correctly initiated due to ionized dust particles resulting from a ground fault on the "B" Service Water Pump Motor circuitry. The toxic gas correctly initiated and resulted from defective latches on the two interconnecting doors between the East and West Switchgear Rooms. The open doors allowed the CO₂ to vent from the West to East Rooms and subsequently the Control Room Ventilation Inlet which initiated the toxic gas monitor to the outside environment. The CO₂ then entered the Control Room ventilation inlet.

The plant Fire Brigade responded, investigated and subsequently restored the West Switchgear. Operating personnel donned Self Contained Breathing Apparatus (SCBS) until the Control Room Atmosphere was sampled and approved.

CAUSE OF EVENT:

The immediate cause of the event was the ground fault on the "B" Service Water Pump Motor circuit causing the West Switchgear Room CO₂ Suppression System to activate.

The intermediate cause of the event was the failure of the West to East Switchgear doors to latch (the door handles needed lubrication). This allowed the CO₂ to vent from the West to East Switchgear room. The CO₂ then was vented from the East Switchgear Room to the atmosphere resulting in a trip of the "A" Toxic Gas Detection System.

The root cause of the event was that the latches in the 1 hour fire barrier doors were not periodically inspected for proper operation.

ANALYSIS OF EVENT:

The East and West Switchgear Rooms are divided by a fire wall. Both rooms are protected by independent CO₂ Suppression Systems. The rooms are interconnected by two doors, both of which open into the East Room. During normal operation, air flow is maintained from each room by a fan which exhausts to outside of the building. Upon a CO₂ initiation, the fans will continue to operate for 5 minutes to allow CO₂ to fill the room and vent displaced air from the room. At the end of 5 minutes the fans turn off and a fire damper closes off the exhaust.

The analysis of the event is broken up into the following two sections:

1. Defeat of the 1 Hour Fire Barrier

As a result of the two doors between the East and West Switchgear Rooms failing to latch the differential pressure between the two rooms caused the doors to open while the CO₂ System was discharging in the West Switchgear Room. This resulted in a lower than expected CO₂ concentration in the West Room. Because there wasn't a fire in the West Room the low CO₂ concentration was not a problem.

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Had there actually been a fire in the West Switchgear Room, products of combustion would have been carried over into the East Room. This would have resulted in an actuation of the East CO₂ Suppression System. This actuation would have eliminated the differential pressure problem between the two rooms and closed the doors. Since, the CO₂ Systems discharge for approximately 30 minutes and the double actuations would most likely occur in the early part of the event, both rooms would have had an acceptable CO₂ concentration.

Thus, had an actual fire occurred the CO₂ Systems would have operated as necessary.

An initial CO₂ actuation in the East Switchgear Room would not have had any negative effect at all. Both sets of doors would have been held closed as a result of the differential pressure.

2. Initiation of Toxic Gas

As a result of the interconnecting doors allowing CO₂ to vent to the East Room (and subsequently to atmosphere and to the Control Room Ventilation Inlet) an unexpected actuation of the Toxic Gas Monitoring System occurred. This resulted in a Control Room Ventilation Isolation.

Per procedure, operators donned self contained breathing apparatus (SCBA) until the Control Room atmosphere was sampled, evaluated, and approved. The Sampling identified that the Control Room atmosphere was normal, and the operators removed the SCBAs. At no time was the safety of the plant affected by this event.

CORRECTIVE ACTIONS:

The following corrective actions have been completed.

Immediate corrective actions included:

1. Responding, investigating and returning the West Switchgear Room to normal by the Fire Brigade,
2. Stationing a Fire Watch in both Switchgear rooms until the CO₂ bottles were recharged and the door latches were fixed,
3. Adding the requirement to Operator rounds sheets to ensure the doors are shut and latched, and
4. Replacing one of the door latches and repairing the other.

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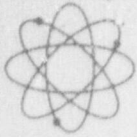
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Subsequent Corrective Actions will include:

1. Revising the administrative and operating fire procedures to require that the Control Room Ventilation System and toxic gas sample points are placed in the Recirculation mode upon an actuation of a CO₂ Suppression System.
2. Including the Switchgear Room door latches into the Vital Fire Barrier surveillance procedure to be periodically inspected for proper operation.
3. Evaluating the Toxic Gas Monitoring system to ensure that it is satisfying its original design requirement which is that controlled venting of CO₂ from the Cable Vault or Switchgear Rooms should not initiate the Toxic Gas system.
4. Including the grounding resistors as a preventive maintenance item.
5. Evaluating whether a test should be performed to ensure that subsequent corrective action #1 is effective, and
6. Providing additional training to inform personnel that certain activities have the potential of causing smoke detectors to go into an alarm condition.

ADDITIONAL INFORMATION:

No similar previous occurrences have been reported to the commission in the past five years.



VERMONT YANKEE NUCLEAR POWER CORPORATION

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U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

REFERENCE: Operating License DPR-28
Docket No. 50-271
Reportable Occurrence No. LER 89-12

Dear Sirs:

As defined by 10CFR50.73, we are reporting the attached Reportable Occurrence as LER 89-12.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

James P. Pelletier
Plant Manager

cc: Regional Administrator
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Region I
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