VERMONT YANKEE
NUCLEAR POWER CORPORATION

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September 25, 1996

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

Reference: (a) License No. DPR-28 (Docket No. 50-271)

Subject: Reportable Occurrence No. LER 96-019

As defined by 10CFR50.73, we are reporting the attached Reportable Occurrence as LER 96-019.

Sincerely,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Robert J. Wanczyk

Robert J. Wanczyk
Plant Manager

cc: USNRC Region 1 Administrator
USNRC Resident Inspector - VYNPS
USNRC Project Manager - VYNPS

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NRC Form 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION LICENSEE EVENT REPORT (LER)	APPROVED BY OMB NO. 3150-0104 EXPIRES 04/30/98 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), 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)	DOCKET NUMBER ( ) 05000271	PAGE (3) 01 OF 03
VERMONT YANKEE NUCLEAR POWER STATION		

TITLE (4) Half scram and group III containment isolation caused by loose Reactor Protection System breaker termination.

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 NO.(S) 05000
08	27	96	96	-- 019 --	00	09	25	96	N/A	

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: CHECK ONE OR MORE (11)							
POWER LEVEL (10)	89%		20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
			20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
			20.2203(a)(2)(ii)		20.2203(a)(4)	X	50.73(a)(2)(iv)		OTHER
			20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		(Specify in Abstract below or in NRC Form 366A)
			20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NO. (Include Area Code)
ROBERT J. WANCZYK, PLANT MANAGER	802-257-7711

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
NA					NA				
NA					NA				

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MO	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO				

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

On 08/27/96, while operating at 89% of rated thermal power, a half reactor scram and group III primary containment isolation occurred. Initial investigation identified that the "A" Reactor Protection System Logic power supply breaker had tripped. The heat from a loose terminal connection caused the breaker to trip. The breaker supplies power to both the A Reactor Protection System trip system logic and Primary Containment Isolation System functions. The Reactor Protection System trip logic, and the affected portions of the Primary Containment Isolation System are of a "fail-safe" design, in that they deenergize to perform their safety functions. The systems therefore actuated in a safe and conservative manner inserting a half reactor scram initiation signal and isolating the Primary Containment Purge and Makeup, Reactor Building Ventilation Supply and Exhaust, Containment Air Compressor Suction, Containment Atmosphere Dilution injection and vent, Containment Air Monitoring inlet and outlet, Containment exhaust to SBGTS, Drywell and Torus purge and vent lines , and started the Standby Gas Treatment System. The event was caused by improper breaker installation during plant construction. Breaker terminations were inspected and improvements were made. The breaker is scheduled for replacement. The equipment supplied by the affected RPS bus functioned as designed, the operating crew took actions as prescribed by plant procedures and Technical Specifications. The half reactor scram and primary containment isolation were reset following repair and retest of a loose terminal connection. Therefore, this event presented no risk to public health or safety.

DESCRIPTION OF EVENT

At 0020 on 08/27/96, while operating at 89% of rated thermal power, a half reactor scram and group III primary containment isolation occurred. Initial investigation identified the A Reactor Protection System trip logic supply breaker (EIIS = BKR) had tripped. The breaker supplies power to the Reactor Protection System (the A RPS trip channels, EIIS = JE) and provides power for Primary Containment Isolation System (PCIS) functions. The Reactor Protection System (RPS) trip logic, and the affected portions of the Primary Containment Isolation System are of a "fail-safe" design, in that they deenergize to perform their safety functions. The systems therefore actuated in a safe and conservative manner inserting a half reactor scram initiation signal, and isolating the Primary Containment Purge and Makeup, Reactor Building Ventilation Supply and Exhaust, Containment Air Compressor Suction, Containment Atmosphere Dilution injection and vent, Containment Air Monitoring inlet and outlet, Containment exhaust to SBGTS, Drywell and Torus purge and vent lines (EIIS = BB), and started the Standby Gas Treatment System (SBGTS EIIS = BH). The isolation required that the Drywell Continuous Atmospheric Monitoring (CAM, EIIS = IK) system be declared inoperable. The event was caused by improper breaker installation during plant initial construction. The equipment supplied by the affected RPS bus functioned as designed, the operating crew promptly took actions as prescribed by plant procedures and Technical Specifications. The half reactor scram and primary containment isolation were reset at 0444 on 08/27/96 following repair and retest of a loose terminal connection discovered on the affected breaker.

CAUSE OF EVENT

The root cause of the event is improper installation, in that non-standard termination techniques were employed.

> Work history records were reviewed and it was determined that neither RPS supply breaker had been worked since initial plant construction. Therefore it is not possible to determine the cause for the non-standard termination.

A contributing cause is a lack of preventive maintenance performed on the RPS breaker enclosures.

ANALYSIS OF EVENT

Maintenance personnel inspected the RPS supply circuit breaker and observed that one bus-side cable had discolored insulation about two inches from the compression lug. The connection (EIIS = CON) of the bus-side cable to the breaker was found loose.

The termination on the A RPS logic supply breaker did not provide proper contact between the cable lug and the breaker. The load current was forced to flow through the connection screw and/or the nut which was riveted to the bus. The load side cable was held in a nut (not the breaker nut) by a setscrew and the nut was held against the breaker bus metal by a 10-32 screw. This screw was loose. The loose connection caused excessive heating which affected the cable, causing the breaker trip.

The redundant (B RPS logic) supply breaker was inspected. These terminations were also non-standard, but tight.

The A RPS Supply Breaker was removed, inspected, and tested. The breaker connections were cleaned and the breaker was re-installed with new termination hardware. The breaker was placed in service and the RPS, PCIS, CAM systems were returned to the normal at approximately 0444 on the day of the event.

Some inconsistencies were noted in the bus and load cable terminations to the different connections on the affected breakers. Thermography inspections were used and identified that the A RPS Supply Breaker internal temperatures were above expected values. Replacement of both RPS logic power supply breakers is therefore scheduled.

Due to the nature of the non-standard terminations, and the potential failure modes, it can be concluded that none of the

protective systems affected by the RPS supply breakers were in a condition of reduced reliability due to the terminations used. Both the RPS and PCIS were at all times capable of meeting their safety objectives.

As the equipment supplied by the affected RPS logic power supply breaker is of a fail-safe design, the operating crew was immediately aware when the degraded condition lead to failure, and took prompt actions as prescribed by plant procedures and Technical Specifications. Therefore, there are no safety significant consequences to this event.

CORRECTIVE ACTIONS

1. Immediate

   a. An event report was generated, and reviewed by plant management (action complete).

   b. Technical Specification required actions for the loss of the affected RPS logic power supplies (Drywell Continuous Atmospheric Monitoring Inoperable) were taken (action complete).

   c. The affected RPS system was inspected and the loose, non-standard terminations were identified (action complete).

   d. The redundant RPS Bus supply breaker was inspected (action complete).

   e. The A RPS logic supply breaker terminations were removed and replaced using improved termination techniques (action complete).

   f. The A RPS logic supply breaker was inspected using thermography. It was deemed functional but is scheduled for replacement (scheduling complete).

2. Long Term

   a. Thermography will continue to monitor electrical connections and breakers per the Predictive Maintenance Program, Infrared Inspection Program to minimize the potential that similar termination deficiencies will go undetected (ongoing).

   b. Maintenance will replace 5A-CB-1A and replace or reterminate 5A-CB-1B during the current refueling outage. This will resolve irregularities in the terminations to the breakers (expected completion date 11/01/96).

   c. Maintenance will inspect and disposition any similar RPS terminations (expected completion date, 12/1/96).

   d. Maintenance Department will evaluate these breakers and other components of the RPS system for additions to the Preventive Maintenance program (expected completion date, 2/1/97).

ADDITIONAL INFORMATION

Similar events in the past five years have been reported as LER's: 95-09 which resulted in an ECCS actuation due to an improperly installed trip card; 95-07, 92-11 and 92-07 each of which resulted in PCIS actuations during work activities.