VERMONT YANKEE NUCLEAR POWER CORPORATION

P. O. BOX 157
GOVERNOR HUNT ROAD
VERNON, VERMONT 05354

December 12, 1990
VYV #90-391

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 90-17

Dear Sirs:

As defined by 10 CFR 50.73, we are reporting the attached Reportable Occurrence as LER 90-17.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Donald A. Reid
Plant Manager

cc: Regional Administrator
USNRC
Region I
475 Allendale Road
King of Prussia, PA 19406

IE22

NRC Form 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMS 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 (3160-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20603.

FACILITY NAME (1)	DOCKET NO. (2)	PAGE (3)
VERMONT YANKEE NUCLEAR POWER STATION	0 5 0 0 0 2 7 1	0 1 OF 0 3

TITLE (4)

APRM MISCALIBRATION DUE TO PERSONNEL ERROR

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQ. #	REV#	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NO.(S)
									N/A	0 5 0 0 0
1 1	1 4	9 0	9 0	- 1 1 7	- 0 0	1 2	1 2	9 0	N/A	0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO REQ'MTS OF 10CFR §: (11)					
POWER LEVEL (10)	0 2 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:		
		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)(x)			

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NO.
	AREA CODE
DONALD A. REID, PLANT MANAGER	8 0 2 2 5 7 - 7 7 1 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYST	COMPNT	MFR	REPORTABLE TO NPRDS	CAUSE	SYST	COMPNT	MFR	REPORTABLE TO NPRDS
N/A					N/A				
N/A					N/A				

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

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

On October 16, 1990, at 1156 and 1254 hours, with the reactor at approximately 20% core thermal power (CTP) while returning to power after a refueling outage. All six average power range monitors (APRMs) (EIIS=IG) were miscalibrated low. Technical Specifications require the ratio of the core maximum fraction of limiting power density (CMFLPD) to fraction of rated power (FRP), referred to as MOPRAT, be less than 1.0 by raising the gains on all the APRMs or taking action to reduce the ratio. On those two occasions the APRM gains were raised but not sufficiently high enough to maintain MOPRAT less than 1.0. They remained out of specification until the next gain adjustment at 0447 hours on October 17, 1990.

The root cause of this miscalibration is personnel error, in that the technician had a procedure data sheet which clearly states the calibration requirements. In addition this calibration is a weekly event and the technician has performed the calibration many times over the last 13 years.

All members of the department involved in surveillance procedures will receive training in the techniques of attention to detail.

DESCRIPTION OF EVENT

On October 16, 1990 at 1156 and 1254 hours with the reactor at approximately 20% power while raising power after a 6 week refueling outage the Average Power Range Monitors (APRMs) were inadvertently calibrated lower than required by the Technical Specifications. Above 1% Core Thermal Power (CTP) it is required that the ratio of Core Maximum Fraction of Limiting Power Density (CMFLPD) to Fraction of Rated Power (FRP) referred to as (MOPRAT) be less than 1.0. This ensures that CMFLPD remains below 1.0 should power inadvertently reach 100% (FRP=1.0). Maintaining CMFLPD less than 1.0 ensures the fuel cladding incurs less than 1% plastic strain during operational transients and prevents the clad from failing.

Procedure OP 4400 provides instructions for APRM gain adjustment. The value of MOPRAT was taken from the last core parameters computer (3D Monicore Monitor) case. MOPRAT is inverted to a Gain Adjustment Factor (GAF) which is used to raise the APRM reading above the actual CTP. The table below provides the details of both events.

Date/Time	HEAT BALANCE % CTP	MOPRAT	DESIRED APRM % CTP	ADJUSTED APRM % CTP	MAX. ERROR % CTP
10/16/90 1156	18.96	1.372	26.0	25.4	0.6
10/16/90 1254	21.95	1.463	32.3	30.9	1.4

After the second event on 10/16/90 at 1254 hours, reactor power was held constant until 2015 hours. From a computer calculation of CTP taken at 1847 hours only one of the six APRMs were still out of specification by 0.2% CTP. The next calibration was performed at 0447 hours on 10/17/90 at 48% CTP in which the MOPRAT used was 1.221, the calibration was performed correctly.

CAUSE OF EVENT

Personnel error was the cause of the event. Procedure OP 4400 is clear as to how the APRMs are to be calibrated. The technician did not have a copy of the procedure but was using the appropriate data sheet, which clearly states the acceptance criterion. The checkoff sheet requires a review and verification, that all the APRM final readings are adjusted to be +2/-0% of the adjusted value. This review is performed at a later date and is the reason that this miscalibration was discovered on 11/14/90.

The technician who made the error had performed this calibration many times over the previous 13 years and is aware that the final readings must be +2/-0% of the adjusted value. The last time he calibrated the APRM requiring a GAF was in June of 1990.

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

ANALYSIS OF EVENT

The event did not have any adverse safety implications to public health and safety. The basis for this calibration is protection in the event of an operational transient. At the power level the event occurred it is highly unlikely that any operational transient would have occurred that could have caused a fuel failure.

Ever though operators were unaware of the miscalibration, normal practice is to take actions which bring MOPRAT back to 1.0 by core flow increases and control rod withdrawal. This was confirmed by the MOPRAT used for the next calibration at 0447 hours the next day.

CORRECTIVE ACTIONS

No corrective actions were taken during the event, the deviation was not discovered until the review/verification process after the reactor was at full power.

All members of the department involved in surveillance procedures will receive training in the techniques of attention to detail.

ADDITIONAL INFORMATION

No similar event has occurred at this facility.