VERMONT YANKEE NUCLEAR POWER CORPORATION

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February 13, 1991
VYV #91-033

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 Rev. 1

Dear Sirs:

As defined by 10 CFR 50.73, we are reporting the attached Reportable Occurrence as LER 90-17 Rev. 1.

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

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1/1

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 5

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 0	1 6	9 0	9 0	- 0 1 7	- 0 1	0 2	1 3	9 1	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 29, 1990 an engineering review of APRM (EIIS=IG) calibration data obtained during plant startup identified a miscalibration at 1156 and 1254 hours on October 16, 1990 with the plant at 20% power. The Average Power Range Monitors (APRMs) were miscalibrated lower than required in Technical Specification sections 2.1.A.1.a, 2.1.B.1 and 3.1.B.

The root cause of the miscalibration was due to personnel error on the part of the technician performing the calibrations.

The review of the calibration data and initiation of the PRO were delayed due to startup activities and unfamiliarity with the reportable occurrence process.

Corrective actions include, training in attention to detail for all members of the department involved in surveillance procedures. The department has set up a special box for Technical Specification surveillances and Supervisors are required to review these surveillances soon after completion. Department personnel involved with potentially reportable occurrence decisions have been instructed on the urgency of taking prompt actions.

UTILITY NAME (1)	DOCKET NO. (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQ. #	REV#	
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TEXT (If more space is required, use additional NRC Form 366A) (17)

DESCRIPTION OF EVENT

On October 29, 1990 an engineering review of "APRM Calibration Check Off Sheets" performed during the startup from the refueling outage was performed. This review identified that at 1156 and 1254 hours on October 16, 1990 the Average Power Range Monitors (APRMs) were inadvertently calibrated lower than required by Technical Specification sections 2.1.A.1.a, 2.1.B.1, and 3.1.B. At the time of the event the plant was starting up from a six week refueling outage with power at approximately 20% reactor power.

On November 14, 1990, after a review of the occurrence by Reactor Engineering it was determined that the event could potentially be reportable and a Potential Reportable Occurrence (PRO) was initiated.

Technical Specifications require that above 1% Core Thermal Power (CTP) 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	22.3	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. This calibration and all further calibrations were 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 written verification that all APRM final readings are adjusted to be +2%/-0% of the desired value. These reviews were performed incorrectly twice, on October 16, 1990.

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 APRMs was in August of 1990.

The subsequent review conducted on October 29, 1990 which identified the error is normally conducted within two days of the calibration. However in this case the review occurred twelve days after the miscalibration due to heavy manpower requirements involved with Plant startup. The reviewer immediately documented the event to his immediate supervisor. The reviewer also had a discussion with the technician, pointing out his error and reminding him of the correct acceptance criterion.

The initiation of a PRO evaluation was delayed until November 14, 1990 because the Reactor Engineering Department was conducting their own internal engineering evaluation process to determine whether the event was reportable. This evaluation was conducted over a two week period and concluded that the event would be reportable, therefore the PRO evaluation process was initiated on November 14, 1990. This PRO evaluation agreed with the Reactor Engineering conclusion and a Licensee Event Report was submitted.

ANALYSIS OF EVENT

The requirements of Tech. Spec. sections 2.1.A.1.a, 2.1.B.1 and 3.1.B were not satisfied in that, the proper gains were not applied to the APRMs. However, no Tech. Spec. Limiting Safety System Setting (LSSS) was violated due to conservatism present in the APRM rod block and scram setpoints. There was approximately 4% conservatism in both the APRM rod block and scram setpoints at the time of the event. This extra margin is present due to the conservatism in setpoint adjustments and flow inputs into the APRM flow bias rod block and scram lines.

Had a transient occurred a full reactor scram would have been completed before CMFLPD reached 1.0. Therefore, no fuel failures would have developed in the event of an operational transient. As a result the event did not or would not have had any adverse safety implications to public health and safety.

Even 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.

The review of these surveillances were late due to manpower constraints during plant startup activities. Normally surveillances are reviewed within two working days of completion.

The initiation of a Potential Reportable Occurrence was not performed until November 14, 1990 by Reactor Engineering personnel.

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 have received training in the techniques of attention to detail.

All Tech. Spec. surveillances will be reviewed in a timely manner. The department has set up a special box for Tech. Spec. surveillances and supervisors are required to review these surveillances soon after completion.

Personnel involved in deciding on whether an event is potentially reportable have been instructed on the urgency of initiating a Potential Reportable Occurrence evaluation to allow for a timely decision regarding reportability.

ADDITIONAL INFORMATION

No similar event has occurred at this facility.