VERMONT YANKEE
NUCLEAR POWER CORPORATION

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June 1, 1995
BVY 95-60

U.S. Nuclear Regulatory Commission
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REFERENCE: Operating License DPR-28
Docket No. 50-271
Reportable Occurrence No. LER 95-008

Dear Sirs:

As defined by 10 CFR 50.73, we are reporting the attached Reportable Occurrence as LER 95-008.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

for
Robert J. Wanczyk
Plant Manager

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

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NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
VERMONT YANKEE NUCLEAR POWER STATION	05000271	1 OF 4

TITLE (4) PRIMARY CONTAINMENT ISOLATION SYSTEM ACTUATION ON HIGH STEAM LINE FLOW DURING A REACTOR STARTUP DUE TO INADEQUATE PROCEDURE BRANCHING.

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 NUMBER
									N/A	05000
05	02	95	95	-- 08 --	00	06	01	95	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	002		20.402(b)		20.405(c)	X	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)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)
			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 NUMBER (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

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	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 05/02/95, at 1610 hours, with the Mode Switch in "Startup" and the reactor at approximately 970 psig and 2% power, a Primary Containment Isolation System Group I isolation occurred due to a sensed Main Steam Line High Flow signal. This was received when Main Turbine Trip Solenoid MTS-2 was reset and the turbine bypass valves opened as a result of reactor pressure being above the setpoint of the in-service turbine-generator system pressure regulator. In response, the Main Steam Isolation Valves closed as expected and terminated the high flow condition.

The resetting of MTS-2 allows the turbine bypass valves to respond to a demand signal of the in-service turbine system pressure regulator. At the time of the event, MTS-2 was being reset in accordance with a special test procedure issued to ensure the proper startup and operation of the Main Turbine-Generator following the replacement of both low pressure turbines during the 1995 Refueling and Maintenance Outage.

The root cause of the event is attributed to inadequate procedure branching between the "Turbine Generator Operation" and "Reactor and Generations Systems Heatup to Low Power" procedures. Although both provide steps to reset MTS-2, only the latter procedure contains verifications to ensure the controlling pressure regulator does not have a demand signal present prior to resetting the solenoid.

Corrective Actions include the resolution of the procedural discrepancies regarding the reset of MTS-2, and long-term, evaluation of plant startup and shutdown procedures with the intent of developing integrated procedural guidance to streamline operational and procedural transitions during complex operating evolutions.

DESCRIPTION OF EVENT

On 05/02/95, at 1610 hours, with the Mode Switch in "Startup" and the reactor at approximately 970 psig and 2% power, a Primary Containment Isolation System (PCIS)(EIIS = JM) Group I isolation occurred due to a sensed Main Steam Line High (>40% of rated) Flow signal. This signal was received when Main Turbine Vacuum Master Trip Solenoid MTS-2 was reset and the turbine bypass valves opened as a result of reactor pressure being above the setpoint of the in-service turbine-generator system pressure regulator (EIIS = JI). In response to the PCIS signal, the Main Steam Isolation Valves (MSIVs) and associated Steam Line Drain Valves closed as expected and terminated the high steam flow condition. Immediate operator actions included the reset of the PCIS Group I Isolation, the opening of the Main Steam Line Drains, and the insertion of Control Rods which maintained reactor pressure within the normal startup range, thus averting the receipt of a Reactor High Pressure Scram signal (EIIS = JE). At 1647 hours, after verification that the high flow condition was a result of the sudden opening of the bypass valves, the MSIVs were reopened and the power ascension resumed approximately 10 minutes later. At 1838 hours, automatic pressure control was assumed by the turbine-generator system's Mechanical Pressure Regulator when reactor pressure reached the regulator setpoint.

The reset of MTS-2 provides for automatic control of reactor vessel pressure by allowing the turbine bypass valves to respond to the demand output signal from the in-service turbine-generator system pressure regulator; either the Electronic Pressure Regulator (EPR) or the Mechanical Pressure Regulator (MPR). At the time of the event, MTS-2 was being reset in accordance with Special Test Procedure (STP) 95-005 which was issued to ensure the proper startup and operation of the Turbine-Generator System following the replacement of both low pressure (LP) turbines during the 1995 Refueling and Maintenance Outage. This procedure superseded the normal Turbine-Generator Operational Procedure (OP 2160) for this startup only to provide additional guidance on the monitoring for potential rubs in the rolling and subsequent loading of the new LP machines. The majority of the steps from OP 2160 were repeated in STP 95-005; including the reset of MTS-2. Concurrent with this procedure, Operating Procedure OP0101 "Reactor and Generation Systems Heatup to Low Power" was being performed by Control Room personnel during the reactor startup.

CAUSE OF EVENT

The root cause of the event is attributed to inadequate procedure branching between the "Turbine Generator Operation" (OP 2160 / STP 95-005) and the "Reactor and Generations Systems Heatup to Low Power" (OP 0101) procedures. Just prior to the event, an Auxiliary Control Room Operator (ACRO) was directed by Shift Supervision to proceed with the warming of the turbine chest under STP 95-005. In accordance with the sequence outlined in this procedure, the ACRO verified Main Condenser backpressure was satisfactory, and that the associated isolation signals were clear prior to resetting MTS-2. However, as a result of the absence of a procedure step to verify pressure regulator output stroke indications were at zero (ie. no pressure demand signal), the respective EPR/MPR indicators were overlooked and MTS-2 was inadvertently reset with an MPR demand signal present. Although both STP 95-005 (OP2160) and OP0101 provide procedure steps to reset MTS-2, only OP0101 contains verifications to ensure MPR and EPR output strokes are at zero prior to performing the reset of the subject turbine vacuum trip.

ANALYSIS OF EVENT

All plant systems responded as expected. The Primary Containment Isolation System operated as designed and successfully isolated the respective PCIS Group I Valves in response to the sensed Main Steam Line High Flow condition. At the time of the event, reactor vessel pressure was approximately 970 psig with the MPR set at approximately 940 psig. Due to reactor pressure being greater than the MPR setting, the reset of MTS-2 caused the turbine bypass valves to ramp open to decrease reactor pressure to the demanded value. The resulting steam flow exceeded the Main Steam Line High (40% of rated) Flow setpoint which in-turn initiated the PCIS Group I Isolation. The valves which receive a close signal on a PCIS Group I Isolation are the Main Steam Line Isolation, Main Steam Line Drain, and Recirculation Loop Sample Valves. Of these, the MSIVs and MSL Drain Valves were the only ones open at the time of the event and closed as required. No other Engineered Safety Feature (ESF) actuations occurred or were expected as a result of this event. [Note: The MSL High Flow setpoint is automatically reduced from 140% to 40% of rated flow whenever the Mode Switch is out of the "Run" position. The basis for the 40% flow isolation in the Refuel, Shutdown, and Startup modes of operation is to provide protection against a pressure regulator malfunction which would cause the Control and/or Bypass Valves to open, resulting in a rapid depressurization and cooldown of the reactor vessel. When in the Run mode of operation, this regulator failure protection feature is provided by the PCIS Group I Isolation Logic on Main Steam Line Low Pressure (800 psig).]

There are no safety functions associated with the Main Turbine-Generator Pressure Regulator or Control Systems. The design basis of these systems is to accomplish the function of controlling reactor pressure and turbine speed. Specifically, the Main Turbine-Generator controls work in conjunction with the Nuclear Steam System controls to maintain essentially constant reactor pressure and limit reactor transients during load variations. These control systems also maintain turbine speed below design limitations. Although the event delayed the establishment of automatic pressure control via the Turbine Mechanical-Hydraulic Control (MHC) System (EIIS = TG), no safety consequences resulted because: 1) the PCIS Group I Isolation Logic functioned as expected and closed the MSIVs to avoid too rapid a cooldown of the reactor vessel, and 2) reactor pressure was maintained within the normal startup range throughout the event.

CORRECTIVE ACTIONS

Immediate

1. Following the event, the PCIS Group I Isolation was reset, the Main Steam Line Drains were reopened, and Control Rods were inserted to maintain reactor pressure within the normal startup range, thus averting the receipt of a Reactor High Pressure Scram signal.

2. The Main Steam Isolation Valves were subsequently reopened and the power ascension continued, after it was verified that the high flow condition was a result of the sudden opening of the turbine bypass valves. When reactor pressure later reached the setpoint of the Mechanical Pressure Regulator, operators verified the establishment of automatic pressure control via the turbine MHC system.

Short Term

1. Procedural discrepancies regarding the resetting of MTS-2 will be addressed by the Operations Department in Procedure OP2160. (Expected Completion Date: August 1995)

2. The Operations Manager will review this event with crew personnel directly involved to identify potential areas for improvement. (Expected Completion Date: June 1995). Areas identified will be forwarded to the training department to be included on the commitment log maintained for the crew and evaluated during simulator training critiques.

Long Term

1. Evaluation of plant startup and shutdown procedures/controls will be performed by the Operations Department with the intent of developing integrated procedural guidance to streamline operational and procedural transitions during complex operating evolutions. This evaluation will include an assessment of the point in a plant startup at which MTS-2 is reset to establish automatic pressure control through the bypass valves. All startup and shutdown procedural changes will be completed prior to the last scheduled operator training program cycle before the Cycle 19 Refueling Outage.
(Expected Completion Date: September 1996)

2. Reactor Low Power Level Emergency Operating Procedure scenarios are planned for inclusion in the Cycle 18 Licensed Operator Requalification schedule in accordance with the LOR Training Program Description.
(Expected Completion Date: September 1996)

3. Follow-up verification of command and control, and teamwork practices will be accomplished through the normal Operations Management monitoring of Operations personnel performance in the Control Room and/or Plant Simulator. (Expected Completion Date: N/A, Ongoing Process)

ADDITIONAL INFORMATION

There have been no events reported to the commission within the last 5 years that were determined to be similar.