NON-PUBLIC?: N
ACCESSION #: 9508290016
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Maine Yankee Atomic Power Company PAGE: 1 OF 2

DOCKET NUMBER: 05000309

TITLE: PLANT TRIP DURING MAIN TURBINE LOAD REDUCTION
EVENT DATE: 05/18/94 LER #: 94-008-01 REPORT DATE: 08/22/95

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 7 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
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ADVISOR
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COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On May 18,1994, the reactor tripped from 100% power on loss of load due to a main turbine trip. The main turbine tripped due to a trip of the turbine-driven feedwater pump (TDFP). The TDFP tripped on overspeed when high pressure (HP) steam was manually aligned to the TDFP.

Earlier, an air leak on a 345 KV switchyard breaker required decreasing power to 600 MWE (70% rated power) to allow breaker isolation. Reactor power was maintained at 100% while the main turbine load was being reduced. At 80% rated output, the main turbine extraction steam did not have sufficient pressure to run the TDFP and therefore HP steam had to be aligned. The control room recognized that the HP governor valve was cycling and dispatched an operator to open the HP isolation valve. Since the HP governor valve already had a high open demand signal, the pump tripped on overspeed.

The root cause of the plant trip was inadequate procedural guidance. Changes have been made to the procedure to prevent recurrence.

END OF ABSTRACT

The high pressure (HP) steam manual isolation valve (V) to the HP governor valve on the turbine-driven feed pump (TDFP)(P) is normally maintained closed during full power operations. The main turbine (TRB) extraction steam (ES) supplies steam to the TDFP through the low pressure (LP) governor valve. At lower power levels the ES pressure alone can not adequately run the TDFP at the speed necessary to supply the required feedwater flow rate.

At 1445 on May 18, 1994, while operating at 100% power, an operator reported an air leak on B phase of breaker K-378-1 in the 345 KV switchyard. The plant reduced main turbine load to 80% by opening turbine bypass valves and steam dump valves to the condenser. The intent was to maintain reactor power stable, reduce generator output to 600 MWE (70% rated output), isolate the breaker , and then return the plant to 900 MWE. The reactor was to be kept at 100% power for several reasons, including minimizing primary and secondary pressure changes to limit the effect on a known small steam generator tube leak and Reactor Coolant Pump seal stage concerns. In addition, the operators wanted to rapidly reduce electrical output due to a potential power grid instability concern.

At 80% main turbine load, the control room operators recognized that the LP governor valve was 100% open and the HP governor valve was cycling open. An operator was immediately dispatched to open the HP isolation valve. Upon opening the HP isolation valve, the TDFP tripped on overspeed since the HP governor valve had a high open demand signal.

At 2025, the reactor (RCT) automatically tripped from 100% power on loss of load due to a main turbine trip. The main turbine tripped due to a trip of the TDFP. The trip logic performed as expected.

Emergency Core Cooling (BQ)(BP)(BE) was not required and did not initiate. Emergency Feedwater (BA) automatically initiated as expected following a trip from full reactor power. No technical specification limits or safety limits were exceeded. Pressurizer (PZR) power operated relief and code safety valves (RV) were not challenged. Steam generator code safety valves were not challenged.

No similar occurrences have been reported by LER.

The root cause of the plant trip was inadequate procedural guidance. The associated procedure did not address opening the isolation valve during the turbine load reduction. Changes have been made to the procedure to prevent recurrence. A forma root cause evaluation was completed and included recommendations to further enhance operating the turbine-driven feed pump under all conditions.

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