Appendix 1

Proposed Technical Specification Changes

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BASES:

2.1 FUEL CLADDING INTEGRITY

A. Trip Settings

The bases for individual trip settings are discussed in the following paragraphs.

1. Neutron Flux Trip Settings

a. APRM Flux Scram Trip Setting (Run Mode)

The average power range monitoring (APRM) system, which is calibrated using heat balance data taken during steady state conditions, reads in percent of rated thermal power (1593 MWt). Because fission chambers provide the basic input signals, the APRM system responds directly to average neutron flux. During transients, the instantaneous rate of heat transfer from the fuel (reactor thermal power) is less than the instantaneous neutron flux due to the time constant of the fuel. Therefore, during abnormal operational transients, the thermal power of the fuel will be less than that indicated by the neutron flux at the scram setting. Analyses are performed to demonstrate that the APRM Flux Scram over the range of settings from a maximum of 120% to the minimum flow biased setpoint of 54% provide protection from the fuel safety limit for all abnormal operational transients including those that may result in a thermal hydraulic instability.

An increase in the APRM scram trip setting would decrease the margin present before the fuel cladding integrity Safety Limit is reached. The APRM scram trip setting was determined by an analysis of margins required to provide a reasonable range for maneuvering during operation. Reducing this operating margin would increase the frequency of spurious scrams which have an adverse effect on reactor safety because of the resulting thermal stresses. Thus, the APRM scram trip setting was selected because it provides adequate margin for the fuel cladding integrity Safety Limit yet allows operating margin that reduces the possibility of unnecessary scrams.

3.6 LIMITING CONDITION FOR OPERATION

4.6 SURVEILLANCE REQUIREMENT

G. Single Loop Operation

1. The reactor may be started and operated or operation may continue with a single recirculation loop provided that:

   a. The designated adjustments for APRM flux scram and rod block trip settings (Specifications 2.1.A.1.a and 2.1.B.1, Table 3.1.1 and Table 3.2.5), rod block monitor trip setting (Table 3.2.5), MCPR fuel cladding integrity safety limit (Specification 1.1.A), and MCPR operating limits and MAPLHGR limits, provided in the Core Operating Limits Report, are initiated within 8 hours. During the next 12 hours, either these adjustments must be completed or the reactor brought to Hot Shutdown.

   b. The requirements for avoiding potentially unstable thermal hydraulic conditions defined in Technical Specification 3.6.J are met.

3.6 LIMITING CONDITION FOR OPERATION

4.6 SURVEILLANCE REQUIREMENT

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3.6 LIMITING CONDITION FOR OPERATION

c. The idle loop is isolated by electrically disarming the breaker to the recirculation pump motor generator set drive motor prior to startup or, if disabled during reactor operation, within 24 hours, and until such time as the inactive recirculation loop is to be returned to service.

d. The recirculation system controls will be placed in the manual flow control mode.

4.6 SURVEILLANCE REQUIREMENT

3.6 LIMITING CONDITION FOR OPERATION

4.6 SURVEILLANCE REQUIREMENT

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3.6 LIMITING CONDITION FOR OPERATION

H. Recirculation System

1. Operation with one recirculation loop is permitted according to Specification 3.6.G.1.

2. With no reactor coolant system recirculation loops in operation, initiate measures such that the unit is in Hot Shutdown within the next 12 hours.

4.6 SURVEILLANCE REQUIREMENT

3.6 LIMITING CONDITION FOR OPERATION

J. Thermal Hydraulic Stability

1. When the reactor mode switch is in RUN:

   a. Under normal operating conditions the reactor shall not intentionally be operated within the power flow exclusion region defined in Core Operating Limits Report (COLR);

   b. If the reactor has entered the power flow exclusion region (COLR), the operator shall immediately insert control rods and/or increase recirculation flow to establish operation outside of the region.

4.6 SURVEILLANCE REQUIREMENT

1. Activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression.

2. Snubber bleed, or release rate, where required, is within the specified range in compression or tension. For snubbers specifically required to not displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.

J. Thermal Hydraulic Stability

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BASES: 3.6 and 4.6 (Cont'd)

G. Single Loop Operation

Continuous operation with one recirculation loop was justified in "Vermont Yankee Nuclear Power Station Single Loop Operation", NEDO-30060, February 1983, with the adjustments specified in Technical Specification 3.6.G.1.a.

During single loop operation, the idle recirculation loop is isolated by electrically disarming the recirculation pump motor generator set drive motor, until ready to resume two loop operation. This is done to prevent a cold water injection transient caused by an inadvertent pump startup.

Under single loop operation, the flow control is placed in the manual mode to avoid control oscillations which may occur in the recirculation flow control system under these conditions.

BASES: 3.6 and 4.6 (Cont'd)

H. Recirculation System

Twelve hours is a reasonable period of time to reach hot shutdown conditions.

Operation of the reactor may not occur without forced recirculation flow.

BASES: 3.6 and 4.6 (Cont'd)

I. Shock Suppressors (Snubbers)

All snubbers are required operable to ensure that the structural integrity of the Reactor Coolant System and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads.

The visual inspection frequency is based upon maintaining a constant level of snubber protection to systems. Therefore, the required inspection interval varies inversely with the observed snubber failures and is determined by the number of inoperable snubbers found during an inspection. Inspections performed before that interval has elapsed may be used as a new reference point to determine the next inspection. However, the results of such early inspections performed before the original required time interval has elapsed (nominal time less 25%) may not be used to lengthen the required inspection interval. Any inspection whose results require a shorter inspection interval will override the previous schedule.

When the cause of the rejection of a snubber is clearly established and remedied for that snubber and for any other snubbers that may be generically susceptible, and verified by functional testing, that snubber may be exempted from being counted as inoperable. Generically susceptible snubbers are those which are (1) of a specific make or model, (2) of the same design, and (3) similarly located or exposed to the same environmental conditions such as temperature, radiation, and vibration. These characteristics of the snubber installation shall be evaluated to determine if further functional testing of similar snubber installations is warranted.

When a snubber is found inoperable, an engineering evaluation is performed, in addition to the determination of the snubber mode of failure, in order to determine if any safety-related component or system has been adversely affected by the inoperability of the snubber. The engineering evaluation shall determine whether or not the snubber mode of failure has imparted a significant effect or degradation on the supported component or system.

To provide assurance of snubber functional reliability, a representative sample of the installed snubbers will be functionally tested once each operating cycle. Observed failures of these sample snubbers shall require functional testing of additional units.

BASES: 3.6 and 4.6 (Cont'd)

J. Thermal Hydraulic Stability

The reactor is designed such that thermal hydraulic oscillations are prevented or can be readily detected and suppressed without exceeding specified fuel design limits. To minimize the likelihood of an instability, a power/flow exclusion region to be avoided during normal operation is calculated using the approved methodology as stated in 6.7.A.4. Since the exclusion region may change each fuel cycle the limits are contained in the Core Operating Limits Report. Specific directions are provided to avoid operation in this region and, to immediately exit upon an entry. Entries into the exclusion region are not part of normal operation. An entry may occur as the result of an abnormal event such as a single pump trip. In these events, operation in the exclusion region may be needed to prevent equipment damage, but actual time spent inside the exclusion region is minimized. Though each operator action can prevent the occurrence and protect the reactor from an instability, the APRM flow biased scram function will suppress oscillations prior to exceeding the fuel safety limit.

2. Annual Report

An annual report covering the previous calendar year shall be submitted prior to March 1 of each year. The annual report shall include a tabulation on an annual basis of the number of station, utility and other personnel (including contractors) receiving exposures greater than 100 mrem/yr and their associated man-rem exposure according to work and job functions, 1/ e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance (describe maintenance), waste processing, and refueling. The dose assignment to various duty functions may be estimates based on pocket dosimeter, TLD or film badge measurement. Small exposures totaling less than 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole body dose received from external sources shall be assigned to specific major work functions.

3. Monthly Statistical Report

Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis to the Office of Management Information and Program Control, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the appropriate Regional Office, to arrive no later than the fifteenth of each month following the calendar month covered by the report. These reports shall include a narrative summary of operating experience during the report period which describes the operation of the facility.

4. Core Operating Limits Report

The core operating limits shall be established and documented in the Core Operating Limits Report (COLR) before each reload cycle or any remaining part of a reload cycle for the following: (a) The Average Planar Linear Heat Generation Rates (APLHGR) for Specifications 3.11.A and 3.6.G.1a, (b) The K_f core flow adjustment factor for Specification 3.11.C., (c) The Minimum Critical Power Ratio (MCPR) for Specifications 3.11.C and 3.6.G.1a, (d) The Linear Heat Generation Rates (LHGR) for Specifications 2.1.A.1a, 2.1.B.1, and 3.11.B, and (e) The Power/Flow Exclusion Region for Specifications 3.6.J.1a and 3.6.J.1b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC in:

Report, E. E. Pilat, "Methods for the Analysis of Boiling Water Reactors Lattice Physics," YAEC-1232, December 1980 (Approved by NRC SER, dated September 15, 1982).

Report, D. M. VerPlanck, "Methods for the Analysis of Boiling Water Reactors Steady State Core Physics," YAEC-1238, March 1981 (Approved by NRC, SER, dated September 15, 1982).

1/ This tabulation supplements the requirements of 20.407 of 10CFR Part 20.

Letter from L. A. Tremblay, Jr. (VYNPC) to USNRC, "LOCA-Related Responses to Open Issues on FROSSTEY-2 Fuel Performance Code," BVY 92-39, dated March 27, 1992 (Approved by NRC SER, dated September 24, 1992).

Letter from L. A. Tremblay, Jr. (VYNPC) to USNRC, "FROSSTEY-2 Fuel Performance Code - Vermont Yankee Response to Remaining Concerns," BVY 92-54, dated May 15, 1992 (Approved by NRC SER, dated September 24, 1992).

Report, "Loss-of-Coolant Accident Analysis for Vermont Yankee Nuclear Power Station," NEDO-21697, August 1977, as amended (Approved by NRC SER, dated November 30, 1977).

Report, "General Electric Standard Application for Reactor Fuel (GESTARII)," NEDE-24011-P-A, GE Company Proprietary (the latest NRC-approved version will be listed in the COLR).

Report, General Electric Nuclear Energy, "BWR Owner's Group Long-Term Solutions Licensing Methodology," NEDO-31960, June 1991 (Approved by NRC SER, dated July 12, 1993).

Report, General Electric Nuclear Energy, "BWR Owner's Group Long-Term Solutions Licensing Methodology," NEDO-31960, Supplement 1, March 1992. (Approved by NRC SER, dated July 12, 1993).

The core operating limits shall be determined so that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis are met. The COLR, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance, for each reload cycle, to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector.

B. Reportable Occurrences

This section deleted.