Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Rope Ferry Road
Waterford, CT 06385

Dominion

AUG 5 2002

Docket Nos. 50-423
B18732

RE: 10 CFR 50.90

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Millstone Nuclear Power Station, Unit No. 3
Additional Information Relating to
Technical Specifications Change Request 3-11-01
Reactor Coolant System Operational Leakage

In a letter dated October 1, 2001,[1] Dominion Nuclear Connecticut, Inc. (DNC) submitted a license amendment request for the Millstone Unit No. 3 Technical Specifications relating to Reactor Coolant System Operational Leakage. On June 26, 2002, DNC provided a response to a Request for Additional Information (RAI) received via fax from the NRC on May 8, 2002.[2] In a conference call on July 30, 2002, two additional questions from the NRC were discussed relating to our October 1, 2001, and June 26, 2002, submittals.

Attachment 1 provides the response to the NRC questions discussed during the July 30, 2002, conference call. For your convenience, a complete set of marked up and retyped pages reflecting all the proposed changes associated with this RAI response, the October 1, 2001, and the June 26, 2002, submittals is included (see Attachments 2 and 3 respectively).

The additional information provided in this letter does not affect the conclusions of the Safety Summary and Significant Hazards Consideration discussions provided in the DNC October 1, 2001, submittal.

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(1) J. Alan Price letter to U.S. Nuclear Regulatory Commission, "Millstone Power Station, Unit No. 3, Technical Specifications Change Request 3-11-01, Reactor Coolant System Operational Leakage," dated October 1, 2001.

(2) Victor Nerses to James W. Clifford, "Millstone Nuclear Power Station, Unit 3, Facsimile Transmission, Draft Request for Additional Information (RAI) to be Discussed in an Upcoming Conference Call (TAC No. MB3126)," dated May 8, 2002.

A001

There are no regulatory commitments contained within this letter.

If you should have any questions on the above, please contact Mr. Ravi Joshi at (860) 440-2080.

Very truly yours,

DOMINION NUCLEAR CONNECTICUT, INC.

J. Alan Price
Site Vice President - Millstone

Sworn to and subscribed before me

this 5th day of August, 2002

Elena L. Lockett
Notary Public

ELENA L. LOCKETT
NOTARY PUBLIC
COMMISSION EXPIRES
JUNE 30, 2005

My Commission expires June 30, 2005

Attachments (3)

cc: H. J. Miller, Region I Administrator
V. Nerses, NRC Senior Project Manager, Millstone Unit No. 3
NRC Senior Resident Inspector, Millstone Unit No. 3

Director
Bureau of Air Management
Monitoring and Radiation Division
Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

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Attachment 1

Millstone Nuclear Power Station, Unit No. 3

Additional Information Relating to
Technical Specifications Change Request 3-11-01
Reactor Coolant System Operational Leakage

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Additional Information Relating to
Technical Specifications Change Request 3-11-01
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Question 1

The first NRC question related to a proposed change to Millstone Unit No. 3 Technical Specification 4.4.6.2.1. DNC had proposed to clarify the applicability of a note relating to the provisions of Specification 4.0.4 at the bottom of the page associated with Technical Specification Surveillance Requirements 4.4.6.2.1 and 4.4.6.2.2 by labeling this note as note "(1)," and adding this same identifier "(1)," to both of these surveillance requirements. This note states "The provision of Specification 4.0.4 are not applicable for entry into MODE 3 or 4." DNC has historically determined this note as applying to both Surveillance Requirements 4.4.6.2.1 and 4.4.6.2.2. However, the NRC indicated in our July 30, 2002, conference call that they did not agree with this determination. The NRC stated that this note should apply only to Surveillance Requirement 4.4.6.2.2, and not to Surveillance Requirement 4.4.6.2.1.

Surveillance Requirement 4.4.6.2.1 currently consists of five (5) specific items - items a., b., c., d., and e. In the October 1, 2001, submittal DNC proposed to delete items a. and b. of Surveillance Requirement 4.4.6.2.1, and retain items c., d., and e. Note "(1)" was proposed as being applicable to the three (3) remaining items (items c., d., and e).

Surveillance Requirement 4.4.6.2.1.c. already contains an exclusion to Technical Specification 4.0.4 for entry into Modes 3 and 4. The NRC concurred that an exclusion to item d. for entry into Specification 4.0.4 was appropriate. However, the NRC requested that additional justification be provided as to the applicability of this change. DNC herein provides a discussion of the proposing change, including a justification for incorporation of the change:

Surveillance Requirement 4.4.6.2.1.d. currently requires "Performance of a Reactor Coolant System water inventory balance at least once per 72 hours; and." The proposed change would revise Surveillance Requirement 4.4.6.2.1.d. by adding the phrase "The provisions of Specification 4.0.4 are not applicable for entry into Mode 3 or 4" after the phrase "thereafter during steady state operation." [Note that the phrase "thereafter during steady state operation" was proposed to be added to this surveillance in our October 1, 2001 submittal.]

Consistent with the changes proposed herein and with our October 1, 2001 submittal, the revised Surveillance Requirement 4.4.6.2.1.d. will state, "Performance of a Reactor Coolant System water inventory balance within 12 hours of achieving steady state operation, and at least once per 72 hours thereafter during steady state operation. The provisions of Specification 4.0.4 are not applicable for entry into Mode 3 or 4; and."

Specification 4.0.4 requires in part "Entry into an OPERATIONAL MODE or other specified condition shall not be made unless the Surveillance Requirement(s) associated with the Limiting Condition for Operation have been performed within the stated surveillance interval or as otherwise specified." The proposed exception to the provisions of Specification 4.0.4 to Surveillance Requirement 4.4.6.2.1.d will allow entry into and operation in Mode 3 or 4 prior to performing the surveillance. This allows a delay in the performance of a RCS water inventory balance until appropriate plant conditions are established.

Performance of a Reactor Coolant System (RCS) water inventory balance while in Mode 5 is difficult and does not provide a representative indication of actual RCS Operational Leakage. Performance of a representative RCS water inventory balance requires that the plant be at steady state conditions while at appropriate operating pressure and temperature.

Surveillance Requirement 4.4.6.2.1.e currently states that RCS leakage shall be demonstrated to be within each of the above limits by "Monitoring the Reactor Head Flange Leakoff System at least once per 24 hours." While a representative determination of reactor head flange leakoff cannot be established at the reduced RCS pressures and temperatures prior to entry into Modes 3 and 4, DNC concurs with the NRC that performance of such surveillance prior to entry into Modes 3 and 4 does provide a qualitative assessment of reactor head flange leakoff. Therefore, DNC withdraws the proposed change to identify Note (1) as applicable to Surveillance Requirement 4.4.6.2.1.e. With this withdrawal, DNC no longer proposes any changes to Surveillance Requirement 4.4.6.2.1.e.

Question 2

The second NRC question related to a proposed change to Millstone Unit No. 3 Technical Specification Bases Section 3/4.4.6.2, "Operational Leakage." The NRC questioned the completeness of the definition of "steady state operation" proposed in the DNC October 1, 2001, submittal.

DNC proposes to revise the definition of steady state operation consistent with the definition provided in NUREG-1431, Revision 2, Section B 3.4.13, "RCS Operational LEAKAGE." The proposed change will replace the definition of steady state operation proposed in our October 1, 2001, submittal, (Insert 'A' to Page B 3/4 4-5). The proposed definition of steady state operation is consistent with and expands upon the definition provided in the DNC October 1, 2001, submittal. The proposed definition for steady state operation will state:

"Steady state operation is required to perform a proper inventory balance since calculations during maneuvering are not useful. For RCS Operational Leakage determination by water inventory balance, steady state is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and reactor coolant pump seal injection and return flows."

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Attachment 2

Millstone Nuclear Power Station, Unit No. 3

Response to a Request for Additional Information
Technical Specifications Change Request 3-11-01
Reactor Coolant System Operational Leakage
Marked Up Pages

Response to a Request for Additional Information
Technical Specifications Change Request 3-11-01
Reactor Coolant System Operational Leakage

List of Marked Up Pages

Technical Specification Section Number	Title of Section	Affected Page with Amendment Number
3.4.6.2	Reactor Coolant System - Operational Leakage	3/4 4-22, Original Issue 3/4 4-23, Amendment No. 206 B 3/4 4-4d, NRC Letter dated June 3, 2002

Note: Due to a Technical Specification Bases Change (License Basis Document Change Request 3-17-01), the information associated with the proposed changes to Page B 3/4 4-5 described in the October 1, 2001, submittal is now located on page B 3/4 4-d.

For Information Only

2/19/97

REACTOR COOLANT SYSTEM

3/4.4.6 REACTOR COOLANT SYSTEM LEAKAGE

LEAKAGE DETECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.6.1 The following Reactor Coolant System Leakage Detection Systems shall be OPERABLE:

a. Either the Containment Atmosphere Gaseous or Particulate Radioactivity Monitoring System, and

b. The Containment Drain Sump Level or Pumped Capacity Monitoring System

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

a. With both the Containment Atmosphere Gaseous and Particulate Radioactivity Monitors INOPERABLE, operation may continue for up to 30 days provided the Containment Drain Sump Level or Pumped Capacity Monitoring System is OPERABLE and gaseous grab samples of the containment atmosphere are obtained at least once per 12 hours and analyzed for gross noble gas activity within the subsequent 2 hours; otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With the Containment Drain Sump Level or Pumped Capacity Monitoring System INOPERABLE, operation may continue for up to 30 days provided either the Containment Atmosphere Gaseous or Particulate Radioactivity Monitoring System is OPERABLE; otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the followng 30 hours.

SURVEILLANCE REQUIREMENTS

4.4.6.1 The Leakage Detection Systems shall be demonstrated OPERABLE by:

a. Containment Atmosphere Gaseous and Particulate Radioactivity Monitoring Systems-performance of CHANNEL CHECK, CHANNEL CALIBRATION, and ANALOG CHANNEL OPERATIONAL TEST at the frequencies specified in Table 4.3-3, and

b. Containment Drain Sump Level and Pumped Capacity Monitoring System-performance of CHANNEL CALIBRATION at least once each REFUELING INTERVAL.

LIMITING CONDITION FOR OPERATION

3.4.6.2 Reactor Coolant System leakage shall be limited to:

a. No PRESSURE BOUNDARY LEAKAGE,

b. 1 gpm UNIDENTIFIED LEAKAGE,

c. 1 gpm total reactor-to-secondary leakage through all steam generators not isolated from the Reactor Coolant System and 500 gallons per day through any one steam generator not isolated from the Reactor Coolant System,

d. 10 gpm IDENTIFIED LEAKAGE from the Reactor Coolant System,

e. 40 gpm CONTROLLED LEAKAGE at a Reactor Coolant System pressure of 2250 ± 20 psia, and

f.* 0.5 gpm leakage per nominal inch of valve size up to a maximum of 5 gpm at a Reactor Coolant System pressure of 2250 ± 20 psia from any Reactor Coolant System Pressure Isolation Valve specified in Table 3.4-1.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

a. With any PRESSURE BOUNDARY LEAKAGE, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With any Reactor Coolant System leakage greater than any one of the above limits, excluding PRESSURE BOUNDARY LEAKAGE and leakage from Reactor Coolant System Pressure Isolation Valves, reduce the leakage rate to within limits within 4 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With any Reactor Coolant System Pressure Isolation Valve leakage greater than the above limit, isolate the high pressure portion of the affected system from the low pressure portion within 4 hours by use of at least two closed manual or deactivated automatic valves, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

* This requirement does not apply to Pressure Isolation Valves in the Residual Heat Removal Flowpath when in, or during the transition to or from, the shutdown cooling mode of operation.

SURVEILLANCE REQUIREMENTS

4.4.6.2.1 Reactor Coolant System leakages shall be demonstrated to be within each of the above limits by:

a. Monitoring the containment atmosphere (gaseous or particulate) radioactivity monitor at least once per 12 hours; → Replace with "Deleted"

b. Monitoring the containment drain sump inventory and discharge at least once per 12 hours; → Replace with "Deleted"

c. Measurement of the CONTROLLED LEAKAGE to the reactor coolant pump seals when the Reactor Coolant System pressure is 2250 ± 20 psia at least once per 31 days with the modulating valve fully open. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4;

d. Performance of a Reactor Coolant System water inventory balance within 12 hours of achieving steady state operation, and thereafter during steady state operation. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4 at least once per 72 hours; and

e. Monitoring the Reactor Head Flange Leakoff System at least once per 24 hours.

4.4.6.2.2 (1)(2) Each Reactor Coolant System Pressure Isolation Valve specified in Table 3.4-1 shall be demonstrated OPERABLE by verifying leakage to be within its limit:

a. At least once per 24 months,

b. Prior to entering MODE 2 whenever the plant has been in COLD SHUTDOWN for 7 days or more and if leakage testing has not been performed in the previous 9 months, → Replace with "Deleted"

c. Prior to returning the valve to service following maintenance, repair or replacement work on the valve,

d. Within 24 hours following valve actuation due to automatic or manual action or flow through the valve, and

e. When tested pursuant to Specification 4.0.5.

(1) The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4.

(2) This surveillance is not required to be performed on Reactor Coolant System Pressure Isolation Valves located in the RHR flowpath when in, or during the transition to or from, the shutdown cooling mode of operation.

For Information Only

JAN 31 1986

TABLE 3.4-1

REACTOR COOLANT SYSTEM PRESSURE ISOLATION VALVES

VALVE NUMBER	FUNCTION
3-SIL-V15	SI Tank 1A Discharge Isolation Valve
3-SIL-V17	SI Tank 1B Discharge Isolation Valve
3-SIL-V19	SI Tank 1C Discharge Isolation Valve
3-SIL-V21	SI Tank 1D Discharge Isolation Valve
3-SIL-V26	RHR/SI to RCS Loop 2, Hot Leg
3-SIL-V27	SIH to RCS Loop 2, Hot Leg
3-SIL-V28	RHR/SI to RCS Loop 4, Hot Leg
3-SIL-V29	SIH to RCS Loop 4, Hot Leg
3-SIL-V984	RHR/SI to RCS Loop 4, Cold Leg
3-SIL-V985	RHR/SI to RCS Loop 3, Cold Leg
3-SIL-V986	RHR/SI to RCS Loop 2, Cold Leg
3-SIL-V987	RHR/SI to RCS Loop 1, Cold Leg
3-SIH-V5	SIH to RCS Cold Legs
3-SIH-V110	SIH to RCS Loop 1, Hot Leg
3-SIH-V112	SIH to RCS Loop 3, Hot Leg
3-RCS-V26	SIH to RCS Loop 1, Hot Leg
3-RCS-V29	SIH to RCS Loop 1, Cold Leg
3-RCS-V30	SIL to RCS Loop 1, Cold Leg
3-RCS-V69	RHR/SI to RCS Loop 2, Hot Leg
3-RCS-V70	SIH to RCS Loop 2, Cold Leg
3-RCS-V71	SIL to RCS Loop 2, Cold Leg
3-RCS-V102	SIH to RCS Loop 3, Hot Leg
3-RCS-V106	SIH to RCS Loop 3, Cold Leg
3-RCS-V107	SIL to RCS Loop 3, Cold Leg
3-RCS-V142	RHR/SI to RCS Loop 4, Hot Leg
3-RCS-V145	SIH to RCS Loop 4, Cold Leg
3-RCS-V146	SIL to RCS Loop 4, Cold Leg
3-RHS-MV8701C	RCS Loop 1, Hot Leg to RHR
3-RHS-MV8702C	RCS Loop 4, Hot Leg to RHR
3-RHS-MV8701A	RCS Loop 1, Hot Leg to RHR
3-RHS-MV8702B	RCS Loop 4, Hot Leg to RHR

3/4.4.6.1 LEAKAGE DETECTION SYSTEMS (Continued)

3. This monitoring system is not seismic Category 1, but is expected to remain operable during an OBE. If the monitoring system is not operable following a seismic event, the appropriate action according to Technical Specifications will be taken.

4. Two priority computer alarms (CVLKR2 and CVLKR3I) are generated if the calculated leakage rate is greater than a value specified on the Priority Alarm Point Log. This alarm value should be set to alert the Operators to a possible RCS leak rate in excess of the Technical Specification maximum allowed UNIDENTIFIED LEAKAGE. The alarm value may be set at one gallon per minute or less above the rate of identified leakage, from the reactor coolant or auxiliary systems, into the containment drains sump. The rate of identified leakage may be determined by either measurement or by analysis. If the Priority Alarm Point Log is adjusted, the high leakage rate alarm will be bounded by the identified leakage rate and the low leakage rate alarm will be set to notify the operator that a decrease in leakage may require the high leakage rate alarm to be reset. The priority alarm set point shall be no greater than 2 gallons per minute. This ensures that the identified leakage will not mask a small increase in UNIDENTIFIED LEAKAGE that is of concern. The 2 gallons per minute limit is also within the containment drains sump level monitoring system alarm operating range which has a maximum set point of 2.5 gallons per minute.

5. To convert containment drains sump run times to a leakage rate, refer to procedure SP3670.1 for guidance on the conversion method.

3/4.4.6.2 OPERATIONAL LEAKAGE

PRESSURE BOUNDARY LEAKAGE of any magnitude is unacceptable since it may be indicative of an impending gross failure of the pressure boundary. Therefore, the presence of any PRESSURE BOUNDARY LEAKAGE requires the unit to be promptly placed in COLD SHUTDOWN.

Industry experience has shown that while a limited amount of leakage is expected from the RCS, the unidentified portion of this leakage can be reduced to a threshold value of less than 1 gpm. This threshold value is sufficiently low to ensure early detection of additional leakage.

The total steam generator tube leakage limit of 1 gpm for all steam generators not isolated from the RCS ensures that the dosage contribution from the tube leakage will be limited to a small fraction of 10 CFR Part 100 dose guideline values in the event of either a steam generator tube rupture or steam line break. The 1 gpm limit is consistent with the assumptions used in the analysis of these accidents. The 500 gpd leakage limit per steam generator ensures that steam generator tube integrity is maintained in the event of a main steam line rupture or under LOCA conditions.

3/4.4.6.2 OPERATIONAL LEAKAGE (Continued)

The 10 gpm IDENTIFIED LEAKAGE limitation provides allowance for a limited amount of leakage from known sources whose presence will not interfere with the detection of UNIDENTIFIED LEAKAGE by the Leakage Detection Systems.

The CONTROLLED LEAKAGE limitation restricts operation when the total flow supplied to the reactor coolant pump seals exceeds 40 gpm with the modulating valve in the supply line fully open at a nominal RCS pressure of 2250 psia. This limitation ensures that in the event of a LOCA, the safety injection flow will not be less than assumed in the safety analyses.

A Limit of 40 gpm is placed on CONTROLLED LEAKAGE. CONTROLLED LEAKAGE is determined under a set of reference conditions, listed below:

a. One Charging Pump in operation.
b. RCS pressure at 2250 +/- 20 psia.

By limiting CONTROLLED leakage to 40 gpm during normal operation, we can be assured that during an SI with only one charging pump injecting, RCP seal injection flow will continue to remain less than 80 gpm as assumed in accident analysis. When the seal injection throttle valves are set with a normal charging line up, the throttle valve position bounds conditions where higher charging header pressures could exist. Therefore, conditions which create higher charging header pressures such as an isolated charging line, or two pumps in service are bounded by the single pump - normal system lineup surveillance configuration. Basic accident analysis assumptions are that 80 gpm flow is provided to the seals by a single pump in a runout condition.

The specified allowable leakage from any RCS pressure isolation valve is sufficiently low to ensure early detection of possible in-series valve failure. It is apparent that when pressure isolation is provided by two in-series valves and when failure of one valve in the pair can go undetected for a substantial length of time, verification of valve integrity is required. Since these valves are important in preventing overpressurization and rupture of the ECCS low pressure piping which could result in a LOCA, these valves should be tested periodically to ensure low probability of gross failure.

Insert A

The Surveillance Requirements for RCS pressure isolation valves provide assurance of valve integrity thereby reducing the probability of gross valve failure and consequent intersystem LOCA. Leakage from the RCS pressure isolation valve is IDENTIFIED LEAKAGE and will be considered as a portion of the allowed limit.

Insert B

References:

1. Letter FSD/SS-NEU-3713, dated March 25, 1985.
2. Letter NEU-89-639, dated December 4, 1989.

INSERT 'A' TO PAGE B 3/4 4-4d

Steady state operation is required to perform a proper inventory balance since calculations during maneuvering are not useful. For RCS Operational Leakage determination by water inventory balance, steady state is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and reactor coolant pump seal injection and return flows.

INSERT 'B' TO PAGE 3/4 4-4e
(For Information Only, no changes proposed from the June 26, 2002 submittal)

Entry into MODES 3 and 4 is allowed to establish the necessary differential pressures and stable conditions for performance of Surveillance Requirement 4.4.6.2.2 (including Surveillance Requirement 4.4.6.2.2.d) for RCS pressure isolation valves which can only be leak-tested at elevated RCS pressures. The requirements of Surveillance Requirement 4.4.6.2.2.d to verify that a pressure isolation valve is OPERABLE shall be performed within 24 hours after the required RCS pressure has been met.

In MODES 1 and 2, the plant is at normal operating pressure and Surveillance Requirement 4.4.6.2.2.d shall be performed within 24 hours of valve actuation due to automatic or manual action or flow through the valve. In MODES 3 and 4, Surveillance Requirement 4.4.6.2.2.d shall be performed within 24 hours of valve actuation due to automatic or manual action or flow through the valve if and when RCS pressure is sufficiently high for performance of this surveillance.

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Attachment 3

Millstone Nuclear Power Station, Unit No. 3

Response to a Request for Additional Information
Technical Specifications Change Request 3-11-01
Reactor Coolant System Operational Leakage
Retyped Pages

SURVEILLANCE REQUIREMENTS

4.4.6.2.1 Reactor Coolant System leakages shall be demonstrated to be within each of the above limits by:

a. Deleted

b. Deleted

c. Measurement of the CONTROLLED LEAKAGE to the reactor coolant pump seals when the Reactor Coolant System pressure is 2250 ± 20 psia at least once per 31 days with the modulating valve fully open. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4;

d. Performance of a Reactor Coolant System water inventory balance within 12 hours of achieving steady state operation, and at least once per 72 hours thereafter during steady state operation. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4; and

e. Monitoring the Reactor Head Flange Leakoff System at least once per 24 hours.

4.4.6.2.2[1][2] Each Reactor Coolant System Pressure Isolation Valve specified in Table 3.4-1 shall be demonstrated OPERABLE by verifying leakage to be within its limit:

a. At least once per 24 months,

b. Prior to entering MODE 2 whenever the plant has been in COLD SHUTDOWN for 7 days or more and if leakage testing has not been performed in the previous 9 months,

c. Deleted

d. Within 24 hours following valve actuation due to automatic or manual action or flow through the valve, and

e. When tested pursuant to Specification 4.0.5.

---

[1] The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 or 4.

[2] This surveillance is not required to be performed on Reactor Coolant System Pressure Isolation Valves located in the RHR flow path when in, or during the transition to or from, the shutdown cooling mode of operation.

3/4.4.6.2 OPERATIONAL LEAKAGE (Continued)

The 10 gpm IDENTIFIED LEAKAGE limitation provides allowance for a limited amount of leakage from known sources whose presence will not interfere with the detection of UNIDENTIFIED LEAKAGE by the Leakage Detection Systems.

The CONTROLLED LEAKAGE limitation restricts operation when the total flow supplied to the reactor coolant pump seals exceeds 40 gpm with the modulating valve in the supply line fully open at a nominal RCS pressure of 2250 psia. This limitation ensures that in the event of a LOCA, the safety injection flow will not be less than assumed in the safety analyses.

A Limit of 40 gpm is placed on CONTROLLED LEAKAGE. CONTROLLED LEAKAGE is determined under a set of reference conditions, listed below:

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b. RCS pressure at 2250 +/- 20 psia.

By limiting CONTROLLED leakage to 40 gpm during normal operation, we can be assured that during an SI with only one charging pump injecting, RCP seal injection flow will continue to remain less than 80 gpm as assumed in accident analysis. When the seal injection throttle valves are set with a normal charging line up, the throttle valve position bounds conditions where higher charging header pressures could exist. Therefore, conditions which create higher charging header pressures such as an isolated charging line, or two pumps in service are bounded by the single pump - normal system lineup surveillance configuration. Basic accident analysis assumptions are that 80 gpm flow is provided to the seals by a single pump in a runout condition.

The specified allowable leakage from any RCS pressure isolation valve is sufficiently low to ensure early detection of possible in-series valve failure. It is apparent that when pressure isolation is provided by two in-series valves and when failure of one valve in the pair can go undetected for a substantial length of time, verification of valve integrity is required. Since these valves are important in preventing overpressurization and rupture of the ECCS low pressure piping which could result in a LOCA, these valves should be tested periodically to ensure low probability of gross failure.

Steady state operation is required to perform a proper inventory balance since calculations during maneuvering are not useful. For RCS Operational Leakage determination by water inventory balance, steady state is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and reactor coolant pump seal injection and return flows.

The Surveillance Requirements for RCS pressure isolation valves provide assurance of valve integrity thereby reducing the probability of gross valve failure and consequent intersystem LOCA. Leakage from the RCS pressure isolation valve is IDENTIFIED LEAKAGE and will be considered as a portion of the allowed limit.

3/4.4.6.2 OPERATIONAL LEAKAGE (Continued)

Entry into MODES 3 and 4 is allowed to establish the necessary differential pressures and stable conditions for performance of Surveillance Requirement 4.4.6.2.2 (including Surveillance Requirement 4.4.6.2.2.d) for RCS pressure isolation valves which can only be leak-tested at elevated RCS pressures. The requirements of Surveillance Requirement 4.4.6.2.2.d to verify that a pressure isolation valve is OPERABLE shall be performed within 24 hours after the required RCS pressure has been met.

In MODES 1 and 2, the plant is at normal operating pressure and Surveillance Requirement 4.4.6.2.2.d shall be performed within 24 hours of valve actuation due to automatic or manual action or flow through the valve. In MODES 3 and 4, Surveillance Requirement 4.4.6.2.2.d shall be performed within 24 hours of valve actuation due to automatic or manual action or flow through the valve if and when RCS pressure is sufficiently high for performance of this surveillance.

References:

1. Letter FSD/SS-NEU-3713, dated March 25, 1985.
2. Letter NEU-89-639, dated December 4, 1989.