Dominion Nuclear Connecticut, Inc.
Millstone Power Station
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Dominion

September 7, 2004

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

Serial No.	04-480
NSS&L/DF	R0
Docket No.	50-423
License No.	NPF-49

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3
LICENSE AMENDMENT REQUEST (LBDCR 04-MP3-007)
QUENCH SPRAY AND RECIRCULATION SPRAY NOZZLE SURVEILLANCE

Pursuant to 10 CFR 50.90, Dominion Nuclear Connecticut, Inc. (DNC) hereby requests to amend Operating License NPF-49 for Millstone Power Station Unit 3 to modify the surveillance frequency associated with the quench spray and recirculation spray nozzle testing. The proposed changes will allow performance of testing for nozzle blockage to be based on the occurrence of activities that could cause nozzle blockage rather than a fixed periodic basis. Currently the testing for nozzle blockage is performed every 10 years and DNC proposes to change this frequency to "following maintenance that could cause nozzle blockage". In addition, specific details limiting the testing method to an air or smoke test that are currently part of the surveillance requirements will be removed. The Technical Specification Bases section will be updated with applicable spray nozzle testing information and will be expanded to include visual inspection.

The proposed amendment does not involve a significant impact on public health and safety and does not involve a Significant Hazards Consideration pursuant to the provisions of 10 CFR 50.92 (see Significant Hazards Consideration in Attachment 1).

The Site Operations Review Committee and the Management Safety Review Committee have reviewed and concurred with the determinations.

The NRC approved a similar license amendment for Perry Nuclear Power Station on June 29, 2000 (TAC No. MA7136) and for South Texas Project on August 20, 2003 (TAC No. MB9101).

A periodic surveillance test of the spray nozzles is currently scheduled for the Fall 2005 refueling outage. To permit effective outage planning, DNC is requesting NRC staff review and approval of the proposed change by August 2005.

In accordance with 10CFR50.91(b), a copy of this license amendment request is being provided to the State of Connecticut.

If you should have any questions regarding this submittal, please contact Mr. Paul R. Willoughby at (804) 273-3572.

Very truly yours,

Leslie N. Hartz
Vice President – Nuclear Engineering

Attachments:
1. Evaluation of Proposed License Amendment
2. Marked-Up Pages
3. Re-typed Pages

Commitments made in this letter: None

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Serial No. 04-480
Docket No. 50-423
Quench Spray and Recirculation Spray Nozzle Surveillance

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Leslie N. Hartz, who is Vice President – Nuclear Engineering, of Dominion Nuclear Connecticut, Inc. She has affirmed before me that she is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of her knowledge and belief.

Acknowledged before me this 7TH day of September, 2004.

My Commission Expires: May 31, 2006.

Vicki L. Hull
Notary Public

(SEAL)

ATTACHMENT 1

LICENSE AMENDMENT REQUEST (LBDCR 04-MP3-007) QUENCH SPRAY AND RECIRCULATION SPRAY NOZZLE SURVEILLANCE

EVALUATION OF PROPOSED LICENSE AMENDMENT

MILLSTONE POWER STATION, UNIT 3
DOMINION NUCLEAR CONNECTICUT, INC

Evaluation of Proposed License Amendment

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1.0 DESCRIPTION

Pursuant to 10 CFR 50.90, Dominion Nuclear Connecticut, Inc. (DNC) hereby requests to amend Operating License NPF-49 for Millstone Power Station Unit 3 (MPS3) to modify the surveillance frequency associated with the quench spray and recirculation spray nozzle testing. The proposed changes will allow performance of testing for nozzle blockage to be based on the occurrence of activities that could potentially result in nozzle blockage rather than a fixed periodic basis. Currently the testing for nozzle blockage is performed every 10 years and DNC proposes to change this frequency to "following maintenance that could cause nozzle blockage". In addition, specific details limiting the testing method to an air or smoke test that are currently part of the surveillance requirements will be removed. The Technical Specification Bases section will be updated with applicable spray nozzle testing information and will be expanded to include visual inspection

This change is being requested to reflect industry operating experience and plant specific experience and practices.

The NRC approved a similar license amendment for Perry Nuclear Power Station on June 29, 2000 (TAC No. MA7136) and for South Texas Project on August 20, 2003 (TAC No. MB9101).

A periodic surveillance test of the spray nozzles is currently scheduled for the Fall 2005 refueling outage. To permit effective outage planning, DNC is requesting NRC staff review and approval of the proposed change by August 2005.

2.0 PROPOSED CHANGE

Change 1

The proposed amendment will modify surveillance requirement (SR) 4.6.2.1.d frequency as follows:

<u>Current</u>

At least once per 10 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

<u>Proposed</u>

By verifying each spray nozzle is unobstructed following maintenance that could cause nozzle blockage.

Change 2

The proposed amendment will modify SR 4.6.2.2.e frequency as follows:

Current

At least once per 10 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

Proposed

By verifying each spray nozzle is unobstructed following maintenance that could cause nozzle blockage.

Change 3

The proposed amendment will modify SR 4.6.2.1.a introduction statement to be grammatically correct as follows:

Current

At least once per 31 days:

Proposed

At least once per 31 days, by:

3.0 BACKGROUND

3.1 Containment Heat Removal System

Engineered safety features (ESFs) serve to mitigate the consequences of postulated events such as a loss-of-coolant accident and to protect the public by preventing or minimizing the release of fission products. The ESFs are described in Chapter 6 of the Final Safety Analysis Report (FSAR). The containment heat removal system is an ESF designed to maintain the pressure of the containment atmosphere below design pressure during and following accidents. The containment heat removal system consists of the quench spray system and the recirculation spray system (also referred to as the containment recirculation system). The quench spray and recirculation spray systems each consist of two independent subsystems that perform redundant safety functions. Each pair of subsystems feeds two parallel 360-degree spray headers. The design criteria for these systems are described in detail in FSAR section 6.2.2.2 and material specifications for ESF components are provided in section 6.1.1. The

containment heat removal systems are constructed entirely of corrosion-resistant materials, primarily stainless steel.

3.1.1 Quench Spray System (QSS) Description

The QSS is designed to activate upon receipt of a containment depressurization actuation signal. Its safety function is to remove initial heat generated by a design basis loss of coolant accident and to remove any airborne iodine from the containment atmosphere. The QSS consists of two separate but parallel subsystems, each capable of providing 100 percent of required spray flow to the containment atmosphere. Each QSS subsystem consists of a pump and a 360-degree spray ring header. The common ring headers are located at approximately 101 feet (192 nozzles) and 116 feet (70 nozzles) above the operating floor in the dome of the containment structure. The two pumps are located in the ESF building adjacent to the containment structure. The piping and spray nozzles are fabricated of Type 304 stainless steel.

Each quench spray pump draws water independently from the refueling water storage tank (RWST) and delivers flow through motor-operated valves to separate risers which then discharge the water into two common spray rings. Each quench spray discharge line also contains a check valve inside containment. The motor-operated valves, located outside containment, are normally closed and open upon receipt of a containment depressurization actuation signal.

Borated water in the RWST is maintained at a maximum temperature of 50 degrees F by circulating the RWST water through coolers. Periodic sampling of the RWST water monitors the water chemistry and provisions are made to purify the water when necessary. The RWST is fabricated of Type 304 stainless steel plates. Additional design data for the RWST is provided in FSAR Table 6.2-61.

3.1.2 Recirculation Spray System (RSS) Description

Shortly after initiation of a containment depressurization actuation signal, the containment recirculation sump will have sufficient level to support operation of the RSS. The RSS initially provides supplemental containment spray to remove heat from the containment atmosphere and assist in the reduction of containment atmospheric pressure. The RSS maintains the containment at approximately sub-atmospheric pressure after initial depressurization. The RSS long-term safety function is for extended core cooling operation that is described in FSAR section 6.3.

The RSS consists of one screened-in sump in the containment, two 100 percent capacity subsystems and two 360-degree spray ring headers. Each subsystem consists of two 50 percent capacity recirculation pumps, two 50 percent capacity recirculation coolers and one dewatering pump. Each RSS pump discharge line contains a motor operated valve outside containment with a check valve inside

containment. The ring headers are located at approximately 91 and 93 feet above the operating floor in the dome of the containment structure. The upper ring header has 160 nozzles and the lower ring header has 162 nozzles. The ring headers are each fed by two risers, each riser running from each of the RSS coolers. The RSS pumps and coolers are located in the ESF building adjacent to the containment structure. Similar to QSS, the piping and spray nozzles are fabricated of Type 304 stainless steel.

The RSS operates in either of two modes. In the containment spray mode, all four pumps take suction on the containment sump and discharge to the RSS spray headers. In the long-term cooling mode of operation, both spray and injection occur simultaneously. Two recirculation pumps provide reactor core injection via the charging and safety injection pumps and also provide containment spray, while the other two pumps remain aligned to the ring header for containment spray. Operator action is required to switch the RSS to the long-term cooling mode.

3.1.3 Testing

The inspection and testing requirements for the containment heat removal system are described in FSAR section 6.2.2.4 and are summarized below.

<u>QSS</u>

For the initial system test, pipe plugs were inserted in the spray nozzle sockets in the quench spray headers. The internals of the containment isolation and spray header check valves of the quench spray flow path not under test were removed, and the flow path to recirculate water to the RWST flush connection was completed by opening the valve in the test line of the pump to be tested. Each quench spray pump was started individually, and flow through each subsystem was measured in the discharge line. The pump developed head (discharge pressure minus the suction pressure) and the measured flows were compared to the pump head-flow curve.

Other points on the pump curve were also measured by recirculating flow back to the RWST via throttled test lines bypassing the spray headers. These tests verified the individual pumps' performance curves.

Periodic in-place air flow tests through the quench spray nozzles have been conducted at the interval specified in Technical Specifications. The air flow test is performed by closing the quench spray pump discharge isolation valves and connecting an external air source to a temporary flange on a downstream check valve. Air flow is then verified through each associated spray nozzle. The air flow test was also performed during the final stage of preoperational testing for this system to verify that the spray nozzles were not plugged.

Specifically the quench spray nozzle test history is as follows:

Test 1 Performed as part of the preoperational test in 1985
Test 2 Performed on 6/10/1989 during refueling outage 2
Test 3 Performed on 10/3/1993 during refueling outage 4

The results of each test demonstrated unobstructed flow through each nozzle. These tests confirmed that the systems were free from construction debris and that no debris that could cause obstructions had entered the systems following startup and operation of MPS3.

RSS

For the initial system test, pipe plugs were inserted in the spray nozzle sockets in the recirculation spray headers. The containment recirculation pump suction well casing, cooler, suction and discharge piping, and containment structure sump (cofferdam) were filled by opening the locked closed valves in the pump test line connecting the pump suction to the RWST. After the sump was filled, the valves in the pump test line were closed. The containment structure sump was enclosed by a temporary cofferdam to provide adequate sump capacity for pump operation.

The internals of the containment isolation check valves of the recirculation spray flow path not under test were removed, and a flow path to recirculate water to the Reactor Coolant System (RCS) hot and cold legs was established via test lines in the residual heat removal and low pressure safety injection systems. Makeup water to the cofferdam was provided by gravity flow from the RWST through system piping not under test.

Each containment recirculation pump was started, pumping water from the cofferdam to the RCS hot and cold legs. Flow through each subsystem was measured by flow elements in the pump discharge lines. The pump developed head (discharge pressure minus suction pressure) and the measured flow was compared to the pump head-flow curve. Other points on the pump curve were measured by taking suction directly on the RWST and recirculating back to the RWST via the test lines with the spray headers isolated. These tests verified the individual pump performance curves as well as acceptable pump NPSH.

Periodic in-place air flow tests through the recirculation spray nozzles have been conducted at the interval specified in Technical Specifications. The air flow test is performed by closing the recirculation spray pump discharge isolation valves and connecting an external air source to a temporary flange on a downstream check valve. Air flow is then verified through each associated spray nozzle. The air flow test was also performed during the final stage of preoperational testing for this system to verify that the spray nozzles were not plugged.

Specifically the test history is as follows:

Test 1 Performed as part of the preoperational tests in 1985
Test 2 Performed on 2/28/1991 during refueling outage 3
Test 3 Performed on 5/25/1995 during refueling outage 5
Test 4 Performed on 1/17/1998 following reanalysis of RSS system

The results of each test demonstrated unobstructed flow through each nozzle. These tests confirmed that the systems were free from construction debris and that no debris that could cause obstructions had entered the systems following startup and operation of MPS3.

3.1.4 Maintenance History

A review of maintenance history on the QSS and RSS was performed, and work that occurred since the last air/smoke tests on the systems resulted in minor issues with respect to cleanliness. In fact the two issues that were identified both involved the rotation of the spectacle flanges downstream of the QSS and RSS check valves which are used for other testing activities. Both issues identified that grafoil pieces (used for gasketing material) were found within the pipe during check valve inspections. The amount of grafoil was insignificant and would not have impacted the ability of the QSS and RSS systems to perform their safety functions. In addition, the grafoil gaskets have been replaced with a different material that is not susceptible to tearing. For remaining work activities that took place on the systems after the last air/smoke tests, system cleanliness was maintained by including cleanliness control practices, including post work inspections. A review of maintenance work orders indicates that no work activities occurred on the QSS or RSS spray nozzles/headers since the most recent flow tests were performed.

3.2 Foreign Material Exclusion (FME) Program

The site-wide FME program at Millstone is governed by approved work control procedures. These procedures ensure that the appropriate precautions are taken as needed to minimize the inadvertent and uncontrolled introduction of foreign materials into plant systems and components. Breached fluid or piping systems are required to be covered when not being directly accessed for inspection or maintenance. Administrative FME controls also delineate program requirements for maintaining cleanness of plant systems and components. For example, for maintenance activities that create debris, cleanness inspections are required. For QA systems and components the final cleanness inspection is performed by QC inspectors.

If FME integrity is lost through the intrusion or discovery of foreign material, procedures direct the worker(s) to initiate a condition report which would require an evaluation be

performed to determine if any actions are needed to ensure system integrity. All personnel performing work planning activities, maintenance, modifications, repairs, testing or inspections on plant equipment and components require FME training.

Where special circumstances require activities to be performed by an outside vendor or contractor who has not received FME training, their work must be continuously supervised or monitored by FME qualified Millstone personnel.

3.3 Reason for Proposed Amendment

This change is being requested based on industry and plant experience which indicates that blockage of the containment spray nozzles during normal plant operation is unlikely. This proposed change will eliminate unnecessary testing of the spray nozzles by only requiring the test be performed based on activities or conditions that could potentially cause nozzle blockage. The surveillance requires workers to verify air flow at each nozzle located at high elevations inside containment, and the potential reduction in the frequency of performance should enhance personnel safety. Similarly, the proposed changes are expected to result in a reduction in personnel exposure and outage costs associated with performing the test. DNC has determined that the proposed change more accurately reflects when spray nozzle testing is appropriate.

4.0 TECHNICAL ANALYSIS

4.1 Details of the Proposed Amendment

Change 1 and Change 2

The proposed amendment will modify SR 4.6.2.1.d and SR 4.6.2.2.e to change the frequency for verifying spray nozzles are unobstructed and to remove details for the testing methodology from the surveillance. Currently, the surveillance requires the QSS and RSS spray nozzles to be tested every 10 years by blowing air or smoke through the nozzles and verifying flow. Generic Letter 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation," dated September 27, 1993 was used as the basis for the current MPS3 10-year surveillance frequency due to the stainless steel construction of the nozzles and piping. No coating material is used in the piping or nozzles at MPS3, similar to that used on carbon steel piping, which could potentially cause clogging of the spray nozzles. DNC proposes to replace the current periodic frequency with a qualifying statement that would identify that testing is required following "maintenance that could cause nozzle blockage." Since QSS and RSS spray nozzle maintenance occurs infrequently, the proposed surveillance frequency should result in less spray nozzle testing.

The spray nozzles are a passive system. The greatest potential for introduction of debris that could result in blocking of the nozzles is during maintenance activities on the nozzles. However, the FME program contains the appropriate level of controls to provide a high level of confidence that foreign materials will not be introduced when the QSS and RSS system boundaries are breached for maintenance or testing. FME controls are in place during maintenance or testing activities on the spray nozzles and require post-maintenance verification of system cleanness to ensure no foreign materials have been introduced into open systems. Because of the corrosion-resistant material of the nozzles, degradation of the nozzles is not expected to be a cause of nozzle plugging. The need to test for nozzle blockage following maintenance activities is currently addressed by the post-maintenance testing program which evaluates work scope to determine appropriate retests. However, unanticipated activities, such as an inadvertent spray actuation, a major configuration change, or a loss of foreign material control when working within the respective system boundary may require surveillance performance. An evaluation, based on the specific situation, will determine the appropriate test method (e.g., boroscope visual inspection, air or smoke flow test) to verify no nozzle obstruction. This information regarding the evaluation for proposed testing methods will be added to the Technical Specification Bases section. The current requirement in the surveillance to use only the air or smoke test method for QSS and RSS nozzle testing will be removed by this proposed amendment. Based on a review of 10 CFR 50.36 criterion, specific testing methods for verifying nozzles are not blocked are not required to be part of the surveillance requirement in the Technical Specification.

It is recognized that the potential exists for nozzle blockage caused by solid boric acid accumulation in the spray lines or nozzles due to evaporated borated water. The QSS and RSS spray headers are normally maintained dry. However, should there be inadvertent fluid flow through the nozzles, such as the result of spurious actuation, DNC would evaluate testing and methods for determining the nozzles are unobstructed.

Change 3

The proposed amendment will modify SR 4.6.2.1.a to correct a grammatical error. This administrative change has no impact on the health and safety of the public and will simply correct the sentence structure.

4.2 Summary

The proposed amendment is expected to result in less frequent testing of the QSS and RSS spray nozzles. Thorough inspection and flow testing was performed for the containment spray systems during the preoperational and subsequent periodic tests, and results indicated no nozzles were obstructed. Due to FME controls, it is unlikely that any foreign material has entered the containment spray systems since the last surveillance test. The spray nozzles are a passive component and the most likely

introduction of nozzle blockage would occur during maintenance activities. FME controls provide the assurance that the potential for nozzle obstruction will continue to be low by providing protection against the introduction of foreign materials into open piping. In addition, based on the corrosion-resistant material of the spray systems piping and nozzles, degradation that could potentially cause nozzle plugging is unlikely.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration

The proposed amendment modifies the Millstone Unit No. 3 Technical Specifications surveillance frequency for verifying that the quench spray (QSS) and containment recirculation (RSS) spray nozzles are unobstructed. The surveillance is being changed from a 10 year interval to a performance-based frequency. Specifically, the verification of no nozzle obstruction would be performed following maintenance that could cause nozzle blockage. In addition, testing details are being removed from the surveillance requirement consistent with other Technical Specification standards. The proposed change is considered to be more reflective of plant operating experience which has demonstrated that spray nozzle blockage during normal plant operation is unlikely.

Dominion Nuclear Connecticut, Inc. (DNC) has evaluated whether or not a Significant Hazards Consideration (SHC) is involved with the proposed changes by addressing the three standards set forth in 10 CFR 50.92(c) as discussed below.

Criterion 1:

Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The spray nozzles and the associated containment spray systems are designed to perform accident mitigation functions only. The QSS and RSS and associated components are not considered as initiators of any analyzed accidents. The proposed change does not modify any plant equipment and only changes the frequency for performance of a surveillance test which does not impact any failure modes that could lead to an accident. Removing the testing details from the surveillance does not change the ability of the spray nozzles to function as assumed and therefore there is no affect on the consequence of any accident. Also the proposed change does not impact the capability of the QSS and RSS to perform accident mitigation functions and therefore does not impact the consequences of an accident. Based on this discussion,

the proposed amendment does not increase the probability or consequence of an accident previously evaluated.

Criterion 2:

Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The QSS and RSS are not being physically modified and there is no impact on the capability of the systems to perform accident mitigation functions. No system setpoints are being modified and no changes are being made to the method in which borated water is delivered to the spray nozzles. The testing requirements imposed by this proposed change to check for nozzle blockage following activities that could cause nozzle blockage do not introduce new failure modes for the system. By removing the testing details from the surveillance requirement, additional flexibility in the testing methodology is allowed for verifying the nozzles are unobstructed and assists in ensuring operability of the systems. The proposed amendment does not introduce accident initiators or malfunctions that would cause a new or different kind of accident. Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

Criterion 3:

Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The proposed change does not change or introduce any new setpoints at which mitigating functions are initiated. No changes to the design parameters of the QSS and RSS are being proposed. No changes in system operation are being proposed by this change that would impact an established safety margin. The proposed change modifies the frequency for verification of nozzle operability in such a way that continued high confidence exists for the containment spray systems to functions as designed. In addition, removing specific testing details from the surveillance does not affect the ability of the spray nozzles to function as designed. Therefore, based on the above, the proposed amendment does not involve a significant reduction in a margin of safety.

In summary, DNC concludes that the proposed amendment does not represent a significant hazards consideration under the standards set forth in 10 CFR 50.92(c).

5.2 Applicable Regulatory Requirements/Criteria

The applicable criterion from 10 CFR 50 Appendix A, General Design Criteria (GDC) for Nuclear Plants, associated with the QSS and the RSS are criterion 38, "Containment Heat Removal," 39, "Inspection of Containment Heat Removal System," and 40, "Testing of Containment Heat Removal System," and 50, "Containment Design Basis." The proposed SR frequency modification does not impact conformance to the applicable GDCs.

The design of the QSS and the RSS is to reduce containment pressure following an accident in order to meet the requirements of 10 CFR 50.46 and 10 CFR 50.49. The system operability requirements, combined with the requirement to verify no nozzle obstruction following maintenance should minimize the potential for nozzle obstruction and provide confidence that the systems can perform their designated safety functions. Therefore, the proposed change from a fixed 10-year interval to a performance-based frequency to verify each spray nozzle is unobstructed is consistent with all applicable regulatory requirements or criteria.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

DNC has determined that the proposed amendment would not change requirements with respect to use of a facility component located within the restricted area, as defined by 10 CFR 20, but would change an inspection or surveillance requirement. DNC has evaluated the proposed change and has determined that the change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released off site, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

Serial No. 04-480
Docket No. 50-423

ATTACHMENT 2

LICENSE AMENDMENT REQUEST (LBDCR 04-MP3-007)
QUENCH SPRAY AND CONTAINMENT RECIRCULATION SPRAY NOZZLE SURVEILLANCE

MARKED-UP PAGES

MILLSTONE POWER STATION, UNIT 3
DOMINION NUCLEAR CONNECTICUT, INC

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

~~July 24, 2002~~

CONTAINMENT QUENCH SPRAY SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.1 Two independent Containment Quench Spray subsystems shall be OPERABLE.

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

ACTION:

With one Containment Quench Spray subsystem inoperable, restore the inoperable system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.1 Each Containment Quench Spray subsystem shall be demonstrated OPERABLE:

a. At least once per 31 days, by:

1) Verifying that each valve (manual, power operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position; and

2) Verifying the temperature of the borated water in the refueling water storage tank is between 40°F and 50°F.

b. By verifying that each pump's developed head at the test flow point is greater than or equal to the required developed head when tested pursuant to Specification 4.0.5;

c. At least once per 24 months, by:

1) Verifying that each automatic valve in the flow path actuates to its correct position on a CDA test signal, and

2) Verifying that each spray pump starts automatically on a CDA test signal.

d. ~~At least once per 10 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.~~

By verifying each spray nozzle is unobstructed following maintenance that could cause nozzle blockage.

LIMITING CONDITION FOR OPERATION

3.6.2.2 Two independent Recirculation Spray Systems shall be OPERABLE.

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

ACTION:

With one Recirculation Spray System inoperable, restore the inoperable system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; restore the inoperable Recirculation Spray System to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.2 Each Recirculation Spray System shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position;

b. By verifying that each pump's developed head at the test flow point is greater than or equal to the required developed head when tested pursuant to Specification 4.0.5;

c. At least once per 24 months by verifying that on a CDA test signal, each recirculation spray pump starts automatically after a 660 ±20 second delay;

d. At least once per 24 months, by verifying that each automatic valve in the flow path actuates to its correct position on a CDA test signal; and

e. ~~At least once per 10 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.~~

By verifying each spray nozzle is unobstructed following maintenance that could cause nozzle blockage.

Bases Page - For information only - no change to this page

3/4.6.1.6 CONTAINMENT STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment will be maintained comparable to the original design standards for the life of the facility. Structural integrity is required to ensure that the containment will withstand the maximum pressure of 60 psia in the event of a LOCA. A visual inspection, in accordance with the Containment Leakage Rate Testing Program, is sufficient to demonstrate this capability.

3/4.6.1.7 CONTAINMENT VENTILATION SYSTEM

The 42-inch containment purge supply and exhaust isolation valves are required to be locked closed during plant operation since these valves have not been demonstrated capable of closing during a LOCA or steam line break accident. Maintaining these valves closed during plant operations ensures that excessive quantities of radioactive materials will not be released via the Containment Purge System. To provide assurance that these containment valves cannot be inadvertently opened, the valves are locked closed in accordance with Standard Review Plan 6.2.4 which includes mechanical devices to seal or lock the valve closed, or prevents power from being supplied to the valve operator.

The Type C testing frequency required by 4.6.1.2 is acceptable, provided that the resilient seats of these valves are replaced every other refueling outage.

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 and 3/4.6.2.2 CONTAINMENT QUENCH SPRAY SYSTEM and RECIRCULATION SPRAY SYSTEM

The OPERABILITY of the Containment Spray Systems ensures that containment depressurization and iodine removal will occur in the event of a LOCA. The pressure reduction, iodine removal capabilities and resultant containment leakage are consistent with the assumptions used in the safety analyses.

LCO 3.6.2.2

One Recirculation Spray System consists of:

- Two OPERABLE containment recirculation heat exchangers
- Two OPERABLE containment recirculation pumps

The Containment Recirculation Spray System (RSS) consists of two parallel redundant subsystems which feed two parallel 360 degree spray headers. Each subsystem consists of two pumps and two heat exchangers. Train A consists of 3RSS*P1A and 3RSS*P1C. Tain B consists of 3RSS*P1B and 3RSS*P1D.

Bases Page - For information only

The design of the Containment RSS is sufficiently independent so that an active failure in the recirculation spray mode, cold leg recirculation mode, or hot leg recirculation mode of the ECCS has no effect on its ability to perform its engineered safety function. In other words, the failure in one subsystem does not affect the capability of the other subsystem to perform its designated safety function of assuring adequate core cooling in the event of a design basis LOCA. As long as one subsystem is OPERABLE, with one pump capable of assuring core cooling and the other pump capable of removing heat from containment, the RSS system meets its design requirements.

The LCO 3.6.2.2. ACTION applies when any of the RSS pumps, heat exchangers, or associated components are declared inoperable. All four RSS pumps are required to be OPERABLE to meet the requirements of this LCO 3.6.2.2. During the injection phase of a Loss Of Coolant Accident all four RSS pumps would inject into containment to perform their containment heat removal function. The minimum requirement for the RSS to adequately perform this function is to have at least one subsystem available. Meeting the requirements of LCO 3.6.2.2. ensures the minimum RSS requirements are satisfied.

INSERT A

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INSERT A for page B 3/4 6-2a

Surveillance Requirements 4.6.2.1.d and 4.6.2.2.e require verification that each spray nozzle is unobstructed following maintenance that could cause nozzle blockage. Normal plant operation and maintenance activities are not expected to trigger performance of these surveillance requirements. However, activities, such as an inadvertent spray actuation that causes fluid flow through the nozzles, a major configuration change, or a loss of foreign material control when working within the respective system boundary may require surveillance performance. An evaluation, based on the specific situation, will determine the appropriate test method (e.g., visual inspection, air or smoke flow test) to verify no nozzle obstruction.

ATTACHMENT 3

LICENSE AMENDMENT REQUEST (LBDCR 04-MP3-007)
QUENCH SPRAY AND CONTAINMENT RECIRCULATION SPRAY NOZZLE SURVEILLANCE

RE-TYPED PAGES

MILLSTONE POWER STATION, UNIT 3
DOMINION NUCLEAR CONNECTICUT, INC

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

CONTAINMENT QUENCH SPRAY SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.1 Two independent Containment Quench Spray subsystems shall be OPERABLE.

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

ACTION:

With one Containment Quench Spray subsystem inoperable, restore the inoperable system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.1 Each Containment Quench Spray subsystem shall be demonstrated OPERABLE:

a. At least once per 31 days, by:

1) Verifying that each valve (manual, power operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position; and

2) Verifying the temperature of the borated water in the refueling water storage tank is between 40°F and 50°F.

b. By verifying that each pump's developed head at the test flow point is greater than or equal to the required developed head when tested pursuant to Specification 4.0.5;

c. At least once per 24 months, by:

1) Verifying that each automatic valve in the flow path actuates to its correct position on a CDA test signal, and

2) Verifying that each spray pump starts automatically on a CDA test signal.

d. By verifying each spray nozzle is unobstructed following maintenance that could cause nozzle blockage.

RECIRCULATION SPRAY SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.2 Two independent Recirculation Spray Systems shall be OPERABLE.

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

ACTION:

With one Recirculation Spray System inoperable, restore the inoperable system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; restore the inoperable Recirculation Spray System to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.2 Each Recirculation Spray System shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position;

b. By verifying that each pump's developed head at the test flow point is greater than or equal to the required developed head when tested pursuant to Specification 4.0.5;

c. At least once per 24 months by verifying that on a CDA test signal, each recirculation spray pump starts automatically after a 660 ±20 second delay;

d. At least once per 24 months, by verifying that each automatic valve in the flow path actuates to its correct position on a CDA test signal; and

e. By verifying each spray nozzle is unobstructed following maintenance that could cause nozzle blockage.