UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL.

DOCKET NO. 50-423

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 142
License No. NPF-49

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Northeast Nuclear Energy Company, et al. (the licensee) dated April 15, 1997, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-49 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 142 , and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance, to be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Phillip F. McKee
Deputy Director for Licensing
Special Projects Office
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 24, 1997

ATTACHMENT TO LICENSE AMENDMENT NO. 142

FACILITY OPERATING LICENSE NO. NPF-49

DOCKET NO. 50-423

Replace the following pages of the Appendix A, Technical Specifications, with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

| Remove | Insert |
|---|---|
| 3/4 3-59a | 3/4 3-59a |
| 3/4 3-63 | 3/4 3-63 |
| 3/4 6-16 | 3/4 6-16 |
| B 3/4 3-5 | B 3/4 3-5 |
| B 3/4 6-3 | B 3/4 6-3 |
| B 3/4 6-3a | B 3/4 6-3a* |
| B 3/4 6-3b | B 3/4 6-3b* |
| - | B 3/4 6-3c* |

* overflow page - no change

action taken, the cause of the inoperability, and the plans and schedule for restoring the channel to OPERABLE status.

f. With the number of OPERABLE channels for the reactor vessel water level monitor less than the minimum channels OPERABLE requirements of Table 3.3-10, either restore the inoperable channel(s) to OPERABLE status within 48 hours if repairs are feasible without shutting down or:

1. Initiate an alternate method of monitoring the reactor vessel inventory;

2. Prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 30 days following the event outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the channel(s) to OPERABLE status; and

3. Restore the channel(s) to OPERABLE status at the next scheduled refueling.

g. Entry into an OPERATIONAL MODE is permitted while subject to these ACTION requirements.

## SURVEILLANCE REQUIREMENTS

4.3.3.6.1 Each accident monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION at the frequencies shown in Table 4.3-7.

4.3.3.6.2 Each hydrogen monitor shall also be demonstrated OPERABLE by a Hydrogen Sensor Calibration and an ANALOG CHANNEL OPERATIONAL TEST at least once per 92 days on a STAGGERED TEST BASIS.

## TABLE 4.3-7 (Continued)

## ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| INSTRUMENT | CHANNEL CHECK | CHANNEL CALIBRATION |
|---|---|---|
| 16. Containment Area - High Range Radiation Monitor | M | R* |
| 17. Reactor Vessel Water Level | M | R** |
| 18. Containment Hydrogen Monitor | S | R |
| 19. Neutron Flux | M | R |

* CHANNEL CALIBRATION may consist of an electronic calibration of the channel, not including the detector, for range decades above 10 R/h and a one point calibration check of the detector below 10 R/h with an installed or portable gamma source.

** Electronic calibration from the ICC cabinets only.

CONTAINMENT SYSTEMS

3/4.6.4 COMBUSTIBLE GAS CONTROL

HYDROGEN MONITORS

LIMITING CONDITION FOR OPERATION

3.6.4.1 Two independent containment hydrogen monitors shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one hydrogen monitor inoperable, restore the inoperable monitor to OPERABLE status within 30 days or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

b. With both hydrogen monitors inoperable, restore at least one monitor to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in at least HOT SHUTDOWN within the following 6 hours.

c. Entry into an OPERATIONAL MODE is permitted while subject to these ACTION requirements.

SURVEILLANCE REQUIREMENTS

4.6.4.1 Each hydrogen monitor shall be demonstrated OPERABLE:

a. By the performance of a CHANNEL CHECK at least once per 12 hours, and

b. By the performance of a Hydrogen Sensor Calibration and an ANALOG CHANNEL OPERATIONAL TEST at least once per 92 days on a STAGGERED TEST BASIS, and

c. By the performance of a CHANNEL CALIBRATION at least once each REFUELING INTERVAL.

REMOTE SHUTDOWN INSTRUMENTATION (Continued)

instrumentation, control, and power circuits and transfer switches necessary to eliminate effects of the fire and allow operation of instrumentation, control and power circuits required to achieve and maintain a safe shutdown condition are independent of areas where a fire could damage systems normally used to shut down the reactor. This capability is consistent with General Design Criterion 3 and Appendix R to 10 CFR Part 50.

3/4.3.3.6 ACCIDENT MONITORING INSTRUMENTATION

The OPERABILITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. The instrumentation included in this specification are those instruments provided to monitor key variables, designated as Category 1 instruments following the guidance for classification contained in Regulatory Guide 1.97, Revision 2, "Instrumentation for Light-Water-Cooled Nuclear Power Plants To Assess Plant and Environs Conditions During and Following an Accident."

In the event more than four sensors in a Reactor Vessel Level channel are inoperable, repairs may only be possible during the next refueling outage. This is because the sensors are accessible only after the missile shield and reactor vessel head are removed. It is not feasible to repair a channel except during a refueling outage when the missile shield and reactor vessel head are removed to refuel the core. If only one channel is inoperable, it should be restored to OPERABLE status in a refueling outage as soon as reasonably possible. If both channels are inoperable, at least one channel shall be restored to OPERABLE status in the nearest refueling outage.

Hydrogen Monitors are provided to detect high hydrogen concentration conditions that represent a potential for containment breach from a hydrogen explosion. Containment hydrogen concentration is also important in verifying the adequacy of mitigating actions. The requirement to perform a hydrogen sensor calibration at least once every 92 days is based upon vendor recommendations to maintain sensor calibration. This calibration consists of a two point calibration, utilizing gas containing approximately one percent hydrogen gas for one of the calibration points, and gas containing approximately four percent hydrogen gas for the other calibration point.

3/4.3.3.7 Deleted.

3/4.6.3 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment and is consistent with the requirements of General Design Criteria 54 through 57 of Appendix A to 10 CFR Part 50. Containment isolation within the time limits specified for these isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA. FSAR Table 6.2-65 lists all containment isolation valves. The addition of deletion of any containment isolation valve shall be made in accordance with Section 50.59 of 10CFR50 and approved by the Plant Operation Review Committee.

3/4.6.4 COMBUSTIBLE GAS CONTROL

Hydrogen Monitors are provided to detect high hydrogen concentration conditions that represent a potential for containment breach from a hydrogen explosion. Containment hydrogen concentration is also important in verifying the adequacy of mitigating actions. The requirement to perform a hydrogen sensor calibration at least every 92 days is based upon vendor recommendations to maintain sensor calibration. This calibration consists of a two point calibration, utilizing gas containing approximately one percent hydrogen gas for one of the calibration points, and gas containing approximately four percent hydrogen gas for the other calibration point.

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions. Either recombiner unit or the Mechanical Vacuum Pumps are capable of controlling the expected hydrogen generation associated with: (1) zirconium-water reactions, (2) radiolytic decomposition of water, and (3) corrosion of metals within containment. These Hydrogen Control Systems are consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA," March 1971.

The Post-LOCA performance of the hydrogen recombiner blowers is based on a series of equations supplied by the blower manufacturer. These equations are also the basis of the acceptance criteria used in the surveillance procedure. The required performance was based on starting containment conditions before the LOCA of 10.59 psia (total pressure), 120°F and 100% relative humidify.

The surveillance procedure shall use the following methods to verify acceptable blower flow rate:

3/4.6.4 COMBUSTIBLE GAS CONTROL (Continued)

1. Definitions and constants

   CFM = cubic feet per minute

   RPM = revolutions per minute

   Blower RPM = 3550

   Blower $ft^3$/revolution = .028 $ft^3$

   Standard CFM = gas volume converted to conditions of 68°F and 14.7 psia.

2. Measure and record the following information:

   Pcontainment--Average of 3LMS*P934, 935, 936, and 937 (psia)

   Pout--From 3HCS-PI1A or B (psia)

   Tc--Containment temperature (°F)

   Pin--Measure with a new inlet gauge or calculate from Equation 3a below (psia)

   scfm measured--See Procedure/Form 3613A.3-1

   $\Delta P_f$--From Table 2 (psi)

   A--As found Slip Constant

   Accuracy--Instrument accuracy range from Table 1.

3. Calculate as found slip constant (A)

   a. Pin = Pcontainment - $\Delta P_f$

   b.

$$A = 3550 - \frac{\left[\left[\frac{scfm_{measured} - Accuracy}{0.028 * 0.95}\right] * \left[\frac{14.7}{Pin} * \frac{Tc + 460}{528}\right]\right]}{\left\{\left[\frac{Pout}{Pin} * 14.7\right] - 14.7^{1/2}\right) * \left(\frac{14.7}{Pin} * \frac{Tc + 460}{528}^{1/2}\right)\right\}}$$

3/4.6.4 COMBUSTIBLE GAS CONTROL (Continued)

4. Calculate expected post accident flow rate using A calculated in Step 3.

   a. Slip RPM

      - A * $(4.937)^{\frac{1}{2}}$ * 1.218

   b. Actual Inlet CFM

      ACFM = .028 (3550 - Slip RPM)

   c. Standard CFM

      scfm = ACFM 0.725

   d. Postaccident scfm Minimum = scfm * 0.95

   e. Acceptance Flow Rate

      Postaccident scfm minimum $\geq$ 41.52 scfm.

Table 1 Accuracy Range (Ref. 2)

| scfm (measured) | Accuracy Range |
|---|---|
| 40 to 50 | 5.8 scfm |
| 50 to 80 | 4.7 scfm |

Table 2 Inlet Piping Loss (Ref. 1)

| scfm Measured (Unadjusted) | $\Delta P_f$ (psi) |
|---|---|
| 30 | .21 |
| 40 | .31 |
| 50 | .52 |
| 60 | .73 |
| 70 | .98 |
| 80 | 1.28 |

References: 1. Calculation 90-RPS-722GM, "Flow Acceptance Criteria for 3HCS*RBNR 1A/B Blowers 3HCS*C1A/B."

2. Calculation PA 90-LOE-0132GE, "Hydrogen Recombiner Flow Error Analysis."

The acceptance flow rate is the required flow rate at the worst case containment conditions 24 hours after the LOCA. The analysis assumes the recombiners are started no later than 24 hours after the accident. The 18-month surveillance shall verify the gas temperature and blower flow rate concurrently.

## 3/4.6.5 SUBATMOSPHERIC PRESSURE CONTROL SYSTEM

### 3/4.6.5.1 STEAM JET AIR EJECTOR

The closure of the isolation valves in the suction of the steam jet air ejector ensures that: (1) the containment internal pressure may be maintained within its operation limits by the mechanical vacuum pumps, and (2) the containment atmosphere is isolated from the outside environment in the event of a LOCA. These valves are required to be closed for containment isolation.