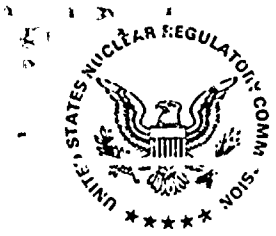

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

NIAGARA MOHAWK POWER CORPORATION

DOCKET NO. 50-410

NINE MILE POINT NUCLEAR STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 41
License No. NPF-69

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

   A. The application for amendment by Niagara Mohawk Power Corporation (the licensee) dated December 7, 1992, as supplemented March 4, 1993, and April 2, 1993, 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 1;

   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-69 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, as revised through Amendment No. 41 are hereby incorporated into this license. Niagara Mohawk Power Corporation 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 90 days.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert A. Capra, Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: May 11, 1993

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 41 TO FACILITY OPERATING LICENSE NO. NPF-69

DOCKET NO. 50-410

Revise Appendix A as follows:

| Remove Pages | Insert Pages |
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| xvii | xvii |
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| - | 3/4 3-1a (added page) |
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|---|---|
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| - | B 3/4 3-4a (added page) |
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| - | B 3/4 4-3a (added page) |

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR PROTECTION SYSTEM INSTRUMENTATION

LIMITING CONDITIONS FOR OPERATION

3.3.1 As a minimum, the reactor protection system instrumentation channels shown in Table 3.3.1-1 shall be OPERABLE with the REACTOR PROTECTION SYSTEM RESPONSE TIME as shown in Table 3.3.1-2.

APPLICABILITY: As shown in Table 3.3.1-1.

ACTION:

a. With one channel required by Table 3.3.1-1 inoperable in one or more Functional Units, place the inoperable channel and/or that trip system in the tripped condition* within 12 hours. The provisions of Specification 3.0.4 are not applicable.

b. With two or more channels required by Table 3.3.1-1 inoperable in one or more Functional Units:

   1. Within one hour, verify sufficient channels remain OPERABLE or tripped* to maintain trip capability in the Functional Unit, and

   2. Within 6 hours, place the inoperable channel(s) in one trip system and/or that trip system** in the tripped condition*, and

   3. Within 12 hours, restore the inoperable channels in the other trip system to an OPERABLE status or tripped*.

   Otherwise, take the ACTION required by Table 3.3.1-1 for the Functional Unit.

---

* An inoperable channel or trip system need not be placed in the tripped condition where this would cause the Trip Function to occur. In these cases, if the inoperable channel is not restored to OPERABLE status within the required time, the ACTION required by Table 3.3.1-1 for the Functional Unit shall be taken.

** This ACTION applies to that trip system with the most inoperable channels; if both trip systems have the same number of inoperable channels, the ACTION can be applied to either trip system.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each reactor protection system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION operations for the OPERATIONAL CONDITIONS and at the frequencies shown in Table 4.3.1.1-1.

4.3.1.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 18 months.

4.3.1.3 The REACTOR PROTECTION SYSTEM RESPONSE TIME of each reactor trip functional unit shown in Table 3.3.1-2 shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one channel per Trip System so that all channels are tested at least once per N times 18 months, where N is the total number of redundant channels in a specific reactor Trip System.

TABLE 3.3.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION

TABLE NOTATIONS

(a) A channel may be placed in an inoperable status for up to 6 hours for required surveillance without placing the Trip System in the tripped condition provided at least one OPERABLE channel in the same Trip System is monitoring that parameter.

(b) Unless adequate shutdown margin has been demonstrated per Specification 3.1.1, and the Refuel position one-rod-out interlock is OPERABLE per Specification 3.9.1, the shorting links shall be removed from the RPS circuitry prior to and during the time any control rod is withdrawn.*

(c) An APRM channel is inoperable if there are less than 2 LPRM inputs per level or less than 14 LPRM inputs to an APRM channel.

(d) This function is not required to be OPERABLE when the reactor pressure vessel head is removed per Specification 3.10.1.

(e) This function shall be automatically bypassed when the reactor mode switch is not in the Run position.

(f) This function is not required to be OPERABLE when PRIMARY CONTAINMENT INTEGRITY is not required.

(g) Also actuates the standby gas treatment system.

(h) With any control rod withdrawn. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

(i) This function shall be automatically bypassed when turbine first stage pressure is less than or equal to 129.6** psig, equivalent to THERMAL POWER less than 30% of RATED THERMAL POWER.

(j) Also actuates the EOC-RPT system.

---

* Not required for control rods removed per Specification 3.9.10.1 or 3.9.10.2.

** To allow for instrument accuracy, calibration and drift, a setpoint of less than or equal to 119 psig turbine first stage pressure shall be used.

TABLE 4.3.1.1-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| FUNCTIONAL UNIT | CHANNEL CHECK | CHANNEL FUNCTIONAL TEST | CHANNEL CALIBRATION(a) | OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED |
|---|---|---|---|---|
| 1. Intermediate Range Monitors: | | | | |
| a. Neutron Flux - High | S/U, S,(b)<br>S | S/U(c), W, R(d)<br>W | R<br>R | 2<br>3, 4, 5 |
| b. Inoperative | NA | W | NA | 2, 3, 4, 5 |
| 2. Average Power Range Monitor(e): | | | | |
| a. Neutron Flux - Upscale, Setdown | S/U, S,(b)<br>S | S/U(c), W<br>W | SA<br>SA | 2<br>3, 4, 5 |
| b. Flow-Biased Simulated Thermal Power - Upscale | S, D(f) | S/U(c), Q | W(g)(h), SA, R(i) | 1 |
| c. Fixed Neutron Flux - Upscale | S | S/U(c), Q | W(g), SA | 1 |
| d. Inoperative | NA | Q | NA | 1, 2, 3, 4, 5 |
| 3. Reactor Vessel Steam Dome Pressure - High | S | Q | R(k) | 1, 2 |
| 4. Reactor Vessel Water Level - Low, Level 3 | S | Q | R(k) | 1, 2 |
| 5. Main Steam Line Isolation Valve - Closure | NA | Q | R | 1 |
| 6. Main Steam Line Radiation - High | S | Q | R | 1, 2(j) |
| 7. Drywell Pressure - High | S | Q | R(k) | 1, 2(l) |

TABLE 4.3.1.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| FUNCTIONAL UNIT | CHANNEL CHECK | CHANNEL FUNCTIONAL TEST | CHANNEL CALIBRATION(a) | OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED |
|---|---|---|---|---|
| 8. Scram Discharge Volume Water Level - High | | | | |
| a. Transmitter/Trip Unit | S | Q | R(k) | 1, 2, 5(m) |
| b. Float Switches | NA | Q | R | 1, 2, 5(m) |
| 9. Turbine Stop Valve - Closure | NA | Q | R | 1 |
| 10. Turbine Control Valve Fast Closure, Valve Trip System Oil Pressure - Low | NA | Q | R | 1 |
| 11. Reactor Mode Switch Shutdown Position | NA | R | NA | 1, 2, 3, 4, 5 |
| 12. Manual Scram | NA | W | NA | 1, 2, 3, 4, 5 |

TABLE 4.3.1.1-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

TABLE NOTATIONS

(a) Neutron detectors may be excluded from CHANNEL CALIBRATION.

(b) The IRM and SRM channels shall be determined to overlap for at least 1/2 decade during each startup after entering OPERATIONAL CONDITION 2, and the IRM and APRM channels shall be determined to overlap for at least 1/2 decade during each controlled shutdown, if not performed within the previous 7 days.

(c) Within 24 hours before startup, if not performed within the previous 7 days.

(d) Perform a CHANNEL FUNCTIONAL TEST with the mode switch in Startup/Hot Standby and the plant in the COLD SHUTDOWN or REFUEL Condition.

(e) The LPRMs shall be calibrated at least once per 1000 effective full-power hours (EFPH) using the TIP system.

(f) Verify measured core flow (total core flow) to be in the range of established core flow at the existing loop flow (APRM%).

(g) This calibration shall consist of the adjustment of the APRM channel to conform to the power values calculated by a heat balance during OPERATIONAL CONDITION 1 when THERMAL POWER $\geq$25% of RATED THERMAL POWER. Adjust the APRM channel if the absolute difference is greater than 2% of RATED THERMAL POWER. Any APRM channel gain adjustment made in compliance with Specification 3.2.2 shall not be included in determining the absolute difference.

(h) This calibration shall consist of the adjustment of the APRM flow-biased channel to conform to a calibrated flow signal.

(i) This calibration shall consist of verifying the 6 $\pm$ 0.6 seconds simulated thermal power time constant.

(j) This function is not required to be OPERABLE when the reactor pressure vessel head is removed per Specification 3.10.1.

(k) Perform the calibration procedure for the trip unit setpoint at least once per 92 days.

(l) This function is not required to be OPERABLE when PRIMARY CONTAINMENT INTEGRITY is not required to be OPERABLE per Special Test Exception 3.10.1.

(m) With any control rod withdrawn. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

## 3/4.3.2 ISOLATION ACTUATION INSTRUMENTATION

### LIMITING CONDITIONS FOR OPERATION

3.3.2 The isolation actuation instrumentation channels shown in Table 3.3.2-1 shall be OPERABLE with their Trip Setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.2-2 and with ISOLATION SYSTEM RESPONSE TIME shown in Table 3.3.2-3.

APPLICABILITY: As shown in Table 3.3.2-1.

ACTION:

a. With an isolation actuation instrumentation channel Trip Setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.2-2, declare the channel inoperable until the channel is restored to OPERABLE status with its Trip Setpoint adjusted consistent with the Trip Setpoint value.

b. With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement for one trip system, either

   1. Place the inoperable channel(s) in the tripped condition within

      a) 1 hour for trip functions without an OPERABLE channel
      b) 12 hours for trip functions common to RPS Instrumentation, and
      c) 24 hours for trip functions not common to RPS Instrumentation

   or

   2. Take the ACTION required by Table 3.3.2-1.

c. With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement for both trip systems,

   1. Place the inoperable channel(s) in one trip system in the tripped condition within one hour, and

   2. a) Place the inoperable channel(s) in the remaining trip system in the tripped condition within

         1) 1 hour for trip functions without an OPERABLE channel
         2) 12 hours for trip functions common to RPS Instrumentation, and
         3) 24 hours for trip functions not common to RPS Instrumentation,

      or

      b) Take the ACTION required by Table 3.3.2-1.

The provisions of Specification 3.0.4 are not applicable.

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

TABLE NOTATIONS

* During CORE ALTERATIONS and operations with a potential for draining the reactor vessel. This applies to functions described in notes (c) and (d) that isolate secondary containment and automatically start the SGTS.

** When any turbine stop valve is greater than 90% open and/or when the key-locked condenser low vacuum bypass switch is open (in Normal position).

† Valves 2WCS*MOV102 and 2WCS*MOV112 are also required to be OPERABLE or closed in OPERATIONAL CONDITION 5 with any control rod withdrawn but not with control rods removed per Specifications 3.9.10.1 and 3.9.10.2.

†† When handling irradiated fuel in the reactor building and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.

(a) Refer to Table 3.3.2-4 for valve groups, associated isolation signals and key to isolation signals.

(b) A channel may be placed in an inoperable status for up to 6 hours for required surveillance without placing the Trip System in the tripped condition provided at least one other OPERABLE channel in the same Trip System is monitoring that parameter.

(c) Also actuates the standby gas treatment system.

(d) Also actuates reactor building ventilation isolation dampers per Table 3.6.5.2-1.

(e) Also trips and isolates the air removal pumps.

(f) Initiation of SLCS pump 2SLS*P1B closes 2WCS*MOV102 and manual initiation of SLCS pump 2SLS*P1A closes 2WCS*MOV112.

(g) For this signal one Trip System has 2 channels which close valves 2ICS*MOV 128 and 2ICS*MOV 170, while the other Trip System has 2 channels which close 2ICS*MOV 121.

(h) Manual initiation only isolates 2ICS*MOV121 and only following manual or automatic initiation of the RCIC system.

(i) Only used in conjunction with low RCIC steam supply pressure and high drywell pressure to isolate 2ICS*MOV148 and 2ICS*MOV164.

(j) Signal from LPCS/RHR initiation circuitry.

TABLE 4.3.2.1-1

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| TRIP FUNCTION | CHANNEL CHECK | CHANNEL FUNCTION TEST | CHANNEL CALIBRATION | OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE IS REQUIRED |
|---|---|---|---|---|
| 1. Primary Containment Isolation Signals | | | | |
| a. Reactor Vessel Water Level | | | | |
| 1) Low, Low, Low, Level 1 | S | Q | R(a) | 1, 2, 3 |
| 2) Low, Low, Level 2 | S | Q | R(a) | 1, 2, 3 and * |
| 3) Low, Level 3 | S | Q | R(a) | 1, 2, 3 |
| b. Drywell Pressure - High | S | Q | R(a) | 1, 2, 3 |
| c. Main Steam Line | | | | |
| 1) Radiation - High | S | Q | R | 1, 2, 3 |
| 2) Pressure - Low | S | Q | R(a) | 1 |
| 3) Flow - High | S | Q | R(a) | 1, 2, 3 |
| d. Main Steam Line Tunnel | | | | |
| 1) Temperature - High | S | Q | R(b) | 1, 2, 3 |
| 2) ΔTemperature - High | S | Q | R(b) | 1, 2, 3 |
| 3) Temperature - High MSL Lead Enclosure | S | Q | R(b) | 1, 2, 3 |
| e. Condenser Vacuum - Low | S | Q | R(a) | 1, 2**, 3** |
| f. RHR Equipment Area Temperature - High (HXs/A&B Pump Rooms) | S | Q | R(b) | 1, 2, 3 |
| g. Reactor Vessel Pressure High (RHR Cut-in Permissive) | S | Q | R(a) | 1, 2, 3 |

TABLE 4.3.2.1-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| TRIP FUNCTION | CHANNEL CHECK | CHANNEL FUNCTION TEST | CHANNEL CALIBRATION | OPERATION CONDITIONS FOR WHICH SURVEILLANCE IS REQUIRED |
|---|---|---|---|---|
| 1. Primary Containment Isolation Signals (Continued) | | | | |
| h. SGTS Exhaust - High Radiation | NA | Q | R | 1, 2, 3 |
| i. RWCU System | | | | |
| 1) ΔFlow - High | S | Q | R | 1, 2, 3 |
| 2) ΔFlow - High, Timer | NA | Q | R | 1, 2, 3 |
| 3) Standby Liquid Control, SLCS, Initiation | NA | R | NA | 1, 2, 5†† |
| j. RWCU Equipment Area | | | | |
| 1) Pump Room A Temperature - High | S | Q | R(b) | 1, 2, 3 |
| 2) Pump Room B Temperature - High | S | Q | R(b) | 1, 2, 3 |
| 3) HX Room Temperature - High | S | Q | R(b) | 1, 2, 3 |
| k. Reactor Building Pipe Chase | | | | |
| 1) Azimuth 180° (Upper), Temperature - High | S | Q | R(b) | 1, 2, 3 |
| 2) Azimuth 180° (Lower), Temperature - High | S | Q | R(b) | 1, 2, 3 |
| 3) Azimuth 40°, Temperature - High | S | Q | R(b) | 1, 2, 3 |
| l. Reactor Building Temperature - High | S | Q | R(b) | 1, 2, 3 |
| m. Manual Isolation Pushbutton [NSSSS] | NA | Q(c) | NA | 1, 2, 3 |

TABLE 4.3.2.1-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| TRIP FUNCTION | CHANNEL CHECK | CHANNEL FUNCTION TEST | CHANNEL CALIBRATION | OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE IS REQUIRED |
|---|---|---|---|---|
| 2. RCIC Isolation Signals | | | | |
| a. RCIC Steam Line Flow - High, Timer | NA | Q | R | 1, 2, 3 |
| b. RCIC Steam Supply Pressure - Low | S | Q | R(a) | 1, 2, 3 |
| c. RCIC Steam Line Flow - High | S | Q | R(a) | 1, 2, 3 |
| d. RCIC Turbine Exhaust Diaphragm Pressure - High | S | Q | R(a) | 1, 2, 3 |
| e. RCIC Equipment Area Temperature - High | S | Q | R(b) | 1, 2, 3 |
| f. RCIC Steam Line Tunnel Temperature - High | S | Q | R(b) | 1, 2, 3 |
| g. Manual Isolation Pushbutton (RCIC) | NA | Q(c) | NA | 1, 2, 3 |
| h. Drywell Pressure - High | S | Q | R(a) | 1, 2, 3 |
| i. RHR/RCIC Steam Flow - High | S | Q | R(a) | 1, 2, 3 |
| 3. Secondary Containment Isolation Signals | | | | |
| a. Reactor Building Above the Refuel Floor Exhaust Radiation - High | NA | Q | R | 1, 2, 3, and † |
| b. Reactor Building Below the Refuel Floor Exhaust Radiation - High | NA | Q | R | 1, 2, 3, and † |

TABLE 4.3.2.1-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TABLE NOTATIONS

* During CORE ALTERATIONS and operations with a potential for draining the reactor vessel. This only applies to secondary containment isolation and automatic start of SGTS.

** When any turbine stop valve is greater than 90% open and/or when the key-locked condenser low vacuum bypass switch is open (in Normal position).

† When handling irradiated fuel in the reactor building and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.

†† Valves 2WCS*MOV102 and 2WCS*MOV112 are required to be OPERABLE or closed in OPERATIONAL CONDITION 5 with any control rod withdrawn but not with control rods removed per Specifications 3.9.10.1 and 3.9.10.2.

(a) Perform the calibration procedure for the trip unit setpoint at least once per 92 days.

(b) Calibration excludes sensors; sensor response and comparison shall be done in lieu of.

(c) Manual isolation pushbuttons are tested at least once per operating cycle during shutdown. All other circuitry associated with manual isolation shall receive a CHANNEL FUNCTIONAL TEST at least once per 92 days as part of the circuitry required to be tested for the automatic system isolation.

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

TABLE NOTATIONS

* When the system is required to be OPERABLE per Specification 3.5.2 or 3.5.3.

** Required when ESF equipment is required to be OPERABLE.

(a) When a channel is placed in an inoperable status solely for performance of required surveillances, entry into associated Conditions and required ACTIONS may be delayed for up to 6 hours provided the associated function or the redundant function maintains ECCS initiation capability.

(b) Also actuates the associated division diesel generator.

(c) Not required to be OPERABLE when reactor steam dome pressure is less than or equal to 100 psig.

(d) The injection function of Drywell Pressure High and Manual Initiation is not required to be OPERABLE with indicated reactor vessel water level on the wide range instrument greater than level 8 setpoint coincident with the vessel pressure less than 600 psig because of hot calibration/cold operation level error.

(e) Provides signal to close HPCS pump injection valve only.

(f) Provides signal to HPCS pump suction valves only.

ACTION

ACTION 30 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip Function requirement:

a. With one channel inoperable, place the inoperable channel in the tripped condition within 24 hours* or declare the associated system inoperable.

b. With more than one channel inoperable, declare the associated system inoperable.

ACTION 31 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip Function requirement, place the inoperable channel in the tripped condition within 24 hours; restore the inoperable channel to OPERABLE status within 7 days or declare the associated system inoperable.

* The provisions of Specification 3.0.4 are not applicable.

TABLE 3.3.3-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

ACTION

ACTION 32 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip Function requirement, within 24 hours declare the associated ADS Trip System or ECCS inoperable.

ACTION 33 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip Function requirement, place the inoperable channel in the tripped condition within 24 hours.

ACTION 34 - Not used.

ACTION 35 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip Function requirement, restore the inoperable channel to OPERABLE status within 8 hours or declare the associated ADS valve or ECCS inoperable.

ACTION 36 - With the number of OPERABLE channels one less than required by the Minimum OPERABLE Channels per Trip Function requirement:

a. For one Trip System, place that Trip System in the tripped condition within 24 hours* or declare the HPCS system inoperable.

b. For both Trip Systems, declare the HPCS system inoperable.

ACTION 37 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip Function requirement, place at least one inoperable channel in the tripped condition within 24 hours* or declare the HPCS system inoperable.

ACTION 38 - With the number of OPERABLE channels less than the Total Number of Channels, declare the associated emergency diesel generator inoperable and take the ACTION required by Specification 3.8.1.1 or 3.8.1.2, as appropriate.

ACTION 39 - With the number of OPERABLE channels one less than the Total Number of Channels, place the inoperable channel in the tripped condition within 1 hour*; operation may then continue until performance of the next required CHANNEL FUNCTIONAL TEST.

---

* The provisions of Specification 3.0.4 are not applicable.

TABLE 4.3.3.1-1

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

| TRIP FUNCTION | CHANNEL CHECK | CHANNEL FUNCTIONAL TEST | CHANNEL CALIBRATION | OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE IS REQUIRED |
|---|---|---|---|---|
| A. Division I Trip System | | | | |
| 1. RHR-A (LPCI Mode) and LPCS System | | | | |
| a. Reactor Vessel Water Level - Low, Low, Low, Level 1 | S | Q | R(c) | 1, 2, 3, 4*, 5* |
| b. Drywell Pressure - High | S | Q | R(c) | 1, 2, 3 |
| c. LPCS Pump Discharge Flow - Low (Bypass) | S | Q | R(c) | 1, 2, 3, 4*, 5* |
| d. LPCS Injection Valve Permissive | S | Q | R(c) | 1, 2, 3, 4*, 5* |
| e. LPCI Injection Valve Permissive | S | Q | R(c) | 1, 2, 3, 4*, 5* |
| f. LPCI Pump A Start Time Delay Relay Normal Power | NA | Q | R | 1, 2, 3, 4*, 5* |
| g. LPCI Pump A Start Time Delay Relay Emergency Power | NA | Q | R | 1, 2, 3, 4*, 5* |
| h. LPCS Pump Start Time Delay Normal Power | NA | Q | R | 1, 2, 3, 4*, 5* |
| i. LPCS Pump Start Time Delay Emergency Power | NA | Q | R | 1, 2, 3, 4*, 5* |
| J. LPCI Pump A Discharge Flow - Low (Bypass) | S | Q | R(c) | 1, 2, 3, 4*, 5* |
| k. Manual Initiation | NA | Q(a) | NA | 1, 2, 3, 4*, 5* |
| 2. Automatic Depressurization System Trip System "A"** | | | | |
| a. Reactor Vessel Water Level - Low, Low, Low, Level 1 | S | Q | R(c) | 1, 2, 3 |
| b. ADS Timer | NA | Q | Q | 1, 2, 3 |
| c. Reactor Vessel Water Level - Low, Level 3 (Permissive) | S | Q | R(c) | 1, 2, 3 |

TABLE 4.3.3.1-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

| TRIP FUNCTION | CHANNEL CHECK | CHANNEL FUNCTIONAL TEST | CHANNEL CALIBRATION | OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE IS REQUIRED |
|---|---|---|---|---|
| A. Division I Trip System (Continued) | | | | |
| 2. Automatic Depressurization System Trip System "A"** (Continued) | | | | |
| d. LPCS Pump Discharge Pressure - High (Permissive) | S | Q | R(c) | 1, 2, 3 |
| e. LPCI Pump A Discharge Pressure - High (Permissive) | S | Q | R(c) | 1, 2, 3 |
| f. Manual Inhibit | NA | Q | NA | 1, 2, 3 |
| g. Manual Initiation | NA | Q(a) | NA | 1, 2, 3 |
| B. Division II Trip System | | | | |
| 1. RHR-B and C (LPCI Mode) | | | | |
| a. Reactor Vessel Water Level - Low, Low, Low, Level 1 | S | Q | R(c) | 1, 2, 3, 4*, 5* |
| b. Drywell Pressure - High | S | Q | R(c) | 1, 2, 3 |
| c. LPCI Injection Valve Permissive | S | Q | R(c) | 1, 2, 3, 4*, 5* |
| d. LPCI Pump B Start Time Delay Relay Normal Power | NA | Q | R | 1, 2, 3, 4*, 5* |
| e. LPCI Pump C Start Time Delay Relay Normal Power | NA | Q | R | 1, 2, 3, 4*, 5* |
| f. LPCI Pump B Start Time Delay Emergency Power | NA | Q | R | 1, 2, 3, 4*, 5* |
| g. LPCI Pump C Start Time Delay Relay Emergency Power | NA | Q | R | 1, 2, 3, 4*, 5* |
| h. LPCI Pump Discharge Flow - Low (Bypass) | S | Q | R(c) | 1, 2, 3, 4*, 5* |
| i. Manual Initiation | NA | Q(a) | NA | 1, 2, 3, 4*, 5* |

TABLE 4.3.3.1-1 (Continued)

EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

| TRIP FUNCTION | CHANNEL CHECK | CHANNEL FUNCTIONAL TEST | CHANNEL CALIBRATION | OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE IS REQUIRED |
|---|---|---|---|---|
| B. Division II Trip System (Continued) | | | | |
| 2. Automatic Depressurization System Trip System "B"** (Continued) | | | | |
| a. Reactor Vessel Water Level - Low, Low, Low, Level 1 | S | Q | R(c) | 1, 2, 3 |
| b. ADS Timer | NA | Q | Q | 1, 2, 3 |
| c. Reactor Vessel Water Level - Low, Level 3 (Permissive) | S | Q | R(c) | 1, 2, 3 |
| d. LPCI Pump (B and C) Discharge Pressure - High (Permissive) | S | Q | R(c) | 1, 2, 3 |
| e. Manual Inhibit | NA | Q | NA | 1, 2, 3 |
| f. Manual Initiation | NA | Q(a) | NA | 1, 2, 3 |
| C. Division III Trip System | | | | |
| 1. HPCS System | | | | |
| a. Reactor Vessel Water Level - Low, Low, Level 2 | S | Q | R(c) | 1, 2, 3, 4*, 5* |
| b. Drywell Pressure - High(b) | S | Q | R(c) | 1, 2, 3 |
| c. Reactor Vessel Water Level - High, Level 8 | S | Q | R(c) | 1, 2, 3, 4*, 5* |
| d. Pump Suction Pressure - Low (Transfer) | S | Q | R(c) | 1, 2, 3, 4*, 5* |
| e. Suppression Pool Water Level - High | S | Q | R(c) | 1, 2, 3, 4*, 5* |
| f. HPCS System Flow Rate - Low (Bypass) | S | Q | R(c) | 1, 2, 3, 4*, 5* |
| g. Pump Discharge Pressure - High (Bypass) | S | Q | R(c) | 1, 2, 3, 4*, 5* |
| h. Manual Initiation(b) | NA | Q(a) | NA | 1, 2, 3, 4*, 5* |

TABLE 4.3.3.1-1 (Continued)

EMERGENCY CORE COOLING SYSTEM

ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TABLE NOTATIONS

* When the system is required to be OPERABLE per Specification 3.5.2.

** Not required to be OPERABLE when reactor steam dome pressure is less than or equal to 100 psig.

† Required when ESF equipment is required to be OPERABLE.

(a) Manual initiation switches shall be tested at least once per 18 months during shutdown. All other circuitry associated with manual initiation shall receive a CHANNEL FUNCTIONAL TEST at least once per 92 days as part of the circuitry required to be tested for automatic system actuation.

(b) The injection function of Drywell Pressure - High and Manual Initiation is not required to be OPERABLE with indicated reactor vessel water level on the wide range instrument greater than Level 8 setpoint coincident with the vessel pressure less than 600 psig due to the hot calibration/cold operation level error.

(c) Perform the calibration procedure for the Trip Setpoint at least once per 92 days.

INSTRUMENTATION

3/4.3.4 RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION

ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITIONS FOR OPERATION

3.3.4.1 The anticipated transient without scram recirculation pump Trip (ATWS-RPT) System instrumentation channels shown in Table 3.3.4.1-1 shall be OPERABLE with their Trip Setpoints set consistent with values shown in the Trip Setpoint column of Table 3.3.4.1-2.

APPLICABILITY: OPERATIONAL CONDITION 1.

ACTION:

a. With an ATWS-RPT system instrumentation channel Trip Setpoint less conservative than the value shown in the Allowable Value column of Table 3.3.4.1-2, declare the channel inoperable until the channel is restored to OPERABLE status with the channel Trip Setpoint adjusted consistent with the Trip Setpoint value.

b. With the number of OPERABLE channels one less than required by the Minimum OPERABLE Channels per Trip System requirement for one or both Trip Systems, place the inoperable channel(s) in the tripped condition within 24 hours.

c. With the number of OPERABLE channels two or more less than required by the Minimum Operable Channels per Trip System requirement for one Trip System and:

   1. If the inoperable channels consist of one reactor vessel water level channel and one reactor vessel pressure channel, place both inoperable channels in the tripped condition* within 24 hours.

   2. If the inoperable channels include two reactor vessel water level channels or two reactor vessel pressure channels, declare the Trip System inoperable.

d. With one Trip System inoperable, restore the inoperable Trip System to OPERABLE status within 72 hours or be in at least STARTUP within the next 6 hours.

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* The inoperable channels need not be placed in the tripped condition if this would cause the Trip Function to occur. In this case, the inoperable channel shall be restored to OPERABLE status within 6 hours, or the Trip System shall be declared inoperable.

INSTRUMENTATION

RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION

ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITIONS FOR OPERATION

3/4.3.4 RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION
(Continued)

e. With both Trip Systems inoperable, restore at least one Trip System to OPERABLE status within 1 hour or be in at least STARTUP within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.3.4.1.1 Each ATWS-RPT System instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.4.1-1.

4.3.4.1.2 LOGIC SYSTEM FUNCTIONAL TESTS and simulated automatic operation of all channels shall be performed at least once per 18 months.

TABLE 3.3.4.1-1

ATWS RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

| TRIP FUNCTION | MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM* |
|---|---|
| 1. Reactor Vessel Water Level - Low Low, Level 2 | 2 |
| 2. Reactor Vessel Pressure - High | 2 |

* One Trip System may be placed in an inoperable status for up to 6 hours for required surveillance provided the other Trip System is OPERABLE.

TABLE 4.3.4.1-1

ATWS RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

| TRIP FUNCTION | CHANNEL CHECK | CHANNEL FUNCTIONAL TEST | CHANNEL CALIBRATION |
|---|---|---|---|
| 1. Reactor Vessel Water Level - Low, Low, Level 2 | S | Q | R* |
| 2. Reactor Vessel Pressure - High | S | Q | R* |

* Perform the calibration procedure for the trip unit setpoint at least once per 92 days.

INSTRUMENTATION

RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION

END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITIONS FOR OPERATION

3.3.4.2 The end-of-cycle recirculation pump Trip (EOC-RPT) System instrumentation channels shown in Table 3.3.4.2-1 shall be OPERABLE with their Trip Setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.4.2-2 and with the END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM RESPONSE TIME as shown in Table 3.3.4.2-3.

APPLICABILITY: OPERATIONAL CONDITION 1, when THERMAL POWER is greater than or equal to 30% of RATED THERMAL POWER.

ACTION:

a. With an end-of-cycle recirculation pump Trip System instrumentation channel Trip Setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.4.2-2, declare the channel inoperable until the channel is restored to OPERABLE status with the channel setpoint adjusted consistent with the Trip Setpoint value.

b. With the number of OPERABLE channels one less than required by the Minimum OPERABLE Channels per Trip System requirement for one or both Trip Systems, place the inoperable channel(s) in the tripped condition within 12 hours.

c. With the number of OPERABLE channels two or more less than required by the Minimum OPERABLE Channels per Trip System requirement for one Trip System and:

   1. If the inoperable channels consist of one turbine control valve channel and one turbine stop valve channel, place both inoperable channels in the tripped condition within 12 hours.

   2. If the inoperable channels include two turbine control valve channels or two turbine stop valve channels, declare the Trip System inoperable.

d. With one Trip System inoperable, restore the inoperable Trip System to OPERABLE status within 72 hours or take the ACTION required by Specification 3.2.3.

e. With both Trip Systems inoperable, restore at least one Trip System to OPERABLE status within 1 hour or take the ACTION required by Specification 3.2.3.

TABLE 3.3.4.2-1

END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

| TRIP FUNCTION | | MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM* |
|---|---|---|
| 1. | Turbine Stop Valve - Closure | 2** |
| 2. | Turbine Control Valve - Fast Closure | 2** |

* A Trip System may be placed in an inoperable status for up to 6 hours for required surveillance provided that the other Trip System is OPERABLE.

** This function shall be automatically bypassed when turbine first-stage pressure is less than or equal to 129.6 psig, equivalent to THERMAL POWER less than 30% of RATED THERMAL POWER. To allow for instrument accuracy, calibration, and drift, a setpoint of less than or equal to 119 psig shall be used.

TABLE 3.3.4.2-2

END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM SETPOINTS

| TRIP FUNCTION | TRIP SETPOINT | ALLOWABLE VALUE |
|---|---|---|
| 1. Turbine Stop Valve - Closure | ≤5% closed | ≤7% closed |
| 2. Turbine Control Valve - Fast Closure | ≥530 psig | ≥465 psig |

TABLE 3.3.4.2-3

END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM RESPONSE TIME

| TRIP FUNCTION | RESPONSE TIME (MILLISECONDS) |
|---|---|
| 1. Turbine Stop Valve - Closure | ≤190 |
| 2. Turbine Control Valve - Fast Closure | ≤190 |

TABLE 4.3.4.2-1

END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM SURVEILLANCE REQUIREMENTS

| TRIP FUNCTION | CHANNEL FUNCTIONAL TEST | CHANNEL CALIBRATION |
|---|---|---|
| 1. Turbine Stop Valve - Closure | Q | R |
| 2. Turbine Control Valve - Fast Closure | Q | R |

TABLE 3.3.5-1

REACTOR CORE ISOLATION COOLING SYSTEM ACTUATION INSTRUMENTATION

| FUNCTIONAL UNITS | MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM(a) | ACTION |
|---|---|---|
| 1. Reactor Vessel Water Level - Low, Low, Level 2 | 2 | 50 |
| 2. Reactor Vessel Water Level - High, Level 8(b) | 2 | 50 |
| 3. Pump Suction Pressure - Low (Transfer) | 2(c) | 51 |
| 4. Manual Initiation(d) | 1/system(e) | 52 |

TABLE NOTATIONS

(a) A channel may be placed in an inoperable status for up to 6 hours for required surveillance without placing the Trip System in the tripped condition provided at least one other OPERABLE channel in the same Trip System is monitoring that parameter.

(b) The RCIC Level 8 trip may be bypassed to perform RCIC 150 psig operational surveillance test in accordance with Specification 4.7.4.c.2.

(c) One Trip System with one-out-of-two logic.

(d) Manual initiation is not required to be OPERABLE with indicated reactor vessel water level on the wide-range instrument greater than the Level 8 setpoint coincident with the vessel pressure less than 600 psig due to the hot calibration/cold operation level error.

(e) One Trip System with one channel.

TABLE 3.3.5-1 (Continued)

REACTOR CORE ISOLATION COOLING SYSTEM ACTUATION INSTRUMENTATION

ACTION

ACTION 50 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement:

a. For one Trip System, place the inoperable channel(s) and/or that Trip System in the tripped condition within 24 hours or declare the RCIC system inoperable.

b. For both Trip Systems with more than one channel inoperable, declare the RCIC system inoperable.

ACTION 51 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip System requirement, place at least one inoperable channel in the tripped condition within 24 hours or declare the RCIC system inoperable.

ACTION 52 - With the number of OPERABLE channels one less than required by the Minimum OPERABLE Channels per Trip System requirement, restore the inoperable channel to OPERABLE status within 24 hours or declare the RCIC system inoperable.

TABLE 4.3.5.1-1

REACTOR CORE ISOLATION COOLING SYSTEM

ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| FUNCTIONAL UNITS | CHANNEL CHECK | CHANNEL FUNCTIONAL TEST | CHANNEL CALIBRATION |
|---|---|---|---|
| 1. Reactor Vessel Water Level - Low, Low, Level 2 | S | Q | R* |
| 2. Reactor Vessel Water Level - High, Level 8 | S | Q | R* |
| 3. Pump Suction Pressure - Low (Transfer) | S | Q | R* |
| 4. Manual Initiation ** | NA | Q† | NA |

* Perform the calibration procedure for the trip unit setpoint at least once per 92 days.

** Manual initiation is not required to be OPERABLE with indicated reactor vessel water level on the wide range instrument greater than Level 8 setpoint coincident with the vessel pressure less than 600 psig because of the hot calibration/cold operation level error.

† Manual initiation switches shall be tested at least once per 18 months during shutdown. All other circuitry associated with manual initiation shall receive a CHANNEL FUNCTIONAL TEST at least once per 92 days as part of circuitry required to be tested for automatic system actuation.

INSTRUMENTATION

3/4.3.6 CONTROL ROD BLOCK INSTRUMENTATION

LIMITING CONDITIONS FOR OPERATION

3.3.6. The control rod block instrumentation channels shown in Table 3.3.6-1 shall be OPERABLE with their Trip Setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.6-2.

Applicability: As shown in Table 3.3.6-1.

ACTION:

a. With a control rod block instrumentation channel Trip Setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.6-2, declare the channel inoperable until the channel is restored to OPERABLE status with its Trip Setpoint adjusted consistent with the Trip Setpoint value.

b. With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip Function requirement, take the ACTION required by Table 3.3.6-1.

SURVEILLANCE REQUIREMENTS

4.3.6 Each of the above required control rod block Trip Systems and instrumentation channels shall be demonstrated OPERABLE* by the performance of the CHANNEL CHECK, CHANNEL FUNCTIONAL TEST, AND CHANNEL CALIBRATION operations for the OPERATIONAL CONDITIONS and at the frequencies shown in Table 4.3.6-1.

* A channel may be placed in an inoperable status for up to 6 hours for required surveillance without placing the Trip System in the tripped condition, provided at least one other operable channel in the same Trip System is monitoring that Trip Function.

TABLE 3.3.6-1 (Continued)

CONTROL ROD BLOCK INSTRUMENTATION

TABLE NOTATIONS

* With THERMAL POWER greater than or equal to 30% of RATED THERMAL POWER.

** With more than one control rod withdrawn. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

(a) The RBM shall be automatically bypassed when a peripheral control rod is selected.

(b) This function shall be automatically bypassed if detector count rate is greater than 100 cps or the IRM channels are on range 3 or higher.

(c) This function shall be automatically bypassed when the associated IRM channels are on range 8 or higher.

(d) This function shall be automatically bypassed when the IRM channels are on range 3 or higher.

(e) This function shall be automatically bypassed when the IRM channels are on range 1.

(f) During complete core spiral offloading and reloading, an SRM downscale rod block instrumentation channel is not required to be OPERABLE when the associated SRM channel is downscale.

ACTION

ACTION 60 - Declare the RBM inoperable and take the ACTION required by Specification 3.1.4.3.

ACTION 61 - With the number of OPERABLE Channels:

a. One less than required by the Minimum OPERABLE Channels per Trip Function requirement, restore the inoperable channel to OPERABLE status within 7 days or place the inoperable channel in the tripped condition within the next hour.

b. Two or more less than required by the Minimum OPERABLE Channels per Trip Function requirement, place at least one inoperable channel in the tripped condition within 1 hour.

ACTION 62 - With the number of OPERABLE channels less than required by the Minimum OPERABLE Channels per Trip Function requirement, place the inoperable channel in the tripped condition within 12 hours.

TABLE 4.3.6-1

CONTROL ROD BLOCK INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| TRIP FUNCTION | CHANNEL CHECK | CHANNEL FUNCTIONAL TEST | CHANNEL CALIBRATION(a) | OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED |
|---|---|---|---|---|
| 1. Rod Block Monitor | | | | |
| a. Upscale | NA | S/U(b)(c), Q(c) | Q | 1* |
| b. Inoperative | NA | S/U(b)(c), Q(c) | NA | 1* |
| c. Downscale | NA | S/U(b)(c), Q(c) | Q | 1* |
| 2. APRM | | | | |
| a. Flow-Biased Neutron Flux Upscale | NA | S/U(b), Q | Q | 1 |
| b. Inoperative | NA | S/U(b), Q | NA | 1, 2, 5 |
| c. Downscale | NA | S/U(b), Q | Q | 1 |
| d. Neutron Flux - Upscale, Startup | NA | S/U(b), Q | Q | 2, 5 |
| 3. Source Range Monitors | | | | |
| a. Detector Not Full In | NA | S/U(b), W | NA | 2, 5 |
| b. Upscale | NA | S/U(b), W | Q | 2, 5 |
| c. Inoperative | NA | S/U(b), W | NA | 2, 5 |
| d. Downscale | NA | S/U(b), W | Q | 2, 5 |
| 4. Intermediate Range Monitors | | | | |
| a. Detector Not Full In | NA | S/U(b), W | NA | 2, 5 |
| b. Upscale | NA | S/U(b), W | Q | 2, 5 |
| c. Inoperative | NA | S/U(b), W | NA | 2, 5 |
| d. Downscale | NA | S/U(b), W | Q | 2, 5 |

TABLE 4.3.6-1 (Continued)

CONTROL ROD BLOCK INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| TRIP FUNCTION | CHANNEL CHECK | CHANNEL FUNCTIONAL TEST | CHANNEL CALIBRATION(a) | OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED |
|---|---|---|---|---|
| 5. Scram Discharge Volume | | | | |
| Water Level - High, Float Switch | NA | Q | R | 1, 2, 5** |
| 6. Reactor Coolant System Recirculation Flow | | | | |
| a. Upscale | NA | S/U(b), Q | Q | 1 |
| b. Inoperative | NA | S/U(b), Q | NA | 1 |
| c. Comparator | NA | S/U(b), Q | Q | 1 |
| 7. Reactor Mode Switch | | | | |
| a. Shutdown Mode | NA | R | NA | 3, 4 |
| b. Refuel Mode | NA | R | NA | 5 |

TABLE 3.3.7.1-1

RADIATION MONITORING INSTRUMENTATION

| | INSTRUMENTATION | MINIMUM CHANNELS OPERABLE | APPLICABLE CONDITIONS | ALARM/TRIP SETPOINT (a) | ACTION |
|---|---|---|---|---|---|
| 1. | Main Control Room Ventilation Radiation Monitors | 2/System(b)(e) | 1, 2, 3, 5, and * | $\leq 5.92 \times 10^{-6} \mu Ci/cc$(c) | 74 |
| 2. | Area Monitors | | | | |
| | a. Criticality Monitor (New Fuel Storage Vault) | 1 | ** | $\leq 1.0 \times 10^{2}$ mR/hr(d) | 76 |
| | b. Control Room Direct Radiation Monitor | 1 | At all times | $\leq 2.5 \times 10^{1}$ mR/hr(d) | 76 |

TABLE 3.3.7.1-1 (Continued)

RADIATION MONITORING INSTRUMENTATION

TABLE NOTATIONS

* When handling irradiated fuel in the reactor building and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.

** With fuel in the new fuel storage vault.

(a) Above measured background.

(b) Two Trip Systems, one for each special filter train and associated bypass valve, are provided with two channels per Trip System.

(c) Initiates control room emergency filtration with both channels of one Trip System at high setpoint.

(d) Alarm only.

(e) A channel may be placed in an inoperable status for up to 6 hours for required surveillance without placing the Trip System in the tripped condition, provided at least one other operable channel in the same Trip System is monitoring that Trip Function.

ACTION

ACTION 72 - Deleted.

ACTION 73 - Deleted.

ACTION 74 -

a. With the number of OPERABLE channels in one or both Trip Systems one less than the minimum number of OPERABLE channels required, place the inoperable channel in the tripped condition within 24 hours.

b. With the number of OPERABLE channels in one Trip System two less than the minimum number of OPERABLE channels required, restore at least one of the inoperable channels to OPERABLE status within 7 days, or within the next 6 hours ensure operation of the control room emergency filtration system in the filtration mode of operation.

c. With the number of OPERABLE channels in both Trip Systems two less than the minimum OPERABLE channels required, within 1 hour, ensure operation of the control room emergency filtration system in the filtration mode of operation.

TABLE 3.3.7.1-1 (Continued)

RADIATION MONITORING INSTRUMENTATION

ACTION

ACTION 75 - Deleted.

ACTION 76 - With the required monitor inoperable, perform area surveys of the monitored area with portable monitoring instrumentation at least once every 24 hours.

TABLE 4.3.7.1-1

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| INSTRUMENTATION | CHANNEL CHECK | SOURCE CHECK | CHANNEL FUNCTIONAL TEST | CHANNEL CALIBRATION | OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED |
|---|---|---|---|---|---|
| 1. Main Control Room Ventilation Radiation Monitors | S | NA | Q | R | 1, 2, 3, 5, and * |
| 2. Area Monitors | | | | | |
| a. Criticality Monitors (New Fuel Storage Vault) | S | M | SA | R | ** |
| b. Control Room Direct Radiation Monitor | S | M | SA | R | At all times |

* When handling irradiated fuel in the reactor building and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.

** With fuel in the new fuel storage vault.

TABLE 3.3.9-1

PLANT SYSTEMS ACTUATION INSTRUMENTATION

| | TRIP FUNCTION | INSTRUMENT NUMBER | MINIMUM OPERABLE CHANNELS (a) | APPLICABLE OPERATIONAL CONDITIONS | ACTION |
|---|---|---|---|---|---|
| 1. | Feedwater System/Main Turbine Trip System | | | | |
| | Reactor Vessel Water Level - High, Level 8 | 2ISC*LSH1624A,B,C | 3 | 1 | 140 |
| 2. | Service Water System | | | | |
| | a. Discharge Bay Level | 2SWP*LS30A,B | 2 | 1,2,3,4,5 | 142 |
| | b. Intake Tunnel 1 & 2 Water Temperature | 2SWP*TSL64A,65A<br>2SWP*TSL64B,65B | 1/Division<br>1/Division | 1,2,3,4,5<br>1,2,3,4,5 | 144<br>144 |
| | c. Service Water Bay | 2SWP*LS73A,B | 2 | 1,2,3,4,5 | 143 |
| | d. Service Water Pumps Discharge Strainer Differential Pressure - Train "A" | 2SWP*PDSH1A,C,E | 1/Strainer | 1,2,3,4,5 | 146 |
| | e. Service Water Pumps Discharge Strainer Differential Pressure - Train "B" | 2SWP*PDSH1B,D,F | 1/Strainer | 1,2,3,4,5 | 146 |
| | f. Service Water Supply Header Discharge Water Temperature | 2SWP*TY31A,B | 2 | 1,2,3,4,5 | 147 |
| | g. Service Water Inlet Pressure for EDG*2 (HPCS, Division III) | | | | |
| | 1) Division I Supply Header | 2SWP*PSL95A | 1 | 1,2,3,4,5 | 145 |
| | 2) Division II Supply Header | 2SWP*PSL95B | 1 | 1,2,3,4,5 | 145 |

(a) A channel may be placed in an inoperable status for up to 2 hours for required surveillance without placing the Trip System in the tripped condition, except for discharge bay level and service water bay level which may be placed in an inoperable status for up to 4 hours without placing the Trip System in a tripped condition and Reactor Vessel Level-High, Level 8 channel, which may be placed in an inoperable status for up to 6 hours for required surveillance without placing the Trip System in the tripped condition.

TABLE 4.3.9.1-1

PLANT SYSTEMS ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

| TRIP FUNCTION | CHANNEL CHECK | CHANNEL FUNCTIONAL TEST | CHANNEL CALIBRATION | OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED |
|---|---|---|---|---|
| 1. Feedwater System/Main Turbine Trip System | | | | |
| a. Reactor Vessel Water Level - High Level 8 | NA | Q | R | 1 |
| 2. Service Water System | | | | |
| a. Discharge Bay Level | NA | R | R | 1, 2, 3, 4, 5 |
| b. Intake Tunnel 1 & 2 Water Temperature | W | R | R* | 1, 2, 3, 4, 5 |
| c. Service Water Bay | NA | R | R | 1, 2, 3, 4, 5 |
| d. Service Water Pumps Discharge Strainer Differential Pressure - Train "A" | S | R | R | 1, 2, 3, 4, 5 |
| e. Service Water Pumps Discharge Strainer Differential Pressure - Train "B" | S | R | R | 1, 2, 3, 4, 5 |
| f. Service Water Supply Header Discharge Water Temperature | S | R | R | 1, 2, 3, 4, 5 |
| g. Service Water Inlet Pressure for EDG*2 (HPCS, Division III) | | | | |
| 1) Division I Supply Header | NA | R | R | 1, 2, 3, 4, 5 |
| 2) Division II Supply Header | NA | R | R | 1, 2, 3, 4, 5 |

* Calibration excludes sensors; a comparison test of the four RTDs will be done.

## 3/4.4.2 SAFETY/RELIEF VALVES

### SURVEILLANCE REQUIREMENTS

4.4.2.1 The acoustic monitor for each safety/relief valve shall be demonstrated OPERABLE*** with the setpoint verified to be 0.25 of the full-open noise level* by performance of a:

a. CHANNEL FUNCTIONAL TEST at least once per 92 days, and a
b. CHANNEL CALIBRATION at least once per 18 months.**

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* Initial setting shall be in accordance with the manufacturers recommendation. Adjustment to the valve full-open noise level shall be accomplished during the startup test program.

** The provisions of Specification 4.0.4 are not applicable provided the surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the test.

*** A channel may be placed in an inoperable status for up to 6 hours for required surveillance without placing the Trip System in the tripped condition.

3/4.3 INSTRUMENTATION

BASES

3/4.3.1 REACTOR PROTECTION SYSTEM INSTRUMENTATION

The reactor protection system (RPS) automatically initiates a reactor scram to:

a. Preserve the integrity of the fuel cladding.

b. Preserve the integrity of the reactor coolant system.

c. Minimize the energy which must be adsorbed following a loss-of-coolant accident, and

d. Prevent inadvertent criticality.

This specification provides the Limiting Conditions for Operation necessary to preserve the ability of the system to perform its intended function even during periods when instrument channels may be out of service because maintenance is being performed. When necessary, one channel may be made inoperable for brief intervals to conduct required surveillance.

The reactor protection system is made up of two independent trip systems. There are usually four channels to monitor each parameter, and there are two channels in each trip system. The outputs of the channels in a trip system are combined in a logic so that either channel will trip that trip system. The tripping of both trip systems will produce a reactor scram. The system meets the intent of IEEE-279 for nuclear power plant protection systems. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with NEDC-30851P-A, "Technical Specification Improvement Analyses for BWR Reactor Protection System," and MDE-78-0485, "Technical Specification Improvement Analysis for Nine Mile Point Nuclear Station, Unit 2." The bases for the trip settings of the RPS are discussed in the bases for Specification 2.2.1. When a channel is placed in an inoperable status solely for performance of required surveillances, entry into LCO and required ACTIONS may be delayed, provided the associated function maintains RPS trip capability.

The measurement of response time at the specified frequencies provides assurance that the protective functions associated with each channel are completed within the time limit assumed in the safety analyses. No credit was taken for those channels with response times indicated as not applicable. Response time may be demonstrated by any series of sequential, overlapping or total channel test measurement, provided such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either (1) inplace, onsite, or offsite test measurements, or (2) utilizing replacement sensors with certified response times.

3/4.3.2 ISOLATION ACTUATION INSTRUMENTATION

This specification ensure the effectiveness of the instrumentation used to mitigate the consequences of accidents by prescribing the OPERABILITY trip setpoints and response times for isolation of the reactor systems. When necessary, one channel may be inoperable for brief intervals to conduct required surveillance. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with NEDC-30851P-A, Supplement 2, "Technical Specification Improvement Analyses for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," and with NEDC-31677P-A, "Technical Specification Improvement Analyses for BWR Isolation Actuation Instrumentation." When a channel is placed in an inoperable status solely for performance of required surveillances, entry into LCO and required ACTIONS may be delayed, provided the associated function maintains primary containment isolation capability. Some of the trip settings may have tolerances explicitly stated where both the high and low values are critical and may have a substantial effect on safety. The setpoints of other instrumentation, where only the high or low end of the setting has a direct bearing on safety, are established at a level away from the normal operating range to prevent inadvertent actuation of the systems involved.

Except for the MSIVs, the FSAR Chapter 15 safety analysis does not address individual sensor response times or the response times of the logic systems to which the sensors are connected. For AC-operated valves, it is assumed that the AC power supply is lost and is restored by startup of the emergency diesel generators. In this event, a time of 13 seconds is assumed before the valve starts to move. In addition to the pipe break, the failure of the DC-operated valve is assumed; thus the signal delay (sensor response) is concurrent with the 13-second diesel startup. The safety analysis considers an allowable inventory loss in each case which in turn determines the valve speed in conjunction with the 13-second delay. It follows that checking the valve speeds and the 13-second time for establishing emergency power will establish the response time for the isolation functions.

Operation with a trip set less conservative than its Trip Setpoint but within its specified Allowable Value is acceptable on the basis that the difference between each Trip Setpoint and the Allowable Value is an allowance for instrument drift specifically allocated for each trip in the safety analysis. The Trip Setpoint and Allowable Value also contain additional margin for instrument accuracy and calibration capability.

3/4.3.3 EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

The emergency core cooling system actuation instrumentation is provided to initiate actions to mitigate the consequences of accidents that are beyond the ability of the operator to control. This specification provides the OPERABILITY requirements, Trip Setpoints, and response times that will ensure effectiveness of the systems to provide the design protection. Although the instruments are listed by system, in some cases the same instrument may be used to send the actuation signal to more than one system at the same time.

Operation with a trip set less conservative than its Trip Setpoint but within its specified Allowable Value is acceptable on the basis that the difference between each Trip Setpoint and the Allowable Value is an allowance for instrument drift specifically allocated for each trip in the safety analysis. The Trip Setpoint and Allowable Value also contain additional margin for instrument accuracy and calibration capability.

The HPCS pump suction pressure-low represents an analytical transfer level in the condensate storage tank of 14 feet at maximum flow and 3.0 feet at minimum flow. This is above the corresponding minimum tank level of 10.2 feet at maximum flow and 2.9 feet at minimum flow required to prevent vortexing.

Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with NEDC-30936P-A, "Technical Specification Improvement Methodology, (with Demonstration for BWR ECCS Actuation Instrumentation) Parts 1 and 2," and RE-026, "Technical Specification Improvement Analysis for the Emergency Core Cooling System Actuation Instrumentation for Nine Mile Point Nuclear Station, Unit 2." When a channel is placed in an inoperable status solely for performance of required surveillances, entry into LCO and required ACTIONS may be delayed, provided the associated function or the redundant function maintains ECCS initiation capability.

3/4.3.4 RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION (Continued)

between each Trip Setpoint and the Allowable Value is an allowance for instrument drift specifically allocated for each trip in the safety analyses. The Trip Setpoint and Allowable Value also contain additional margin for instrument accuracy and calibration capability. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-Of-Service Times for Selected Instrumentation Technical Specifications," as approved by the NRC and documented in the SER (letter to R. D. Binz IV from C. E. Rossi dated July 21, 1992). When a channel is placed in an inoperable status solely for performance of required surveillances, entry into LCO and required ACTIONS may be delayed, provided the associated function maintains EOC-RPT trip capability.

3/4.3.5 REACTOR CORE ISOLATION COOLING SYSTEM ACTUATION INSTRUMENTATION

The reactor core isolation cooling system actuation instrumentation is provided to initiate actions to assure adequate core cooling in the event of reactor isolation from its primary heat sink and the loss of feedwater flow to the reactor vessel.

Operation with a trip set less conservative than its Trip Setpoint but within its specified Allowable Value is acceptable on the basis that the difference between each Trip Setpoint and the Allowable Value is an allowance for instrument drift specifically allocated for each trip in the safety analyses. The Trip Setpoint and Allowable Value also contain additional margin for instrument accuracy and calibration capability. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with GENE-770-06-2, "Addendum to Bases for Changes to Surveillance Test Intervals and Allowed Out-Of-Service Times for Selected Instrumentation Technical Specifications, (BWR RCIC Instrumentation)," as approved by the NRC and documented in the SER (letter to G. J. Beck from C. E. Rossi dated September 13, 1991). When a channel is placed in an inoperable status solely for performance of required surveillances, entry into LCO and required ACTIONS may be delayed, provided the associated function maintains RCIC initiation capability.

The RCIC pump suction pressure-low represents an analytical transfer level in the condensate storage tank of 13.1 feet at maximum flow and 2.53 feet at minimum flow. This is above the corresponding minimum tank level of 5.0 feet at maximum flow and 2.5 feet at minimum flow required to prevent vortexing.

3/4.3.6 CONTROL ROD BLOCK INSTRUMENTATION

The control rod block functions are provided consistent with the requirements of the specifications in Section 3/4.1.4, Control Rod Program Controls, and Section 3/4.2, Power Distribution Limits. The trip logic is arranged so that a trip in any one of the inputs will result in a control rod block.

Operation with a trip set less conservative than its Trip Setpoint but within its specified Allowable Value is acceptable on the basis that the difference between each Trip Setpoint and the Allowable Value is an allowance for instrument drift specifically allocated for each trip in the safety analyses. The Trip Setpoint and Allowable Value also contain additional margin for instrument accuracy and calibration capability. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with NEDC-30851P-A Suppl. 1 "Technical Specification Improvement Analyses for BWR Control Rod Block Instrumentation," and GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-Of-Service Times for Selected Instrumentation Technical Specifications," as approved by the NRC and documented in the SER (letter to R. D. Binz IV from C. E. Rossi dated July 21, 1992). When a channel is placed in an inoperable status solely for performance of required surveillances, entry into LCO and required ACTIONS may be delayed, provided the associated function maintains Control Rod Block capability. The scram discharge volume water level-high setpoint is referenced to a scram discharge volume instrument zero level at elevation 263 feet 10 inches.

3/4.3.7 MONITORING INSTRUMENTATION

3/4.3.7.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring instrumentation ensures that: (1) the radiation levels are continually measured in the areas served by the individual channels; (2) the alarm or automatic action is initiated when the radiation level Trip Setpoint is exceeded; and (3) sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. This capability is consistent with 10 CFR 50, Appendix A, General Design Criteria (GDC) 19, 41, 60, 61, 63 and 64. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-Of-Service Times for Selected Instrumentation Technical Specifications," as approved by the NRC and documented in the SER (letter to R. D. Binz IV from C. E. Rossi dated July 21, 1992). When a channel is placed in an inoperable status solely for performance of required surveillances, entry into LCO and required ACTIONS may be delayed, provided the associated function maintains Control Room Ventilation initiation capability.

TURBINE OVERSPEED PROTECTION SYSTEM (Continued)

will protect the turbine from excessive overspeed. Protection from excessive turbine overspeed is required since excessive overspeed could generate potentially damaging missiles which could impact and damage safety-related components, equipment, or structures.

3/4.3.9 PLANT SYSTEMS ACTUATION INSTRUMENTATION

The plant systems actuation instrumentation is provided: (1) to initiate action of the feedwater system/main turbine trip system in the event of feedwater controller failure and (2) to ensure the proper operation of the service water system during normal and accident conditions. Specified surveillance intervals have been determined in accordance with GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-Of-Service Times for Selected Instrumentation Technical Specification," as approved by the NRC and documented in the SER (letter to R. D. Binz IV from C. E. Rossi dated July 21, 1992). When a channel is placed in an inoperable status solely for performance of required surveillances, entry into LCO and required ACTIONS may be delayed, provided the associated function maintains Feedwater System/Main Turbine Trip System actuation capability.

RECIRCULATION SYSTEM

3/4.4.1 (Continued)

recirculation pump and recirculation nozzles. Sudden equalization of a temperature difference $\geq$ 145°F between the reactor vessel bottom head coolant and the coolant in the upper region of the reactor vessel by increasing core flow rate would cause undue stress in the reactor vessel bottom head.

3/4.4.2 SAFETY/RELIEF VALVES

The safety/relief valves operate during a postulated ATWS event to prevent the reactor coolant system from being pressurized above a design allowable value of 1375 psig in accordance with the ASME Code. A total of 16 OPERABLE safety/relief valves is required to limit local pressure at active components to within ASME III allowable design values (Service Level A). All other appropriate ASME III limits are also bounded by this requirement. Specified surveillance intervals have been determined in accordance with GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-Of-Service Times for Selected Instrumentation Technical Specification," as approved by the NRC and documented in the SER (letter to R. D. Binz IV from C. E. Rossi dated July 21, 1992).

The safety/relief valve lift settings will be demonstrated only during shutdown in accordance with the provisions of Specification 4.0.5.

3/4.4.3 REACTOR COOLANT SYSTEM LEAKAGE

3/4.4.3.1 LEAKAGE DETECTION SYSTEMS

The RCS leakage detection systems required by this specification are provided to monitor and detect leakage from the reactor coolant pressure boundary. These detection systems are consistent with the recommendations of RG 1.45, "Reactor Coolant Pressure Boundary Leakage Detection Systems," May 1973.

3/4.4.3.2. OPERATIONAL LEAKAGE

The allowable leakage rates from the reactor coolant system have been based on the predicted and experimentally observed behavior of cracks in pipes. The background leakage normally expected to result from equipment design and the detection capability of the instrumentation for determining system leakage were also considered. The evidence obtained from experiments suggests that for leakage somewhat greater than that specified for UNIDENTIFIED LEAKAGE, the probability is small that the imperfection or crack

3/4.4.3.2 OPERATIONAL LEAKAGE (Continued)

associated with such leakage would grow rapidly. However, in all cases, if the leakage rates exceed the values specified or the leakage is located and known to be PRESSURE BOUNDARY LEAKAGE, the reactor will be shut down to allow further investigation and corrective action.

The Surveillance Requirements for RCS pressure isolation valves provide added assurance of valve integrity, thereby reducing the probability of gross valve failure and consequent intersystem LOCA.