DRYWELL INTEGRITY (continued)

f. The suppression pool is in compliance with the requirements of Specification 3.6.3.1.

g. The sealing mechanism associated with each drywell penetration; e.g., welds, bellows or O-rings, is OPERABLE.

$\bar{E}$-AVERAGE DISINTEGRATION ENERGY

1.12 $\bar{E}$ shall be the average, weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling, of the sum of the average beta and gamma energies per disintegration, in MeV, for isotopes, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

EMERGENCY CORE COOLING SYSTEM (ECCS) RESPONSE TIME

1.13 The EMERGENCY CORE COOLING SYSTEM (ECCS) RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ECCS actuation setpoint at the channel sensor until the ECCS equipment is capable of performing its safety function, i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc. Times shall include diesel generator starting and sequence loading delays where applicable. The response time may be measured by any series of sequential, overlapping or total steps such that the entire response time is measured. Exceptions are stated in the individual surveillance requirements.

END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM RESPONSE TIME

1.14 The END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM RESPONSE TIME shall be that time interval to complete suppression of the electric arc between the fully open contacts of the recirculation pump circuit breaker from initial movement of the associated:

a. Turbine stop valves, and
b. Turbine control valves.

The response time may be measured by any series of sequential, overlapping or total steps such that the entire response time is measured.

FREQUENCY NOTATION

1.17 The FREQUENCY NOTATION specified for the performance of Surveillance Requirements shall correspond to the intervals defined in Table 1.1.

FUEL HANDLING BUILDING INTEGRITY

1.18 FUEL HANDLING BUILDING (FHB) INTEGRITY shall exist when:

a. The doors in each access to the 620 foot elevation of the FHB are closed, except for normal entry and exit.

b. The FHB railroad track door is closed.

c. The fuel handling area floor hatches are in place.

d. The FHB ventilation system is in compliance with Specification 3.7.7.1.

e. The shield blocks are installed adjacent to the Shield Building.

GASEOUS RADWASTE TREATMENT (OFFGAS) SYSTEM

1.19 The GASEOUS RADWASTE TREATMENT (OFFGAS) SYSTEM is the system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system offgasses from the main condenser evacuation system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

IDENTIFIED LEAKAGE

1.20 IDENTIFIED LEAKAGE shall be:

a. Leakage into collection systems, such as pump seal or valve packing leaks, that is captured and conducted to a sump or collecting tank, or

b. Leakage into the drywell atmosphere from sources that are both specifically located and known either not to interfere with the operation of the leakage detection systems or not to be PRESSURE BOUNDARY LEAKAGE.

ISOLATION SYSTEM RESPONSE TIME

1.21 The ISOLATION SYSTEM RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its isolation actuation setpoint at the channel sensor until the isolation valves travel to their required positions. Times shall include diesel generator starting and sequence loading delays where applicable. The response time may be measured by any series of sequential, overlapping or total steps such that the entire response time is measured. Exceptions are stated in the individual surveillance requirements.

f. The sealing mechanism associated with each primary containment penetration; e.g., welds, bellows or O-rings, is OPERABLE.

PROCESS CONTROL PROGRAM (PCP)

1.34 The PROCESS CONTROL PROGRAM shall contain the current formulas, sampling, analyses, tests, and determinations to be made to ensure that the processing and packaging of solid radioactive wastes based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to assure compliance with 10 CFR Part 20, 10 CFR Part 61, 10 CFR Part 71 and Federal and State regulations, burial ground requirements and other requirements governing the disposal of the radioactive waste.

PURGE - PURGING

1.35 PURGE or PURGING is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating condition, in such a manner that replacement air or gas is required to purify the confinement.

RATED THERMAL POWER

1.36 RATED THERMAL POWER shall be a total reactor core heat transfer rate to the reactor coolant of 3579 MWT.

REACTOR PROTECTION SYSTEM RESPONSE TIME

1.37 REACTOR PROTECTION SYSTEM RESPONSE TIME shall be the time interval from when the monitored parameter exceeds its trip setpoint at the channel sensor until de-energization of the scram pilot valve solenoids. The response time may be measured by any series of sequential, overlapping or total steps such that the entire response time is measured. Exceptions are stated in the individual surveillance requirements.

REPORTABLE EVENT

1.38 A REPORTABLE EVENT shall be any of those conditions specified in 10 CFR 50.73.

ROD DENSITY

1.39 ROD DENSITY shall be the number of control rod notches inserted as a fraction of the total number of control rod notches. All rods fully inserted is equivalent to 100% ROD DENSITY.

SECONDARY CONTAINMENT INTEGRITY

1.40 SECONDARY CONTAINMENT INTEGRITY shall exist when:

a. All penetrations terminating in the annulus and required to be closed during accident conditions are either:

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR PROTECTION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the reactor protection system instrumentation channels shown in Table 3.3.1-1 shall be OPERABLE.

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.

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 are in the tripped condition* 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 place them in the tripped condition*.

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

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.##

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* 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.

\# Channel Calibration period may be extended as identified by note 'n' on Table 4.3.1.1-1.

Logic System Functional Test period may be extended as identified by note 'o' on Table 4.3.1.1-1.

SURVEILLANCE REQUIREMENTS - Continued

4.3.1.3 The REACTOR PROTECTION SYSTEM RESPONSE TIME of each reactor trip functional unit shall be demonstrated to be within its limit at least once per 18 months.### Neutron detectors are exempt from response time testing. For Table 3.3.1-1 Functional Units 3, 4, and 5, the channel sensors are excluded from response time testing. Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 18 months### where N is the total number of redundant channels in a specific reactor trip system.

4.3.1.4 The provisions of Specification 4.0.4 are not applicable to the CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION surveillances for the Intermediate Range Monitors for entry into their applicable OPERATIONAL CONDITIONS (as shown in Table 4.3.1.1-1) from OPERATIONAL CONDITION 1, provided the surveillances are performed within 12 hours after such entry.

Response Time Test period may be extended to be performed during the fifth refueling outage for Table 4.3.1.1-1 Functional Units 2.b, 2.c, 3, 4, 5 and 6.

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3/4.3.2 ISOLATION ACTUATION INSTRUMENTATION

LIMITING CONDITION 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.

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 one channel required by Table 3.3.2-1 inoperable in one or more Trip Functions, place the inoperable channel and/or that trip system in the tripped condition* within:

   1. 12 hours for Trip Functions common to RPS instrumentation, and

   2. 24 hours for Trip Functions not common to RPS instrumentation.

c. With two or more channels required by Table 3.3.2-1 inoperable in one or more Trip Functions;

   1. Within one hour, verify for automatic Trip Functions that sufficient channels remain OPERABLE or are in the tripped condition* to maintain isolation capability for the Trip Function, and

   2. Within 12 hours for Trip Functions common to RPS instrumentation, and within 24 hours for Trip Functions not common to RPS instrumentation, place the inoperable channel(s) in the tripped condition*.

   Otherwise, take the ACTION required by Table 3.3.2-1 for the Trip Function.

---

* 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 3.3.2-1 for the Trip Function shall be taken.

SURVEILLANCE REQUIREMENTS

4.3.2.1 Each isolation actuation 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 4.3.2.1-1.#

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

4.3.2.3 The ISOLATION SYSTEM RESPONSE TIME of each isolation trip function shall be demonstrated to be within its limit at least once per 18 months.### Channel sensors are excluded from response time testing. Each test shall include at least one channel per trip system such that all channels are tested at least once every N times 18 months,### where N is the total number of redundant channels in a specific isolation trip system.

CHANNEL CALIBRATION period may be extended as identified by note 'c' on Table 4.3.2-1.

LOGIC SYSTEM FUNCTIONAL TEST period may be extended as identified by note 'd' on Table 4.3.2-1.

Response Time test period may be extended to be performed during the fifth refueling outage for Table 4.3.2-1 Trip Functions 2.a, 2.c, and 2.d.

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3/4.3.3 EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3 The emergency core cooling system (ECCS) actuation instrumentation channels shown in Table 3.3.3-1 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3.3-2.

APPLICABILITY: As shown in Table 3.3.3-1.

ACTION:

a. With an ECCS actuation instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3.3-2, 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 one or more ECCS actuation instrumentation channels inoperable, take the ACTION required by Table 3.3.3-1.

c. With either ADS trip system "A" or "B" inoperable, restore the inoperable trip system to OPERABLE status:

   1. Within 7 days, provided that the HPCS and RCIC systems are OPERABLE, or,

   2. Within 72 hours, provided either the HPCS or the RCIC system is inoperable.

   Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and reduce reactor steam dome pressure to less than or equal to 100 psig within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.3.3.1 Each ECCS actuation 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 4.3.3.1-1.

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

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END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION 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.

APPLICABILITY: OPERATIONAL CONDITION 1, when THERMAL POWER is greater than or equal to 40% 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 less than required by the Minimum OPERABLE Channels per Trip System requirement:

   1. Verify that a sufficient number of channels remain OPERABLE or are in the tripped condition to maintain EOC-RPT trip capability for both the turbine stop valve closure and turbine control valve fast closure Trip Functions within two hours, and

   2. Place the inoperable channel(s) in the tripped condition within 72 hours.

   Otherwise, either remove the associated recirculation pump fast speed breaker from service or reduce THERMAL POWER to less than 40% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.3.4.2.1 Each end-of-cycle recirculation pump trip system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3.4.2.1-1.

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

4.3.4.2.3 The END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM RESPONSE TIME of each trip function shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least the logic of one type of channel input, turbine control valve fast closure or turbine stop valve closure, such that both types of channel inputs are tested at least once per 36 months. The measured time shall be added to the most recent breaker arc suppression time and the resulting END-OF-CYCLE RECIRCULATION PUMP TRIP SYSTEM RESPONSE TIME shall be verified to be within its limits.

4.3.4.2.4 The time interval necessary for breaker arc suppression from energization of the recirculation pump circuit breaker trip coil shall be measured at least once per 60 months.

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SURVEILLANCE REQUIREMENTS

4.5.1 ECCS division 1, 2 and 3 shall be demonstrated OPERABLE by:

a. At least once per 31 days for the LPCS, LPCI and HPCS systems:

1. Verifying by venting at the high point vents that the system piping from the pump discharge valve to the system isolation valve is filled with water.

2. 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. Verifying that, when tested pursuant to Specification 4.0.5, each:

1. LPCS pump develops a flow of at least 6110 gpm at a differential pressure greater than or equal to 128 psid for the system.

2. LPCI pump develops a flow of at least 7100 gpm at a differential pressure greater than or equal to 24 psid for the system.

3. HPCS pump develops a flow of at least 6110 gpm at a differential pressure greater than or equal to 200 psid for the system.

c. For the LPCS, LPCI and HPCS systems, at least once per 18 months:**

1. Performing a system functional test which includes simulated automatic actuation of the system throughout its emergency operating sequence and verifying that each automatic valve in the flow path actuates to its correct position. Actual injection of coolant into the reactor vessel may be excluded from this test.

2. Performing a CHANNEL CALIBRATION of the ECCS discharge line "keep filled" pressure alarm instrumentation.

3. Performing an ECCS RESPONSE TIME test for each ECCS injection/spray subsystem, and verify the ECCS RESPONSE TIME is within limits. ECCS actuation instrumentation is excluded from this test.

d. For the HPCS system, at least once per 18 months, verifying that the suction is automatically transferred from the condensate storage tank to the suppression pool on a condensate storage tank low water level signal and on a suppression pool high water level signal.

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* Except that an automatic valve capable of automatic return to its ECCS position when an ECCS signal is present may be in position for another mode of operation.

** ECCS RESPONSE TIME period may be extended to be performed prior to the completion of the fifth refueling outage.

BASES

3/4.3.1 REACTOR PROTECTION SYSTEM INSTRUMENTATION

The reactor protection system 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 absorbed 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 of maintenance. 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 with 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. The bases for the trip settings of the RPS are discussed in the bases for Specification 2.2.1. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with NEDC-30851P, "Technical Specification Improvement Analysis for BWR Reactor Protection System," as approved by the NRC and documented in the NRC Safety Evaluation Report (SER) letter to T. A. Pickens from A. Thadani dated July 15, 1987.

Action b.1 is intended to ensure that appropriate actions are taken if a loss-of-function situation occurs during repairs of multiple, inoperable, untripped instrument channels. In regards to ACTION b.1, RPS "trip capability" is considered to be maintained when each "Functional Unit" identified in Table 3.3.3-1 has sufficient channels OPERABLE or in the tripped condition such that both trip systems will generate a trip signal upon receipt of a valid signal from that "Functional Unit" (without the need to consider a further single failure event).

The Functional Units identified in Table 3.3.1-1 are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated ACTIONs may be delayed for up to 6 hours, provided the associated Functional Unit maintains trip capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable ACTIONs taken. This Note is based on the RPS reliability analysis assumption that 6 hours is the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour allowance does not significantly reduce the probability that the RPS will trip when necessary.

3/4.3.1 REACTOR PROTECTION SYSTEM INSTRUMENTATION - Continued

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. 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 ensures the effectiveness of the instrumentation used to mitigate the consequences of accidents by prescribing the OPERABILITY trip setpoints for isolation of the reactor systems.

Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with NEDC-30851P, Supplement 2, "Technical Specification Improvement Analysis for BWR Instrumentation Common to RPS and ECCS Instrumentation," as approved by the NRC and documented in the NRC Safety Evaluation Report (SER) letter to D.N. Grace from C.E. Rossi dated January 6, 1989, and NEDC-31677P, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation" as approved by the NRC and documented in the NRC SER letter to S.D. Floyd from C.E. Rossi dated June 18, 1990.

Action c.1 is intended to ensure that appropriate actions are taken if a loss-of-function situation occurs during repairs of multiple, inoperable, untripped instrument channels. In regards to ACTION c.1, "isolation capability" is considered to be maintained when sufficient channels are OPERABLE or in the tripped condition such that each "Trip Function" identified in Table 3.3.2-1 is capable of isolating the associated piping flow paths upon receipt of a valid signal from that "Trip Function" (without the need to consider a further single failure event). ACTION c.1 is not applicable to the Manual Initiation Trip Functions since they are not assumed in any accident or transient analysis. Thus, a total loss of manual initiation capability for up to 24 hours (as allowed by ACTION c.2) is permitted.

The Trip Functions identified in Table 3.3.2-1 are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated ACTIONs may be delayed as follows: (a) for up to 6 hours for Trip Function 5.m; and (b) for up to 6 hours for Trip Functions other than 5.m provided the associated Trip Function maintains isolation capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable ACTIONs taken. This Note is based on the reliability analysis assumption that 6 hours is the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour allowance does not significantly reduce the probability that the isolation will occur when necessary.

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 have 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 safety analysis does not address individual sensor response times or the response times of the logic systems to which the sensors are connected. For D.C. operated valves, a 3 second delay is assumed before the valve starts to move. For A.C. operated valves, it is assumed that

3/4.3.2 ISOLATION ACTUATION INSTRUMENTATION - Continued

the A.C. 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 D.C. 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 emergency power establishment 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 analyses.

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 and trip setpoints 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.

Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with NEDC-30936P, Part 2, "Technical Specification Improvement Methodology (with Demonstration for BWR ECCS Actuation Instrumentation)" as approved by the NRC and documented in the NRC Safety Evaluation Report (SER) letter to D.N. Grace from C.E. Rossi dated December 9, 1988 (Part 2).

ACTIONS 30, 31, 34, 35 and 39 contain provisions to ensure that appropriate actions are taken if a loss-of-function situation occurs during repairs of multiple, inoperable, untripped instrument channels. In regard to ACTIONs 30, 31, 34 and 39, "automatic actuation capability" is considered to be maintained when sufficient channels are OPERABLE (or are in the tripped condition for ACTIONs 30 and 34) such that each "Trip Function" identified in Table 3.3.3-1 is capable of initiating an ECCS function upon receipt of a valid signal from that "Trip Function" (without the need to consider a further single failure event). For ECCS Divisions 1 and 2, each Trip Function should be able to initiate either Division 1 or Division 2; for ADS Trip Systems A and B, each ADS Trip Function should be able to initiate either Trip System A or Trip System B; and for HPCS, the logic should be able to initiate HPCS.

The Trip Functions identified in Table 3.3.3-1 (except for those in Section D of the Table) are modified by a Note to indicate that when a channel is placed

3/4.3.3 EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION - Continued

in an inoperable status solely for performance of required Surveillances, entry into associated ACTIONs may be delayed as follows: (a) for up to 6 hours for Trip Functions C.1.f, C.1.g, and C.1.h; and (b) for up to 6 hours for Trip Functions other than C.1.f, C.1.g, and C.1.h provided the associated Trip Function or the redundant Trip Function (in the other Division) maintains ECCS initiation capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable ACTIONs taken. This Note is based on the reliability analysis assumption that 6 hours is the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour allowance does not significantly reduce the probability that the ECCS will initiate when necessary.

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.

3/4.3.4 RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION

The anticipated transient without scram (ATWS) recirculation pump trip system provides a means of limiting the consequences of the unlikely occurrence of a failure to scram during an anticipated transient. The response of the plant to this postulated event falls within the envelope of study events in General Electric Company Topical Report NEDO-10349, dated March 1971 and NEDO-24222, dated December 1979, and Section 15.8 of the FSAR.

Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with GENE-770-06-01, "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 NRC Safety Evaluation Report (SER) letter to R.D. Binz from C.E. Rossi dated July 21, 1992.

The end-of-cycle recirculation pump trip (EOC-RPT) system is an essential safety supplement to the Reactor Protection System. The purpose of the EOC-RPT is to recover the loss of thermal margin which occurs at the end-of-cycle. The physical phenomenon involved is that the void reactivity feedback due to a pressurization transient can add positive reactivity to the reactor system at a faster rate than the control rods add negative scram reactivity. Each EOC-RPT system trips both recirculation pumps, reducing coolant flow in order to reduce the void collapse in the core during two of the most limiting pressurization events. The two events for which the EOC-RPT protective feature will function are closure of the turbine stop valves and fast closure of the turbine control valves.

A fast closure sensor from each of two turbine control valves provides input to the EOC-RPT system; a fast closure sensor from each of the other two turbine control valves provides input to the second EOC-RPT system. Similarly, a position switch for each of two turbine stop valves provides input to one EOC-RPT system; a position switch from each of the other two stop valves provides input to the other EOC-RPT system. For each EOC-RPT system, the sensor relay contacts are arranged to form a 2-out-of-2 logic for the fast closure of turbine control valves and a 2-out-of-2 logic for the turbine stop valves. The operation of either logic will actuate the EOC-RPT system and trip both recirculation pumps.

Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with GENE-770-06-01, "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 NRC SER letter to R. D. Binz from C. E. Rossi dated July 21, 1992.

Each EOC-RPT system may be manually bypassed by use of a keyswitch which is administratively controlled. The manual bypasses and the automatic Operating Bypass at less than 40% of RATED THERMAL POWER are annunciated in the control room.

3/4.3.4 RECIRCULATION PUMP TRIP ACTUATION INSTRUMENTATION

The EOC-RPT system response time is the time assumed in the analysis between initiation of valve motion and complete suppression of the electric arc. Included in this time are: the time from initial valve movement to reaching the trip setpoint, the response time of the sensor, the response time of the system logic, and the time allotted for breaker arc suppression.

ATTACHMENT 2
PY-CEI/NRR-2009L

TECHNICAL SPECIFICATION PAGES FORMAT UPDATE FOR PENDING LICENSE AMENDMENT: REPLACEMENT OF SELECTED ANALOG LEAK DETECTION SYSTEM INSTRUMENTS WITH GE NUMAC LEAK DETECTION MONITORS

1.0 DEFINITIONS

The following terms are defined so that uniform interpretation of these specifications may be achieved. The defined terms appear in capitalized type and shall be applicable throughout these Technical Specifications.

ACTION

1.1 ACTION shall be that part of a Specification which prescribes remedial measures required under designated conditions.

AVERAGE PLANAR EXPOSURE

1.2 The AVERAGE PLANAR EXPOSURE shall be applicable to a specific planar height and is equal to the sum of the exposure of all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle.

AVERAGE PLANAR LINEAR HEAT GENERATION RATE

1.3 The AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR) shall be applicable to a specific planar height and is equal to the sum of the LINEAR HEAT GENERATION RATES for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle.

CHANNEL CALIBRATION

1.4 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is calibrated.

CHANNEL CHECK

1.5 A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter.

CHANNEL FUNCTIONAL TEST

1.6 A CHANNEL FUNCTIONAL TEST shall be:

a. Analog/digital channels - the injection of a simulated signal into the channel as close to the sensor as practicable to verify OPERABILITY including alarm and/or trip functions and channel failure trips.

b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.

The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is tested.

TABLE 4.3.2.1-1

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
1. PRIMARY CONTAINMENT ISOLATION				
a. Reactor Vessel Water Level - Low, Level 2	S	Q	R(b)(c)(d)	1, 2, 3 and #
b. Drywell Pressure - High ##	S	Q	R(b)	1, 2, 3
c. Containment and Drywell Purge Exhaust Plenum Radiation - High	S	Q	R(d)	1, 2, 3 and *
d. Reactor Vessel Water Level - Low, Level 1	S	Q	R(b)(c)(d)	1, 2, 3 and #
e. Manual Initiation	NA	R(d)	NA	1, 2, 3 and *
2. MAIN STEAM LINE ISOLATION				
a. Reactor Vessel Water Level - Low, Level 1	S	Q	R(b)(c)(d)	1, 2, 3
b. Main Steam Line Radiation - High	S	Q	R(c)(d)	***
c. Main Steam Line Pressure - Low	S	Q	R(b)	1
d. Main Steam Line Flow - High	S	Q	R(b)	1, 2, 3
e. Condenser Vacuum - Low	S	Q	R(b)	1, 2**, 3**
f. Main Steam Line Tunnel Temperature - High				
1. Division 1 and 2	S	SA	R	1, 2, 3
2. Division 3 and 4	S	Q	R	1, 2, 3
g. Main Steam Line Tunnel Δ Temperature - High				
1. Division 1 and 2	S	SA	R	1, 2, 3
2. Division 3 and 4	S	Q	R	1, 2, 3
h. Turbine Building Main Steam Line Temperature - High	S	Q	R	1, 2, 3
i. Manual Initiation	NA	R	NA	1, 2, 3

TABLE 4.3.2.1-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
3. SECONDARY CONTAINMENT ISOLATION				
a. Reactor Vessel Water Level - Low, Level 2	S	Q	R(b)(c)(d)	1, 2, 3 and #
b. Drywell Pressure - High ##	S	Q	R(b)	1, 2, 3
c. Manual Initiation	NA	R	NA	1, 2, 3 and *
4. REACTOR WATER CLEANUP SYSTEM ISOLATION				
a. Δ Flow - High	S	Q	R	1, 2, 3
b. Δ Flow Timer	NA	Q	R	1, 2, 3
c. Equipment Area Temperature - High	S	SA	R	1, 2, 3
d. Equipment Area Ventilation Δ Temperature - High	S	SA	R	1, 2, 3
e. Reactor Vessel Water Level - Low, Level 2	S	Q	R(b)(c)(d)	1, 2, 3
f. Main Steam Line Tunnel Ambient Temperature - High	S	SA	R	1, 2, 3
g. Main Steam Line Tunnel Δ Temperature - High	S	SA	R	1, 2, 3
h. SLCS Initiation	NA	Q(a)	NA	1, 2, 3
i. Manual Initiation	NA	R	NA	1, 2, 3

TABLE 4.3.2.1-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
5. REACTOR CORE ISOLATION COOLING SYSTEM ISOLATION				
a. RCIC Steam Line Flow - High	S	Q	R[(b)]	1, 2, 3
b. RCIC Steam Supply Pressure - Low	S	Q	R[(b)]	1, 2, 3
c. RCIC Turbine Exhaust Diaphragm Pressure - High	S	Q	R[(b)]	1, 2, 3
d. RCIC Equipment Room Ambient Temperature - High	S	SA	R	1, 2, 3
e. Deleted				
f. Main Steam Line Tunnel Ambient Temperature - High	S	SA	R	1, 2, 3
g. Main Steam Line Tunnel Δ Temperature - High	S	SA	R	1, 2, 3
h. Main Steam Line Tunnel Temperature Timer	NA	SA	R	1, 2, 3
i. RHR Equipment Room Ambient Temperature - High	S	SA	R	1, 2, 3
j. RHR Equipment Room Δ Temperature - High	S	SA	R	1, 2, 3
k. RCIC Steam Line Flow High Timer	NA	Q	R	1, 2, 3
l. Drywell Pressure - High	S	Q	R[(b)]	1, 2, 3
m. Manual Initiation	NA	R[(d)]	NA	1, 2, 3

TABLE 4.3.2.1-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS IN WHICH SURVEILLANCE REQUIRED
6. RHR SYSTEM ISOLATION				
a. RHR Equipment Area Ambient Temperature - High	S	SA	R	1, 2, 3
b. RHR Equipment Area Δ Temperature - High	S	SA	R	1, 2, 3
c. RHR/RCIC Steam Line Flow - High	S	Q	R(b)	1, 2, 3
d. Reactor Vessel Water Level - Low, Level 3 ##	S	Q	R(b)(c)(d)	1, 2, 3
e. Reactor Vessel (RHR Cut-in Permissive) Pressure - High	S	Q	R(b)(c)(d)	1, 2, 3
f. Drywell Pressure - High ##	S	Q	R(b)(d)	1, 2, 3
g. Manual Initiation	NA	R(d)	NA	1, 2, 3

* When handling irradiated fuel in the primary containment and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.
** When any turbine stop valve is greater than 90% open and/or the key locked bypass switch is in the normal position.
*** OPERATIONAL CONDITION 1 or 2 when the mechanical vacuum pump lines are not isolated.
\# During CORE ALTERATION and operations with a potential for draining the reactor vessel.
(a) Each train or logic channel shall be tested at least every other 92 days.
(b) Calibrate trip unit setpoint at least once per 92 days.
These Trip Functions (1b, 3b, 6d, and 6f) utilize instruments which are common to RPS instrumentation.
(c) CHANNEL CALIBRATION may be extended to be performed during the fifth refueling outage.
(d) LOGIC SYSTEM FUNCTIONAL TEST may be extended to be performed during the fifth refueling outage.