CP&L
A Progress Energy Company

James Scarola
Vice President
Harris Nuclear Plant

AUG 3 0 2002

United States Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

SERIAL: HNP-02-113
10CFR50.90

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
REQUEST FOR LICENSE AMENDMENT –RESPONSE TIME TESTING ELIMINATION

Dear Sir or Madam:

In accordance with the Code of Federal Regulations, Title 10, Part 50.90, Carolina Power & Light Company (CP&L) requests a revision to the Technical Specifications (TS) for the Harris Nuclear Plant (HNP). The proposed amendment revises Technical Specifications Definitions 1.13, Engineered Safety Features (ESF) Response Time and 1.29, Reactor Trip System (RTS) Response Time. Also proposed in this change request are revisions to Surveillance Requirements 4.3.1.2 and 4.3.2.2 and BASES Sections B 3 /4.3.1 and B 3 /4.3.2. These changes will revise the definition and surveillance requirements for response time testing of the Engineered Safety Feature Actuation System (ESFAS) and the Reactor Trip System.

These changes are in conformance with changes approved in WCAP-13632-P-A, Revision 2, and WCAP-14036-P-A Revision 1. These are proprietary documents developed by Westinghouse and approved by the NRC in August 1995, and October 1998, respectively. These proposed changes are also very similar to those approved for the Virgil C. Summer Nuclear Station on August 29, 2000.

The reason for this request is to permit the option of either measuring or verifying the response time for specific components in the above mentioned systems. WCAP-13632-P-A, Revision 2, is for specific pressure sensors and WCAP-14036-P-A, Revision 1, is for instrument loop channels. This option will give HNP an opportunity to eliminate redundant measurement of channel performance without reducing the reliability of these systems.

Enclosure 1 provides a description of the proposed changes and the basis for the changes. Enclosure 2 details, in accordance with 10 CFR 50.91(a), the basis for CP&L's determination that the proposed changes do not involve a significant hazards consideration. Enclosure 3 provides an environmental evaluation which demonstrates that the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental assessment is required for approval of this amendment request. Enclosure 4 provides page change instructions for incorporating the proposed revisions. Enclosure 5 provides the proposed Technical Specification pages.

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CP&L requests approval of the proposed amendment by March 15, 2003 to support the Cycle 12 refueling outage schedule. CP&L also requests that the proposed amendment be issued such that implementation will occur within 60 days of issuance to allow time for procedure revision and orderly incorporation into copies of the Technical Specifications.

In accordance with 10 CFR 50.91(b), CP&L is providing the State of North Carolina with a copy of the proposed license amendment.

Please refer any questions regarding this submittal to Mr. J. R. Caves at (919) 362-3137.

Sincerely,

James Scarola

RTG

Enclosures:
1. Basis for Change Request
2. 10 CFR 50.92 Evaluation
3. Environmental Considerations
4. Page Change Instructions
5. Technical Specification Pages

James Scarola, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief, and the sources of his information are employees, contractors, and agents of Carolina Power & Light Company.

Lisa M. Randall

LISA M. RANDALL NOTARY PUBLIC WAKE COUNTY, N.C.

Notary (Seal)
My commission expires:
6-7-03

c:
Mr. J. B. Brady, NRC Sr. Resident Inspector
Mr. M. Fry, Director, N.C. DEHNR
Mr. R. Subbaratnam, NRC Project Manager
Mr. L. A. Reyes, NRC Regional Administrator

bc:

Ms. D. B. Alexander
Mr. C. Baucom
Mr. L. R. Beller
Mr. W. F. Conway
Mr. G. W. Davis
Mr. R. J. Duncan II
Ms. T. A. Hardy
Mr. K. N. Harris
Mr. C. S. Hinnant
Mr. J. W. Holt
Mr. M. T. Janus
Mr. A. Khanpour
Mr. R. D. Martin
Mr. B. Morrison
Mr. T. C. Morton
Mr. J. M. Taylor
Mr. B. C. Waldrep
Licensing File(s) (2 copies)
Nuclear Records

SHEARON HARRIS NUCLEAR POWER PLANT
NRC DOCKET NO. 50-400/LICENSE NO. NPF-63
REQUEST FOR LICENSE AMENDMENT
FOR RESPONSE TIME TESTING ELIMINATION
FROM TECHNICAL SPECIFICATIONS

BASIS FOR CHANGE REQUEST

Background

Instrument response time is, generally, the time span from when a monitored variable exceeds a predetermined setpoint, at the channel sensor, until the actuated device is capable of performing its safety function. Response time testing (RTT) has been an integral part of Technical Specifications (TS) surveillance program to assure the proper functioning of the sensors and instrumentation loops for the Engineered Safety Feature Actuation System (ESFAS) and the Reactor Trip System (RTS).

The Westinghouse Owners Group performed two analyses to assess the impact of elimination of RTT for instruments and instrument loops. These analyses also discussed alternate test methodologies that would show that the instrumentation was functioning properly. The first of these analyses was Westinghouse Owners Group licensing Topical Report WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements", which was approved by the NRC on September 5, 1995. The second analysis, WCAP-14036-P-A, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests", was approved by the NRC on October 6, 1998. Both of these documents contain proprietary Westinghouse information. The Safety Evaluations approving these documents stipulated certain conditions that a licensee must meet when implementing the guidelines presented in these documents. These conditions will be satisfied upon implementation of this change.

Proposed Change

The amendment proposed by the Carolina Power and Light Company's Harris Nuclear Plant (HNP) revises Technical Specifications Definitions 1.13, Engineered Safety Features (ESF) Response Time and 1.29, Reactor Trip System (RTS) Response Time. Also proposed in this change request are revisions to Surveillance Requirements 4.3.1.2 and 4.3.2.2 and BASES Sections B 3 /4.3.1 and B 3 /4.3.2. These changes will revise the definition and surveillance requirements for response time testing of the Engineered Safety Feature Actuation System (ESFAS) and the Reactor Trip System.

These changes are in conformance with changes approved in WCAP-13632-P-A, Revision 2, and WCAP-14036-P-A Revision 1. These are proprietary documents developed by Westinghouse and approved by the NRC in August 1995, and October 1998, respectively. These proposed changes are also very similar to those approved for the Virgil C. Summer Nuclear Station on August 29, 2000.

The reason for this request is to permit the option of either measuring or verifying the response time for specific components in the above mentioned systems. WCAP-13632-P-A, Revision 2, is for specific pressure sensors and WCAP-14036-P-A, Revision 1, is for instrument loop channels. This option will give HNP an opportunity to eliminate redundant measurement of channel performance without reducing the reliability of these systems.

Basis for Proposed Change for Sensors

WCAP-13632-P-A, Revision 2, contains the technical basis and methodology for eliminating response time testing (RTT) requirements for sensors identified in the WCAP. Each sensor that was identified as a candidate for elimination of periodic response time testing requirements is listed in Table 9-1 of the WCAP. The response time to be allocated in place of response times obtained through actual measurement during the period of verification may be obtained from:

(1) Historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests)
(2) In place, onsite, or offsite (e.g., vendor) test measurements
(3) Utilizing vendor engineering specifications

Available values were incorporated into Table 9-1. The Westinghouse E Spec values will be used for the corresponding Barton model transmitters at HNP. For the Rosemount model transmitters, the most conservative value based upon historical records from acceptable response time testing at HNP will be used (reference Enclosure 1; Tables 1 and 2).

The NRC safety evaluation for WCAP-13632-P-A requires confirmation by the licensee that the generic analysis in the WCAP is applicable to their plant, and that the licensee take the following actions:

1. Perform a hydraulic response time test (RTT) prior to installation of a new transmitter/switch or following refurbishment of the transmitter switch (e.g., sensor cell or variable damping components) to determine an initial sensor specific response time value.

2. For transmitter and switches that use capillary tubes, perform a RTT after initial installation and after any maintenance or modification activity that could damage the capillary tubes.

3. If variable damping is used, implement a method to assure that the potentiometer is at the required setting and cannot be inadvertently changed, or perform a hydraulic RTT of the sensor following each calibration.

4. Perform periodic drift monitoring of all Model 1151, 1152, 1153, and 1154 Rosemount pressure and differential pressure transmitters, for which RTT elimination is proposed, in accordance with the guidance contained in Rosemount Technical Bulletin No. 4 and continue to remain in full compliance with any prior commitments to Bulletin 90-01, Supplement 1, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount." As an alternative to performing periodic drift monitoring of Rosemount transmitters, licensees may complete the following actions: (a) ensure that operators and technicians are aware of the Rosemount transmitter loss of fill-oil issue and make provisions to ensure that technicians monitor for sensor response time degradation during the performance of calibrations and functional tests of these transmitters, and (b) review and revise surveillance testing procedures, if necessary, to ensure that calibrations are being performed using equipment designed to provide a step function or fast ramp in the process variable and that calibrations and functional tests are being performed in a manner that allows simultaneous monitoring of both the input and output response of the transmitter under test, thus allowing, with reasonable assurance, the recognition of significant response time degradation.

To comply with the required actions of WCAP-13632-P-A, HNP applies the following:

1. Consistent with the proposed TS changes (including the associated Bases for 4.3.1.2 and 4.3.2.2) the applicable plant procedures include requirements that stipulate that pressure sensor response times must be verified by performance of an appropriate response time test prior to placing a sensor into operational service and re-verified following maintenance that may adversely affect sensor response time.

2. Plant procedure revisions (and/or other appropriate administrative controls) will stipulate that pressure sensors (transmitters and switches) utilizing capillary tubes, e.g., containment pressure, is subjected to RTT after initial installation and following any maintenance or modification activity, which could damage the transmitter capillary tubes. The only transmitters that require response time testing and that also use capillary tubes at HNP are the Containment Pressure transmitters and two Reactor Coolant System (RCS) Wide Range Pressure transmitters (reference Enclosure 1; Table 2). The former are enveloped by the WCAP. The latter are not enveloped and these sensors will continue to be tested. The HNP Passport database reflects the applicable time response test requirements for sensors. Engineering procedure EGR-NGGC-0005, "Engineering Change," provides guidance regarding the HNP commitment to review the response time testing requirements for any modification that involves the installation or replacement of sensors.

3. HNP has no pressure transmitters with variable damping installed in any RTS or ESFAS application for which RTT is required (reference Enclosure 1; Tables 1 and 2); therefore, no HNP procedure changes are required. If HNP replaces any transmitters in the future with variable damping capability, then appropriate procedure and/or administrative controls will be implemented.

4. HNP has previously provided responses to NRC Bulletins 90-01, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount" and 90-01, Supplement 1, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount". An NRC inspection was conducted February 6-10, 1995, to verify HNP's actions implemented in response to this bulletin. The inspectors determined that effective controls had been established and maintained to prevent inadvertent installation of a transmitter susceptible to oil fill loss. There were five Rosemount transmitters in the enhanced surveillance program. All of the other transmitters that were originally in the program had either been replaced or reached the appropriate maturity criteria recommended by Rosemount. During RFO 7 in the spring of 1997, the last Rosemount transmitter covered by NRC Bulletin 90-01 was changed out. Therefore, all of the affected transmitters have either reached the appropriate "time at pressure" criteria required for exclusion or they have been replaced with a refurbished or new transmitter. The concerns identified by NRC bulletin 90-01 have been resolved. However, periodic craft training is conducted to address awareness of this issue and technicians are trained to monitor for sluggish response.

Basis for Proposed Change for Protection Channels

WCAP-14036-P-A contains the technical basis and methodology for elimination of periodic response time testing on protection channels. The justification for this elimination is based on a Failure Modes and Effects Analysis (FMEA) that 1) determined that individual component degradation had no response time impact; or 2) identified components that may contribute to trip system response time degradation. Where potential response time impact was identified, testing was conducted to determine the magnitude of the response time degradation, or a bounding response time limit for the system or component was identified. The Westinghouse 7300 Process Protection System circuit boards were actually tested as part of this program. For the remainder of the hardware types shown in segments 2 and 3 of Figure 1 of the WCAP (e.g., NIS, Eagle 21, SSPS and relay logic), bounding response time allocation is derived from design response time specifications for the component.

For the 7300 process protection system circuit boards and modules (the type used at HNP), the FEMA was performed by having a circuit designer review the circuits and identify those components that may increase the response time if they degrade from their nominal value. The time response of dynamic function (i.e., lead-lag, etc.) cards is verified during periodic calibration testing and, therefore, these cards were not included in the program. Where it was necessary to provide a response time limit with component degradation, the conclusions of the FMEA were quantified by testing card response times with degraded components. Testing components with simulated degradations was deemed necessary to precisely quantify the increase in response time, because the Westinghouse 7300 process protection system FMEAs show that components can degrade and impact response time without a corresponding calibration or functional test failure.

WCAP-14036-P-A, Revision 1, evaluated the following 7300 cards for response time elimination with below or older artwork levels:

7NMD
4NCH
4NRA
6NLP
4NSA
9NAL

The FMEA provided by the WOG in WCAP-14036-(P)(A), Revision 1, is applicable to the installed equipment in the population for which this change request is being submitted with the exception of three summing amp cards that are 6NSA artwork level. These cards are located in Process Instrument Cabinets (PICs) 1 and 2:

Cabinet	Slot	Card Type
PIC-01	0231	6NSA1
PIC-02	0231	6NSA1
PIC-02	0243	6NSA1

The WCAP designated components R294-1 and C83-1 in block G as the most sensitive components to any time response degradation. WCAP-14620, "7300 Printed Circuit Card Revision History", shows that these components were not affected by any of the changes between artwork level 4 and 6. Also no other changes were identified which could degrade the card's time response. Therefore, the changes on this card from the above 4NSA artwork level have been evaluated as having no adverse impact on the time response of the card. Other versions of these cards in use at HNP will not be included in this response time elimination request. The Nuclear Instrumentation System is addressed in section 4.6 of WCAP-14036-P-A, Revision 1.

Sections 4.2-4.5 of the WCAP present the results of the FMEA and testing with degraded components. Testing verified that the FMEA was conservative and provided a baseline response time value for each card tested. Because certain degradations would be undetectable by routine calibration testing, bounding response times with a degraded component were determined. In cases where more than one component impacted the response time, the individual response time degradation increments were summed to estimate the total response time degradation for the card. The bounding response time is justified because of its small magnitude when compared to the total response time for the protection channel.

Sections 4.6-4.9 of the WCAP present the results of the FMEA for the NIS, EAGLE 21, SSPS and relay logic protection system. The NIS and SSPS systems are used at HNP. These systems did not require testing with degraded components. In some cases, the FMEA did not identify any response time sensitive components that are subject to degradation, and in other cases the effects of component degradation are accounted for in the overall response time allocation for the system.

Section 4.7 of the WCAP provides the basis for the bounding response time for the SSPS reactor trip functions that are used in the attached table. This time is taken to be 2 times the nominal input relay release time of 10 msec, or 20 msec. The logic circuits on the universal board and UV driver board have a combined calculated response time of 349 microseconds. Since this value is insignificant compared to the relay response time, there is no response time allocation for these cards. Based on the SSPS FEMA, there are no credible component failures not detectable by periodic functional tests that can significantly increase these response times.

Section 4.7 of the WCAP provides the basis for the bounding response time for the SSPS ESF functions that are used in the attached table. For input relays that must operate on the relay being de-energized, the response time is 2 times the nominal release time of 10 msec, or 20 msec. For ESF functions, which must operate on the input relay being energized, the response time is 2 times the nominal operate time of 13 msec, or 26 msecs. The SSPS output master relay maximum response times are assumed to be the same as the input relays; i.e., 20 msec for actuation on de-energization and 26 msecs for actuation on energization. The logic circuits on the universal board and the safeguards driver board have a combined calculated response time of 806 microseconds. Since this value is insignificant compared to the relay response time, there is no response time allocation for these cards. The slave relay response time allocation is 36 msec, which is 2 times the longest nominal pick-up, or dropout time for the MDR relays. The bounding response time allocation for ESF functions is the combination of the longest pick-up or dropout time for each relay in the circuit. The FEMA did not identify any component that can significantly increase these response times due to degradation or failure that can be detectable by periodic functional tests. Therefore, the bounding SSPS response time for ESF functions equals 26 msec (input relay) plus 26 msec (master relay) plus 36 msec (for each slave relay), or 88 msec for functions with one slave relay, 124 msec for functions with two slave relays in series. Table 2 summarizes the times of the individual ESF functions based upon a review of the circuit components for each function.

Enclosure 1 Tables:

Table 1 – REACTOR TRIP SYSTEM FUNCTION/ALLOCATION TIME
Table 2 – ENGINEERED SAFETY FEATURE FUNCTION/ALLOCATION TIME

TABLE 1
REACTOR TRIP SYSTEM FUNCTION/ALLOCATION TIME

FUNCTION	SENSOR	TIME NOTE 2	PROCESS	TIME NOTE 4	SSPS RELAYS	TIME NOTE 6
PRESSURIZER PRESSURE HIGH	ROSEMOUNT 1154	0 440 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC	0 020 SEC
PRESSURIZER PRESSURE LOW	ROSEMOUNT 1154	0.440 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC	0 020 SEC
PRESSURIZER PRESSURE LOW-SI	ROSEMOUNT 1154	0 440 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC	0.020 SEC
PRESSURIZER LEVEL HIGH	N/A	N/A	N/A	N/A	N/A	N/A
LOSS OF FLOW-SINGLE LOOP	ROSEMOUNT 1154	0 440 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC	0 020 SEC
LOSS OF FLOW-TWO LOOPS	ROSEMOUNT 1154	0.440 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC	0 020 SEC
POWER RANGE NEUTRON FLUX HIGH SETPOINT	NOTE 1	N/A	NIS	0.065 SEC WCAP-14036, SECT 4 5	INPUT + SSPS LOGIC	0 020 SEC
POWER RANGE NEUTRON FLUX LOW SETPOINT	NOTE 1	N/A	NIS	0.065 SEC WCAP-14036, SECT 4 5	INPUT + SSPS LOGIC	0 020 SEC
POWER RANGE HIGH FLUX RATE	NOTE 1	N/A	NIS	0 200 SEC WCAP-14036, SECT 4 5	INPUT + SSPS LOGIC	0 020 SEC
OTDT (Vary neutron flux) **Includes 1 msec for isolation amplifier per WCAP-14036-P-A, Rev.1, section 4 6	NOTE 1	N/A	NIS/7300	0 401 SECS WCAP-14036, SECT 4.5	INPUT + SSPS LOGIC	0.020 SEC
OTDT (Vary Tavg)	NOTE 3	N/A	7300 NOTE 5	0 4375 SECS	INPUT + SSPS LOGIC	0 020 SEC
OTDT (Vary DT)	NOTE 3	N/A	7300 NOTE 5	0 4375 SECS	INPUT + SSPS LOGIC	0 020 SEC
OTDT (Vary pressure)	ROSEMOUNT 1154	0 440 SEC	7300	0 400 SECS	INPUT + SSPS LOGIC	0 020 SEC
OPDT (Vary DT)	NOTE 3	N/A	7300 NOTE5	0.4375 SECS	INPUT + SSPS LOGIC	0 020 SEC
OPDT (Vary Tavg)	NOTE 3	N/A	7300 NOTE 5	0.4375 SECS	INPUT + SSPS LOGIC	0 020 SEC
SG WATER LEVEL LO-LO	BARTON 764	0.400 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC	0.020 SEC
SG WATER LEVEL LOW WITH FEED FLOW/STEAM FLOW MISMATCH	N/A	N/A	N/A	N/A	N/A	N/A
RCP UNDERVOLTAGE	NOTE 3	N/A	N/A	N/A	INPUT + SSPS LOGIC	0 020 SEC
RCP UNDERFREQUENCY	NOTE 3	N/A	N/A	N/A	INPUT + SSPS LOGIC	0 020 SEC
CONTAINMENT PRESS HI-1 SI	BARTON 752 WITH MODEL 351 SEALED SENSOR	1 400 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC	0 020 SEC
STEAM LINE PRESSURE LOW-SI	BARTON 763	0 200 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC	0 020 SEC

TABLE 2
ENGINEERED SAFETY FEATURE FUNCTION/ALLOCATION TIME

FUNCTION	SENSOR	TIME NOTE 2	PROCESS	TIME NOTE 4	SSPS RELAYS	TIME NOTE 6
PRESSURIZER PRESSURE LOW-SI (ECCS)	ROSEMOUNT 1154	0.440 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0.124 SEC
PRESSURIZER PRESSURE LOW-FEEDWATER ISOLOATION	ROSEMOUNT 1154	0 440 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0.088 SEC
PRESSURIZER PRESSURE LOW-CONTAINMENT ISOLATION PHASE A	ROSEMOUNT 1154	0 440 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 124 SEC
PRESSURIZER PRESSURE LOW-CONTAINMENT VENT ISOLATION	ROSEMOUNT 1154	0 440 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0.088 SEC
PRESSURIZER PRESSURE LOW-AUX FEEDWATER PUMPS	ROSEMOUNT 1154	0.440 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 088 SEC
PRESSURIZER PRESSURE LOW-SW SYSTEM	ROSEMOUNT 1154	0 440 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 088 SEC
PRESSURIZER PRESSURE LOW-EMERGENCY FAN COOLERS	ROSEMOUNT 1154	0.440 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0.088 SEC
PRESSURIZER PRESSURE LOW-CONTROL ROOM EMERGENCY HVAC	ROSEMOUNT 1154	0.440 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0.088 SEC
SG WATER LEVEL LO-LO (MOTOR DRIVEN AFW PUMPS)	BARTON 764	0 400 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0.124 SEC
SG WATER LEVEL LO-LO (TURBINE DRIVEN AFW PUMPS)	BARTON 764	0 400 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 124 SEC
SG WATER LEVEL HI-HI (FEEDWATER ISOLATION)	BARTON 764	0 400 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 160 SEC
SG WATER LEVEL HI-HI (TRIP TURBINE & FW PUMPS)	BARTON 764	0 400 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 124 SEC
SG WATER LEVEL HI-HI (FW BYPASS VALVES)	BARTON 764	0 400 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 088 SEC
CONTAINMENT PRESSURE HI-3 CONTAINMENT SPRAY	BARTON 752 WITH MODEL 351 SEALED SENSOR	1.400 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 124 SEC
CONTAINMENT PRESSURE HI-3 CONTAINMENT ISOLATION PHASE B	BARTON 752 WITH MODEL 351 SEALED SENSOR	1.400 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 088 SEC

TABLE 2
ENGINEERED SAFETY FEATURE FUNCTION/ALLOCATION TIME

FUNCTION	SENSOR	TIME NOTE 2	PROCESS	TIME NOTE 4	SSPS RELAYS	TIME NOTE 6
CONTAINMENT PRESSURE HI-2 STEAM LINE ISOLATION	BARTON 752 WITH MODEL 351 SEALED SENSOR	1.400 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0.088 SEC
CONTAINMENT PRESSURE HI-1 SI (ECCS)	BARTON 752 WITH MODEL 351 SEALED SENSOR	1.400 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 124 SEC
CONTAINMENT PRESSURE HI-1 FEEDWATER ISOLATION	BARTON 752 WITH MODEL 351 SEALED SENSOR	1.400 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 160 SEC
CONTAINMENT PRESSURE HI-1 CONTAINMENT ISOLATION PHASE A	BARTON 752 WITH MODEL 351 SEALED SENSOR	1.400 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 160 SEC
CONTAINMENT PRESSURE HI-1 CONTAINMENT VENTILATION ISOLATION	BARTON 752 WITH MODEL 351 SEALED SENSOR	1.400 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0.124 SEC
CONTAINMENT PRESSURE HI-1 AUX FEEDWATER PUMPS	BARTON 752 WITH MODEL 351 SEALED SENSOR	1.400 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0.088 SEC
CONTAINMENT PRESSURE HI-1 ESW SYSTEM	BARTON 752 WITH MODEL 351 SEALED SENSOR	1.400 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 088 SEC
CONTAINMENT PRESSURE HI-1 EMERGENCY FAN COOLERS	BARTON 752 WITH MODEL 351 SEALED SENSOR	1.400 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 088 SEC
STEAM LINE PRESSURE LOW-SI (ECCS)	BARTON 763	0 200 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 124 SEC
STEAM LINE PRESSURE LOW-FEEDWATER ISOLATION	BARTON 763	0.200 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 124 SEC
STEAM LINE PRESSURE LOW-AFW PUMPS	BARTON 763	0 200 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 088 SEC
STEAM LINE PRESSURE LOW-ESW SYSTEM	BARTON 763	0 200 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 088 SEC
STEAM LINE PRESSURE LOW-EMERGENCY FAN COOLERS	BARTON 763	0 200 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 088 SEC
STEAM LINE PRESSURE LOW-STEAM LINE ISOLATION	BARTON 763	0 200 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 088 SEC
STEAM LINE PRESSURE LOW-CONTAINMENT ISOLATION PHASE A	BARTON 763	0 200 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0.088 SEC

TABLE 2
ENGINEERED SAFETY FEATURE FUNCTION/ALLOCATION TIME

FUNCTION	SENSOR	TIME NOTE 2	PROCESS	TIME NOTE 4	SSPS RELAYS	TIME NOTE 6
STEAM LINE PRESSURE LOW-CONTAINMENT VENTILATION ISOLATION	BARTON 763	0 200 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 124 SEC
STEAM LINE PRESSURE RATE HIGH-STEAM LINE ISOLATION	BARTON 763	0 200 SEC	7300	0.100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 088 SEC
DIFFERENTIAL PRESSURE BETWEEN STEAM LINE HIGH-AUX FEEDWATER ISOLATION	BARTON 763	0 200 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0.124 SEC
REFUELING WATER STORAGE TANK LO-LO LEVEL SWITCHOVER	ROSEMOUNT 1153	0.440 SEC	7300	0 100 SEC	INPUT + SSPS LOGIC + MASTER + SLAVE RELAYS	0 088 SEC
RADIATION LEVEL HIGH CONTAINMENT VENTILATION ISOLATION	NOTE 7	N/A	N/A	N/A	SSPS LOGIC + MASTER + SLAVE RELAYS	NOTE 7
RCS WIDE RANGE PRESSURE HIGH WITH SI-ALTERNATE MINIFLOW VALVES	NOTE 3	N/A	7300	0.100 SEC	SSPS LOGIC + MASTER + SLAVE RELAYS	0 088 SEC

NOTES APPLICABLE TO TABLES 1 AND 2

1. Neutron detectors are exempt from response time testing per Plant Program Procedure PLP-106, "Technical Specification Equipment List Program and Core Operating Limits Report," Attachment 1 notation.

2. WCAP-13632, Revision 2, Table 9-1, allocated response time for Barton sensors used at HNP is as follows:

Model 752	400 milliseconds
Model 763/763A	200 milliseconds
Model 764	400 milliseconds
Model 351 Sealed Sensor	1 second

   WCAP-13632, Revision 1, did not provide an allocated response time for Rosemount 1154 instruments. To obtain the baseline value as directed in Table 9-1 of WCAP-13632-P-A, Revision 2, the previous response times of all the 1154 instruments were reviewed. The most conservative value was obtained in 9/28/95 and 4/28/00. *This value was 0.44 seconds.* Rosemount model 1154 instruments used at HNP that require response time testing do not have the adjustable damping option.

   HNP has chosen to use the above sensor time allocation for the Barton (models 351, 752, 763, and 764) and Rosemount (model 1154) response times.

3. These sensors were not included in Westinghouse evaluation of Elimination of Response Time Testing. Therefore, allocated sensor time is not used for these variables. These components will continue to be tested as required.

4. WCAP-14036-P-A, Revision 1, evaluated the following 7300 cards for response time elimination with below or older artwork levels:

   7NMD
   4NCH
   4NRA
   6NLP
   4NSA
   9NAL

   All of these are applicable to HNP. The only exception is that three summing amp cards are 6NSA artwork level. However, the changes on this card from the above 4NSA artwork level have been evaluated as having no adverse impact on the time response of the card. Other versions of these cards in use at HNP will not be included in this response time elimination request. The Nuclear Instrumentation System is addressed in section 4.6 of WCAP-14036-P-A, Revision 1.

5. An additional 0.0375 sec is added to the allocation in WCAP-14036-P-A, Revision 1, due to an additional NSA card installed as part of the bypass manifold elimination.

6. WCAP-14036-P-A, Revision 1, was evaluated for response time elimination of HNP relays. The Solid-State Protection System (SSPS) slave relays used are Potter & Brumfield Motor Driven Relays (MDRs). The SSPS input and master relays are G.P. Clare GP1 series, Midtex/AEMCO 156, or Potter & Brumfield KH series type relays. The bounding response time for reactor trip times is 2 times the nominal input relay release time of 10 milliseconds, or 20 milliseconds. The bounding response time allocation for ESF functions is the combination of the longest pick-up or dropout time for each relay in the total circuit signal path for ESF component actuation. Therefore, an additional 36 milliseconds must be allocated for each MDR type separation relay (if installed) between the slave relay and end device. Bounding SSPS response time for ESF functions equals 26 milliseconds (input relay) plus 26 milliseconds (master relay) plus 36 milliseconds (for each slave relay). This equates to 88 milliseconds for functions with one slave relay or 124 milliseconds for ESF functions with two slave relays in series.

7. Response time testing of Radiation Monitors is not required per Plant Program Procedure PLP-106, "Technical Specification Equipment List Program and Core Operating Limits Report," Table Notation 7. However, components downstream of the sensors, including SSPS logic and relays, will continue to be tested as required.

SHEARON HARRIS NUCLEAR POWER PLANT
NRC DOCKET NO. 50-400/LICENSE NO. NPF-63
REQUEST FOR LICENSE AMENDMENT
FOR RESPONSE TIME TESTING ELIMINATION
FROM TECHNICAL SPECIFICATIONS

10 CFR 50.92 - NO SIGNIFICANT HAZARDS EVALUATION

The Commission has provided standards in 10 CFR 50.92(c) for determining whether a significant hazards consideration exists. A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety. Carolina Power & Light Company has reviewed this proposed license amendment request and determined that its adoption would not involve a significant hazards determination. The bases for this determination are as follows:

Proposed Change

The amendment proposed by the Carolina Power and Light Company's Harris Nuclear Plant (HNP) revises Technical Specifications Definitions 1.13, Engineered Safety Features (ESF) Response Time and 1.29, Reactor Trip System (RTS) Response Time. Also proposed in this change request are revisions to Surveillance Requirements 4.3.1.2 and 4.3.2.2 and BASES Sections B 3 /4.3.1 and B 3 /4.3.2. These changes will revise the definition and surveillance requirements for response time testing of the Engineered Safety Feature Actuation System (ESFAS) and the Reactor Trip System.

These changes are in conformance with changes approved in WCAP-13632-P-A, Revision 2, and WCAP-14036-P-A Revision 1. These are proprietary documents developed by Westinghouse and approved by the NRC in August 1995, and October 1998, respectively. These proposed changes are also very similar to those approved for the Virgil C. Summer Nuclear Station on August 29, 2000.

The reason for this request is to permit the option of either measuring or verifying the response time for specific components in the above mentioned systems. WCAP-13632-P-A, Revision 2, is for specific pressure sensors and WCAP-14036-P-A, Revision 1, is for instrument loop channels. This option will give HNP an opportunity to eliminate redundant measurement of channel performance without reducing the reliability of these systems.

Basis for No Significant Hazards Consideration Determination

Carolina Power and Light Company (CP&L) has evaluated the proposed change to the HNP TS described above against the Significant Hazards Criteria of 10 CFR 50.92 and has determined that these changes do not involve any significant hazards for the following reasons:

1. *The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.*

The change to the Harris Nuclear Plant (HNP) Technical Specification (TS) does not result in a condition where the design, material, and construction standards that were applicable prior to the change are altered. The same RTS and ESFAS instrumentation is being used; the time response allocations/modeling assumptions in the Final Safety Analysis Report (FSAR) Chapter 15 analyses are still the same; only the method of verifying the time response is changed. The proposed change will not modify any system interface and could not increase the likelihood of an accident since these events are independent of this change. The proposed change will not change, degrade or prevent actions or alter any assumptions previously made in evaluating the radiological consequences of an accident described in the FSAR.

2. *The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.*

This change does not alter the performance of process protection racks, Nuclear Instrumentation, and logic systems used in the plant protection systems. Replacement transmitters will still have response time verified by testing before being placed in operational service. Changing the method of periodically testing these systems (assuring equipment operability) from response time testing to calibration and channel checks will not create any new accident initiators or scenarios. Periodic surveillance of these systems will continue and may be used to detect degradation that could cause the response time to exceed the total allowance. The total time response allowance for each function bounds all degradation that cannot be detected by periodic surveillance. Implementation of the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. *The proposed amendment does not involve a significant reduction in the margin of safety.*

This change does not affect the total system response time assumed in the safety analysis. The periodic system response time verification method for the process protection racks, Nuclear Instrumentation, and logic systems is modified to allow the use of actual test data or engineering data. The method of verification still provides assurance that the total system response is within that defined in the safety analysis, since calibration tests will continue to be performed and may be used to detect any degradation which might cause the system response time to exceed the total allowance. The total response time allowance for each function bounds all degradation that cannot be detected by periodic surveillance. Based on the above, it is concluded that the proposed change does not result in a significant reduction in margin with respect to plant safety.

Pursuant to 10 CFR 50.91, the preceding analysis provides a determination that the proposed Technical Specifications change poses no significant hazard as delineated by 10 CFR 50.92.

SHEARON HARRIS NUCLEAR POWER PLANT
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ENVIRONMENTAL CONSIDERATIONS

10 CFR 51.22(c)(9) provides criterion for and identification of licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant hazards consideration; (2) result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite; (3) result in a significant increase in individual or cumulative occupational radiation exposure. Carolina Power & Light Company has reviewed this request and determined that the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of the amendment. The basis for this determination follows:

Proposed Change

The amendment proposed by the Carolina Power and Light Company's Harris Nuclear Plant (HNP) revises Technical Specifications Definitions 1.13, Engineered Safety Features (ESF) Response Time and 1.29, Reactor Trip System (RTS) Response Time. Also proposed in this change request are revisions to Surveillance Requirements 4.3.1.2 and 4.3.2.2 and BASES Sections B 3 /4.3.1 and B 3 /4.3.2. These changes will revise the definition and surveillance requirements for response time testing of the Engineered Safety Feature Actuation System (ESFAS) and the Reactor Trip System.

These changes are in conformance with changes approved in WCAP-13632-P-A, Revision 2, and WCAP-14036-P-A Revision 1. These are proprietary documents developed by Westinghouse and approved by the NRC in August 1995, and October 1998, respectively. These proposed changes are also very similar to those approved for the Virgil C. Summer Nuclear Station on August 29, 2000.

The reason for this request is to permit the option of either measuring or verifying the response time for specific components in the above-mentioned systems. WCAP-13632-P-A, Revision 2, is for specific pressure sensors and WCAP-14036-P-A, Revision 1, is for instrument loop channels. This option will give HNP an opportunity to eliminate redundant measurement of channel performance without reducing the reliability of these systems.

<u>Basis</u>

The change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) for the following reasons:

1. As demonstrated in Enclosure 2, the proposed amendment does not involve a significant hazards consideration.

2. The proposed amendment does not result in a significant change in the types or increase in the amounts of any effluents that may be released offsite.

   The change does not introduce any new effluents or significantly increase the quantities of existing effluents. As such, the change cannot significantly affect the types or amounts of any effluents that may be released offsite.

3. The proposed amendment does not result in a significant increase in individual or cumulative occupational radiation exposure.

The proposed change does not result in any physical plant changes or new surveillances that would require additional personnel entry into radiation controlled areas. Therefore, the amendment has no significant affect on either individual or cumulative occupational radiation exposure.

ENCLOSURE 4 TO SERIAL: HNP-02-113

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PAGE CHANGE INSTRUCTIONS

Removed Page	Inserted Page
1-3	1-3
1-5	1-5
3/4 3-1	3/4 3-1
3/4 3-17	3/4 3-17
B 3/4 3-2	B 3/4 3-2

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TECHNICAL SPECIFICATION PAGES

$\bar{E}$ - 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 (MeV/d) for isotopes, with half-lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

ENGINEERED SAFETY FEATURES RESPONSE TIME

1.13 The ENGINEERED SAFETY FEATURES (ESF) RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF Actuation Setpoint at the channel sensor until the ESF 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. Insert 1

EXCLUSION AREA BOUNDARY

1.14 The EXCLUSION AREA BOUNDARY shall be that line beyond which the land is not controlled by the licensee to limit access.

FREQUENCY NOTATION

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

GASEOUS RADWASTE TREATMENT SYSTEM

1.16 A GASEOUS RADWASTE TREATMENT SYSTEM is any system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system off-gases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

IDENTIFIED LEAKAGE

1.17 IDENTIFIED LEAKAGE shall be:

a. Leakage (except CONTROLLED LEAKAGE) into closed systems, such as pump seal or valve packing leaks that are captured and conducted to a sump or collecting tank, or

b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of Leakage Detection Systems or not to be PRESSURE BOUNDARY LEAKAGE, or

c. Reactor Coolant System leakage through a steam generator to the Secondary Coolant System.

PROCESS CONTROL PROGRAM

1.25 The PROCESS CONTROL PROGRAM (PCP) shall contain the current formulas, sampling, analyses, test, and determinations to be made to ensure that 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 Parts 20, 61, and 71 and State regulations, burial ground requirements, and other requirements governing the disposal of solid radioactive waste.

PURGE - PURGING

1.26 PURGE or PURGING shall be any 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.

QUADRANT POWER TILT RATIO

1.27 QUADRANT POWER TILT RATIO shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater. With one excore detector inoperable, the remaining three detectors shall be used for computing the average.

RATED THERMAL POWER

Delete 1

1.28 RATED THERMAL POWER shall be a total reactor core heat transfer rate to the reactor coolant of 2900 MWt.

REACTOR TRIP SYSTEM RESPONSE TIME

1.29 The REACTOR TRIP SYSTEM RESPONSE TIME shall be the time interval from when the monitored parameter exceeds its Trip Setpoint at the channel sensor until loss of stationary gripper coil voltage. Insert 1

REPORTABLE EVENT

1.30 A REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 of 10 CFR Part 50.

SHUTDOWN MARGIN

1.31 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming all rod cluster assemblies (shutdown and control) are fully inserted except for the single rod cluster assembly of highest reactivity worth which is assumed to be fully withdrawn.

SITE BOUNDARY

1.32 For these Specifications, the SITE BOUNDARY shall be identical to the EXCLUSION AREA BOUNDARY defined above.

Delete

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the Reactor Trip System instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE.

APPLICABILITY: As shown in Table 3.3-1.

ACTION: As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each Reactor Trip System instrumentation channels and interlock and the automatic trip logic shall be demonstrated OPERABLE by the performance of the Reactor Trip System Instrumentation Surveillance Requirements specified in Table 4.3-1.

Verified Verification Delete

4.3.1.2 The REACTOR TRIP SYSTEM RESPONSE TIME of each Reactor trip function shall be demonstrated to be within its limit, specified in the Technical Specification Equipment List Program, plant procedure PLP-106, at least once per 18 months. Each test shall include at least one train such that both trains are tested at least once per 36 months and one channel per function 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 function as shown in the "Total No. of Channels" column of Table 3.3-1.

verified verified

Delete

SURVEILLANCE REQUIREMENTS

4.3.2.1 Each ESFAS instrumentation channel and interlock and the automatic actuation logic and relays shall be demonstrated OPERABLE by performance of the ESFAS Instrumentation ~~Surveillance~~ Requirements specified in Table 4.3-2.

verified verification

Delete

4.3.2.2 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be demonstrated to be within its limit specified in the Technical Specification Equipment List Program, plant procedure PLP-106, at least once per 18 months. Each test shall include at least one train such that both trains are tested at least once per 36 months and one channel per function such 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 ESFAS function as shown in the "Total No. of Channels" column of Table 3.3-3.

verified verified

REACTOR TRIP SYSTEM INSTRUMENTATION AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

$Z + R + S \leq TA$, the interactive effects of the errors in the rack and the sensor, and the "as measured" values of the errors are considered. Z, as specified in Table 3.3-4, in percent span, is the statistical summation of errors assumed in the analysis excluding those associated with the sensor and rack drift and the accuracy of their measurement. TA or Total Allowance is the difference, in percent span, between the trip setpoint and the value used in the analysis for the actuation. R or Rack Error is the "as measured" deviation, in the percent span, for the affected channel from the specified Trip Setpoint. S or Sensor Error is either the "as measured" deviation of the sensor from its calibration point or the value specified in Table 3.3-4, in percent span, from the analysis assumptions. Use of Equation 3.3-1 allows for a sensor draft factor, an increased rack drift factor, and provides a threshold value for determination of OPERABILITY.

The methodology to derive the Trip Setpoints is based upon combining all of the uncertainties in the channels. Inherent to the determination of the Trip Setpoints are the magnitudes of these channel uncertainties. Sensor and rack instrumentation utilized in these channels are expected to be capable of operating within the allowances of these uncertainty magnitudes. Rack drift in excess of the Allowable Value exhibits the behavior that the rack has not met its allowance. Being that there is a small statistical chance that this will happen, an infrequent excessive drift is expected. Rack or sensor drift, in excess of the allowance that is more than occasional, may be indicative of more serious problems and should warrant further investigation.

The measurement of response time at the specified frequencies provides assurance that the reactor trip and the Engineered Safety Features actuation associated with each channel is completed within the time limit assumed in the safety analyses. No credit was taken in the analyses 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 measurements provided ~~that such tests demonstrate the total channel response time as defined.~~ Delete ~~Sensor response time verification may be demonstrated by either: (1) in place, onsite, or offsite test measurements, or (2) utilizing replacement sensors with certified response time.~~ Insert 2

The Engineered Safety Features Actuation System senses selected plant parameters and determines whether or not predetermined limits are being exceeded. If they are, the signals are combined into logic matrices sensitive to combinations indicative of various accidents events, and transients. Once the required logic combination is completed, the system sends actuation signals to those Engineered Safety Features components whose aggregate function best serves the requirements of the condition. As an example, the following actions may be initiated by the Engineered Safety Features Actuation System to mitigate the consequences of a steam line break or loss-of-coolant accident: (1) charging/safety injection pumps start and automatic valves position, (2) reactor trip, (3) feedwater isolation, (4) startup of the emergency diesel generators, (5) containment spray pumps start and automatic valves position (6) containment isolation, (7) steam line isolation, (8) turbine trip, (9) auxiliary feedwater pumps start and automatic valves position, (10) containment fan coolers start and automatic valves position, (11) emergency service water pumps start and automatic valves position, and (12) control room isolation and emergency filtration start.

Delete

Insert 1

The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.

Insert 2

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements; or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise or power interrupt tests); (2) inplace, onsite, or offsite (e.g., vendor) test measurements; or (3) utilizing vendor engineering specifications. WCAP-13632-P-A, Rev. 2, "Elimination of Pressure Sensor Response Time Testing Requirements," provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.

WCAP 14036-P-A, Rev.1, "Elimination of Periodic Response Time Tests," provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning, and actuation logic response times must be verified prior to placing the component into operational service and re-verified following maintenance or modification that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for the repair are the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing element of a transmitter.

$\bar{E}$ - 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 (MeV/d) for isotopes, with half-lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

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EXCLUSION AREA BOUNDARY

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FREQUENCY NOTATION

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

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1.16 A GASEOUS RADWASTE TREATMENT SYSTEM is any system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system off-gases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

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1.17 IDENTIFIED LEAKAGE shall be:

a. Leakage (except CONTROLLED LEAKAGE) into closed systems, such as pump seal or valve packing leaks that are captured and conducted to a sump or collecting tank, or

b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of Leakage Detection Systems or not to be PRESSURE BOUNDARY LEAKAGE, or

c. Reactor Coolant System leakage through a steam generator to the Secondary Coolant System.

PROCESS CONTROL PROGRAM

1.25 The PROCESS CONTROL PROGRAM (PCP) shall contain the current formulas, sampling, analyses, test, and determinations to be made to ensure that 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 Parts 20, 61, and 71 and State regulations, burial ground requirements, and other requirements governing the disposal of solid radioactive waste.

PURGE - PURGING

1.26 PURGE or PURGING shall be any 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.

QUADRANT POWER TILT RATIO

1.27 QUADRANT POWER TILT RATIO shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater. With one excore detector inoperable, the remaining three detectors shall be used for computing the average.

RATED THERMAL POWER

1.28 RATED THERMAL POWER shall be a total reactor core heat transfer rate to the reactor coolant of 2900 MWt.

REACTOR TRIP SYSTEM RESPONSE TIME

1.29 The REACTOR TRIP SYSTEM RESPONSE TIME shall be the time interval from when the monitored parameter exceeds its Trip Setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.

REPORTABLE EVENT

1.30 A REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 of 10 CFR Part 50.

SHUTDOWN MARGIN

1.31 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming all rod cluster assemblies (shutdown and control) are fully inserted except for the single rod cluster assembly of highest reactivity worth which is assumed to be fully withdrawn.

SITE BOUNDARY

1.32 For these Specifications, the SITE BOUNDARY shall be identical to the EXCLUSION AREA BOUNDARY defined above.

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the Reactor Trip System instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE.

APPLICABILITY: As shown in Table 3.3-1.

ACTION: As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each Reactor Trip System instrumentation channels and interlock and the automatic trip logic shall be demonstrated OPERABLE by the performance of the Reactor Trip System Instrumentation Surveillance Requirements specified in Table 4.3-1.

4.3.1.2 The REACTOR TRIP SYSTEM RESPONSE TIME of each Reactor trip function shall be verified to be within its limit, specified in the Technical Specification Equipment List Program, plant procedure PLP-106, at least once per 18 months. Each verification shall include at least one train such that both trains are verified at least once per 36 months and one channel per function such that all channels are verified at least once every N times 18 months where N is the total number of redundant channels in a specific Reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.2.1 Each ESFAS instrumentation channel and interlock and the automatic actuation logic and relays shall be demonstrated OPERABLE by performance of the ESFAS Instrumentation Surveillance Requirements specified in Table 4.3-2.

4.3.2.2 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be verified to be within its limit specified in the Technical Specification Equipment List Program, plant procedure PLP-106, at least once per 18 months. Each verification shall include at least one train such that both trains are verified at least once per 36 months and one channel per function such that all channels are verified at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" column of Table 3.3-3.

REACTOR TRIP SYSTEM INSTRUMENTATION AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

$Z + R + S \leq TA$, the interactive effects of the errors in the rack and the sensor, and the "as measured" values of the errors are considered. Z, as specified in Table 3.3-4, in percent span, is the statistical summation of errors assumed in the analysis excluding those associated with the sensor and rack drift and the accuracy of their measurement. TA or Total Allowance is the difference, in percent span, between the trip setpoint and the value used in the analysis for the actuation. R or Rack Error is the "as measured" deviation, in the percent span, for the affected channel from the specified Trip Setpoint. S or Sensor Error is either the "as measured" deviation of the sensor from its calibration point or the value specified in Table 3.3-4, in percent span, from the analysis assumptions. Use of Equation 3.3-1 allows for a sensor draft factor, an increased rack drift factor, and provides a threshold value for determination of OPERABILITY.

The methodology to derive the Trip Setpoints is based upon combining all of the uncertainties in the channels. Inherent to the determination of the Trip Setpoints are the magnitudes of these channel uncertainties. Sensor and rack instrumentation utilized in these channels are expected to be capable of operating within the allowances of these uncertainty magnitudes. Rack drift in excess of the Allowable Value exhibits the behavior that the rack has not met its allowance. Being that there is a small statistical chance that this will happen, an infrequent excessive drift is expected. Rack or sensor drift, in excess of the allowance that is more than occasional, may be indicative of more serious problems and should warrant further investigation.

The measurement of response time at the specified frequencies provides assurance that the reactor trip and the Engineered Safety Features actuation associated with each channel is completed within the time limit assumed in the safety analyses. No credit was taken in the analyses 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 measurements provided that such tests demonstrate the total channel response time as defined. Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements; or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise or power interrupt tests); (2) inplace, onsite, or offsite (e.g., vendor) test measurements; or (3) utilizing vendor engineering specifications. WCAP-13632-P-A, Rev. 2, "Elimination of Pressure Sensor Response Time Testing Requirements," provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.

WCAP 14036-P-A, Rev. 1, "Elimination of Periodic Response Time Tests," provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning, and actuation logic response times must be verified prior to placing the component into operational service and re-verified following maintenance or modification that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for the repair are the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing element of a transmitter.

REACTOR TRIP SYSTEM INSTRUMENTATION AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

The Engineered Safety Features Actuation System senses selected plant parameters and determines whether or not predetermined limits are being exceeded. If they are, the signals are combined into logic matrices sensitive to combinations indicative of various accidents events, and transients. Once the required logic combination is completed, the system sends actuation signals to those Engineered Safety Features components whose aggregate function best serves the requirements of the condition. As an example, the following actions may be initiated by the Engineered Safety Features Actuation System to mitigate the consequences of a steam line break or loss-of-coolant accident: (1) charging/safety injection pumps start and automatic valves position, (2) reactor trip, (3) feedwater isolation, (4) startup of the emergency diesel generators, (5) containment spray pumps start and automatic valves position (6) containment isolation, (7) steam line isolation, (8) turbine trip, (9) auxiliary feedwater pumps start and automatic valves position, (10) containment fan coolers start and automatic valves position, (11) emergency service water pumps start and automatic valves position, and (12) control room isolation and emergency filtration start.