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NOV 16 2000

U.S. Nuclear Regulatory Commission
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SUSQUEHANNA STEAM ELECTRIC STATION
PROPOSED AMENDMENT NO. 236 TO LICENSE NPF-21
AND PROPOSED AMENDMENT NO. 201 TO LICENSE NPF-22
ELIMINATION OF RESPONSE TIME TESTING **Docket No. 50-387**
PLA-5257 **and 50-388**

The purpose of this letter is to propose a change to the Susquehanna Steam Electric Station (SSES) Unit 1 and Unit 2 Technical Specification SR 3.3.1.1.17 and SR 3.3.6.1.6.

Enclosure A to this letter is the "Safety Assessment" supporting this change. Enclosure B is the No Significant Hazards Considerations evaluation performed in accordance with the criteria of 10CFR50.92 and the Environmental Assessment. Enclosure C to this letter contains the applicable pages of the SSES Unit 1 and Unit 2 Specifications marked to show the proposed change. Also included in Enclosure C are the Technical Specifications Bases mark-ups for your information. Enclosure D contains the camera ready version of the revised Technical Specification pages. The proposed change has been approved by the SSES Plan Operations Review Committee and reviewed by the Susquehanna Review Committee.

PPL is currently scheduled to begin its next Unit 2 refueling outage in March 2001. PPL requests the NRC review and approve this Technical Specification change by February 15, 2001.

Should you have any questions regarding this submittal, please contact Ms. Carolyn Cino at (610) 774-7614.

Sincerely,

R. G. Byram

Copy: NRC Region I
Mr. S. Hansell, NRC Sr. Resident Inspector
Mr. R. G. Schaaf, NRC Project Manager
Mr. D. J. Allard, PA DEP

A001

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of :

PPL Susquehanna, LLC : Docket No. 50-387

PROPOSED AMENDMENT NO. 236 TO LICENSE NPF-21
ELIMINATION OF RESPONSE TIME TESTING
SUSQUEHANNA STEAM ELECTRIC STATION
UNIT NO. 1

Licensee, PPL Susquehanna, LLC, hereby files a revision to its Facility Operating License No. NPF-14 dated July 17, 1982.

This amendment contains a revision to the Susquehanna SES Unit 1 Technical Specifications.

PPL Susquehanna, LLC
By:

R. G. Byram
Sr. Vice-President and Chief Nuclear Officer

Sworn to and subscribed before me
this 16th day of November, 2000.

Notary Public

Notarial Seal
Nancy J. Lannen, Notary Public
Allentown, Lehigh County
My Commission Expires June 14, 2004

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of :

PPL Susquehanna, LLC : Docket No. 50-387

PROPOSED AMENDMENT NO. 201 TO LICENSE NPF-22
ELIMINATION OF RESPONSE TIME TESTING
SUSQUEHANNA STEAM ELECTRIC STATION
UNIT NO. 2

Licensee, PPL Susquehanna, LLC, hereby files a revision to its Facility Operating License No. NPF-22 dated March 23, 1984.

This amendment contains a revision to the Susquehanna SES Unit 2 Technical Specifications.

PPL Susquehanna, LLC
By:

R. G. Byram
Sr. Vice-President and Chief Nuclear Officer

Sworn to and subscribed before me
this 16th day of November, 2000.

Notary Public

Notarial Seal
Nancy J. Lannen, Notary Public
Allentown, Lehigh County
My Commission Expires June 14, 2004

ENCLOSURE A TO PLA-5257

SAFETY ASSESSMENT

SAFETY ASSESSMENT
ELIMINATION OF RESPONSE TIME TESTING

I. BACKGROUND

PPL Susquehanna LLC (PPL) Technical Specifications (TS) require performance of response time testing (RTT) surveillances on certain Reactor Protection System (RPS) and Isolation Actuation System (IAS) response times. The BWR Owners' Group (BWROG) has developed a Licensing Topical Report (LTR) for eliminating these surveillance requirements (reference 1). The NRC has approved this LTR (reference 2). The change proposed herein to the PPL TS is consistent with these reports.

PPL TS require performance of RTT surveillances for the RPS reactor steam dome pressure sensors. The BWROG has developed a LTR for eliminating these surveillance requirements (reference 3). The NRC has approved this LTR (reference 4). The change proposed herein to the PPL TS for the reactor steam dome pressure sensors is consistent with these reports.

This change improves plant safety and reduces plant operation and maintenance costs. Reference 1 estimates manhour savings of 500 manhours per outage. Minimum savings are estimated to range from $15,000 to $30,000 per unit per year.

Elimination of RTT results in safety benefits. These areas include the following:

- Minimizing the time when safety systems are out of service or otherwise incapable of responding to a degraded plant condition.
- Reducing the potential for inadvertent ESF actuations.
- Reducing the complexity of refuel outages.
- Reducing personnel radiation exposure.
- Allowing critical personnel to be used for more significant tasks.

In summary, the elimination of RTT for the selected channels has low safety significance and results in an overall safety benefit.

II. DESCRIPTION OF PROPOSED CHANGE

TS changes reflect elimination of response time testing for the following entire channels in accordance with references 1 and 3:

Reactor Protection System (TS 3.3.1.1)

- Reactor Vessel Water Level--Low Level 3
- Reactor Vessel Steam Dome Pressure--High

Isolation Actuation System (TS 3.3.6.1)

Main Steam Line Isolation:

- Main Steam Line Flow--High
- Reactor Vessel Water Level--Low Low Low, Level 1

The specific changes are as follows:

- Delete note 2 from SR 3.3.1.1.17. This note no longer applies now that RTT can be eliminated for the entire Reactor Vessel Water Level--Low Level 3 channel, not just the sensor.

- Delete SR 3.3.1.1.17 from the list of surveillance requirements from Table 3.3.1.1-1 Function 3 (Reactor Vessel Steam Dome Pressure--High) and Function 4 (Reactor Vessel Water Level--Low Level 3).

- Delete functions 1.a and 1.c from Note 1 from SR 3.3.6.1.6. This note no longer applies now that RTT can be eliminated for the Main Steam Line Flow--High and Reactor Vessel Water Level--Low Low Low, Level 1 Main Steam Isolation channels.

- Delete SR 3.3.6.1.6 from the list of surveillance requirements from Table 3.3.6.1-1 Function 1.a (Main Steam Line Isolation Reactor Vessel Water Level--Low Low Low, Level 1) and Function 1.c (Main Steam Line Flow--High).

- Associated Bases changes

III. SAFETY ANALYSIS

In January 1994, the BWROG submitted reference 3 to the NRC for review and approval. On December 28, 1994, the NRC issued a safety evaluation report (SER) approving the implementation of the LTR (reference 4). This was followed by a supplemental LTR (reference 1) which was subsequently approved for use (reference 2).

The NRC concluded that selected instrument response time tests could be eliminated from Technical Specifications. The approach developed in each LTR is consistent with Regulatory Guide 1.118 revision 2, which endorses IEEE 388-1977[i]. As a condition for its use, licensees must confirm the applicability of references 1 and 3 to their plant when submitting amendment requests for eliminating response time tests.

The LTR and the Supplemental LTR are applicable to Susquehanna Units 1 and 2. The following addresses the scope of the change request and conformance of the plant design and maintenance activities to the provisions of the LTRs and their SERs.

A. Instrument Loop Logic Components

Reference 1 was approved based on the conclusion in reference 3 that there is a bounding time beyond which response time degradation can be detected during the performance of calibrations and other currently required surveillance tests. Reference 3 states that appropriate alternatives to Response Time Testing (RTT) were provided in accordance with Regulatory Guide 1.118 and IEEE 338-1977. RTT is to be eliminated for selected instrument channels based on the analyses in references 1 and 3, approved by the NRC in references 2 and 4, respectively.

Relays of certain manufacturer and model numbers were evaluated in reference 1. A Failure Modes and Effects Analysis (FMEA) was performed for these components to show that the degree to which a component response time can degrade and still not be identified by other surveillance tests is limited. Reference 1 further defines the limit to which response time of a component can degrade without detection by other routine surveillances or calibration as the "bounding response time (BRT)" of that component. According to the analysis in reference 1,

response time degradation beyond the BRT will be detected for these components by routine surveillances or calibration. RTT for these components can be eliminated when bounding response times for components in a loop plus the sensor response times are less than the response time required by the accident analysis. These limits are given in the FSAR for each of the affected channels.

The BRT for each channel is determined by the summation of the individual component responses in the trip system actuation logic. In accordance with Reference 1 §8.5.1, the limiting BRT for the sensors is derived from the current RTT acceptance criteria. This value plus the sum of the channel relay BRTs is compared to the current RTT Limit from the FSAR Tables 7.3-28 (RPS) and 7.3-29 (Isolation Actuation Instrumentation). This analysis also discusses compliance with the provisions of references 2 and 4 for the individual components and evaluation process for design changes.

B. Affected Instrument Channels

PPL evaluated the site-specific loop logic components against those that are covered in reference 1. Those components applicable to the requested changes are:

- Agastat EGPI
- GE HFA
- RPS Scram Contactors GE CR105, CR205, or CR305

The instrument loops covered by references 1 and 2 are those whose required response times, as set by the safety analysis, are in the 300 to 5000 millisecond range. The loops applicable to PPL for this TS change are:

	Reference 1 Table 6-2 Loop Type
Reactor Protection System	
Reactor Vessel Water Level--Low Level 3	K
Reactor Steam Dome Pressure--High	K
Isolation Actuation System, Main Steam Line Isolation	
Main Steam Line Flow--High	J
Reactor Vessel Water Level--Low Low Low, Level 1	Special*

*This loop consists of one Agastat EGPI relay, feeding a GE HFA relay, feeding a second set of HFA relays to actuate the MSIV isolation function. This channel's relay logic is similar to the reference 1 Type E 'loop,' without the 'trip unit.' In this case, the channel BRT is calculated in accordance with the Reference 1 Appendix C, as required per reference 1 §8.4.2.

C. Compliance With Provisions

PPL will comply with the provisions of references 1 and 2 for the Agastat EGPI and GE HFA relays, and for the GE contactors. These provisions and PPL's compliance are given below.

Agastat Relay Component Group.

1. Before installation, or after any maintenance or repair of the relays, the normally open contacts of the relays are confirmed to open in 70 ms or less after power is removed from the coil.

   Appropriate testing will be required for all affected relays. PPL has developed a post maintenance instruction to bench test these relays to confirm that the normally open contacts of the relays open in 70 ms or less after power is removed from the coil. This instruction will be referenced in any work plan for any maintenance or repair of the relays.

2. The relays are within their qualified life.

   All relays are located in the Control Structure relay rooms, which have mild environments under design basis accident conditions. The service life of these relays are maintained in accordance with panel conditions and their continuously energized state.

3. The relays are procured by the utility as "nuclear safety related", or are dedicated for nuclear-safety-related application under a utility dedication program.

All relays are classified as "nuclear safety related" requiring that the components are procured from a vendor in accordance with the provisions of 10CFR50 Appendix B, or are dedicated for safety-related service in accordance with the Susquehanna quality programs.

GE HFA Relay Component Group.

1. The HFA manufacturer's instructions are followed for setup and adjustment of the relay before initial operation and after any repair or maintenance.

   PPL has developed a post maintenance instruction to setup and adjust these relays before initial operation and after any repair or maintenance. The instruction will be referenced in any work plan for any maintenance or repair of the relays. Appropriate maintenance and testing will be required for all affected relays.

2. Before installation, or after any maintenance or repair of the relays, the normally open contacts of the relays are confirmed to open in 20 ms or less after power is removed from the coil.

   PPL has developed a post maintenance instruction to bench test these relays to confirm that the normally open contacts of the relays open in 20 ms or less after power is removed from the coil. This instruction will be referenced in any work plan for any maintenance or repair of the relays.

3. Appropriate maintenance and testing will be required for all affected relays.

   Appropriate maintenance and testing will be performed.

4. The relays are procured by the utility as "nuclear safety related", or are dedicated for nuclear-safety-related application under a utility dedication program.

   All relays are classified as "nuclear safety related" requiring that the components are procured from a vendor in accordance with the provisions of 10CFR50 Appendix B, or are dedicated for safety-related service in accordance with the Susquehanna quality programs.

RPS Scram Contactor Component Group.

1. One GE CR105, GE CR205, or GE CR305 magnetic contactor directly operates a set of Scram Pilot Solenoid Valves.

   These contactors have been confirmed to directly operate a set of Scram Pilot Solenoid Valves.

2. RPS scram contactor components are tested as part of the APRM upscale trip RTT.

   The APRM upscale trip response time test is currently performed in overlapping partial tests. The APRM section is tested separately from the scram contactors.

3. Determine that one of the two postulated test methods are used.

   See 2, above.

4. Use the appropriate BRT for the test method used.

   The conservative value associated with the 'total loop' APRM RTT is used in the calculation for BRT. There is no restriction on the method used for APRM RTT under this calculation.

Trip Channel sensors

The sensors for each trip channel are Barton 288A, Barton 760, and Barksdale B1T or B2T switches. Elimination of Response Time Testing of these switches is justified for these trip channels in accordance with references 1 and 3.

Bounding Response Times for plant process sensors are statistically determined from plant surveillance records. The response times for sensors in the RPS Reactor Vessel Water Level--Low Level 3 and Isolation Actuation System Main Steam Line Flow--High and Reactor Vessel Water Level--Low Low Low, Level 1 channels were previously approved for use in the elimination of sensor response time testing[ii].

This is extended to the RPS Reactor Vessel Steam Dome Pressure – High pressure switches. The RPS Reactor Vessel Steam Dome Pressure – High pressure switch response time measurements over the past eleven years have averaged approximately 60 msec. This average effectively eliminates inherent measurement biases that result from normal switch repeatability effects. Addition of two standard deviations to this average produces a limiting value that is well below the administrative limit for the response time measurement. This administrative limit (330 msec) is used as the Bounding Response Time for the affected trip channels.

D. NRC SER Provisions – Reactor Protection System Reactor Vessel Steam Dome Pressure – High Process Sensors

Reference 4 concurs with reference 3 that the selected response time testing requirements could be eliminated for the covered sensors. The NRC staff requires the licensees to address certain requirements in order to eliminate response time testing from these selected applications. Below is the listing of these requirements and PPL's actions to satisfy the given requirement.

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

   I&C and Design Engineers will be trained in these requirements for the switches. I&C post maintenance test procedures will be revised to reflect these requirements for the switches. Design guidance documents will be revised to reflect these requirements.

2. For transmitters and switches that use capillary tubes, capillary tube testing shall be performed after initial installation and after any maintenance or modification activity that could damage the capillary tubes.

   No transmitters and switches that use capillary tubes are employed in this application.

3. That calibration is being done with equipment designed to provide a step function or fast ramp in the process variable.

   A post calibration functional response test will be performed by the reactor vessel steam dome high calibration procedures. This test will provide a fast ramp signal to the instrument at plus or minus 10 percent of the setpoint. The pressure source will 'ramp through' the setpoint in less than 5 seconds. This will meet the intent of the need for detecting a sluggish response of the instrument during a calibration.

4. That provisions have been made to ensure that operators and technicians are aware of the consequences of instrument response time degradation, and that applicable procedures have been reviewed and revised as necessary to assure that technicians monitor for response time degradation during the performance of calibrations and functional tests.

   I&C technicians and operators will be trained. A statement requiring that technicians monitor for response time degradation during the performance of calibrations and functional tests will be added to the applicable test procedures as a standard prerequisite.

5. That surveillance testing procedures have been reviewed and revised if necessary to ensure calibrations and functional tests are being performed in a manner that allows simultaneous monitoring of both the input and output response of the units under test.

   All functional tests and calibrations presently allow simultaneous monitoring of both the input and output response of the units under test. This is done by either monitoring of the output at or near the input calibration source, or via the use of headsets to communicate between locations, if necessary.

6. That for any request involving the elimination of RTT for Rosemount pressure transmitters, the licensee is in full compliance with the guidelines of Supplement 1 to Bulletin 90-01, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount."

   The trip channels being addressed do not use Rosemount transmitters.

7. That for those instruments where the manufacturer recommends periodic RTT as well as calibration to ensure correct function, the licensee has ensured that elimination of RTT is nevertheless acceptable for the particular application involved.

   The Barksdale switch manufacturer has no requirement to perform periodic response time testing of their switches.

E. Applicability of Barksdale Pressure Switch Models B1T, B2T

The Barksdale model B2T series switch is not specifically addressed in the process analysis documented in reference 4. Barksdale B2T sensor model switches are used for the reactor vessel steam dome high pressure RPS trip actuation channels on both units.

The Barksdale B2T switch is similar to the B1T switch, and is addressed in the BWROG Topical Report FMEA (reference 3, Appendix K), but is not formally addressed in the Topical Report SER (reference 4) because of a transcription problem in the original report[iii]. Because the only difference between the B1T and B2T model lines is that the B2T has two internal microswitches vs. one in the B1T, the Barksdale B2T switch is considered equivalent to the B1T model for the purpose of Response Time Testing analysis. No new failure mode is introduced with the B2T. Therefore, the methodology established in reference 1 for eliminating response time testing is applicable to the Barksdale B2T model series.

F. Trip Channel Bounding Response Times

A Bounding Response Time has been determined for each trip channel analyzed, and is compared to the current Response Time Testing Limit from the FSAR Tables 7.3-28 (RPS) and 7.3-29 (Isolation). The Channel BRT is the sum of the sensor and channel logic component Bounding Response Times. In each case the FSAR Limit exceeds the channel BRT:

Channel	Channel BRT (sec)	FSAR Limit (sec)	Margin (msec)
Reactor Vessel Water Level--Low Level 3	0.705	≤1.05	+345
Reactor Vessel Steam Dome Pressure--High	0.435	≤0.55	+115
Main Steam Line Flow--High	0.780	≤1.0	+220
Reactor Vessel Water Level--Low Low Low, Level 1	0.320	≤0.5	+180

In accordance with the provisions of references 1 and 2, the elimination of response time testing for the channels analyzed is justified and does not degrade plant safety.

G. Defense-in-Depth

References 1 and 3 demonstrate that any credible component failure among those analyzed would either be bounded by a limiting response time, or would be detected by other surveillances. The basis for elimination of this response time testing is the demonstration that the bounding response times are valid for the referenced channels. Detectability of component failures such that component and channel response times are affected is a credible expectation of other surveillance testing. This is a defense-in-depth feature, discussed in detail in references 1, 2, 3, and 4, that provides further assurance of proper operation and reliability of the affected trip channels. Applicable surveillance procedures will contain language requiring technician cognizance and responsibility to observe and report sluggish component behavior.

H. Assurance of Continued Compliance

Applicability of the LTR analyses is assured by:

- Comparison of plant procedures to requirements in accordance with reference 1 §8.5.2.
- Assurance that the provisions in references 1 and 3, and approving NRC SER, references 2 and 4, are documented.
- Restriction on the replacement of loop components to require the provisions of reference 1 §8.5.1 and §8.5.2 are met, or that the RTT Surveillance is reinstated.

- Design procedures and replacement item evaluation procedure will ensure that the provisions of references 1 and 3 are considered when design changes are made to the subject trip channels.
- Any design change or altered maintenance practice affecting these provisions will be subject to review per 10CFR50.59.

REFERENCES

1. BWR Owners' Group Licensing Topical Report NEDO-32291-A Supplement 1, "System Analyses for Elimination of Selected Response Time Testing Requirements," dated October 1999.

2. NRC Letter to BWR Owners' Group, dated June 11, 1999, transmitting Review of Boiling Water Reactor Owners Group (BWROG) Licensing Topical Report NEDO-32291, Supplement 1 "System Analyses for Elimination of Selected Response Time Testing Requirements."

3. BWR Owners' Group Licensing Topical Report NEDO-32291-A, "System Analyses for Elimination of Selected Response Time Testing Requirements," dated October 1995.

4. NRC Letter to BWR Owners' Group, dated December 28, 1994, transmitting Evaluation of Licensing Topical Report NEDO-32291, "System Analyses for Elimination of Selected Response Time Testing Requirements."

CONCLUSIONS

NRC approval of the proposed change does not involve any reduction in the margin of safety.

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[i] SSES is committed to IEEE 338-1971 and Reg. Guide 1.118 Rev 1 (1976), which contains the same provision stated as the basis for this process in §4 of the Topical Report.

[ii] License Amendments 171 (Unit 1) and 144 (Unit 2)

[iii] This component model was not included in the summary Table 1 in reference 3, which is included as an exhibit in reference 4. While the SER states that this table " identifies the instrumentation that is addressed by the topical report," the topical report did, in fact, evaluate the B2T sensor. This Series was added to the Table in Reference 1, Appendix F.

ENCLOSURE B TO PLA 5257

NO SIGNIFICANT HAZARDS CONSIDERATIONS AND ENVIRONMENTAL ASSESSMENT

NO SIGNIFICANT HAZARDS CONSIDERATIONS AND ENVIRONMENTAL ASSESSMENT

PPL has evaluated the proposed Technical Specification change in accordance with the criteria specified by 10 CFR 50.92 and has determined that the proposed changes and deviation do not involve a significant hazards consideration. The criteria and conclusions of our evaluation are presented below.

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

   The proposal does not involve a significant increase in the probability or consequences of an accident previously evaluated. The proposed change eliminates certain response time testing (RTT) surveillance requirements in accordance with the NRC approved methodology delineated in the BWROG Licensing Topical Report (LTR) NEDO 32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," dated October 1995, and its Supplement 1, dated October, 1999.

   Implementation of the LTR and its supplement (i.e., elimination of response time testing for selected instrumentation in the Reactor Protection System and Isolation Actuation System) does not increase the probability or consequences of an accident or malfunction of equipment important to safety as previously evaluated in the FSAR. All component models used in the affected trip channels at SSES were analyzed for a sluggish response, or a bounding response time. As documented in the LTR and supplement, the component's sluggish response can be detected by other Technical Specification required tests. The bounding response time of the relays discussed in the LTR Supplement 1 can be used in place of actual measured response times to ensure that instrumentation systems will meet response time requirements of the accident analysis. Response Time Testing for the channel process sensors are also eliminated on a similar basis, or have previously been eliminated in license amendments (171 (Unit 1) and 144 (Unit 2)).

   Based upon the analysis presented above, PPL concludes that the proposed action does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

   The proposal does not create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed change eliminates certain response time testing (RTT) surveillance requirements in accordance with the NRC approved methodology delineated in the BWROG Licensing Topical Report (LTR) NEDO 32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," dated October 1995, and its Supplement 1, dated October, 1999.

   Implementation of the LTR methodology and the Supplement methodology does not create the probability of a new or different type of accident from any accident previously evaluated. A review of the failure modes of the affected sensors and relays indicates that a sluggish response of the instruments can be detected by other Technical Specification surveillances. A review of SSES RTT history (in support of the LTR) revealed one RTT failure. This failure would have been detectable by the logic system functional test for this channel. Redundancy and diversity of the affected channels provide additional assurance that all affected functions will operate within the acceptance limits of the safety evaluations.

   The sensors and relays in the affected RPS and IAS channels will be able to meet the bounding response times as defined and presented in the Supplement. It has been found acceptable to use component bounding response times in place of actual measured response times to ensure that instrumentation systems will meet response time requirements of the accident analysis.

   PPL's adherence to the conditions listed in the NRC SERs for the LTR and Supplement provides additional assurance that the instrumentation systems will meet the response time requirements of the accident analyses.

   Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

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

   The change does not involve a significant reduction in the margin of safety. The proposed change eliminates certain response time testing (RTT) surveillance requirements in accordance with the NRC approved methodology delineated in the

BWROG Licensing Topical Report (LTR) NEDO 32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," dated October 1995, and its Supplement 1, dated October, 1999.

Implementation of the LTR and Supplement methodologies for eliminating selected response time testing does not involve a significant reduction in the margin of safety. The current response time limits are based on the maximum allowable values assumed in the plant safety analyses. The analyses conservatively establish the margin of safety. The elimination of the selected response time testing does not affect the capability of the associated systems to perform their intended function within the allowed response time used as the basis for plant safety analyses. Plant and system response to an initiating event will remain in compliance within the assumptions of the safety analyses, and therefore, the margin of safety is not affected. This is based upon the ability to detect a sluggish response of an instrument or relay by the other required Technical Specification tests, component reliability, and redundancy and diversity of the affected functions, as justified in the reviewed and approved Topical Report and Supplement.

PPL's adherence to the conditions listed in the NRC SERs for the LTR and Supplement provides additional assurance that the instrumentation systems will meet the response time requirements of the accident analyses.

Thus, PPL concludes that the proposed change does not involve a significant reduction in the margin of safety.

ENVIRONMENTAL CONSEQUENCES

An environmental assessment is not required for the proposed change because the requested change conforms to the criteria for actions eligible for categorical exclusion as specified in 10 CFR 51.22(c)(9). The requested change will have no impact on the environment. The proposed change does not involve a significant hazards consideration. The proposed change does not involve a significant change in the types or significant increase in the amounts of any effluent that may be released offsite. In addition, the proposed change does not involve a significant increase in the individual or cumulative occupational radiation exposure.

ENCLOSURE C TO PLA-5257
TECHNICAL SPECIFICATION MARK-UPS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.3.1.1.17 ----------NOTES---------- 1. Neutron detectors are excluded. delete ~~2. For Function 4, channel sensors are excluded.~~ 2. For Function 5 "n" equals 4 channels for the purpose of determining the STAGGERED TEST BASIS Frequency ---------- Verify the RPS RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors (continued)					
c. Fixed Neutron Flux – High	1	2	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.11 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 120% RTP
d. Inop	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.15	NA
3. Reactor Vessel Steam Dome Pressure – High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15 ~~SR 3.3.1.1.17~~ delete	≤ 1093 psig
4. Reactor Vessel Water Level – Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15 ~~SR 3.3.1.1.17~~ delete	≥ 11.5 inches
5. Main Steam Isolation Valve – Closure	1	8	F	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 11% closed
6. Drywell Pressure – High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≤ 1.88 psig

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.6	DELETE NOTE 1. For Function ~~1.a.~~ 1.b. ~~and 1.c.~~ channel sensors are excluded. 2. Response time testing of isolating relays is not required for Function 5a. Verify the ISOLATION SYSTEM RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.6.1-1 (page 1 of 6)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level – Low Low Low, Level 1	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 ~~SR 3.3.6.1.5~~ ~~SR 3.3.6.1.6~~	≥ -136 inches
b. Main Steam Line Pressure – Low	1	2	E	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 841 psig
c. Main Steam Line Flow - High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 ~~SR 3.3.6.1.5~~ ~~SR 3.3.6.1.6~~	≤ 121 psid
d. Condenser Vacuum – Low	1, 2(a), 3(a)	2	D	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ 8.8 inches Hg vacuum
e. Reactor Building Main Steam Tunnel Temperature – High	1,2,3	2	D	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≤ 184°F
f. Manual Initiation	1,2,3	1	G	SR 3.3.6.1.5	NA

DELETE

(continued)

(a)With any main turbine stop valve not closed.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.17 (continued)

measurement or in overlapping segments, with verification that all components are tested. The RPS RESPONSE TIME acceptance criteria are included in Reference 11.

As noted, neutron detectors are excluded from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

delete

~~In addition, Note 2 states the response time of the sensors for Function 4 are excluded from RPS Response Time Testing. Because the vendor does not provide a design instrument response time, a penalty value to account for instrument response time is included in determining total channel response time. This penalty value is based on the historical performance of the instrument (Ref. 13). This allowance is supported by Reference 12 which determined that significant degradation of the sensor channel response time can be detected during performance of other Technical Specification SR's and that the sensor response time is a small part of the overall RPS RESPONSE TIME testing.~~

SR 3.3.1.1.17 for Function 2.c confirms the response time of that function, and also confirms the response time of components common to Function 2.c and other RPS functions. (Reference 14).

RPS RESPONSE TIME tests are conducted on an 24 month STAGGERED TEST BASIS. Note 3 requires STAGGERED TEST BASIS Frequency to be determined based on 4 channels per trip system, in lieu of the 8 channels specified in

Table 3.3.1.1-1 for the MSIV Closure Function because channels are arranged in pairs. This Frequency is based on the logic interrelationships of the various channels required to produce an RPS scram signal. The 24 month Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

Add

REFERENCES

1. FSAR, Figure 7.2-1.

2. Final Policy Statement on Technical Specifications Improvements, July 22, 1993 (58 FR 39132).

(continued)

BASES

REFERENCES (continued)

3. NEDO-23842, "Continuous Control Rod Withdrawal in the Startup Range," April 18, 1978.

4. FSAR, Section 5.2.2.

5. FSAR, Section 15.4.9.

6. FSAR, Section 6.3.3.

7. FSAR, Chapter 15.

8. P. Check (NRC) letter to G. Lainas (NRC), "BWR Scram Discharge System Safety Evaluation," December 1, 1980.

9. NEDO-30851-P-A , "Technical Specification Improvement Analyses for BWR Reactor Protection System," March 1988.

10. NRC Inspection and Enforcement Manual, Part 9900: Technical Guidance, Standard Technical Specification 1.0 Definitions, Issue date 12/08/86.

11. FSAR, Table 7.3-28.

12. NEDO-32291~~-A~~ "System Analyses for Elimination of Selected Response Time Testing Requirements," ~~January 1994~~ October 1995 (delete)

13. NRC Safety Evaluation Report related to Amendment No. 171 for License No. NPF 14 and Amendment No. 144 for License No. NPF 22.

ADD → 14. NEDO 32291-A Supplement 1 "System Analyses for the Elimination of Selected Response Time Testing Requirements," October 1999

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.1.6

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. Testing is performed only on channels where the guidance given in Reference 9 could not be met, which identified that degradation of response time can usually be detected by other surveillance tests.

As stated in Note 1, the response time of the sensors for Functions 1.a, 1.b, and 1.c are excluded from ISOLATION SYSTEM RESPONSE TIME testing. Because the vendor does not provide a design instrument response time, a penalty value to account for the sensor response time is included in determining total channel response time. The penalty value is based on the historical performance of the sensor. (Reference 13) This allowance is supported by Reference 9 which determined that significant degradation of the sensor channel response time can be detected during performance of other Technical Specification SRs and that the sensor response time is a small part of the overall ISOLATION RESPONSE TIME testing.

Function 1.a and 1.c channel sensors and logic components are excluded from RESPONSE TIME TESTING in accordance with the provisions of Reference 14.

INSERT

As stated in Note 2, response time testing of isolating relays is not required for Function 5.a. This allowance is supported by Reference 9. These relays isolate their respective isolation valve after a nominal 45 second time delay in the circuitry. No penalty value is included in the response time calculation of this function. This is due to the historical response time testing results of relays of the same manufacturer and model number being less than 100 milliseconds, which is well within the expected accuracy of the 45 second time delay relay.

ISOLATION SYSTEM RESPONSE TIME acceptance criteria are included in Reference 7. This test may be performed in one measurement, or in overlapping segments, with verification that all components are tested.

ISOLATION SYSTEM RESPONSE TIME tests are conducted on an 24 month STAGGERED TEST BASIS. The 24 month Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience that shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

(continued)

BASES (continued)

REFERENCES

1. FSAR, Section 6.3.

2. FSAR, Chapter 15.

3. NEDO-31466, "Technical Specification Screening Criteria Application and Risk Assessment," November 1987.

4. FSAR, Section 4.2.3.4.3.

5. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.

6. NEDC-30851P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989.

7. FSAR, Table 7.3-29.

8. Final Policy Statement on Technical Specifications Improvements, July 22, 1993 (58 FR 39132)

9. NEDO-32291-A "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994. delete October 1995

10. PPL Letter to NRC, PLA-2618, Response to NRC INSPECTION REPORTS 50-387/85-28 AND 50-388/85-23, dated April 22, 1986.

11. NRC Inspection and Enforcement Manual, Part 9900: Technical Guidance, Standard Technical Specification Section 1.0 Definitions, Issue date 12/08/86.

12. Susquehanna Steam Electric Station NRC REGION I COMBINED INSPECTION 50-387/90-20; 50-388/90-20, File R41-2, dated March 5, 1986.

13. NRC Safety Evaluation Report related to Amendment No. 171 for License No. NPF-14 and Amendment No. 144 for License No. NPF-22.

ADD → 14. NEDO 32291-A Supplement 1, "System Analyses for the Elimination of Selected Response Time Testing Requirements," October 1999

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.17	----------NOTES---------- 1. Neutron detectors are excluded. ~~2. For Function 4, channel sensors are excluded.~~ delete 2. For Function 5 "n" equals 4 channels for the purpose of determining the STAGGERED TEST BASIS Frequency ----------	
	Verify the RPS RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors (continued)					
c. Fixed Neutron Flux – High	1	2	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.11 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 120% RTP
d. Inop	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.15	NA
3. Reactor Vessel Steam Dome Pressure – High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15 ~~SR 3.3.1.1.17~~	≤ 1093 psig
4. Reactor Vessel Water Level – Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15 ~~SR 3.3.1.1.17~~	≥ 11.5 inches
5. Main Steam Isolation Valve – Closure	1	8	F	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 11% closed
6. Drywell Pressure – High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≤ 1.88 psig

delete

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.6	DELETE NOTE 1. For Function ~~1.a,~~ 1.b, ~~and 1.c,~~ channel sensors are excluded. 2. Response time testing of isolating relays is not required for Function 5.a.	
	Verify the ISOLATION SYSTEM RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.6.1-1 (page 1 of 6)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level – Low Low Low, Level 1	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 ~~SR 3.3.6.1.6~~	≥ -136 inches
b. Main Steam Line Pressure – Low	1	2	E	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 841 psig
c. Main Steam Line Flow - High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 ~~SR 3.3.6.1.6~~	≤ 121 psid
d. Condenser Vacuum – Low	1, 2(a), 3(a)	2	D	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ 8.8 inches Hg vacuum
e. Reactor Building Main Steam Tunnel Temperature – High	1,2,3	2	D	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≤ 184°F
f. Manual Initiation	1,2,3	1	G	SR 3.3.6.1.5	NA

delete

(continued)

(a) With any main turbine stop valve not closed.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.17 (continued)

As noted, neutron detectors are excluded from RPS RESPONSE TIME testing because the principles of detector operation virtually ensure an instantaneous response time.

delete

~~In addition, Note 2 states the response time of the sensors for Function 4 are excluded from RPS Response Time Testing. Because the vendor does not provide a design instrument response time, a penalty valve to account for instrument response time is included in determining total channel response time. This penalty valve is based on the historical performance of the instrument (Reference 13). This allowance is supported by Reference 12 which determined that significant degradation of the sensor channel response time can be detected during performance of other Technical Specification SR's and that the sensor response time is a small part of the overall RPS RESPONSE TIME testing.~~

SR 3.3.1.1.17 for Function 2.c confirms the response time of that function, and also confirms the response time of components common to Function 2.c and other RPS Functions. (Reference 14)

RPS RESPONSE TIME tests are conducted on an 24 month STAGGERED TEST BASIS. Note 3 requires STAGGERED TEST BASIS Frequency to be determined based on 4 channels per trip system, in lieu of the 8 channels specified in Table 3.3.1.1-1 for the MSIV Closure Function because channels are arranged in pairs. This Frequency is based on the logic interrelationships of the various channels required to produce an RPS scram signal. The 24 month Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

Add

REFERENCES

1. FSAR, Figure 7.2-1.
2. Final Policy Statement on Technical Specifications Improvements, July 22, 1993 (58 FR 39132).
3. NEDO-23842, "Continuous Control Rod Withdrawal in the Startup Range," April 18, 1978.
4. FSAR, Section 5.2.2.
5. FSAR, Section 15.4.9.

REFERENCES

6. FSAR, Section 6.3.3.

(continued)

BASES

(continued)

7. FSAR, Chapter 15.

8. P. Check (NRC) letter to G. Lainas (NRC), "BWR Scram Discharge System Safety Evaluation," December 1, 1980.

9. NEDO-30851-P-A , "Technical Specification Improvement Analyses for BWR Reactor Protection System," March 1988.

10. NRC Inspection and Enforcement Manual, Part 9900: Technical Guidance, Standard Technical Specification 1.0 Definitions, Issue date 12/08/86.

11. FSAR, Table 7.3-28.

12. NEDO-32291(P)A "System Analyses for Elimination of Selected Response Time Testing Requirements," ~~January 1994~~ October 1995.

13. NRC Safety Evaluation Report related to Amendment No. 171 for License No. NPF 14 and Amendment No. 144 License No. NPF 22.

14. NEDO-32291-A, Supplement 1 "System Analyses for the Elimination of Selected Response Time Testing Requirements," October 1999.

delete

ADD

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.1.6

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis. Testing is performed only on channels where the guidance given in Reference 9 could not be met, which identified that degradation of response time can usually be detected by other surveillance tests.

As stated in Note 1, the response time of the sensors for Functions 1.a, 1.b, and 1.c are excluded from ISOLATION SYSTEM RESPONSE TIME testing. Because the vendor does not provide a design instrument response time, a penalty value to account for the sensor response time is included in determining total channel response time. The penalty value is based on the historical performance of the sensor. (Reference 13) This allowance is supported by Reference 9 which determined that significant degradation of the sensor channel response time can be detected during performance of other Technical Specification SRs and that the sensor response time is a small part of the overall ISOLATION RESPONSE TIME testing.

Function 1.a and 1.c channel sensors and logic components are excluded from RESPONSE TIME TESTING in accordance with the provisions of Reference 14.

INSERT

As stated in Note 2, response time testing of isolating relays is not required for Function 5.a. This allowance is supported by Reference 9. These relays isolate their respective isolation valve after a nominal 45 second time delay in the circuitry. No penalty value is included in the response time calculation of this function. This is due to the historical response time testing results of relays of the same manufacturer and model number being less than 100 milliseconds, which is well within the expected accuracy of the 45 second time delay relay.

ISOLATION SYSTEM RESPONSE TIME acceptance criteria are included in Reference 7. This test may be performed in one measurement, or in overlapping segments, with verification that all components are tested.

ISOLATION SYSTEM RESPONSE TIME tests are conducted on an 24 month STAGGERED TEST BASIS. The 24 month Frequency is consistent with the typical industry refueling cycle and is based upon plant operating experience that shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

(continued)

BASES (continued)

REFERENCES

1. FSAR, Section 6.3.

2. FSAR, Chapter 15.

3. NEDO-31466, "Technical Specification Screening Criteria Application and Risk Assessment," November 1987.

4. FSAR, Section 4.2.3.4.3.

5. NEDC-31677P-A, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990.

6. NEDC-30851P-A Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989.

7. FSAR, Table 7.3-29.

8. Final Policy Statement on Technical Specifications Improvements, July 22, 1993 (58 FR 39132)

9. NEDO-32291-A "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994 delete October 1995.

10. PPL Letter to NRC, PLA-2618, Response to NRC INSPECTION REPORTS 50-387/85-28 AND 50-388/85-23, dated April 22, 1986.

11. NRC Inspection and Enforcement Manual, Part 9900: Technical Guidance, Standard Technical Specification Section 1.0 Definitions, Issue date 12/08/86.

12. Susquehanna Steam Electric Station NRC REGION I COMBINED INSPECTION 50-387/90-20; 50-388/90-20, File R41-2, dated March 5, 1986.

13. NRC Safety Evaluation Report related to Amendment No. 171 for License No. NPF-14 and Amendment No. 144 for License No. NPF-22.

ADD → 14. NEDO 32291-A, Supplement 1 "System Analyses for the Elimination of Selected Response Time Testing Requirements" October 1999.

ENCLOSURE D TO PLA 5257

"CAMERA-READY" TECHNICAL SPECIFICATION PAGES

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.17	----------NOTES---------- 1. Neutron detectors are excluded. 2. For Function 5 "n" equals 4 channels for the purpose of determining the STAGGERED TEST BASIS Frequency. --- Verify the RPS RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. Average Power Range Monitors (continued)					
c. Fixed Neutron Flux - High	1	2	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.11 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 120% RTP
d. Inop	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.15	NA
3. Reactor Vessel Steam Dome Pressure — High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≤ 1093 psig
4. Reactor Vessel Water Level — Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≥ 11.5 inches
5. Main Steam Isolation Valve — Closure	1	8	F	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 11% closed
6. Drywell Pressure — High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≤ 1.88 psig

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.6	----------NOTE---------- 1. For Function 1.b. channel sensors are excluded. 2. Response time testing of isolating relays is not required for Function 5a ---------- Verify the ISOLATION SYSTEM RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.6.1-1 (page 1 of 6)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level - Low Low Low, Level 1	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ -136 inches
b. Main Steam Line Pressure — Low	1	2	E	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 841 psig
c. Main Steam Line Flow - High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 121 psid
d. Condenser Vacuum— Low	1, 2[(a)], 3[(a)]	2	D	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ 8.8 inches Hg vacuum
e. Reactor Building Main Steam Tunnel Temperature—High	1,2,3	2	D	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≤ 184°F
f. Manual Initiation	1,2,3	1	G	SR 3.3.6.1.5	NA

(continued)

(a) With any main turbine stop valve not closed.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.17	----------NOTES---------- 1. Neutron detectors are excluded. 2. For Function 5 "n" equals 4 channels for the purpose of determining the STAGGERED TEST BASIS Frequency.. ---------- Verify the RPS RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2.	Average Power Range Monitors (continued)					
	c. Fixed Neutron Flux - High	1	2	F	SR 3.3.1.1.1 SR 3.3.1.1.2 SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.11 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 120% RTP
	d. Inop	1,2	2	G	SR 3.3.1.1.8 SR 3.3.1.1.9 SR 3.3.1.1.15	NA
3.	Reactor Vessel Steam Dome Pressure - High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≤ 1093 psig
4.	Reactor Vessel Water Level - Low, Level 3	1,2	2	G	SR 3.3.1.1.1 SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≥ 11.5 inches
5.	Main Steam Isolation Valve - Closure	1	8	F	SR 3.3.1.1.9 SR 3.3.1.1.13 SR 3.3.1.1.15 SR 3.3.1.1.17	≤ 11% closed
6.	Drywell Pressure - High	1,2	2	G	SR 3.3.1.1.9 SR 3.3.1.1.10 SR 3.3.1.1.15	≤ 1.88 psig

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.1.6	----------NOTE---------- 1. For Function 1.b. channel sensors are excluded. 2. Response time testing of isolating relays is not required for Function 5.a. --- Verify the ISOLATION SYSTEM RESPONSE TIME is within limits.	24 months on a STAGGERED TEST BASIS

Table 3.3.6.1-1 (page 1 of 6)
Primary Containment Isolation Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1.	Main Steam Line Isolation					
a.	Reactor Vessel Water Level - Low Low, Level 1	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≥ -136 inches
b.	Main Steam Line Pressure - Low	1	2	E	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5 SR 3.3.6.1.6	≥ 841 psig
c.	Main Steam Line Flow - High	1,2,3	2 per MSL	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5	≤ 121 psid
d.	Condenser Vacuum - Low	1 2(a), 3(a)	2	D	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≥ 8.8 inches Hg vacuum
e.	Reactor Building Main Steam Tunnel Temperature - High	1,2,3	2	D	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.5	≤ 184°F
f.	Manual Initiation	1,2,3	1	G	SR 3.3.6.1.5	NA

(continued)

(a) With any main turbine stop valve not closed.