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U. S. Nuclear Regulatory Commission
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SUSQUEHANNA STEAM ELECTRIC STATION RELIEF REQUESTS 1RR06 AND 2RR06 FOR THIRD TEN-YEAR INTERVAL INSERVICE TESTING PROGRAM PLANS FOR SUSQUEHANNA SES UNITS 1 & 2
PLA-5960

Docket Nos. 50-387 and 50-388

Attached please find, pursuant to 10 CFR 50.55a, "Codes and Standards," paragraph (a)(3), a request for relief from the requirements of ASME OM Code ISTC-3522(c) for Control Structure Chilled Water and Emergency Service Water system check valves. The basis for the relief request is that the proposed alternative would provide an equivalent level of quality and safety. This proposed alternative is requested for the duration of the Third Ten-Year Interval Susquehanna Steam Electric Station Unit 1 and Unit 2 IST Programs (June 1, 2004 through May 31, 2014).

We request that Relief Requests 1RR06 and 2RR06 to the Third Ten-Year Interval IST Program Plans for Susquehanna SES Units 1 and 2 be approved by February 1, 2006 so that we can implement the proposed changes prior to the spring 2006 refueling outage on Unit 1.

No new regulatory commitments are made herein.

Should you have any questions, please contact C. T. Coddington at (610) 774-4019.

Sincerely,

B. T. McKinney

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Attachments:

Attachment 1 - Relief Request 1RR06 to the Susquehanna Steam Electric Station Unit 1 Third Ten-Year Interval Inservice Testing Program Plan

Attachment 2 - Relief Request 2RR06 to the Susquehanna Steam Electric Station Unit 2 Proposed Third Ten-Year Interval Inservice Testing Program Plan

Copy: Regional Administrator – Region I
Mr. B. A. Bickett, NRC Sr. Resident Inspector
Mr. R. V. Guzman, NRC Project Manager
Mr. R. Janati, DEP/BRP

Attachment No. 1 to PLA-5960

Relief Request 1RR06 to

Susquehanna SES Unit 1

Third Ten-Year Interval

Inservice Testing Program Plan

RELIEF REQUEST 1RR06

Relief in accordance with 10 CFR 50.55a (a) (3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Valve Number	System	Cat.	Safety Class
086018	Control Structure Chilled Water	C	3
086118	Control Structure Chilled Water	C	3
086241	Control Structure Chilled Water	C	3
086341	Control Structure Chilled Water	C	3

Function

Valves 086018 and 086118 are six (6) inch Emergency Condenser Pump 0P171A/B discharge check valves. They have an open safety function to provide a flow path from the Emergency Condenser pump to the Control Structure Chiller condenser. These check valves have no closed safety function.

Valves 086241 and 086341 are two (2) inch Emergency Service Water Keepfill check valves. They have a closed safety function to prevent diversion of safety related emergency service water. These check valves have no open safety function.

2. Applicable Code Requirement

ASME OM Code 1998 Edition through OMb-2000 Addenda

ISTC-3522(c), "Category C Check Valves"

"If exercising is not practical during operation at power and cold shutdowns, it shall be performed during refueling outages."

3. **Basis for Relief**

Pursuant to 10 CFR 50.55a, "Codes and Standards," paragraph (a)(3), relief is requested from the requirements of ASME OM Code ISTC-3522(c). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

The components listed above are check valves with no external means for exercising and no external position indication. The only means to verify closure is by leak testing. This involves setup of test equipment and system configuration changes that are a hardship without a compensating increase in quality or safety on a quarterly or cold shutdown basis. The leak testing can be performed at intervals other than refueling outages such as during system outage windows.

Prior to performing a system outage on-line, its effect on risk is evaluated in accordance with requirements of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." This requirement states in part that: "Before performing maintenance activities (including but not limited to surveillance, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities."

PPL complies with the requirements of 10 CFR 50.65(a)(4) via application of a program governing maintenance scheduling. The program dictates the requirements for risk evaluations as well as the necessary levels of action required for risk management in each case. The program also controls operation of the on-line risk monitor system, which is based on probabilistic risk assessment (PRA). With the use of risk evaluation for various aspects of plant operations, PPL has initiated efforts to perform additional maintenance, surveillance, and testing activities during normal operation. Planned activities are evaluated utilizing risk insights to determine the impact on safe operation of the plant and the ability to maintain associated safety margins. Individual system components, a system train, or a complete system may be planned to be out of service to allow maintenance, or other activities, during normal operation.

Leak testing may involve a system breach, if required to repair a failed valve. However, during the disassembly process to perform maintenance, the subject valve is isolated and the associated section of piping drained. Thus, the system breach does not increase the risk due to internal flooding or internal system loss-of-coolant accident. The risk associated with these activities would be bounded by the risk experienced due to the system outage. Therefore, closure testing of these valves by leak testing during scheduled system outages while on-line would have no additional impact on core damage frequency.

PPL performs on-line maintenance on the Control Structure Chilled Water (CSCW) systems. Minor maintenance work activities of limited scope require Operations authorization to perform. Also, Operations authorization is required if the activity has the potential to affect or affects a system, structure or component. It may also be scheduled as System Outage Window.

Tasks performed during on-line maintenance include items such as pump inspections, relief valve testing, electrical breaker maintenance and testing, and valve diagnostic testing. Leak testing of the check valve is expected to take approximately 4 to 6 hours. This IST activity would be conducted simultaneously with other on-line maintenance activities. Based on maintenance history and past scheduling experience and work execution, the additional check valve leakage testing will neither extend the on-line maintenance nor increase the overall system unavailability.

Therefore, performing IST activity on-line would change neither the duration of the on-line system outage window nor the core damage probability (CDP) associated with the existing on-line maintenance activities. For these reasons, the risk/(CDP) over the entire operating/shutdown spectrum would remain unchanged with approval of these relief requests.

If the check valve needed to be replaced, the valves used to provide the isolation boundary for the replacement of the check valves have an excellent history of providing adequate isolation. Once adequate isolation is confirmed, it is maintained by passive isolation valves or valves made passive (e.g., de-energized motor operated valves) that are controlled in accordance with the SSES Energy Control Process. A loss of isolation capability under these conditions is not considered credible due to the passive characteristics of the isolation valves.

Risk associated with on-line maintenance activities is controlled through the SSES work management process. This process includes preventive measures for maintaining safety and minimizing risk while performing on-line maintenance activities.

The level of quality associated with IST activities is independent of whether the activity is performed on-line or during an outage. The same personnel, procedures, and acceptance criteria are used in either case. The safe conduct of maintenance and IST activities is built into the work management process. The inspection activities are planned ensuring adequate isolation boundaries are established to protect both maintenance personnel involved in the activity and plant equipment.

PPL manages system outage windows on a recurring cycle. Risk insight is used to ensure that proposed work or inspection activities balance reliability with unavailability. The work selection process provides the means to ensure, through the oversight of knowledgeable personnel, that when system unavailability is to be incurred, the preventive maintenance, corrective maintenance, and other inspections required to maximize the system's reliability are included in the system outage window. In this manner, each window is scoped to maximize the reliability benefit from taking system unavailability while minimizing the unavailability such that it is maintained at a level that minimizes overall risk. PPL is confident that this rigorous work selection, scoping, and risk management system will identify all work that is more appropriately placed in outages, and schedules such work accordingly.

Leak testing check valves and other periodic work activities in the CSCW system will cause CSCW to become inoperable in accordance with Technical Specifications (TS) and the Technical Requirements Manual (TRM). In accordance with TS 3.7.3, operation with one Control Room Emergency Outside Air Supply (CREOAS) subsystem inoperable is permitted for up to 7 days. In accordance with TS 3.7.4, operation with one control room floor cooling system inoperable is permitted for up to 30 days. In accordance with TRM 3.7.9, operation with a single division of the Control Structure Chilled Water system inoperable is permitted for up to 30 days. In accordance with TRM 3.8.6 (Unit 1 only), operation with one required Emergency Switchgear Room Cooling subsystem inoperable is permitted for up to 30 days. Leak testing of CSCW check valves takes between 4 and 6 hours, which would typically be accomplished within a 24-hour system work window.

Work that requires entry into a TS LCO REQUIRED ACTION statement is planned and scheduled using the SSES Work Management Process previously described above. The Work Management Process establishes the scope of work such that only 50% of the TS LCO time is required to perform the scheduled work. In addition, Evolution Coordinators/Engineering Personnel provide coverage for resolving problems. Spare parts that are necessary for rework are identified and made available in case rework becomes necessary. Based on historical performance, performance of check valve leak testing would not affect the duration of the time spent in the LCO REQUIRED ACTION.

As more system outages are performed on-line, it is evident that selected refueling outage inservice testing activities, (e.g., closure testing by leak testing) could be performed during these system outage windows (SOW) without sacrificing the level of quality or safety. Inservice testing performed on a refueling outage frequency is currently acceptable in accordance with ASME OM Code, 1998 Edition through 2000 Addenda. By specifying testing activities on a frequency

commensurate with each refueling outage, ASME OM Code, 1998 Edition through 2000 Addenda, establishes an acceptable time period between testing. Historically, the refueling outage has provided a convenient and defined time period in which testing activities could be safely and efficiently performed. However, an acceptable testing frequency can be maintained separately without being tied directly to a refueling outage. Inservice testing performed on a frequency that maintains the acceptable time period between testing activities during the operating cycle is consistent with the intent of ASME OM Code, 1998 Edition through 2000 Addenda.

Over time, approximately the same number of tests will be performed using the proposed operating cycle frequency as would be performed using the current refueling outage frequency. Thus, inservice testing activities performed during the proposed operating cycle test frequency provide an equivalent level of quality and safety.

4. **Proposed Alternate Testing**

Pursuant to 10 CFR 50.55a(a)(3)(i), SSES proposes an alternative testing frequency for performing inservice testing of the valves identified above. The valves will be closure tested by leak testing on a frequency of at least once per operating cycle in lieu of once each refueling outage as currently allowed by ASME OM Code, 1998 Edition through 2000 Addenda, ISTC-3522(c), "Category C Check Valves." The open safety function of check valves 086018 and 086118 will be demonstrated quarterly in conjunction with the Control Structure Chilled Water flow verification (inservice pump test). The open function of check valves 086241 and 086341 is demonstrated continuously through the keepfill function.

5. **Duration of Relief Request**

This proposed alternative is requested for the duration of the 3rd Ten-Year Interval Susquehanna Steam Electric Station Unit 1 IST Program (June 1, 2004 through May 31, 2014).

Attachment No. 2 to PLA-5960

Relief Request 2RR06 to

Susquehanna SES Unit 2

Third Ten-Year Interval

Inservice Testing Program Plan

RELIEF REQUEST 2RR06

Relief in accordance with 10 CFR 50.55a (a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. **ASME Code Component(s) Affected**

Valve Number	System	Cat.	Safety Class
211165A	Emergency Service Water	C	3
211165B	Emergency Service Water	C	3

Function

Valves 211165A and 211165B are two (2) inch Emergency Service Water Keepfill check valves. They have a closed safety function to prevent diversion of safety related emergency service water. These check valves have no open safety function.

2. **Applicable Code Requirement**

ASME OM Code 1998 Edition through OMb-2000 Addenda

ISTC-3522(c), "Category C Check Valves"

"If exercising is not practical during operation at power and cold shutdowns, it shall be performed during refueling outages."

3. **Basis for Relief**

Pursuant to 10 CFR 50.55a, "Codes and Standards," paragraph (a)(3), relief is requested from the requirements of ASME OM Code ISTC-3522(c). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

The components listed above are check valves with no external means for exercising and no external position indication. The only means to verify closure is by leak testing. This involves setup of test equipment and system configuration changes that are a hardship without a compensating increase in quality or safety on a quarterly or cold shutdown basis. The leak testing can be performed at intervals other than refueling outages such as during system outage windows.

Prior to performing a system outage on-line, its effect on risk is evaluated in accordance with requirements of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." This requirement states in part that: "Before performing maintenance activities (including but not limited to surveillance, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities."

PPL complies with the requirements of 10 CFR 50.65(a)(4) via application of a program governing maintenance scheduling. The program dictates the requirements for risk evaluations as well as the necessary levels of action required for risk management in each case. The program also controls operation of the on-line risk monitor system, which is based on probabilistic risk assessment (PRA). With the use of risk evaluation for various aspects of plant operations, PPL has initiated efforts to perform additional maintenance, surveillance, and testing activities during normal operation. Planned activities are evaluated utilizing risk insights to determine the impact on safe operation of the plant and the ability to maintain associated safety margins. Individual system components, a system train, or a complete system may be planned to be out of service to allow maintenance, or other activities, during normal operation.

Leak testing may involve a system breach, if required to repair a failed valve. However, during the disassembly process to perform maintenance, the subject valve is isolated and the associated section of piping drained. Thus, the system breach does not increase the risk due to internal flooding or internal system loss-of-coolant accident. The risk associated with these activities would be bounded by the risk experienced due to the system outage. Therefore, closure testing of these valves by leak testing during scheduled system outages while on-line would have no additional impact on core damage frequency.

PPL performs on-line maintenance on the Emergency Service Water (ESW) system. Minor maintenance work activities of limited scope require Operations authorization to perform. Also, Operations authorization is required if the activity has the potential to affect or affects a system, structure or component. It may also be scheduled as System Outage Window.

Tasks performed during on-line maintenance include items such as pump inspections, relief valve testing, electrical breaker maintenance and testing, and valve diagnostic testing. Leak testing of the check valve is expected to take approximately 4 to 6 hours. This IST activity would be conducted simultaneously with other on-line maintenance activities. Based on maintenance history and past scheduling experience and work execution, the additional check valve leakage testing will neither extend the on-line maintenance nor increase the overall system unavailability.

Therefore, performing IST activity on-line would change neither the duration of the on-line system outage window nor the core damage probability (CDP) associated with the existing on-line maintenance activities. For these reasons, the risk/(CDP) over the entire operating/shutdown spectrum would remain unchanged with approval of these relief requests.

If the check valve needed to be replaced, the valves used to provide the isolation boundary for the replacement of the check valves have an excellent history of providing adequate isolation. Once adequate isolation is confirmed, it is maintained by passive isolation valves or valves made passive (e.g., de-energized motor operated valves) that are controlled in accordance with the SSES Energy Control Process. A loss of isolation capability under these conditions is not considered credible due to the passive characteristics of the isolation valves.

Risk associated with on-line maintenance activities is controlled through the SSES work management process. This process includes preventive measures for maintaining safety and minimizing risk while performing on-line maintenance activities.

The level of quality associated with IST activities is independent of whether the activity is performed on-line or during an outage. The same personnel, procedures, and acceptance criteria are used in either case. The safe conduct of maintenance and IST activities is built into the work management process. The inspection activities are planned ensuring adequate isolation boundaries are established to protect both maintenance personnel involved in the activity and plant equipment.

PPL manages system outage windows on a recurring cycle. Risk insight is used to ensure that proposed work or inspection activities balance reliability with unavailability. The work selection process provides the means to ensure, through the oversight of knowledgeable personnel, that when system unavailability is to be incurred, the preventive maintenance, corrective maintenance, and other inspections required to maximize the system's reliability are included in the system outage window. In this manner, each window is scoped to maximize the

reliability benefit from taking system unavailability while minimizing the unavailability such that it is maintained at a level that minimizes overall risk. PPL is confident that this rigorous work selection, scoping, and risk management system will identify all work that is more appropriately placed in outages, and schedules such work accordingly.

Leak testing check valves and other periodic work activities in the ESW system will cause ESW to become inoperable in accordance with Technical Specifications (TS) and the Technical Requirements Manual (TRM). In accordance with TS 3.7.2, operation with one Emergency Service Water subsystem inoperable is permitted for up to 7 days. In accordance with TRM 3.8.6, operation with one required Emergency Switchgear Room Cooling subsystem inoperable is permitted for up to 30 days. Leak testing of ESW keepfill check valves takes between 2 and 4 hours, which would typically be accomplished within a 24 hour system work window.

Work that requires entry into a TS LCO REQUIRED ACTION statement is planned and scheduled using the SSES Work Management Process previously described above. The Work Management Process establishes the scope of work such that only 50% of the TS LCO time is required to perform the scheduled work. In addition, Evolution Coordinators/Engineering Personnel provide coverage for resolving problems. Spare parts that are necessary for rework are identified and made available in case rework becomes necessary. Based on historical performance, performance of check valve leak testing would not affect the duration of the time spent in the LCO REQUIRED ACTION.

As more system outages are performed on-line, it is evident that selected refueling outage inservice testing activities, (e.g., closure testing by leak testing) could be performed during these system outage windows (SOW) without sacrificing the level of quality or safety. Inservice testing performed on a refueling outage frequency is currently acceptable in accordance with ASME OM Code, 1998 Edition through 2000 Addenda. By specifying testing activities on a frequency commensurate with each refueling outage, ASME OM Code, 1998 Edition through 2000 Addenda, establishes an acceptable time period between testing. Historically, the refueling outage has provided a convenient and defined time period in which testing activities could be safely and efficiently performed.

However, an acceptable testing frequency can be maintained separately without being tied directly to a refueling outage. Inservice testing performed on a frequency that maintains the acceptable time period between testing activities during the operating cycle is consistent with the intent of ASME OM Code, 1998 Edition through 2000 Addenda.

Over time, approximately the same number of tests will be performed using the proposed operating cycle frequency as would be performed using the current refueling outage frequency. Thus, inservice testing activities performed during the proposed operating cycle test frequency provide an equivalent level of quality and safety.

4. **Proposed Alternate Testing**

Pursuant to 10 CFR 50.55a(a)(3)(i), SSES proposes an alternative testing frequency for performing inservice testing of the valves identified above. The valves will be closure tested by leak testing on a frequency of at least once per operating cycle in lieu of once each refueling outage as currently allowed by ASME OM Code, 1998 Edition through 2000 Addenda, ISTC-3522(c), "Category C Check Valves." The open function of check valves 211165A and 211165B is demonstrated continuously through the keepfill function.

5. **Duration of Relief Request**

This proposed alternative is requested for the duration of the 3rd Ten-Year Interval Susquehanna Steam Electric Station Unit 2 IST Program (June 1, 2004 through May 31, 2014).

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