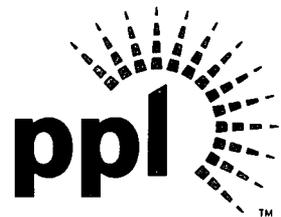


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JUL 28 2008

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**SUSQUEHANNA STEAM ELECTRIC STATION
REQUEST FOR ADDITIONAL INFORMATION FOR THE
REVIEW OF THE SUSQUEHANNA STEAM ELECTRIC STATION
UNITS 1 AND 2, LICENSE RENEWAL APPLICATION (LRA)
SECTIONS B.2.12 AND B.2.15
PLA-6396**

**Docket Nos. 50-387
and 50-388**

- References:*
- 1) *PLA-6110, Mr. B. T. McKinney (PPL) to Document Control Desk (USNRC), "Application for Renewed Operating License Numbers NPF-14 and NPF-22," dated September 13, 2006.*
 - 2) *Letter from Ms. E. H. Gettys (USNRC) to Mr. B. T. McKinney (PPL), "Request for Additional Information for the Review of the Susquehanna Steam Electric Station, Units 1 and 2 License Renewal Application," dated June 30, 2008.*

In accordance with the requirements of 10 CFR 50, 51, and 54, PPL requested the renewal of the operating licenses for the Susquehanna Steam Electric Station (SSES) Units 1 and 2 in Reference 1.

Reference 2 is a request for additional information (RAI) related to License Renewal Application (LRA) Sections B.2.12 and B.2.15. The enclosure to this letter provides the additional requested information.

There are no new regulatory commitments contained herein as a result of the attached RAI responses.

If you have any questions, please contact Mr. Duane L Filchner at (610) 774-7819.

*A120
NRR*

I declare, under penalty of perjury, that the foregoing is true and correct.

Executed on: 72808

A handwritten signature in black ink, appearing to read "B. T. McKinney". The signature is stylized with a large initial "B" and a long, sweeping underline.

B. T. McKinney

Enclosure: PPL Responses to NRC's Request for Additional Information (RAI)

Copy: NRC Region I

Ms. E. H. Gettys, NRC Project Manager, License Renewal, Safety

Mr. R. Janati, DEP/BRP

Mr. F. W. Jaxheimer, NRC Sr. Resident Inspector

Mr. A. L. Stuyvenberg, NRC Project Manager, License Renewal, Environmental

**Enclosure to PLA-6396
PPL Responses to NRC's
Request for Additional Information (RAI)**

RAI B.2.12-1:

In the license renewal application (LRA), the aging management program (AMP) B.2.12, "Bolting Integrity Program" is not clear in how it satisfies the generic aging lessons learned (GALL) Report Section XI.M18 program element "monitoring and trending". Specifically, the element requires bolting connections for pressure retaining components (not covered by ASME Section XI) to be "inspected daily. If the leak rate does not increase, the inspection frequency may be decreased to biweekly or weekly." Susquehanna Steam Electric Station (SSES) credits their System Walkdown Program for meeting this inspection frequency. However, it was not readily apparent how this is achieved. Please provide detailed plans for inspection frequency which satisfy this GALL element.

PPL Response:

GALL XI.M18 program element "monitoring and trending" states "If bolting connections for pressure retaining components (not covered by ASME Section XI) is reported to be leaking, then it may be inspected daily. If the leak rate does not increase, the inspection frequency may be decreased to biweekly or weekly." As such, GALL recommends, but does not require, specific inspection frequencies.

In the SSES LRA Section B.2.12, Bolting Integrity Program, PPL credits the System Walkdown Program for the periodic inspection of bolting, other than ASME Class 1, 2, or 3 bolting, which is inspected by the Inservice Inspection (ISI) Program. The SSES LRA states that the frequency of follow-up inspections is established by engineering evaluation of the identified problem.

At SSES, the plant minor deficiency monitoring program establishes the guidelines for identifying, monitoring, tracking, and disposition of minor deficiencies, such as leaks, that are discovered during walkdowns of plant systems, structures, and components. This program requires all plant personnel, upon discovery of a deficiency (such as a leak), to initiate an action request, in accordance with the plant action request and condition report process. Once identified, leaks are investigated by operations and/or engineering personnel. Based on the severity of the leak and the potential to impact plant operations or nuclear/industrial safety, a leak will be repaired immediately, scheduled for repair, or monitored for change. Monitoring may be specified to be performed daily, weekly, monthly, quarterly, or semi-annually, based on the results of an engineering evaluation of the leak. If the leak rate changes (increases, decreases, or stops), the monitoring frequency is re-evaluated and may be revised.

RAI B.2.12-2:

In the LRA, the AMP B.2.12, "Bolting Integrity Program" is stated to be consistent with the GALL Report with no exceptions or enhancements to the GALL Report program element "corrective actions". For this program element, GALL recommends the use of EPRI NP-5769 as guidance. However, SSES previously stated in their LRA that the "Bolting Integrity Program does not explicitly address the guidelines outlined in EPRI NP-5769, or as delineated in NUREG-1339". Instead, they rely on recommendations contained in EPRI documents NP-5067 and TR-104213. Please consider noting the possible exception to the corrective actions element and provide the basis for the exception.

PPL Response:

AMP B.2.12, Bolting Integrity Program, relies upon the recommendations contained in EPRI documents NP-5067 and TR-104213. The use of the guidance in EPRI documents NP-5067 and TR-104213 was approved by the NRC as an acceptable alternative to EPRI NP-5769 and NUREG-1339 in the Millstone Power Station, Units 2 and 3, Safety Evaluation Report for License Renewal, NUREG-1838, Volume 1. Refer to response to RAI B.2.12-3 for additional discussion on this issue.

Because the Bolting Integrity Program follows the guidelines and recommendations of EPRI NP-5067 and EPRI TR-104213, rather than EPRI NP-5769 and NUREG-1339, the LRA Section B.2.12 is revised to note this as an exception to the corrective actions program element.

B.2.12 Bolting Integrity Program

- The discussion under NUREG-1801 Consistency in Section B.2.12 (beginning on LRA page B-42) is revised by addition (*bold italics*).

NUREG-1801 Consistency**Exceptions to NUREG-1801****Program Elements Affected:**

- *Corrective Actions* –

The Bolting Integrity Program does not explicitly address the guidelines outlined in EPRI NP-5769, or as delineated in NUREG-1339. However, the Bolting Integrity Program relies upon the recommendations contained in EPRI NP-5067 and EPRI TR-104213.

RAI B.2.12-3:

In the LRA, the applicant states that the AMP B.2.12 “Bolting Integrity Program” is consistent with the bolting recommendations identified in the GALL Program Section XI.M18, but does not directly reference EPRI NP-5769 or NUREG-1339 as applicable source documents for these recommendations. However, during the AMP audit, the staff noted that the SSES procedures do reference and incorporate the bolting practices identified in EPRI NP-5067. EPRI NP-5769 and EPRI NP-5067 are very closely related documents that cross-reference one another and reference NUREG-1339. Please provide clarification on how the guidance in EPRI NP-5067 and EPRI TR-104213 meet the intent of EPRI NP-5769 and NUREG-1339 as identified in GALL AMP XI.M18.

PPL Response:

The SSES AMP B.2.12, Bolting Integrity Program, identifies general practices and inspection requirements for managing the aging effects identified for in-scope bolting consistent with GALL XI.M18. The governing maintenance procedure that implements the AMP references the EPRI Good Bolting Practices (EPRI NP-5067) and the NMAC Maintenance and Application Guide (EPRI TR-104213).

A letter from the Millstone Power Station to the NRC, in response to License Renewal Open Item OI-3.0.3.2.18-2, dated April 1, 2005 (ML051020128), demonstrated that the guidance provided in EPRI NP-5067 and EPRI TR-104213 adequately addresses the bolting integrity recommendations identified in GALL AMP XI.M18. This was accomplished by a point-by-point comparison which demonstrated that EPRI NP-5067 provides the same information as EPRI NP-5769 and NUREG-1339. The comparison also noted that certain GALL AMP XI.M18 recommendations were directly attributed to EPRI TR-104213, which Millstone references in their bolting program. As stated in the Millstone Power Station, Units 2 and 3, Safety Evaluation Report for License Renewal, NUREG-1838, Volume 1 (ML053270483), the NRC concluded that the comparison demonstrated that EPRI NP-5067 provides adequate guidance for addressing bolting integrity, consistent with the recommendations in GALL AMP XI.M18.

Thus, the SSES AMP B.2.12, Bolting Integrity Program, meets the intent of the GALL AMP XI.M18 recommendations by referencing EPRI NP-5067 and EPRI TR-104213.

RAI B.2.12-4:

In the LRA, the applicant states that the AMP B.2.12 “Bolting Integrity Program” is consistent with the AMP in the GALL Report AMP XI.M18, with the following exception related to loss of preload. The applicant states that the operating temperature for all other in-scope bolted connections are well below the threshold temperature at which stress relaxation of pressure boundary bolting would occur. Maintenance issues

that might result in loss of preload are current plant operational (design) concerns, as supported by site operating experience, and are not related to aging. The staff finds that the management of loss of preload is also a related item to the GALL Report program element, "preventive maintenance". Proper maintenance practices requiring the application of an appropriate preload must exist. Please provide information on existing maintenance procedures which manage the proper torque on bolts, and the application of an appropriate preload.

PPL Response:

The Bolting Integrity Program, AMP B.2.12, is implemented by the maintenance procedure for bolt torquing at SSES. The procedure relies upon engineering specifications, equipment manufacturers recommendations, recognized industry guidance (including EPRI NP-5067 and EPRI TR-104213), and operating experience to ensure the appropriate torque is applied to bolting to achieve the proper preload to ensure leak-tight bolted connections. The procedure includes instructions for the selection and use of appropriate lubricants and for checking gasket compression in accordance with the gasket manufacturers requirements. The procedure is revised, as necessary, to reflect SSES operating experience and any applicable industry guidance and/or operating experience. The procedure relies upon engineering evaluation and guidance to address unique bolting applications or leaking joints. The engineering evaluation process considers the amount of preload necessary to establish and maintain a leak-tight joint based upon the joint and gasket configuration and plant operating conditions.

RAI B.2.15-1:

In the LRA, the AMP B.2.15, "Crane Inspection Program" is stated to be consistent with the GALL Report with no exceptions and no enhancements. Upon review of the program basis document, it was found that SSES does not explicitly identify "the effects of wear on the rails in the rail system" in their basis document for the GALL Report program element, "Scope of Program". Please clarify this discrepancy, and provide the technical basis if this is actually intended to be an exception.

PPL Response:

The program basis document for the Crane Inspection Program does not explicitly identify the effect of wear on the crane rails as an aging effect that is managed in the "Scope of Program" element. However, inspection for loss of material of crane rails due to wear is included in the plant procedures that implement the SSES Crane Inspection Program. Therefore, this is not an exception to the GALL "Scope of Program" element. SSES LRA Section B.2.15, Crane Inspection Program, is revised, as shown in the response to RAI B.2.15-2 below, to clarify that loss of material of crane rails due to wear will be inspected as part of the SSES Crane Inspection Program.

RAI B.2.15-2:

In the LRA, the AMP B.2.15, “Crane Inspection Program” is stated to be consistent with GALL with no exceptions and no enhancements. Upon review of the program basis document, it was found that SSES does not explicitly identify “wear” in their basis document for the GALL Report program element, “Acceptance Criteria”. Please clarify this discrepancy, and provide the technical basis if this is actually intended to be an exception.

PPL Response:

The program basis document for the Crane Inspection Program does not explicitly identify wear of the crane rails in the “Acceptance Criteria” program element. However, loss of material of crane rails due to wear acceptance criteria is part of the plant procedures that implement the SSES Crane Inspection Program. Therefore, this is not an exception to the GALL “Acceptance Criteria” program element. SSES LRA Section B.2.15, Crane Inspection Program, is revised as follows to clarify that loss of material of crane rails due to wear will be inspected as part of the SSES Crane Inspection Program.

B.2 Aging Management Programs

B.2.15 Crane Inspection Program

Program Description

- The first paragraph in the Program Description discussion in Section B.2.15 (LRA page B-49) is revised by addition (***bold italics***).

The Crane Inspection Program is credited with managing loss of material for cranes (including bridge, trolley, rails, and girders), monorails, and hoists within the scope of license renewal. The Crane Inspection Program at SSES is based on guidance contained in ANSI B30.2 for overhead and gantry cranes, ANSI B30.11 for monorail systems and underhung cranes, and ANSI B30.16 for overhead hoists. The inspections monitor structural members for the absence or signs of corrosion other than minor surface corrosion ***and wear***. The inspections are performed periodically for installed cranes and hoists (e.g., annually for reactor building crane and refueling platform, bi-annually for diesel generator bridge cranes). The crane/hoist inspection tag expires one year from inspection. Infrequently used cranes and hoists may have an inspection frequency of two years or prior to use.

RAI B.15-3:

In the LRA, the AMP B.2.15, “Crane Inspection Program” is stated to have no age-related degradation problems in their operating experience. However, an “unsatisfactory”

condition designation on a structural item was found in the review of the operating experience. This work order [#847534 - M1031-02 "Pre-Use Hoist Inspection (1H209)"] includes a description of a possible crack in a weld approximately 2"-3" long. Please clarify the incident, describe any follow up inspections, and any corrective actions made.

PPL Response

During the two year inspection of Crane 1H209, performed under work order #847534 in August 2007, a potentially deficient weld was identified. The Inservice Inspection (ISI) group inspected the weld and documented on Magnetic Particle Report BOP-MT-07-304 that Indication No. 1 is a 3 inch linear crack in center of the weld. An engineering evaluation was performed by PPL personnel, which included consultation with the crane vendor's engineer. The weld was repaired, the crane was load tested and the ISI group re-inspected the weld. All results were satisfactory and the crane was returned to service.