

October 26, 2006

Mr. Britt T. McKinney  
Sr. Vice President  
and Chief Nuclear Officer  
PPL Susquehanna, LLC  
769 Salem Blvd., NUCSB3  
Berwick, PA 18603-0467

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 - PROPOSED  
REVISION TO EMERGENCY ACTION LEVELS (TAC NOS. MC9602 AND  
MC9603)

Dear Mr. McKinney:

By letter dated January 6, 2006, as supplemented by letter dated May 1, 2006, PPL Susquehanna, LLC, submitted proposed changes to the Susquehanna Steam Electric Station, Units 1 and 2 (SSES 1 and 2), Emergency Action Levels (EALs) for Nuclear Regulatory Commission (NRC) review and approval.

The proposed changes revise the SSES 1 and 2 EAL entry conditions for EAL EU1 for the SSES 1 and 2 Independent Spent Fuel Storage Installation (ISFSI) to accommodate use of the approved Transnuclear 61BT dry storage canisters with both 5-year and 10-year cooling periods for spent fuel. This EAL is also revised to provide clarity for the radiological readings that may be indicative of damage to the ISFSI system.

Based on its review, the NRC staff has concluded that the proposed SSES 1 and 2 EAL changes meet the standards of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.47(b) and the requirements of Appendix E to 10 CFR Part 50, and are therefore considered acceptable as evaluated in the enclosed safety evaluation. As agreed to by your staff, the SSES 1 and 2 EAL changes shall be implemented within 30 days from the issuance date of this letter. If you have any questions, please contact me at 301-415-1030.

Sincerely,

*/RA/*

Richard V. Guzman, Project Manager  
Plant Licensing Branch I-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 and 50-388

Enclosure:  
Safety Evaluation

cc w/encl: See next page

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ACCESSION NO.: ML062960084 \* Provided SE input. No substantive changes made.

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO THE PROPOSED EMERGENCY ACTION LEVELS FOR  
PPL SUSQUEHANNA, LLC  
SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2  
DOCKET NOS. 50-387 AND 50-388

## 1.0 INTRODUCTION

In its application dated January 6, 2006 (Agencywide Documents Access and Management System Accession No. ML060190489, as supplemented by letter dated May 1, 2006 (ML061290595), PPL Susquehanna, LLC (PPL, the licensee) requested a change to the emergency action levels (EALs) for the Susquehanna Steam Electric Station, Units 1 and 2 (SSES 1 and 2).

The proposed changes revise the EAL entry conditions for EAL EU1 for the SSES 1 and 2 Independent Spent Fuel Storage Installation (ISFSI) to accommodate use of the approved Transnuclear 61BT dry storage containers with both 5-year and 10-year cooling periods for spent fuel. This EAL is also revised to provide clarity for the radiological readings that may be indicative of damage to the ISFSI system.

## 2.0 REGULATORY EVALUATION

The regulatory requirements and guidance which the Nuclear Regulatory Commission (NRC) staff considered in its review of the application are as follows:

### 2.1 Regulations

Paragraph (a)(1) to Section 50.47, "Emergency plans," of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 states in part, that no operating license for a nuclear power reactor will be issued unless a finding is made by the NRC that the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Section 50.47 also establishes standards that must be met by the onsite and offsite emergency response plans for NRC staff to make a positive finding that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. One of these standards, 50.47(b)(4), stipulates that emergency plans include a standard emergency classification and action level scheme.

Enclosure

Section IV.B to Appendix E of 10 CFR Part 50, "Emergency Planning and Preparedness for Production and Utilization Facilities," provides that emergency plans are to include EALs, which are to be used as criteria for determining the need for notification and participation of local and State agencies and which are to be used for determining when and what type of protective measures should be considered both onsite and offsite to protect public health and safety. EALs are to be based on in-plant conditions and instrumentation, and also on onsite and offsite monitoring. Section IV.B of Appendix E also provides that initial EALs shall be discussed and agreed on by the applicant and State and local authorities, be approved by NRC, and be reviewed annually with State and local authorities. In addition, Section IV.B of Appendix E states in part, that an EAL revision must be approved by the NRC before implementation if it involves: (1) the changing from an EAL scheme based on NUREG-0654/FEMA-REP-1 to a scheme based on NUMARC/NESP-007 or Nuclear Energy Institute (NEI) 99-01; (2) the licensee is proposing an alternate method for complying with the regulations; or (3) the EAL revision has been evaluated by licensee as constituting a decrease in effectiveness.

## 2.2 Guidance

Revision 4 to Regulatory Guide (RG) 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," issued in July 2003 (ML032020276), endorses the guidance contained in NEI 99-01, "Methodology for Development of Emergency Action Levels," (Revision 4, January 2003), as acceptable to the NRC staff as an alternative method to that described in the following guidance for developing EALs required in Section IV of Appendix E to 10 CFR Part 50 and 10 CFR 50.47(b)(4):

- Appendix 1 to NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (November 1980), and
- Nuclear Utilities Management Council (NUMARC) document, entitled NESP-007, "Methodology for Development of Emergency Action Levels" (Revision 2, January 1992).

Regulatory Issue Summary (RIS) 2003-18, "Use of NEI 99-01, Methodology for Development of Emergency Action Levels," dated October 8, 2003, (as well as supplements 1 and 2, dated July 13, 2004, and December 12, 2005, respectively), provides guidance for developing or changing a standard emergency classification and action level scheme. In addition, the RIS provides recommendations to assist licensees, consistent with Section IV.B to Appendix E of Part 50, in determining whether to seek prior NRC approval of deviations from the new guidance.

## 3.0 TECHNICAL EVALUATION

The NRC staff has reviewed PPL's regulatory and technical analyses in support of its proposed EAL changes, which are described in PPL's application dated January 6, 2006, as supplemented by letter dated May 1, 2006. Since the proposed revision to the SSES 1 and 2 EALs was evaluated by PPL to be a potential decrease in effectiveness, the proposed changes were submitted to the NRC for approval prior to implementation by PPL, as required under Section IV.B to Appendix E of Part 50 and 10 CFR 50.54(q).

SSES 1 and 2 utilizes an EAL scheme based upon NEI 99-01, Revision 4, "Methodology for Development of Emergency Action Levels," dated January 2003 (ML041470143). The current SSES EAL, EU1, was based upon utilization of the model 52B Dry Shielded canisters. The proposed changes to EAL EU1 are based upon utilization of the model 52B Dry Shielded canisters as well as the model 61BT Dry Shielded canisters. The 61BT Dry Shielded canisters comply with the conditions and requirements of the "Certificate of Compliance for Dry Spent Fuel Storage Casks" Number 1004, the Safety Analysis Report for the Standardized NUHOMS Horizontal Modular Storage System for Irradiated Nuclear Fuel (NUH-003) and the PPL 72.212 evaluation and were approved for use at SSES under the provisions of 10 CFR Part 72.

The calculated EAL entry condition for the current EAL EU1 is 1 Roentgen-per-hour (R/hour) at 1 foot and is derived from calculations utilizing the model 52B canisters only. The model 61BT canister is designed to contain a larger number of fuel assemblies and can contain fuel cooled for a shorter period of time. The normal dose rate during transport of 5-year cooled fuel to the model 61BT canister approaches the current EAL value of 1 R/hour at 1 foot. This could lead to unnecessary emergency declarations as the expected dose rate value under accident conditions is approximately 5-7 R/hour at 1 foot. PPL performed a calculation (EC-RADN-1024) and determined that an EAL entry condition of 2 R/hour at 1 foot would bound the credible accident scenarios associated with storing fuel in the 52B and 61BT canisters. The proposed EAL entry conditions are above normal operation dose rates but less than the dose rates associated with an accident and are, therefore, considered acceptable.

The current EAL does not specifically address dose rates near the surface of the roof "bird screen" of a horizontal storage module. PPL proposes a new EAL entry condition incorporating a calculated value for dose rates 1 foot from the roof "bird screen." PPL's calculation, EC-RADN-1024, determined that a value of 4 R/hour at 1 foot from the roof "bird screen" would bound this event and is considered acceptable by the NRC staff.

Clarification of the wording in SSES EAL EU1 was proposed to ensure focus was maintained on the transfer cask used during materials transport and on the horizontal storage module which is used during storage post-transport. The unnecessary wording in EU1.1 that discussed the module, and in EU1.2 that discussed the transfer cask, was removed. This change is acceptable in that the intent of the EAL is maintained.

#### 4.0 CONCLUSION

The NRC staff performed a review of the proposed changes to the SSES 1 and 2 EALs as submitted under application dated January 6, 2006. Based on the application and the supplemental letter dated May 1, 2006, the NRC staff finds that the proposed SSES 1 and 2 EAL revision is consistent with the guidance of NEI 99-01, Revision 4. As such, the proposed SSES 1 and 2 EAL changes meet the requirements of 10 CFR 50.47(b) and Section IV.B of Appendix E to 10 CFR Part 50, do not result in a decrease in effectiveness of the emergency plan, and are therefore acceptable.

Principal Contributor: D. Johnson

Date: October 26, 2006