



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

August 10, 2012

Mr. Thomas Joyce  
President and Chief Nuclear Officer  
PSEG Nuclear LLC  
P.O. Box 236, N09  
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNITS 1 AND 2 – CLOSEOUT OF  
BULLETIN 2011-01, "MITIGATING STRATEGIES" (TAC NOS. ME6479 AND  
ME6480)

Dear Mr. Joyce:

On May 11, 2011, the U.S. Nuclear Regulatory Commission (NRC) issued Bulletin (BL) 2011-01, "Mitigating Strategies" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML111250360), to all holders of operating licenses for nuclear power reactors, except those that have permanently ceased operation and have certified that fuel has been removed from the reactor vessel.

The purpose of BL 2011-01 was to obtain a comprehensive verification that the licensee's mitigating strategies to maintain or restore core cooling, spent fuel cooling, and containment, following a large explosion or fire are in compliance with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.54(hh)(2).

BL 2011-01 required two sets of responses pursuant to the provisions of 10 CFR 50.54(f). Salem Nuclear Generating Station, Units 1 and 2 (Salem), provided its responses to BL 2011-01 by letters dated June 9 and July 11, 2011 (ADAMS Accession Nos. ML111600253 and ML111930027, respectively). By letter dated November 14, 2011 (ADAMS Accession No. ML113110248), the NRC staff sent the licensee a request for additional information (RAI) regarding its July 11, 2011, response. The licensee responded to the RAI by letter dated December 12, 2011 (ADAMS Accession No. ML113470207).

The NRC staff has reviewed the information submitted by Salem, and concludes that its response to BL 2011-01 is acceptable. As summarized in the enclosure, the NRC staff verified that the licensee provided the information requested in BL 2011-01.

If you have any questions, please contact me at (301) 415-3204 or via email at [john.hughey@nrc.gov](mailto:john.hughey@nrc.gov).

Sincerely,

A handwritten signature in black ink that reads "John D. Hughey".

John D. Hughey, Project Manager  
Plant Licensing Branch I-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-272 and 50-311

Enclosure:  
As stated

cc: Distribution via Listserv

SUMMARY OF NRC BULLETIN 2011-01  
"MITIGATING STRATEGIES" RESPONSE REVIEW  
PSEG NUCLEAR LLC  
SALEM NUCLEAR GENERATING STATION, UNITS 1 AND 2  
DOCKET NOS. 50-272 AND 50-311

1.0 INTRODUCTION

On May 11, 2011, the U.S. Nuclear Regulatory Commission (NRC) issued Bulletin (BL) 2011-01, "Mitigating Strategies," (Agencywide Documents Access and Management System (ADAMS) Accession No. ML111250360) to all holders of operating licenses for nuclear power reactors, except those that have permanently ceased operation and have certified that fuel has been removed from the reactor vessel.

BL 2011-01 required two sets of responses pursuant to the provisions of with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.54(f). The first set of responses were due 30 days after issuance of BL 2011-01.

By letter dated June 9, 2011 (ADAMS Accession No. ML111600253), Salem Nuclear Generating Station, Units 1 and 2 (Salem), provided its response to this first set of questions (first response). The second responses were due 60 days after issuance of the bulletin. By letter dated July 11, 2011 (ADAMS Accession No. ML111930027), Salem provided its response to this second set of questions (second response). By letter dated November 14, 2011 (ADAMS Accession No. ML113110248), the NRC sent a request for additional information (RAI) on the second response. Salem responded to the RAI by letter dated December 12, 2011 (ADAMS Accession No. ML113470207). As summarized below, the NRC staff has verified that Salem provided the information requested in the bulletin.

2.0 BACKGROUND

On February 25, 2002, the NRC issued EA-02-026, "Order for Interim Safeguards and Security Compensatory Measures" (ICM Order). Section B.5.b of the ICM Order required licensees to develop specific guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities using readily available resources (equipment and personnel), that can be effectively implemented under the circumstances associated with the loss of large areas of the plant due to explosions or fire.

By letter dated August 9, 2007 (ADAMS Accession No. ML072180018), the NRC staff issued its Safety Evaluation (SE) to document the final disposition of information submitted by Salem regarding Section B.5.b of the ICM Order. Along with the SE, the NRC staff issued a conforming license condition to incorporate the B.5.b mitigating strategies into the licensing basis.

Enclosure

On March 27, 2009, the NRC issued 10 CFR 50.54(hh)(2) as a new rule, in order to capture the B.5.b mitigating strategies and related license conditions as regulatory requirements for both current and future licensees. At that time, licensee compliance with the conforming license conditions was sufficient to demonstrate compliance with 10 CFR 50.54(hh)(2) (74 FR 13926); therefore, no further actions were required on the part of current licensees.

### 3.0 TECHNICAL EVALUATION

#### 3.1 30-Day Request

In order to confirm continued compliance with 10 CFR 50.54(hh)(2), BL 2011-01 requested that licensees address the following two questions within 30 days of issuing the bulletin:

1. Is the equipment necessary to execute the mitigating strategies, as described in your submittals to the NRC, available and capable of performing its intended function?
2. Are the guidance and strategies implemented capable of being executed considering the current configuration of your facility and current staffing and skill levels of the staff?

The NRC staff reviewed Salem's first response to determine if it had adequately addressed these questions, as summarized below.

##### 3.1.1 Question 1: Availability and Capability of Equipment

In its first response, Salem confirmed that equipment it needs to execute the 10 CFR 50.54(hh)(2) mitigating strategies is available and capable of performing its intended function. The NRC staff verified that this confirmation covered equipment needed for each of the three phases of the B.5.b mitigation strategies. Therefore, the NRC staff finds that Salem has adequately responded to Question 1.

##### 3.1.2 Question 2: Guidance and Strategies Can Be Executed

In its first response, Salem confirmed that the guidance and strategies it has implemented for 10 CFR 50.54(hh)(2) are capable of being executed considering the current facility configuration, staffing levels, and staff's skills. Since Salem has considered its current facility configuration, staffing levels, and staff's skills, and confirmed that it can execute its implemented guidance and strategies, the NRC staff finds that Salem has adequately responded to Question 2.

#### 3.2 60-Day Request

BL 2011-01 required a response to the following five questions within 60 days of issuing the bulletin:

1. Describe in detail the maintenance of equipment procured to support the strategies and guidance required by 10 CFR 50.54(hh)(2) in order to ensure that it is functional when needed.

2. Describe in detail the testing of equipment procured to support the strategies and guidance required by 10 CFR 50.54(hh)(2) in order to ensure that it will function when needed.
3. Describe in detail the controls for ensuring that the equipment is available when needed.
4. Describe in detail how configuration and guidance management is ensured so that strategies remain feasible.
5. Describe in detail how you ensure availability of offsite support.

The NRC staff reviewed Salem's submittals to determine if it had adequately addressed these questions, as summarized below. The NRC staff also reviewed the August 9, 2007, SE to determine what equipment, training, and offsite resources at Salem were relied upon by NRC staff to conclude that Salem's actions would ensure compliance with Section B.5.b of the ICM Order and the conforming license condition.

### 3.2.1 Questions 1 and 2: Maintenance and Testing of Equipment

Questions 1 and 2 of the 60-day request required licensees to describe in detail the maintenance and testing of equipment procured to support the strategies and guidance required by 10 CFR 50.54(hh)(2), in order to ensure that it is functional when needed. In its second response, Salem listed the equipment used to support the 10 CFR 50.54(hh)(2) mitigating strategies which receives maintenance or testing. For each item, Salem described the maintenance and testing performed, including the frequency and basis for the maintenance or testing activity.

The NRC staff verified that Salem listed equipment that typically requires maintenance or testing which was relied upon to make conclusions in the SE or commonly needed to implement the mitigating strategies. In its second response, Salem stated that the fire truck, portable pump, portable power supply, hoses, and communications equipment receive maintenance or testing. In its RAI response, Salem stated that its portable spent fuel spray nozzle, portable spray nozzles, and fire truck mounted spray nozzle do not receive periodic maintenance or testing, but are included in the inventory. The spent fuel spray nozzle was tested during initial implementation of the mitigating strategies. In its RAI response, Salem described how it ensures there is sufficient fuel for the portable pump.

The NRC staff verified that Salem described the process used for corrective actions and listed the testing performed to ensure that the strategies were initially feasible. Salem stated in its second response that its corrective action program is used to document equipment failure, establish priorities, and perform trending.

Based upon the information above, the NRC staff finds that Salem has provided the information requested by Questions 1 and 2.

### 3.2.2 Question 3: Controls on Equipment

Question 3 of the 60-day request required licensees to describe in detail the controls on equipment, such as inventory requirements, to ensure that the equipment is available when

needed. A list of inventory deficiencies and associated corrective actions to prevent loss was also requested.

The NRC staff verified that Salem described its process for ensuring that B.5.b equipment will be available when needed. In its second response, Salem identified equipment included in its inventory, the inventory frequency, and storage requirements. Salem indicated that its inventory verifies that the equipment listed is available. Salem stated that at the time of its second response, there were no outstanding inventory deficiencies that would render the strategies not viable.

The NRC staff verified that Salem inventoried equipment which was relied upon to make conclusions in the SE or commonly needed to implement the mitigating strategies. In its second response, Salem stated that procured non-permanently installed B.5.b equipment is inventoried at least annually in accordance with station procedures. The second response specifically stated that the following items are included in the inventory: portable pump; fire truck; portable power supply; hoses; communications equipment; nozzles; adapters; and portable air bottles. Salem also identified other items that support the mitigating strategies that are inventoried.

Based upon the information above, the NRC staff finds that Salem has provided the information requested by Question 3.

### 3.2.3 Question 4: Configuration and Guidance Management

Question 4 of the 60-day request required licensees to describe in detail how configuration and guidance management is assured so that the strategies remain feasible.

The NRC staff verified that Salem described its measures to evaluate plant configuration changes for their effects on the mitigating strategies and to ensure its procedures are current. In its second response, Salem stated that plant configuration changes are procedurally evaluated against the licensing basis, which includes the B.5.b mitigating strategies. Salem stated that the design change process requires a review of affected procedures and guidelines and that guideline changes are validated to ensure that the B.5.b mitigating strategies remain viable.

The NRC staff verified that Salem described measures it has taken to validate the procedures or guidelines developed to support the mitigating strategies. In its second response, Salem identified testing in response to Question 2 that demonstrated the ability to execute some strategies. Salem also stated that, "Initially, mitigating strategies were validated by walkdowns, engineering evaluations and/or table top reviews," and they were similarly revalidated in 2011.

The NRC staff verified that Salem described the training program implemented in support of the mitigating strategies and how its effectiveness is evaluated. In its second response, Salem identified the training provided to its operations personnel, emergency response organization, and fire brigade. Salem also identified the frequency with which each type of training is provided and the methods for evaluating the training.

Based upon the information above, the NRC staff finds that Salem has provided the information requested by Question 4.

#### 3.2.4 Question 5: Offsite Support

Question 5 of the 60-day request required licensees to describe in detail how offsite support availability is assured.

The NRC staff verified that Salem listed the offsite organizations it relies upon for emergency response, including a description of agreements and related training. The NRC staff compared the list of offsite organizations that Salem provided in its second response with the information relied upon to make conclusions in the SE. Salem stated that it maintains a memorandum of understanding with these offsite organizations, which are reviewed at least biennially, and that these agreements were current at the time of its second response. Salem also described the training and site familiarization it provides to these offsite organizations. Salem stated that it reviewed its corrective action program back to 2008 and found no issues involving lapsed agreements related to offsite support for B.5.b events.

Based upon the information above, the NRC staff finds that Salem has provided the information requested by Question 5.

#### 4.0 CONCLUSION

As described above, the NRC staff has verified that Salem has provided the information requested in Bulletin 2011-01. Specifically, Salem responded to each of the questions in BL 2011-01, as requested. The NRC staff concludes that Salem has completed all of the requirements of BL 2011-01 and no further information or actions under BL 2011-01 are needed.

August 10, 2012

Mr. Thomas Joyce  
President and Chief Nuclear Officer  
PSEG Nuclear LLC  
P.O. Box 236, N09  
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Sincerely,

*/ra/*

John D. Hughey, Project Manager  
Plant Licensing Branch I-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-272 and 50-311

Enclosure:  
As stated

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ADAMS Accession No: **ML12220A460** \*memo dated \*\*via email

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