

July 20, 2012

MEMORANDUM TO: Timothy J. McGinty, Director  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

FROM: David L. Pelton, Chief /RA/  
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Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

SUBJECT: COMPLETION OF REVIEW OF LICENSEE RESPONSES TO BULLETIN  
2011-01, "MITIGATING STRATEGIES"

On May 11, 2011, the U.S. Nuclear Regulatory Commission (NRC) issued Bulletin 2011-01, "Mitigating Strategies" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML11250360), 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 the bulletin was to obtain a comprehensive verification that licensees' mitigating strategies to maintain or restore core cooling, containment, and spent fuel cooling capabilities under the circumstances associated with loss of large areas of the plant due to explosions or fire were compliant with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.54(hh)(2).

The bulletin requested responses to two sets of questions pursuant to the provisions of 10 CFR 50.54(f). The purpose of the first set of questions (30-day request) was to confirm continued compliance with 10 CFR 50.54(hh)(2). The purpose of the second set of questions (60-day request) was to obtain information on licensee programs to maintain compliance with 10 CFR 50.54(hh)(2). As summarized in Enclosure 1, the Generic Communication Branch (PGCB) staff has reviewed all the licensee responses to Bulletin 2011-01 and found that each licensee provided the information requested. For each licensee, PGCB sent a memorandum to the Division of Operating Reactor Licensing (DORL) to document this finding with a summary of the staff's review. PGCB concludes that no further information or actions from licensees are needed with respect to the bulletin. PGCB will close all technical assignment control numbers for this activity once it verifies that DORL has sent closeout letters to all applicable licensees.

The information provided in response to the second set of questions was compiled and assessed by Mega-Tech Services, LLC, under contract with the NRC. The contractor sought to determine the "standard industry practices" for the 10 CFR 50.54(hh)(2) mitigating strategies with respect to maintenance, testing, and inventory of equipment; configuration and guidance management; training; and management of offsite support. The final summary report from the contractor is available in ADAMS at ML120860040. The staff has evaluated the "standard industry practices" derived by this effort and concluded that while they provide better definition of the phrase, which underlies the programmatic controls for equipment for licensees relying on Nuclear Energy Institute (NEI) document 06-12, Revision 2, "B.5.b Phase 2 & 3 Submittal Guideline," ADAMS Accession No. ML070090060, to meet the requirements of 10 CFR 50.54(hh)(2), imposition of these definitions as the standard on licensees would likely constitute

a backfit. Instead, the staff considers the programmatic controls documented by licensees in their responses to Bulletin 2011-01 as best representing the individual licensees understanding of "standard industry practices" implemented for the subject equipment.

The NRC staff did not identify any noncompliances or any items that would need follow-up by inspectors as a result of its review. The NRC staff notes that all licensees identified actions taken since the March 11, 2011, event at Fukushima Dai-ichi to ensure that the 10 CFR 50.54(hh)(2) mitigation strategies remain feasible. One action of note was the revalidation of the mitigation strategies using walkdowns, engineering evaluations, tabletop reviews, or similar techniques. Many licensees identified corrective actions or enhancements such as implementing periodic maintenance or testing of equipment, correcting inventory deficiencies, improving procedures or guidance, and updating agreements for offsite support.

The insights gained from the bulletin responses are being used to develop the interim staff guidance for Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," and Memorandum and Order CLI-12-09, "In the Matter of South Carolina Electric & Gas Co. and South Carolina Public Service Authority (Also Referred to as Santee Cooper; Virgil C. Summer Nuclear Station, Units 2 and 3)." These insights will also be useful for other post-Fukushima activities, such as the rulemaking associated with Recommendation 4.1 of SECY-11-0093, "Recommendations for Enhancing Reactor Safety in the 21<sup>st</sup> Century, the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," ADAMS Accession No. ML11186A950.

If you have any questions regarding this memo, please contact Blake Purnell, of my staff, at (301) 415-1380.

Enclosures: As stated

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## **NRC Bulletin 2011-01, “Mitigating Strategies” Summary of Response Review**

On May 11, 2011, the U.S. Nuclear Regulatory Commission (NRC) issued Bulletin 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 bulletin requested responses to two sets of questions pursuant to the provisions of 10 CFR 50.54(f). The purpose of the first set of questions (30-day request) was to confirm continued compliance with 10 CFR 50.54(hh)(2). The purpose of the second set of questions (60-day request) was to obtain information on licensee programs to maintain compliance with 10 CFR 50.54(hh)(2). As summarized below, the NRC staff has verified that each licensee subject to the bulletin provided the requested information.

### **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.

During the summer of 2007, the NRC staff issued a Safety Evaluation (SE) for each licensee to document the final disposition of information licensees submitted for Section B.5.b of the ICM Order. Along with each SE, the staff issued a conforming license condition to incorporate the B.5.b mitigating strategies into the licensing basis.

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) so no further actions were required on the part of current licensees.

### **30-Day Request**

In order to confirm continued compliance with 10 CFR 50.54(hh)(2), the bulletin 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 each licensee's response to determine if it had adequately addressed these questions. Each licensee confirmed that (1) its mitigation strategies equipment was available and capable of performing its intended function and (2) it can execute the mitigation strategies under its current facility configuration staffing levels, and staff' skills. A few licensees did not state in their initial response that Phase 1 of the mitigation strategies was included in this confirmation. However, this was quickly corrected and all licensees informed the NRC that the confirmation included all three phases of the mitigation strategies.

### **60-Day Request**

The bulletin 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 each licensee's submittals to determine if it had adequately addressed these questions. This was accomplished by verifying that the submittals listed equipment, training, and offsite resources which were relied upon to make conclusions in the associated SE or are commonly needed to implement the mitigating strategies. As part of this review, the NRC staff issued requests for additional information to 53 out of 65 plants.

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

The NRC staff verified that each licensee described in detail the maintenance and testing of B.5.b equipment in order to ensure that it is functional when needed. This was accomplished by confirming that each licensee:

1. identified the mitigation strategies equipment which receives maintenance or testing;
2. described the maintenance and testing performed on each item, including frequency and basis for the maintenance and testing activity;
3. identified measures to ensure sufficient fuel for the portable pump or fire pumper truck since this is necessary for the pump to remain functional for the expected 12-hour mission time;
4. described the process used for corrective actions; and
5. listed the testing performed to ensure that the strategies were initially feasible.

Licensees typically listed maintenance and testing activities for the following equipment: portable pump or fire pumper truck, hoses, spray nozzles, and communications equipment. If a licensee response to the 60-day request did not list each of these items, then the NRC staff issued a request for additional information.

### Question 3: Controls on Equipment

The NRC staff verified that each licensee described in detail the controls on B.5.b equipment, such as inventory requirements, to ensure that the equipment is available when needed. This was accomplished by confirming that each licensee described:

1. its inventory requirements for
  - a. equipment the NRC relied upon to make conclusions regarding the mitigating strategies in the SE and
  - b. equipment that is commonly needed to implement the mitigating strategies,
2. any deficiencies noted with inventories and corrective actions taken, and
3. its process for ensuring that B.5.b equipment will be available when needed.

Each licensee included the following in its response:

1. inventory frequency,
2. storage requirements, and
3. items verified.

Examples of items verified included proper quantity, location, and accessibility of equipment; compressed gas bottle pressures; calibrations; equipment shelf lives; and controls on storage locations. Each licensee also stated that at the time of their second response there were no outstanding inventory deficiencies that would render the strategies not viable. Some licensees also identified inventory deficiencies and associated corrective actions to prevent loss.

The typical equipment list included a portable pump or fire pumper truck; portable power supplies; tow vehicle; hoses; communications equipment; spray nozzles; and connectors. Some licensees stated that they inventoried procured non-permanently installed B.5.b equipment at a specified minimum inventory frequency (e.g., annually), which the NRC staff considered sufficient to address items not specifically listed. Other licensees provided more comprehensive list that included items such as tools, instruments, and firefighter turnout gear. Each licensee stated that procured non-permanently installed B.5.b equipment is inventoried in accordance with station procedures.

### Question 4: Configuration and Guidance Management

The NRC staff verified that each licensee described in detail how configuration and guidance management is assured so that the strategies remain feasible. This was accomplished by confirming that each licensee described the following:

1. Measures to evaluate plant configuration changes for their effects on the mitigating strategies;
2. Measures to ensure plant procedures are current;
3. Measures to validate the mitigation strategies procedures or guidelines; and
4. Training programs implemented in support of the mitigating strategies and measures to evaluate training effectiveness.

Licensees typically identified the training provided to their operations personnel, emergency response organization, security personnel, and fire brigade. The NRC staff confirmed that each licensee described the frequency with which each type of training is provided and the methods for training evaluating.

#### Question 5: Offsite Support

The NRC staff verified that each licensee described in detail how offsite support availability is assured. This was accomplished by confirming that each licensee 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 each plant provided with the information relied upon to make conclusions in the SE. If there were inconsistencies, then the NRC staff issued a request for additional information.

Licensees typically described agreements with fire departments, local law enforcement agencies, hospitals, and other local organizations.

#### **Conclusion**

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