

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary
FROM: COMMISSIONER OSTENDORFF
SUBJECT: SECY-12-0025 – PROPOSED ORDERS AND
REQUESTS FOR INFORMATION IN RESPONSE TO
LESSONS LEARNED FROM JAPAN’S MARCH 11,
2011, GREAT TOHOKU EARTHQUAKE AND TSUNAMI

Approved X Disapproved X Abstain _____

Not Participating _____

COMMENTS: Below ___ Attached X None ___



SIGNATURE

2/29/12

DATE

Entered on “STARS” Yes X No ___

Commissioner Ostendorff's Comments on SECY-12-0025, "Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami"

I approve, in part, issuing these three specific orders, which represent an important milestone in this agency's response to the Near-Term Task Force (NTTF) recommendations. I disapprove, however, the basis for the proposed orders, as noted below. Nevertheless, I appreciate the diligent efforts of the Fukushima Steering Committee, the Japan Lessons-Learned Project Directorate, and the many NRC staff and stakeholders involved in this significant body of work.

In approving these orders, it is important for me to note that I remain confident in the NTTF's original conclusions that "continued operation and continued licensing activities do not pose an imminent risk to public health and safety." I firmly believe that U.S. nuclear plants are safe and that these actions will appropriately increase their defenses, including against very unlikely extreme natural phenomena.

Orders on Mitigating Strategies (Enclosure 4) and Hardened Vents (Enclosure 5)

In Enclosures 4 and 5, the staff proposes orders requiring development of strategies to deal with beyond-design-basis external events, as well as orders requiring reliable, hardened vents for all Boiling Water Reactor (BWR) licensees with Mark I and Mark II containments. The staff recommends issuance of these orders under the 10 C.F.R. § 50.109(a)(4)(iii) exception to the Backfit Rule: "defining or redefining" the level of adequate protection. While I agree that the requirements in these orders should be based on the concept of adequate protection, I am not persuaded that we are "defining or redefining" the level of protection regarded as adequate.

Although adequate protection determinations are made on a case-by-case basis, the NRC does have historical precedence. The NRC has generally "defined or redefined" adequate protection by implementing generic requirements that establish a new minimum level of protection through the rulemaking process. On the other hand, when significant new information from unexpected events shows that compliance with current regulatory requirements is not enough, the NRC has historically used plant-specific actions, like orders. The NRC has generally considered these plant-specific actions to be "necessary to ensure" adequate protection (exception 10 C.F.R. § 50.109(a)(4)(ii) of the Backfit Rule). In the cases here, the NRC is not "raising the bar" on the level of adequate protection; instead, these orders supplement existing requirements and codify current regulatory expectations and should be considered under exception § 50.109(a)(4)(ii), to ensure adequate protection.

The NRC's post-September 11th orders required, in part, additional equipment to mitigate beyond-design-basis events. These orders were promulgated on the basis of assuring the continuation of adequate protection. The staff's proposed orders on mitigation strategies expand upon the post-9/11 framework by incorporating operating experience and lessons-learned from the Fukushima accident. Similarly, the hardened vent orders clarify current regulatory expectations by incorporating lessons-learned from Fukushima. The accident at Fukushima vividly illustrated the consequences of both unreliable vents and overly restrictive operational limits, which prevented earlier venting during an accident, contrary to U.S. practices. Further, the hardened vent orders codify current regulatory expectations by incorporating the extensive

operating experience and risk insights with BWR Mark I and Mark II containment integrity over the past three decades. For instance, NRC regulations have not been updated to reflect hardened vent insights from Generic Letter 89-16 or the additional enhancements for venting in station black-out-like conditions following the September 11th orders and rulemakings.

Therefore, because we are ensuring adequate protection, I approve issuance of the orders provided in Enclosures 4 and 5 under the 10 C.F.R. § 50.109(a)(4)(ii) exception to the Backfit Rule, as revised in the attached. I find that issues of “defining or redefining” adequate protection are better suited to follow-on rulemakings that would include public stakeholder and ACRS input, should such rulemakings prove necessary. In addition, I believe the Commission’s review of the forthcoming staff paper that addresses NTTF Recommendation 1 offers a more fitting policy forum to globally assess redefining regulatory requirements for beyond-design-basis events.

Orders on Spent Fuel Pool Instrumentation (Enclosure 6)

In Enclosure 6, the staff proposes orders requiring enhanced spent fuel pool instrumentation based again upon the “defining or redefining” adequate protection exception to the Backfit Rule. I am not, however, persuaded that these new requirements rise to the level of adequate protection. While I agree that reliable and available instrumentation is important for plant personnel to effectively prioritize emergency actions, I do not believe that the operating experience from Fukushima showed that the absence of spent fuel pool instrumentation resulted in radiological consequences. In addition, the measures that would be implemented for the order on mitigating strategies will further reduce the already low risk posed by spent fuel pools by reducing the risk of severe reactor accident conditions.

Because the staff has not provided a determination that these orders constitute a cost-justified substantial increase in protection to public health and safety, the only basis for issuing these orders at this time would be use of an alternative to the Backfit Rule. In this instance, an administrative exemption is appropriate. Commission action exempting itself from its own binding regulations should be a rare occurrence that takes place only in special circumstances or when the underlying NRC action to be exempted is necessary. In the final Statement of Consideration for the Aircraft Impact Assessment Rule, the only official use of the administrative exemption, the Commission stated that it “will continue to be an extremely rare action to be taken only if regulatory considerations strongly favor taking such administrative exemption.” Consideration of Aircraft Impacts for New Nuclear Power Reactors, 74 Fed. Reg. 28,112, 28,144 (June 12, 2009). It is my judgment that the orders for enhanced spent fuel instrumentation are necessary and that the events at Fukushima demonstrate the type of rare underlying occurrence where an administrative exemption is acceptable. Based upon my many years of nuclear propulsion plant operations, I know that a lack of reliable instrumentation can cause confusion and be a significant distraction that may adversely impact safe operations. In my view, given the significant radiological inventory in a typical spent fuel pool, spent fuel pools should have reliable instrumentation. Therefore, in the absence of a regulatory requirement, and in this rare occurrence, I approve the use of an administrative exemption to the Backfit Rule. The staff should revise the orders accordingly and resubmit them to the Commission for approval.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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| In the Matter of |) | |
| |) | |
| ALL POWER REACTOR |) | Docket Nos. (as shown in Attachment 1) |
| LICENSEES AND HOLDERS |) | License Nos. (as shown in Attachment 1) or |
| OF CONSTRUCTION PERMITS IN |) | Construction Permit Nos. (as shown in |
| ACTIVE OR DEFERRED STATUS |) | Attachment 1)) |
| |) | |
| |) | EA-12-XXX |

**ORDER MODIFYING LICENSES
WITH REGARD TO REQUIREMENTS FOR MITIGATION STRATEGIES
FOR BEYOND-DESIGN-BASIS EXTERNAL EVENTS
(EFFECTIVE IMMEDIATELY)**

I.

The Licensees and construction permits (CP) holders¹ identified in Attachment 1 to this Order hold licenses and CPs issued by the U.S. Nuclear Regulatory Commission (NRC or Commission) authorizing operation and/or construction of nuclear power plants in accordance with the Atomic Energy Act of 1954, as amended, and Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," and Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."

II.

On March 11, 2011, a magnitude 9.0 earthquake struck off the coast of the Japanese island of Honshu. The earthquake resulted in a large tsunami, estimated to have exceeded 14 meters (45 feet) in height, that inundated the Fukushima Dai-ichi Nuclear Power Plant site.

¹ CP holders, as used in this Order, includes CPs, in active or deferred status, as identified in Attachment 1 to this Order (i.e., Watts Bar, Unit 2; and Bellefonte, Units 1 and 2)

NRC is requiring additional defense-in-depth measures at licensed nuclear power reactors so that the NRC can continue to have reasonable assurance of adequate protection of public health and safety in mitigating the consequences of a beyond-design-basis external event.

The strategies and guidance developed and implemented by Licensees or CP holders in response to the requirements imposed by this Order will provide the necessary capabilities to supplement those of the permanently installed plant structures, systems, and components that could become unavailable following beyond-design-basis external events. These strategies and guidance will enhance the safety and preparedness capabilities established following September 11, 2001, and codified as 10 CFR 50.54(hh)(2). In order to address the potential for more widespread effects of beyond design basis external events, this Order requires strategies with increased capacity to implement protective actions concurrently at multiple units at a site. The strategies shall be developed to add multiple ways to maintain or restore core cooling, containment and SFP cooling capabilities in order to improve the defense-in-depth of licensed nuclear power reactors.

~~Accordingly, the NRC has concluded that there is a need to redefine the level of protection of public health and safety regarded as adequate under the provisions of the backfit rule, 10 CFR 50.109(a)(4)(iii), and is requiring Licensee or CP holder action to meet that new level of protection. In addition, pursuant to 10 CFR 2.202, the NRC finds that the public health, safety and interest require that this Order be made immediately effective.~~

The Commission has determined that ensuring adequate protection of public health and safety requires that power reactor Licensees and CP holders develop, implement and maintain guidance and strategies to restore or maintain core cooling, containment, and SFP cooling capabilities in the event of a beyond-design-basis external event. These new requirements provide a greater mitigation capability consistent with the overall defense-in-depth philosophy, and, therefore, greater assurance that the challenges posed by beyond-design-basis external

events to power reactors do not pose an undue risk to public health and safety. In order to provide reasonable assurance of adequate protection of public health and safety, all operating reactor licenses and CPs under Part 50 identified in Attachment 1 to this Order shall be modified to include the requirements identified in Attachment 2 to this Order. All combined licenses (COLs) under Part 52 identified in Attachment 1 to this Order shall be modified to include the requirements identified in Attachment 3 to this Order.

Accordingly, the NRC has concluded that these measures are necessary to ensure adequate there is a need to redefine the level of protection of public health and safety regarded as adequate under the provisions of the backfit rule, 10 CFR 50.109(a)(4)(iii), and is requiring Licensee or CP holder action to meet that new level of protection. In addition, pursuant to 10 CFR 2.202, the NRC finds that the public health, safety and interest require that this Order be made immediately effective.

IV.

Accordingly, pursuant to Sections 161b, 161i, 161o, and 182 of the Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 CFR 2.202, and 10 CFR Parts 50 and 52, IT IS HEREBY ORDERED, EFFECTIVE IMMEDIATELY, THAT ALL LICENSES AND CONSTRUCTION PERMITS IDENTIFIED IN ATTACHMENT 1 TO THIS ORDER ARE MODIFIED AS FOLLOWS:

- A. 1. All holders of CPs issued under Part 50 shall, notwithstanding the provisions of any Commission regulation or CPs to the contrary, comply with the requirements described in Attachment 2 to this Order except to the extent that a more stringent requirement is set forth in the CP. These CP holders shall complete full implementation **prior to issuance of an operating license.**

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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| In the Matter of |) | |
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| ALL OPERATING BOILING WATER |) | Docket Nos. (as shown in Attachment 1) |
| REACTOR LICENSEES WITH MARK I AND |) | License Nos. (as shown in Attachment 1) |
| MARK II CONTAINMENTS |) | EA-12-XXX |
| |) | |

**ORDER MODIFYING LICENSES
WITH REGARD TO RELIABLE HARDENED CONTAINMENT VENTS
(EFFECTIVE IMMEDIATELY)**

I.

The Licensees identified in Attachment 1 to this Order hold licenses issued by the U.S. Nuclear Regulatory Commission (NRC or Commission) authorizing operation of nuclear power plants in accordance with the Atomic Energy Act of 1954, as amended, and Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities." Specifically, these Licensees operate boiling-water reactors (BWRs) with Mark I and Mark II containment designs.

II.

On March 11, 2011, a magnitude 9.0 earthquake struck off the coast of the Japanese island of Honshu. The earthquake resulted in a large tsunami, estimated to have exceeded 14 meters (45 feet) in height, which inundated the Fukushima Dai-ichi Nuclear Power Plant site. The earthquake and tsunami produced widespread devastation across northeastern Japan, and significantly affected the infrastructure and industry in the northeastern coastal areas of Japan.

accidents by virtue of the design, construction and operation of the plant, (2) mitigation features to prevent radioactive releases should an accident occur, and (3) emergency preparedness programs that include measures such as sheltering and evacuation. The defense-in-depth strategy also provides for multiple physical barriers to contain the radioactive materials in the event of an accident. The barriers are the fuel cladding, the reactor coolant pressure boundary, and the containment. These defense-in-depth features are embodied in the existing regulatory requirements and thereby provide adequate protection of public health and safety.

The events at Fukushima Dai-ichi highlight the possibility that extreme natural phenomena could challenge the prevention, mitigation and emergency preparedness defense-in-depth layers. At Fukushima, limitations in time and unpredictable conditions associated with the accident significantly challenged attempts by the responders to preclude core damage and containment failure. In particular, the operators were unable to successfully operate the containment venting system. The inability to reduce containment pressure inhibited efforts to cool the reactor core. If additional backup or alternate sources of power had been available to operate the containment venting system remotely, or if certain valves had been more accessible for manual operation, the operators at Fukushima may have been able to depressurize the containment earlier. This, in turn, could have allowed operators to implement strategies using low-pressure water sources that may have limited damage to the reactor core. Thus, the events at Fukushima demonstrate that reliable hardened vents at BWR facilities with Mark I and Mark II containment designs are important to maintain core and containment cooling.

~~Accordingly, the NRC has concluded that there is a need to redefine the level of protection of public health and safety regarded as adequate under the provisions of the backfit rule, 10 CFR 50.109(a)(4)(iii), and is requiring Licensee actions to meet the new level of protection. In addition, pursuant to 10 C.F.R. 2.202, the NRC finds that the public health, safety and interest~~

~~require that this Order be made immediately effective.~~

The Commission has determined that ensuring adequate protection of public health and safety requires that all operating BWR facilities with Mark I and Mark II containments have a reliable hardened venting capability for events that can lead to core damage. These new requirements provide greater mitigation capability consistent with the overall defense-in-depth philosophy, and therefore greater assurance that the challenges posed by severe external events to power reactors do not pose an undue risk to public health and safety. To provide reasonable assurance of adequate protection of public health and safety, all licenses identified in Attachment 1 to this Order shall be modified to include the requirements identified in Attachment 2 to this Order.

Accordingly, the NRC has concluded that these measures are necessary to ensure adequate there is a need to redefine the level of protection of public health and safety regarded as adequate under the provisions of the backfit rule, 10 CFR 50.109(a)(4)(iii), and is requiring licensee actions to meet the new level of protection. In addition, pursuant to 10 C.F.R. 2.202, the NRC finds that the public health, safety and interest require that this Order be made immediately effective.

IV.

Accordingly, pursuant to Sections 161b, 161i, 161o, and 182 of the Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 C.F.R. § 2.202, "Orders," and 10 C.F.R. Part 50, IT IS HEREBY ORDERED, EFFECTIVE IMMEDIATELY, THAT ALL LICENSES IDENTIFIED IN ATTACHMENT 1 TO THIS ORDER ARE MODIFIED AS FOLLOWS:

- A. All Licensees shall, notwithstanding the provisions of any Commission regulation or license to the contrary, comply with the requirements described in Attachment 2 to this