

From: Benowitz, Howard
To: ["BONANNO, Jerry"](#)
Subject: RE: Baseline for Reduction in Effectiveness Reviews for Permanently Defueled Plants
Date: Wednesday, September 03, 2014 11:58:00 AM

Jerry:

Thank you for sending me the September 3, 1998, Maine Yankee exemption document with your email expressing your concerns with the current NRC staff's implementation of 10 CFR 50.54(q). As I explained to you recently by telephone, your email has generated discussion over here, which is beneficial because it led to a careful review of our regulations and past practices.

In your email, you claimed that the NRC currently is interpreting § 50.54(q) differently than it did in its review of the Maine Yankee exemption request in 1998. You wrote, "[T]he NRC staff explicitly recognized [in Maine Yankee] that, when dealing with a permanently defueled plant, a DIE (the analog to the current change control metric – "reduction in effectiveness") needs to be evaluated with consideration of the reduction in the bases for the commitments in the emergency plan. In contrast, the staff's current position is that potential reductions in effectiveness must be evaluated without consideration of the plant's permanently defueled status." You pointed to language in the NRC's Safety Evaluation Report (SER) for the Maine Yankee exemption to support your position.

You are taking out of context the language from the 1998 Maine Yankee exemption SER. The sentence immediately preceding the sentences on page 4 of the SER that you cite establishes the context: "The licensee stated that the onsite plans would remain subject to the standards as modified by this requested exemption" (underscore added). The subsequent sentences in that paragraph, including the ones you cite, present the staff's § 50.54(q) analysis of Maine Yankee's emergency plan to determine whether prior NRC approval would be necessary for Maine Yankee to change its emergency plan after the exemption was granted. (Maine Yankee had submitted a draft Defueled Emergency Plan (DEP) with the exemption request on November 6, 1997 (ADAMS Legacy Accession No. 9711130334).) With the granting of the exemption, the basis for the emergency plan, specifically the basis for the offsite EP elements and some onsite EP elements, changed. The NRC staff determined that the basis change was a reduction due to the plant's change in status: "In this instance, the staff has determined that there has been a reduction in the bases that require offsite emergency planning." Because the reduction in the commitments under Maine Yankee's DEP would be commensurate with the reduction in the bases for those commitments authorized by the exemptions, the staff concluded that the changed plan, based on the exemptions, would not result in a decrease in effectiveness. That is why the last sentence of the SER reads: "The staff has determined that, with the approval of the exemptions from the requirements of 10 CFR 50.54(q), 10 CFR 50.47(b) and (c), and Appendix E to Part 50 for emergency planning, as detailed above, the licensee may revise its emergency plan consistent with the remaining requirements."

In the 1990s, some licensees that were decommissioning their plants submitted their DEP concurrently with their § 50.54(q) exemption request and the NRC approved the DEP when it issued the exemption. (See, e.g., Yankee Atomic Energy Company's July 2, 1992, submission of its § 50.54(q) exemption request and DEP for Yankee Nuclear Power

Station (ADAMS Legacy Accession No. 9207070401), and the NRC's October 30, 1992, issuance of the exemption and approval of the DEP (ADAMS Legacy Accession No. 9211050354); Connecticut Yankee Atomic Power Company's May 30, 1997, submission of its § 50.54(q) exemption request and DEP for Haddam Neck (ADAMS Legacy Accession No. 9706060120), and the NRC's August 28, 1998, issuance of the exemption and approval of the DEP (ADAMS Legacy Accession No. 9809030182)). Other licensees at that time did not request an exemption from § 50.54(q) but did request exemptions from other EP requirements, and the NRC granted these licensees' requested exemptions and approved the DEPs. (See, e.g., Consumers Energy Company's September 19, 1997, submission of its § 50.54(q) exemption request and DEP for Big Rock Point Plant (ADAMS Legacy Accession No. 9709240373), and the NRC's September 30, 1998, issuance of the exemption and approval of the DEP (ADAMS Legacy Accession No. 9810080015); Commonwealth Edison Company's April 3, 1999, submission of its § 50.54(q) exemption request and DEP for Zion Nuclear Power Station (ADAMS Legacy Accession No. 9904220148), and the NRC's August 31, 1999, issuance of the exemption and approval of the DEP (ADAMS Legacy Accession No. 9909070079)).

Maine Yankee did not submit its DEP for NRC approval. Instead, it changed its emergency plan from an operating plan to a defueled plan after the NRC granted the exemptions. Maine Yankee made these changes under § 50.54(q) and did not need prior NRC approval because the changes were consistent with the exemptions and did not decrease the effectiveness of the DEP. As explained by Maine Yankee in an October 15, 1998, filing entitled, "Submittal of Maine Yankee Defueled Emergency Plan": "The Defueled Emergency Plan was implemented on September 18, 1998, and replaces the Emergency Plan of record [dated December 30, 1993]. The Defueled Emergency Plan implements the applicable portions of 10 CFR 50.47(b) and Appendix E of Part 50 as specified by the NRC in its letter [dated September 3, 1998] granting exemption from certain requirements of 10 CFR 50.54(q), 10 CFR 50.47(b) and (c) and Appendix E to Part 50 at Maine Yankee Atomic Power Station."

I also do not agree with your statement that, because the licensee may no longer load fuel or operate the reactor, its licensing basis is changed by operation of 10 CFR 50.82. Section 50.82(a) removes the licensee's authority to operate the reactor and place fuel into the reactor vessel but does not change the licensing basis. Changes made under § 50.59 to a licensee's FSAR can change a licensee's licensing basis. However, under § 50.59(c)(4), licensees must rely on § 50.54(q) to make changes to the emergency plan. But under § 50.54(q), an emergency plan basis doesn't change unless the applicable requirements change (e.g., by exemption). [Regulatory Guide 1.219](#), "Guidance on Making Changes to Emergency Plans for Nuclear Power Reactors," section 1.6, "Role of the Facility Licensing Basis," contains additional information on licensing basis documents that can affect an emergency plan.

In your email, you ask, "[W]hat should serve as the baseline for the 'reduction in effectiveness' analysis?" For a licensee in decommissioning, the NRC's granting of EP exemptions, such as those requested by Kewaunee, would re-baseline the licensee's emergency plan basis to reflect reduced requirements resulting from the exemptions. After the exemptions are issued, the licensee could revise its emergency plan pursuant to the exemptions. The licensee would not need prior NRC review and approval of the revised emergency plan under the same rationale as the Maine Yankee 1998 exemption, unless the licensee determines that the changes otherwise reduce the effectiveness of the plan.

This transition for nuclear power reactor licensees from operating reactors to permanently defueled plants can be challenging for the NRC and its licensees (and their industry representatives). I appreciate your raising this issue with me and hope you will continue reaching out to me as issues arise.

I will place our email exchange in publicly-available ADAMS.

Howard

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From: BONANNO, Jerry [mailto:jxb@nei.org]
Sent: Tuesday, May 27, 2014 8:24 AM
To: Benowitz, Howard
Subject: Baseline for Reduction in Effectiveness Reviews for Permanently Defueled Plants

Howard,

Good seeing you last week.

I've attached the Maine Yankee example that I mentioned during our conversation after the public meeting on Thursday. Specifically, attached you'll find an NRC decision granting an exemption request filed by Maine Yankee ("Decision"), as well as the associated SER. The licensee requested an exemption from the requirements of 50.54(q), 50.47(b) and (c), and Appendix E to Part 50. Essentially, the licensee demonstrated that – due to the change in the licensing basis for the plant (i.e., defueled status and docketing of the required certifications under 50.82) – it should be exempted from the offsite emergency planning requirements.

Notably, the exemption from section 50.54(q) requested relief from the requirement that emergency plans must meet all of the standards of 50.47(b) and the requirements of Appendix E, not the requirement that licensees seek prior NRC approval for changes that result in a decrease in effectiveness of the plan (which was the requirement at the time the exemption was requested/granted). With respect to evaluating whether a change to the emergency plan constituted a "decrease in effectiveness" (DIE) requiring prior staff approval, both the Decision and the supporting SER communicated the following approach to evaluating DIE:

In accordance with the provisions of 50.54(q), when a change to an emergency plan is made, the staff evaluates that change *against the bases for commitments made in the plan* to determine whether there is a decrease in effectiveness. *It is not a decrease in effectiveness if the reduction in the commitment is commensurate with a reduction in the bases for that commitment.* In this instance, the staff has determined that there has been a reduction in the bases that require offsite emergency planning. SER, at pg. 4, *see also* Decision, at pg. 3 (emphasis added).

In turn, the reduction in the bases that required offsite emergency planning was described as follows:

With the plant in a permanently shutdown and defueled condition, the applicable design basis accidents are limited to a fuel handling accident, spent fuel cask drop, and radioactive liquid waste system leak and failure. The calculated maximum off site dose from these postulated releases is less than the U.S. Environmental Protection Agency (EPA) Protective Action Guides (PAGs). The licensee also estimated that . . . a beyond-design-basis event, involving fuel damage . . . and the release of radioactive materials sufficient to exceed EPA PAGs at the site boundary is not credible. Decision, at pg. 4.

So, in the Main Yankee decommissioning the NRC staff explicitly recognized that, when dealing with a permanently defueled plant, a DIE (the analog to the current change control metric – “reduction in effectiveness”) needs to be evaluated with consideration of the reduction in the bases for the commitments in the emergency plan. In contrast, the staff’s current position is that potential reductions in effectiveness must be evaluated without consideration of the plant’s permanently defueled status. That is, the staff’s current position is that changes to emergency plans for permanently defueled nuclear power plants must be evaluated against a baseline that assumes a fictional licensing basis for an operating plant that no longer exists.

The position taken in the Maine Yankee case yields rational results and is consistent with the purpose of section 50.54(q), which the staff described as “to ensure licensees follow and maintain in effect emergency plans that provide reasonable assurance that adequate protective measures can and will be taken in the event of an emergency at a nuclear reactor.” Decision, at pg. 2. I also note that the staff’s position in Maine Yankee did not remove the need for prior review and approval of any necessary exemption requests (the same would be true today).

I see nothing in the current regulations that precludes the staff from taking a similar rational position with respect to permanently defueled plants. In last week’s public meeting, the staff seemed to indicate that the definition of “emergency plan” in 50.54(q) presents an insurmountable regulatory hurdle to evaluating reductions in effectiveness at permanently defueled reactors in a manner consistent with the approach described in the Maine Yankee case. But that definition begs the question that we are addressing . . . it doesn’t resolve it. Specifically, 50.54(q)(1)(ii) states:

Emergency plan means the document(s), prepared and maintained by the licensee, that identify and describe the licensee's methods for maintaining emergency preparedness and responding to emergencies. An emergency plan includes the plan as originally approved by the NRC and all subsequent changes made by the licensee with, and without, prior NRC review and approval under paragraph (q) of this section.

The fact that the plan “includes the plan as originally approved and all subsequent changes made by the licensee” is not in dispute. The question is what changes require prior NRC review and approval in the first instance? And, more specifically, what should serve as the baseline for the “reduction in effectiveness” analysis used to answer this question.

50.54(q)(1)(ii) does not definitively answer these questions.

At bottom, once the certifications of cessation of operations and defueling are docketed, the licensing basis for the plant is fundamentally changed (the licensee may no longer load fuel or operate the reactor). This change occurs by operation of rule (10 CFR 50.82), it is not based on a licensee promise or commitment. Where, as here, the agency has the discretion to adopt one of several plausible interpretations of its rules – it should adopt the interpretation that creates harmony with the rest of the regulatory framework and avoids conflict. An interpretation of 50.54(q) that requires suspension of disbelief, given what is happening by operation of other provisions of Part 50 (i.e., 50.82), accomplishes just the opposite and creates an additional resource burden in the form of unnecessary license amendment requests/reviews with no discernable safety benefit.

I'm happy to discuss if you think that would be useful and thanks in advance for considering this information.

Jerry Bonanno
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