

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Gregory B. Jaczko, Chairman
Kristine L. Svinicki
George Apostolakis
William D. Magwood, IV
William C. Ostendorff

In the Matter of)
)
)
ENTERGY NUCLEAR GENERATION) Docket No. 50-293-LR
COMPANY and ENTERGY NUCLEAR)
OPERATIONS, INC.)
)
(Pilgrim Nuclear Power Station))

)

CLI-10-14

MEMORANDUM AND ORDER

I. INTRODUCTION

This proceeding stems from the application of Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc. (together, Entergy or Applicant) to renew the operating license for the Pilgrim Nuclear Power Station for an additional 20 years beyond the current operating license expiration date of June 8, 2012. The intervenor in this proceeding is Pilgrim Watch, a non-profit citizens' organization. In a request for hearing and petition to intervene, Pilgrim Watch submitted five contentions challenging the renewal application.¹ The Atomic Safety and Licensing Board granted

¹ *Request for Hearing and Petition to Intervene By Pilgrim Watch* (May 25, 2006) (Petition for Hearing).

the intervention petition, admitting the following two contentions: (1) Contention 1, a safety contention challenging Entergy's aging management program for buried pipes; and (2) Contention 3, an environmental contention challenging Entergy's severe accident mitigation alternatives (SAMA) analysis.²

In response to an Entergy motion for summary disposition, a majority of the Board dismissed Contention 3 prior to hearing.³ The Board went on to hold an evidentiary hearing on Contention 1, regarding buried piping. Following the hearing, the Board issued LBP-08-22, an Initial Decision resolving all Contention 1 issues in favor of Entergy.⁴

Pilgrim Watch has filed a petition for review, pursuant to 10 C.F.R. § 2.341(b). Pilgrim Watch petitions for review of LBP-08-22 (ruling on the merits of Contention 1), LBP-07-13 (dismissing Contention 3), LBP-06-23 (ruling on contention admissibility), and "the many interlocutory decisions in this proceeding."⁵ Both Entergy and the NRC Staff

² LBP-06-23, 64 NRC 257 (2006).

³ LBP-07-13, 66 NRC 131 (2007).

⁴ 68 NRC 590 (2008). Judge Ann Marshall Young issued a Concurring Opinion.

⁵ *Pilgrim Watch's Petition for Review of LBP-06-848 [sic], LBP-07-13, LBP-06-23 and the Many Interlocutory Decisions in the Pilgrim Nuclear Power Station Proceeding* (Nov. 12, 2008) (Petition for Review). In addition to LBP-08-22, LBP-07-13, and LBP-06-23, Pilgrim Watch also challenges LBP-07-12, 66 NRC 113 (2007), Memorandum and Order (Ruling on Entergy's Motion for Summary Disposition of Pilgrim Watch Contention 1, Regarding Adequacy of Aging Management Program for Buried Pipes and Tanks and Potential Need for Monitoring Wells to Supplement Program); Order (Revising Schedule for Evidentiary Hearing and Responding to Pilgrim Watch's December 14 and 15 Motions) (Dec. 19, 2007)(unpublished); Order (Denying Pilgrim Watch's Motion for Reconsideration) (Jan. 11, 2008) (unpublished); and Memorandum and Order (Ruling on Pilgrim Watch Motions Regarding Testimony and Proposed Evidence Relating to Pilgrim Watch Contention 1) (June 4, 2008) (unpublished).

oppose review of any of these Board decisions.⁶ We requested additional briefs from the parties on LBP-07-13 and Contention 3, the SAMA contention.⁷

In CLI-10-11, we granted review of and partially reversed LBP-07-13, and remanded Contention 3 to the Board for hearing and further action as appropriate.⁸ For the reasons outlined below, we deny review of all other Board decisions Pilgrim Watch challenges.

II. ANALYSIS

We will grant a petition for review at our discretion, giving due weight to the existence of a substantial question with respect to the following considerations:

- (i) a finding of material fact is clearly erroneous or in conflict with a finding as to the same fact in a different proceeding;
- (ii) a necessary legal conclusion is without governing precedent or is a departure from or contrary to established law;
- (iii) a substantial and important question of law, policy, or discretion has been raised;
- (iv) the conduct of the proceeding involved a prejudicial procedural error; or
- (v) any other consideration which we may deem to be in the public interest.⁹

As discussed below, Pilgrim Watch has not raised a substantial question warranting review.

⁶ See *NRC Staff's Answer in Opposition to Pilgrim Watch's Petition for Review of LBP-08-22, LBP-07-13, LBP-06-23 and Interlocutory Decisions* (Nov. 24, 2008) (Staff Answer); *Entergy's Answer Opposing Pilgrim Watch's Petition for Review* (Nov. 24, 2008) (Entergy Answer).

⁷ See CLI-09-11, 69 NRC 529 (2009).

⁸ See CLI-10-11, 71 NRC __ (Mar. 26, 2010) (slip op.), *reconsideration denied*, CLI-10-15, 71 NRC __ (June 17, 2010) (slip op.).

⁹ See 10 C.F.R. § 2.341(b)(4)(i)-(v).

A. Scope of License Renewal Safety Review

Because a portion of Pilgrim Watch’s claims bear on the scope of license renewal, we begin with a brief description of the NRC’s license renewal safety regulations, set forth in 10 C.F.R. Part 54. Underlying the renewal regulations is the principle that each nuclear power plant has a plant-specific licensing basis that must be maintained during the renewal term “in the same manner and to the same extent as during the original licensing term.”¹⁰ The current licensing basis (CLB) is the set of NRC requirements (including regulations, orders, technical specifications, and license conditions) applicable to a specific plant, and includes the licensee’s written, docketed commitments for ensuring compliance with applicable NRC requirements and the plant-specific design basis.¹¹

The CLB is not static. It is an “evolving set of requirements and commitments for a specific plant that [is] modified as necessary over the life of a plant to ensure continuation of an adequate level of safety.”¹² Both during the original license term and continuing through the renewal term, the NRC “continually assesses the adequacy of and compliance with” the licensing basis, and does so through the NRC regulatory oversight process, which includes generic and plant-specific reviews, plant inspections, and enforcement actions.¹³

The objective of the license renewal regulations is “to supplement the regulatory process, if warranted, to provide sufficient assurance that adequate safety will be

¹⁰ Final Rule, Nuclear Power Plant License Renewal; Revisions, 60 Fed. Reg. 22,461, 22,464 (May 8, 1995) (License Renewal Rule).

¹¹ See 10 C.F.R. § 54.3.

¹² License Renewal Rule, 60 Fed. Reg. at 22,473.

¹³ *Id.*; see also *id.* at 22,485.

assured during the extended period of operation.”¹⁴ In developing the renewal regulations, the Commission concluded that the “only issue” where the regulatory process may not adequately maintain a plant’s current licensing basis involves the potential “detrimental effects of aging on the functionality of certain systems, structures, and components in the period of extended operations.”¹⁵

The aging management review for license renewal does not focus on all aging-related issues, however. The review focuses on structures and components that perform “passive” intended functions – with no moving parts or changes in configuration or properties – such as maintaining pressure boundary or structural integrity. Detrimental effects of aging on passive functions of structures and components are less apparent than aging effects on active functions of structures and components.¹⁶ Existing regulatory programs, including required maintenance programs, can be expected to “directly detect the effects of aging” on active functions.¹⁷

Further, the license renewal safety review focuses upon “those systems, structures, and components [SSCs] that are of principal importance to safety.”¹⁸ The general scope of the license renewal safety review is outlined in 10 C.F.R. § 54.4 (“Scope”). The scope is intended to (1) “reflect an appropriate consideration of the existing regulatory process”; (2) “properly focus the initial license renewal review on

¹⁴ *Id.* at 22,464.

¹⁵ *Id.*

¹⁶ *Id.* at 22,476; *see also id.* at 22,471-72, 22,477.

¹⁷ *Id.* at 22,472. Examples of structures or components that perform “active” functions are pumps and valves (which have moving parts), an electrical relay (which can change its configuration), and a battery (which changes its electrolyte properties when discharging).

¹⁸ *Id.* at 22,466; *see also id.* at 22,467.

those systems, structures, and components that are most important to safety”; and (3) “not result in an unwarranted re-examination of the entire plant.”¹⁹

Section 54.4(a)(1)-(3) outlines the three general categories of SSCs falling within the “initial focus” of the safety review.²⁰ The first category (§54.4(a)(1)) consists of all “safety-related” SSCs. These are SSCs “relied upon to remain functional during and following design-basis events” to ensure the integrity of the reactor coolant pressure boundary; the capability to shut down the reactor and maintain it in a safe shutdown condition; or the capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in §§ 50.34(a)(1), 50.67(b)(2), or 100.11.²¹

The second category (§ 54.4(a)(2)) consists of all non-safety-related SSCs whose failure could prevent satisfactory accomplishment of any of the safety functions identified above.²² This category would include, for example, “auxiliary systems, necessary for the function of safety-related systems.”²³

The third category (§ 54.4(a)(3)) consists of all SSCs relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with the NRC’s regulations for fire protection (10 C.F.R. § 50.48), environmental qualification (10 C.F.R. § 50.49), pressurized thermal shock (50 C.F.R. § 50.61), anticipated transients without

¹⁹ *Id.* at 22,468.

²⁰ *Id.* at 22,465.

²¹ See 10 C.F.R. § 54.4(a)(1)(i)-(iii). “Safety-related structures, systems, and components” is an NRC term of art. See 10 C.F.R. § 50.2 (defining the term).

²² 10 C.F.R. § 54.4(a)(2); see *also* License Renewal Rule, 60 Fed. Reg. at 22,465.

²³ See License Renewal Rule, 60 Fed. Reg. at 22,465.

scram (ATWS) (10 C.F.R. § 50.62), and station blackout (10 C.F.R. § 50.63).²⁴ From industry operating experience and continuing regulatory analysis, the Commission determined that SSCs necessary for compliance with these regulations “provide substantial additional protection to the public health and safety or are an important element in providing adequate protection to the public health and safety.”²⁵ These SSCs, therefore, are included within the initial scope of the renewal safety review, even if they otherwise might be “considered outside the traditional definition of safety-related,” and “outside of the first two categories” in § 54.4(a).²⁶

Section 54.4(a) merely outlines the three general categories of SSCs that fall within the “initial focus” of the license renewal review.²⁷ From among these SSCs, license renewal applicants must identify and list – in an integrated plant assessment (IPA) – those structures and components subject to an aging management review. Section 54.21 provides the standards for determining which structures and components require an aging management review. SSCs requiring an aging management review perform “an intended function, as described in § 54.4.”²⁸ These are the functions outlined in the three general categories of SSCs within the initial scope of license renewal – the safety functions outlined in § 54.4(a)(i)-(iii) (e.g., assuring integrity of the reactor pressure coolant boundary); non-safety functions that are necessary to assure satisfactory accomplishment of safety functions; and functions that demonstrate

²⁴ 10 C.F.R. § 54.4(a)(3).

²⁵ See License Renewal Rule, 60 Fed. Reg. at 22,465.

²⁶ See *id.*

²⁷ See *id.*

²⁸ 10 C.F.R. § 54.21(a)(1)(i).

compliance with the Commission's regulations for fire protection, environmental qualification, pressurized thermal shock, ATWS, and station blackout.²⁹

Additionally, SSCs subject to an aging management review perform an intended function in a *passive* fashion ("without moving parts or without a change in configuration or properties"); and are not already subject to replacement based on a qualified life or specified time period.³⁰ For each structure or component requiring an aging management review, a license renewal applicant must demonstrate that the "effects of aging will be adequately managed so that the *intended function(s)* will be maintained consistent with the CLB for the period of extended operation."³¹

B. Contention 1

In Contention 1, Pilgrim Watch challenged the adequacy of Entergy's aging management program for buried pipes and tanks. Specifically, the contention challenged the "Buried Pipes and Tanks Inspection Program" in Entergy's Safety Analysis Report (SAR).³² As described in the SAR, the aging management program for buried piping and tanks includes preventive measures to mitigate corrosion, and

²⁹ See 10 C.F.R. § 54.4(b) ("intended functions" that SSCs "must be shown to fulfill in § 54.21 are those functions that are the bases for including them within the scope of license renewal as specified in paragraphs (a)(1)-(3) of" § 54.4).

³⁰ See 10 C.F.R. § 54.21(a)(1)-(2). For those structures and components already subject to periodic replacement, the license renewal application must provide time-limited aging analyses, demonstrating that existing replacement programs will provide reasonable assurance that the effects of aging on intended functions will be adequately managed for the period of extended operation. See 10 C.F.R. § 54.21(c).

³¹ 10 C.F.R. § 54.21(a)(3) (emphasis added).

³² See Petition for Hearing at 4-16 (referencing Entergy License Renewal Application, Pilgrim Nuclear Power Station, Appendix A, § A.2.1.2 at A-14; Appendix B, § B.1.2 at B-17) (Jan. 27, 2006) (Entergy Application)).

inspections to manage the effects of corrosion on the pressure-retaining capability of buried carbon steel, stainless steel, and titanium components.³³

Contention 1 challenged the program's frequency and method of inspection, claiming that there should be "frequent inspections of all components that contain radioactive water in this aging plant."³⁴ The contention also called for monitoring wells to detect "small but steady leaks [that] could go undetected for months" and could "percolate into local groundwater or Cape Cod Bay."³⁵

Preventing potential offsite groundwater contamination due to undetected leaks of radioactive liquids from buried pipes and tanks was the clear focus of Contention 1:

Nuclear Power Plants have underground pipes containing large quantities of radioactively contaminated water. . . . Large leaks in these pipes may be detected by a drop of water level in a tank or via increased makeup to a tank. However, smaller leaks, if undetected, can eventually result in much larger releases of radioactive liquid into the ground, and are more difficult to detect The topography of the Pilgrim site is such that, were a leak to develop in an underground pipe or tank, the contaminated water would most likely migrate seaward and drain into the ocean The only effective way to monitor for such an occurrence would be to have on-site monitoring wells located between Pilgrim and the ocean.³⁶

Among its proffered bases, the contention referred to incidents involving leaks of radioactively contaminated water from buried pipes or tanks that have occurred at other facilities.³⁷ Pilgrim Watch claimed that in "most of the recent cases of leaked radioactive

³³ Entergy Application, Appendix at A-14; Appendix B at B-17.

³⁴ Petition for Hearing at 12.

³⁵ See *id.* at 9, 13-16.

³⁶ *Id.* at 13; see also *id.* at 6-9, 13-15.

³⁷ *Id.* at 6-7.

water, the leaks were detected by monitoring wells, but often not until long after the leaks occurred.”³⁸

The Board admitted Contention 1, noting that it challenged a specific aging management program described in Entergy’s application.³⁹ The Board stated that Contention 1 “challenges the absence of monitoring wells to serve as leak detection devices, strategically placed between the plant and the coast toward which all water that may be released through any leaks from such pipes and tanks would flow.”⁴⁰ The Board emphasized, however, that the contention would be limited to those underground pipes and tanks that fall within the scope of the license renewal safety review in 10 C.F.R. Part 54, an issue which could require further clarification as the proceeding progressed.⁴¹

As originally admitted by the Board, Contention 1 read as follows:

The Aging Management program proposed in the Pilgrim Application for license renewal is inadequate with regard to aging management of buried pipes and tanks that contain radioactively contaminated water, because it does not provide for monitoring wells that would detect leakage.⁴²

Subsequently, Entergy moved for summary disposition of Contention 1, claiming that Pilgrim Watch misunderstood the purpose and scope of the Entergy aging management program for buried piping and tanks. Entergy argued that the program is not focused upon preventing leakage of radioactive liquids that may contaminate groundwater, but on maintaining the pressure boundary of buried pipes and tanks to

³⁸ *Id.* at 13.

³⁹ See LBP-06-23, 64 NRC at 310-15.

⁴⁰ *Id.* at 315.

⁴¹ *Id.* at 315 & n.261.

⁴² *Id.* at 315.

assure that systems containing these components can continue to perform their intended safety functions pursuant to NRC's license renewal regulations.⁴³

Specifically, Entergy stressed that Contention 1's radioactive leakage concerns "fall within the realm of existing [NRC] regulatory processes for protecting the public from such radiation exposures," but not within the safety functions that are the focus of the renewal safety review under Part 54 (e.g., preventing or mitigating design-basis accidents which could result in offsite exposures comparable to those discussed in §§ 50.34(a)(1), 50.67(b)(2), or 100.11).⁴⁴ Entergy therefore argued that Pilgrim Watch's particular claims of "inadequate monitoring" did not present a genuine material dispute within the scope of a renewal proceeding.⁴⁵ Entergy's motion went on to argue that Contention 1 provided no basis challenging the sufficiency of the aging management program.⁴⁶ The NRC staff supported Entergy's motion.⁴⁷

In LBP-07-12, the Board denied Entergy's motion, but significantly altered the focus of Contention 1. The Board stressed that "prevention of leaks *per se* is not a stated objective of any relevant aging management program."⁴⁸ It further specified that "issues concerned with monitoring of radiological releases, or determination of how leakage could harm health or the environment, are not legitimately in dispute here,

⁴³ See, e.g., *Energy's Motion for Summary Disposition of Pilgrim Watch Contention 1* (June 8, 2007) at 15-18.

⁴⁴ *Id.* at 18.

⁴⁵ *Id.* at 15.

⁴⁶ See *id.* at 19-25.

⁴⁷ See *NRC Staff Response to Entergy's Motion for Summary Disposition of Pilgrim Watch Contention 1* (June 28, 2007).

⁴⁸ LBP-07-12, 66 NRC 113, 129 (2007).

because they do not relate to aging and/or because they are addressed as part of ongoing regulatory processes.”⁴⁹ In short, the Board concluded that it saw no “relevant, litigable dispute . . . regarding any health effects of leaking radioactive liquid.”⁵⁰

But the Board determined that a different issue involving buried piping fell within the scope of license renewal: the “prevention of an aging-induced leak large enough to compromise the ability of buried piping or tanks to fulfill their intended safety function.”⁵¹ The Board ruled that Contention 1 raised a genuine material dispute over whether Entergy’s aging management program for buried pipes and tanks at the Pilgrim facility “are adequate on their own, without need of any leak detection devices (Intervenors propose monitoring wells) to assure that the pipes and tanks in question will perform their intended functions and thereby protect public health and safety.”⁵² The Board explained that this issue, in its view, was raised in Contention 1 because the contention “implicitly addresses the adequacy of the AMPs [aging management programs] to assure that the pipes and tanks perform as intended to perform.”⁵³ The Board reasoned that “[a] system of monitoring wells . . . might well, by detecting leaks, allow for earlier

⁴⁹ *Id.* at 130 n.81.

⁵⁰ *Id.* at 130. The Board additionally noted that Pilgrim Watch’s response to the summary disposition motion had included statements on potential environmental consequences of leaks, but that the Board had admitted Contention 1 as a safety contention. *Id.* at 124.

⁵¹ *Id.* at 129. Pilgrim Watch did not raise this precise issue in its initial intervention petition, which focused on potential small, undetected leaks that could pose a threat of offsite groundwater contamination and “excessive radiation doses.” See, e.g., Petition for Hearing at 13-14 (acknowledging that “[l]arge leaks in these pipes may be detected by a drop in water level in a tank or via increased water makeup to a tank”).

⁵² LBP-07-12, 66 NRC at 128.

⁵³ See *id.* at 129.

and/or more effective detection and correction of any problems that might compromise the intended functions of relevant components.”⁵⁴

The Board therefore narrowed the issue for hearing as follows:

[T]he only issue remaining before this Licensing Board regarding Contention 1 is whether or not monitoring wells are necessary to assure that the buried pipes and tanks at issue will continue to perform their safety function during the license renewal period – or, put another way, whether Pilgrim’s existing AMPs have elements that provide appropriate assurance as required under relevant NRC regulations that the buried pipes and tanks will not develop leaks so great as to cause those pipes and tanks to be unable to perform their intended safety functions.⁵⁵

⁵⁴ *Id.* at 129.

⁵⁵ *Id.* at 129. In a subsequent order, the Board stated that “information related to monitoring wells is irrelevant to the issues at hand before this Board.” See Order (Revising Schedule for Evidentiary Hearing and Responding to Pilgrim Watch’s December 14 and 15 Motions) (Dec. 19, 2007) (unpublished) at 2. This prompted both a separate statement by Judge Young, and a motion for reconsideration by Pilgrim Watch, both of which claimed that the issue of monitoring wells was relevant to the admitted contention. See Separate Statement of Judge Ann Marshall Young (Regarding December 19 Order) (Dec. 21, 2007) (unpublished); *Pilgrim Watch Motion for Reconsideration* (Dec. 28, 2007).

The full Board denied Pilgrim Watch’s motion for reconsideration, stating that Contention 1, as “reformulated” by the Board to focus on the issue of buried pipes “leaking at such great rates that they would fail their respective safety functions,” did “NOT [involve] whether or not the [aging management programs] . . . address monitoring wells.” See Order (Denying Pilgrim Watch’s Motion for Reconsideration) (Jan. 11, 2008) (unpublished) at 4-5 (emphasis in original). The Board stressed that “unless and until the Applicant advises that it intends to rely upon such wells” to assure that buried pipes and tanks containing radioactive fluids will not leak at such great rates that they may compromise intended safety functions, “information regarding the performance of, or need for, monitoring wells is not relevant.” *Id.* at 5. But in a later order, the Board stated that it would allow information on the “relative effectiveness of monitoring wells” in detecting leaks that could become large enough to compromise safety functions. See Order (Ruling on Pending Matters and Addressing Preparation of Exhibits for Hearing) (Mar. 24, 2008) (unpublished) at 2-3. The Board explained that Entergy had “opened the door to litigation” of the issue by arguing that wells are not necessary and would not be as effective as the proposed aging management programs. *Id.*

Following an evidentiary hearing on Contention 1, a majority of the Board issued Initial Decision LBP-08-22, finding that the aging management program for buried pipes provides reasonable assurance that components in question will perform their intended safety functions through the license renewal term, and that monitoring wells are unnecessary.⁵⁶ Judge Young issued a detailed concurring opinion.⁵⁷

Pilgrim Watch seeks review of several Board rulings bearing on Contention 1. We address each claim in turn below.

1. Board's Interpretation of the Hearing's Scope

Pilgrim Watch argues that the Board improperly limited the scope of the hearing when it narrowed the focus of Contention 1 to whether Entergy's aging management program for buried pipes and tanks would adequately prevent "leaks of radioactive water . . . so great as to permit a design base [sic] failure."⁵⁸ In effect, Pilgrim Watch claims that once a structure or component is found to fall within the initial scope of the renewal safety review, pursuant to § 54.4(a), an aging management review must assure that all these "in-scope components [will] comply with . . . *all* NRC regulations over the license extension period."⁵⁹ Pilgrim Watch argues that the Board unduly restricted the focus of Contention 1 to the safety "functions outlined in 10 C.F.R. § 54.4(a)(1)-(3)," and "ignored" or "erroneously dispensed with" other issues that relate to assuring compliance with the CLB during the renewal term.⁶⁰

⁵⁶ See LBP-08-22, 68 NRC at 593-610.

⁵⁷ See *id.* at 611-53 (Young, J., concurring).

⁵⁸ Petition for Review at 2-3.

⁵⁹ See *id.* at 4 (emphasis added).

⁶⁰ *Id.* at 4.

Pilgrim Watch, for example, notes that there are existing NRC safety regulations intended to prevent exposure of the public to excessive radiation doses, and states that “[e]ffective monitoring systems” are necessary to assure compliance with these safety regulations.⁶¹ As Pilgrim Watch’s argument goes, because “NRC regulations require the Applicant to have in place an effective program for monitoring radiation on-site and offsite” and “leaks of radioactively contaminated water into the ground” potentially could result in “excessive radiation doses,” the Board improperly narrowed the scope of Contention 1 “to exclude unmonitored leakage of radioactive water, unless the leaks happened to be large enough to permit a design basis failure.”⁶²

At bottom, however, Pilgrim Watch’s concern goes to the adequacy of the NRC’s regulatory oversight process for assuring compliance with our existing radiological dose limits and other current licensing basis requirements. Through the regulatory process, which includes plant inspections, notices and guidance to licensees, and enforcement actions, the NRC takes a host of measures to improve the ability to timely detect and correct inadvertent leaks to assure compliance with public dose limits. This is an ongoing operational issue involving existing facilities regardless of whether those facilities are seeking or will seek license renewal.

The question before us here is not the adequacy to date of NRC regulatory actions to address leakage incidents, but whether the key safety functions that are the focus of the license renewal safety review under Part 54 include, as a general matter, preventing inadvertent leaks from buried piping. We agree with the Board that they do not.

⁶¹ *Id.* at 5-6.

⁶² *See id.* at 4-5.

Pilgrim Watch's claims do not point to any error in the Board's interpretation of the license renewal rules. Pilgrim Watch is correct that 10 C.F.R. § 54.21 "explains what has to be looked at in an aging management review of components once they are determined to be within scope" of license renewal.⁶³ But Pilgrim Watch otherwise misreads the rule. Section 54.21 does not require each structure and component within the scope of license renewal to be the subject of a far-reaching evaluation encompassing all aspects of the CLB. For those structures or components requiring an aging management review (pursuant to § 54.21(a)(1)), there must be a demonstration that the effects of aging will be adequately managed "so that the *intended function(s)* will be maintained consistent with the CLB."⁶⁴ As we earlier noted, § 54.21 plainly states that what is meant by the phrase "intended functions" are those functions "described in § 54.4."⁶⁵ Similarly, § 54.4(b) makes clear that the "intended functions" that SSCs "must be shown to fulfill" in the aging management review required by § 54.21 "*are those functions . . . specified in paragraphs (a)(1)-(3)*" of § 54.4.⁶⁶ The NRC definition of "safety-related structures, systems, and components" is rooted in these functions.⁶⁷

In the rulemaking process, the Commission acknowledged that "[m]ost systems, structures, and components have *more than one function* and each could be regarded" as in some form a "required" function.⁶⁸ But the Commission concluded that it was

⁶³ *Id.* at 4.

⁶⁴ 10 C.F.R. § 54.21(a)(3) (emphasis added).

⁶⁵ See 10 C.F.R. § 54.21(a)(1)(i).

⁶⁶ 10 C.F.R. § 54.4(b) (emphasis added).

⁶⁷ See 10 C.F.R. § 50.2.

⁶⁸ See License Renewal Rule, 60 Fed. Reg. at 22,467 (emphasis added).

“unreasonable” to require a licensee “to ensure *all* functions of a system, structure, or component as part of the aging management review.”⁶⁹ “Consideration of ancillary functions would expand the scope of the license renewal review beyond the Commission’s intent,” which was to focus the renewal safety review “only on those systems, structures, and components of primary importance to safety.”⁷⁰ In short, the license renewal application must provide reasonable assurance that structures and components “will perform such that the *intended functions*, as delineated in § 54.4, are maintained consistent with the CLB.”⁷¹

In issuing the license renewal regulations, the Commission recognized that not “all reactors are in full compliance with their respective CLBs on a continuous basis” and

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ See *id.* at 22,479 (emphasis added). Pilgrim Watch suggests that 10 C.F.R. § 54.29, which lists the standards for issuance of a renewed license, expands the scope of the license renewal aging management review well beyond the “intended functions” outlined in § 54.4, which are the subject of the IPA’s aging management review. Section 54.29(a)(1) states that for license renewal, there must be reasonable assurance that activities authorized by the renewed license will continue to be conducted in accordance with the CLB, *with respect to specified matters*, including “managing the effects of aging during the period of extended operation *on the functionality* of structures and components” that have been identified – pursuant to § 54.21 – to require an aging management review. See 10 C.F.R. § 54.29(a)(1) (emphasis added).

Section 54.29 does not expand the scope of review to any matter involving the CLB. Read in context with § 54.21, it is clear that the reference in § 54.29 to “functionality” means the “intended functions” that must be assured in the IPA aging management review. See, e.g., License Renewal Rule, 60 Fed. Reg. at 22,481 (findings required under § 54.29 were written to be consistent with § 64.21(a)(3)); *id.* at 22,461 n.1 ([t]he finding required by § 54.29 considers . . . the results of the integrated plant assessment [IPA]); *id.* at 22,479 (purpose of IPA process is to demonstrate whether there is “reasonable assurance” that SSCs “will perform such that the intended functions, as delineated in § 54.4, are maintained, consistent with the CLB”); *id.* at 22,476 (“an aging management review of the passive functions of structures and components is warranted to provide the reasonable assurance that their intended functions are adequately maintained during the period of extended operation”).

that “[t]he NRC conducts its inspection and enforcement activities under the presumption that non-compliances will occur.”⁷² But “all aspects of a plant’s CLB . . . and the NRC’s regulatory process,” including inspection and oversight activities, “carry forward into the renewal period” to maintain the CLB.⁷³ “[L]imits on the scope of [the] renewal review and hearing” were based “on careful review of the sufficiency of the NRC regulatory process to resolve issues not considered in renewal.”⁷⁴ The regulatory process continuously reassesses whether there is a need for additional oversight or regulations to protect public health and safety.⁷⁵

Though not necessary for this decision, it is important to note that the agency has engaged in just such a reassessment on this issue. Indeed, the NRC has taken an extensive array of actions to review and address leakage from buried piping, tanks, and spent fuel pools. In particular, the NRC has taken several actions in response to the recommendations of an NRC task force on inadvertent releases of radioactive liquids.⁷⁶

⁷² See License Renewal Rule, 60 Fed. Reg. at 22,473.

⁷³ *Id.* at 22,475.

⁷⁴ *Id.* at 22,482.

⁷⁵ *Id.* at 22,485.

⁷⁶ The NRC’s efforts in this regard have included: (1) revised inspection procedures to evaluate effluent pathways, review onsite contamination events, and expand documentation of releases; (2) issuance of new inspection guidance on the Nuclear Energy Institute’s (NEI) initiative on groundwater contamination events (NEI-07-07, “Industry Ground Water Protection Initiative – Final Guidance Document” (Aug. 2007)); (3) proposed a new rule amending 10 C.F.R. Part 20 to clarify that licensees are required to conduct operations to minimize introduction of residual radioactivity into the subsurface soil and groundwater of the site, and to specify that licensee survey requirements include consideration of residual radioactivity, including to the subsurface; (4) updated guidance on detecting, evaluating, reporting and documenting unmonitored releases, and providing on-site monitoring capability for various release points, including groundwater; (5) updated guidance on licensee radiological environmental monitoring programs to limit licensee flexibility to reduce sampling frequency without documented justification; and (6) proposed revisions to the license renewal rules that would require

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While the NRC task force on liquid radioactive releases concluded that inadvertent releases had a “negligible impact on public radiation doses,”⁷⁷ it nonetheless recommended specific actions to help assure that leaks will be detected before radionuclides may migrate offsite by an unmonitored pathway.⁷⁸ The result is that numerous new measures are now in place, with additional measures proposed and under consideration, as described above. Moreover, the NRC continues to assess generically whether any further actions are called for to assure the timely detection and correction of leaks from buried piping at nuclear reactor facilities.⁷⁹

In summary, Pilgrim Watch presents no substantial question warranting review of the Board decisions narrowing the scope of Contention 1⁸⁰ to piping and tank leaks that could affect the intended safety functions outlined in 10 C.F.R. § 54.4.⁸¹

environmental reports for license renewal applications to address “the potential impact of discharges of radionuclides, such as tritium, from plant systems into groundwater.” See, e.g., Liquid Release Task Force Recommendations Implementation Status as of July 10, 2009 (ADAMS Accession No. ML091900252) (listing status of specific regulatory guides, inspection procedures, and other responses to task force recommendations); Proposed Rule, Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 74 Fed. Reg. 38,117, 38,122-23, 38,129 (July 31, 2009); SECY-09-0042, “Final Rule: Decommissioning Planning (10 CFR Parts 20, 30, 40, 50, 70 and 72) (Mar. 13, 2009) at 3-4.

⁷⁷ Liquid Radioactive Release Lessons Learned Task Force, Final Report (Sept. 1, 2006) (ML062650312) at 13; see also *id.* at 15.

⁷⁸ See, e.g., *id.* at 15, 21-22, 27, 30, 38-39, 51, 53.

⁷⁹ See Memorandum from Chairman Jaczko to R.W. Borchardt, Executive Director for Operations (EDO) (Sept. 3, 2009) (ML092460648). Most recently, the EDO directed the Staff to convene a team of NRC experts to, among other things, re-evaluate the recommendations made in the 2006 Task Force Report and to review the actions taken in response to recent releases of tritium into groundwater by nuclear facilities, in order to determine whether these recommendations and actions should be augmented. See Memorandum from R.W. Borchardt, EDO, to Bruce S. Mallett and Charles A. Casto, “Groundwater Contamination Task Force” (Mar. 5, 2010) (ML100640188).

⁸⁰ We note that the Board reformulated Contention 1. In recent decisions, we have urged the licensing boards to exercise caution when reformulating contentions. See

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2. Reasonable Assurance Standard

To issue a renewed license, the NRC must find “reasonable assurance” that the licensee will manage the effects of aging on the functionality of SSCs identified to require an aging management review.⁸² In LBP-08-22, the Board found that Entergy’s aging management program for underground piping and tanks provides reasonable assurance that the relevant “components in question will perform their intended functions throughout the renewal period.”⁸³

Pilgrim Watch claims that the Board never precisely defined “what ‘reasonable assurance’ means and requires,” and suggests that “reasonable assurance requires 95% confidence.”⁸⁴ Although Pilgrim Watch concedes that “what constitutes ‘reasonable assurance’ . . . will require a case-by-case determination,” it nonetheless

Crow Butte Resources, Inc. (North Trend Expansion Area), CLI-09-12, 69 NRC 535 (2009). While a licensing board “may reformulate contentions to ‘eliminate extraneous issues or to consolidate issues for a more efficient proceeding’ . . . a board should not add material not raised by a petitioner in order to render a contention admissible.” *Id.* at 552-53 (citing, *inter alia*, *Andrew Siemaszko*, CLI-06-16, 63 NRC 708, 720-21 (2006)). We take this opportunity to encourage the licensing boards to adhere to this standard when reformulating contentions.

⁸¹ Recently, Pilgrim Watch filed with us a “notice,” claiming that an NRC Staff SECY paper presents “new and significant” information relevant to Pilgrim Watch’s petition for review in this proceeding. See *Pilgrim Watch Notice to Commission Regarding New and Significant Information Pertaining to Pilgrim Watch’s Petition for Review of [sic] LBP-06-848* (Jan. 21, 2010) (referencing SECY-09-0174, “Staff Progress in Evaluation of Buried Piping at Nuclear Reactor Facilities” (Dec. 2, 2009)). Contrary to Pilgrim Watch’s claims, SECY-09-0174 is consistent with the Board’s interpretation of the scope of the license renewal safety review. The Staff’s paper discusses both the license renewal safety review regulations and current NRC safety regulations governing piping design, radioactive effluents, and public dose limits.

⁸² See 10 C.F.R. § 54.29(a)(1) (broadly outlining findings necessary for a renewed license).

⁸³ LBP-08-22, 68 NRC 590, 593 (2008); see also *id.* at 648-52 (Young, J., concurring).

⁸⁴ Petition for Review at 7.

seeks a defined “*particular level* of assurance [that] the pipes or tanks will not fail over the license extension period.”⁸⁵ Pilgrim Watch further claims that whether or not the “reasonable assurance” standard is “susceptible to mathematical calculation, nothing short of an extremely high level of assurance” would be “reasonable.”⁸⁶ Pilgrim Watch argues that we should determine “what level of ‘assurance’ is ‘reasonable assurance,’” and remand the case to the Board to determine “whether Entergy can prove, by a clear preponderance of the evidence, that the required level of assurance will exist throughout the license extension period.”⁸⁷

Pilgrim Watch points to no applicable statutory, regulatory, or other ground requiring us to establish a particular “level of assurance” to define the standard of “reasonable assurance.” In another license renewal case, we recently stated that “‘reasonable assurance’ is not quantified as equivalent to a 95% (or any other percent) confidence level, but is based on sound technical judgment of the particulars of a case and on compliance with our regulations.”⁸⁸ Like the Atomic Energy Act’s standard of “adequate protection,” the “reasonable assurance” determination need not be reduced to “a mechanical verbal formula or set of objective standards,” but may be “given content through case-by-case applications of [the Commission’s] technical judgment,” in light of all relevant information.⁸⁹

⁸⁵ *Id.* (emphasis added).

⁸⁶ *Id.*

⁸⁷ *Id.*

⁸⁸ See *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 263 (2009).

⁸⁹ See *Union of Concerned Scientists v. NRC*, 880 F.2d 552, 558 (D.C. Cir. 1989). See also *id.* (“the determination of what constitutes ‘adequate protection’ under the Act, absent specific guidance from Congress, is just such a situation where the Commission

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Here, based on the evidentiary record and parties' arguments, the full Board – including two technical experts – without reservation found “reasonable assurance” that Entergy’s aging management program for buried piping and tanks would ensure the intended safety functions without need of “leak detection devices,” such as the monitoring wells Pilgrim Watch proposed.⁹⁰ The Board explained the basis for its conclusion. Regarding the aging management of pipes in the condensate storage system, the Board observed that the water level indicator on the two condensate storage tanks is monitored every four hours, and that flow rate tests on relevant pumps are conducted every quarter to detect any leakage “well before it reaches a level that could challenge the required flow rates.”⁹¹ The Board further stressed that the water level of the condensate storage tanks is maintained above 30 feet and that “there would have to be about a 20-foot drop in tank level” before relevant intended functions would be impaired.⁹² In short, the Board found that there would be ample opportunity to detect and correct leaks in condensate storage system piping before any intended safety functions could be impaired.

Similarly, in regard to piping in the salt service water system (SSW), the majority concluded that the “only way the intended functionality of the SSW . . . piping could be

should be permitted to have discretion to make case-by-case judgments based on its technical expertise and on all the relevant information”); accord *Pub. Citizen v. NRC*, 573 F.3d 916, 918 (9th Cir. 2009). See also *Carstens v. NRC*, 742 F.2d 1546, 1558-59 (D.C. Cir. 1984) (NRC reasonable in not providing a quantifiable definition for the “key regulatory phrase ‘conservative manner,’” given that relevant judgment calls did not “lend themselves to rigid statistical definitions”).

⁹⁰ See LBP-08-22, 68 NRC at 604-10; see also *id.* at 612-52 (Young, J., concurring).

⁹¹ See *id.* at 607-08 (majority opinion); see also *id.* at 627-28, 643-44, 648-49 (Young, J., concurring).

⁹² *Id.* at 607-08 (majority opinion).

impaired” were if “it became so blocked that water could not pass,” and that Pilgrim Watch proposed no “credible scenario by which this might happen.”⁹³ The majority additionally stressed that the “substance” of Contention 1 was *leaks* from piping, and that no evidence in the hearing suggested a “credible scenario . . . by which a leak in the SSW system . . . piping could reasonably be expected to lead to” restricted outlet flow.⁹⁴ The majority emphasized that “the lack of such a credible scenario is made even clearer” because the relevant portion of SSW piping “actually consists of two parallel piping systems each capable of carrying the entire required outlet flow.”⁹⁵

Judge Young’s concurring opinion agreed with the majority’s conclusions, but provided additional detail and reasoning, indeed stressing the “*large number* of facts and circumstances” in the record that “clearly” supported the finding of “reasonable assurance,” notwithstanding lack of evidence with a specific “numeric level of certainty.”⁹⁶ Pilgrim Watch identifies no error in the Board’s underlying rationale for finding “reasonable assurance.” Nor does any statute, regulation, or case law require the Commission to assign and apply a precise “level or degree” of confidence to the “reasonable assurance” standard. In short, Pilgrim Watch does not provide a compelling legal or factual basis for revisiting the Board’s finding of “reasonable assurance.”

3. Exclusion of Evidence

The Board held an oral evidentiary hearing on Contention 1 on April 10, 2008. Over a month later, Pilgrim Watch filed a motion seeking to strike from the case record

⁹³ *Id.* at 609; *see also id.* at 637-38, 649-50 (Young, J., concurring).

⁹⁴ *Id.* at 609; *see also id.* at 639-42 (Young, J., concurring).

⁹⁵ *Id.* at 610; *see also id.* at 637 (Young, J., concurring).

⁹⁶ *See id.* at 613, 648 (Young, J., concurring) (emphasis added).

portions of expert testimony presented by Entergy and the Staff.⁹⁷ The motion claimed that “critical testimony” on cured-in place linings, coatings, and cathodic protection was “inaccurate, incomplete or gave a misleading impression.”⁹⁸ The motion requested the Board to “strike the offending testimony from the record” or, alternatively, to “reopen the hearing.”⁹⁹ Shortly thereafter, Pilgrim Watch filed a related motion, requesting the Board to include in the case record the exhibits that had been attached to its earlier motion to strike testimony.¹⁰⁰ This second motion claimed that the exhibits sought to be included in the record “could materially affect the decision” of the Board.¹⁰¹

The Board denied both motions. The Board explained that it “effectively” had closed the case record on May 12, 2008.¹⁰² It therefore treated the Pilgrim Watch motions as a request to reopen the record, and went on to find that the motions did not satisfy the standards for reopening a closed record, pursuant to 10 C.F.R. § 2.326. In particular, the Board stressed that Pilgrim Watch failed to show that the newly proffered information was either timely submitted or was likely to lead to a materially different result in the proceeding.¹⁰³

⁹⁷ See *Pilgrim Watch Motion to Strike Incorrect and Misleading Testimony From the Record* (May 15, 2008) (Motion to Strike).

⁹⁸ *Id.* at 1.

⁹⁹ *Id.*

¹⁰⁰ See *Pilgrim Watch Motion to Include as Part of the Record Exhibits Attached to Pilgrim Watch Motion to Strike Incorrect and Misleading Testimony from the Record of May 15, 2008* (May 27, 2008).

¹⁰¹ *Id.* at 2.

¹⁰² See Memorandum and Order (Ruling on Pilgrim Watch Motions Regarding Testimony and Proposed Additional Evidence Relating to Pilgrim Watch Contention 1) (June 4, 2008) (Board Order Denying Pilgrim Watch Motions).

¹⁰³ *Id.* at 6-10 (referencing 10 C.F.R. §§ 2.326(a)(1) and (a)(3)).

Pilgrim Watch argues that the Board improperly rejected “and thus did not consider” the evidence submitted in its motions.¹⁰⁴ Pilgrim Watch’s argument rests on the claim that the Board did not formally close the case record until June 4, 2008, *after* Pilgrim Watch filed its motions. Pilgrim Watch does not claim that the Board misapplied the standard for reopening a case record, but that it inappropriately evaluated the Pilgrim Watch motions under the reopening standard. Entergy and the Staff support the Board’s view that, insofar as Contention 1 was concerned, the evidentiary record was “effectively closed” by May 12, 2008.¹⁰⁵

We need not reach whether the Board properly deemed the evidentiary record on Contention 1 “effectively closed” on May 12, 2008. First, the Board’s order provided

¹⁰⁴ Petition for Review at 9.

¹⁰⁵ See, e.g., Entergy Answer at 10 & n.32. The Board did not formally close the record at the end of the hearing on April 10, 2008. Two days earlier, the United States Court of Appeals for the First Circuit had issued a decision denying petitions for review filed by the Commonwealth of Massachusetts, which had sought unsuccessfully to intervene as a party in the *Pilgrim* and *Vermont Yankee* license renewal proceedings. The court ordered a stay of the “close of hearings in both license renewal proceedings . . . to afford the Commonwealth an opportunity to request participant status” as an interested State (pursuant to 10 C.F.R. § 2.315(c)) in both proceedings. See *Massachusetts v. NRC*, 522 F.3d 115, 130 (1st Cir. 2008).

Because the Board was unsure of the effect of the First Circuit’s stay order, it did not close the case record at the end of the hearing. See Transcript (Apr. 10, 2008) at 867-72. Judge Abramson specified, however, that “while the record isn’t formally closed there should be no further testimony from any party on this particular contention.” See *id.* at 871. On May 12, 2008, the Board issued an order setting “provisional” deadlines for proposed findings of fact and conclusions of law on Contention 1. The Board explained that the deadlines were provisional and the case record should not be construed as closed because, “among other things, if the need for further findings later arises based on the current [court-imposed] stay or related activities, these will be permitted as appropriate and necessary.” See Order (Setting Deadlines for Provisional Proposed Findings and Conclusions on Contention 1, and for Pleadings Related to Pilgrim Watch’s Recent Motion Regarding CUFs) (May 12, 2008) (Board Order Denying Motions) at 3. In denying the Pilgrim Watch motions, the Board viewed this May 12, 2008 order as effectively having closed the evidentiary record on Contention 1. See Board Order Denying Pilgrim Watch Motions at 3.

an *alternate* ground for rejecting the Pilgrim Watch motions. The Board stated that “in any event,” even if the case record were not closed, it would be improper to grant the Pilgrim Watch motions to strike testimony and allow further evidence to be added as exhibits.¹⁰⁶ The Board found the motions an improper effort to address – post-hearing – testimony it considered “incorrect, incomplete, or misleading,” but could have challenged at the hearing.¹⁰⁷ The Board stressed that it had provided Pilgrim Watch repeated occasions throughout the hearing to challenge evidence presented, and that “Pilgrim Watch did not take advantage of this opportunity . . . to raise matters asserted in its current motions, or even to raise the possible need to do so after the hearing, instead presenting its current arguments more than a month” after the hearing.¹⁰⁸ The Board identified repeated instances where Pilgrim Watch, a *pro se* litigant, had been provided assistance in understanding basic legal or procedural principles.¹⁰⁹ The Board concluded that, ultimately, “a party that proceeds without counsel” must bear responsibility for failures to properly and timely submit evidence.¹¹⁰ We agree.

Pilgrim Watch did not seek to introduce information that was authentically new. It therefore should have been prepared to object to testimony and evidence presented at the hearing. Objections not raised at hearing are deemed waived.¹¹¹ Among the items

¹⁰⁶ See Board Order Denying Pilgrim Watch Motions at 4 n.12.

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

¹¹⁰ See *id.*

¹¹¹ See *Duke Power Co. (Catawba Nuclear Station, Units 1 and 2)*, ALAB-355, 4 NRC 397, 411 & n.46 (1976) (asserted procedural defects should be called to agency’s attention “when, if in fact they were defects, they would have been correctable”).

Pilgrim Watch sought to have admitted as exhibits were e-mail transmissions by individuals providing their opinion on statements in the hearing transcript. Pilgrim Watch explained that it had “sent the Transcript to experts in the field of cathodic protection” for their comment.¹¹² At bottom, this was an improper effort bring in new witnesses after hearing. Pilgrim Watch’s motions effectively sought to re-litigate issues after the fact.¹¹³ The Board appropriately rejected this effort under its alternate ground for denying the motions.

Moreover, as the Staff states, Pilgrim Watch “fail[s] to show that the Board committed prejudicial error.”¹¹⁴ Pilgrim Watch does not indicate – nor is it obvious to us – how the information it sought to strike or introduce would have been material, given the Board’s reasoning for its finding of “reasonable assurance.” For example, Pilgrim Watch sought to introduce new opinions on cathodic protection. But as the Board stated, cathodic protection is “but one of two acceptable alternatives for the license renewal aging management of buried pipes.”¹¹⁵ The Board found acceptable Entergy’s proposed aging management program, which *does not rely* on cathodic protection. In other words, the Board found Entergy’s current program fully adequate without need of cathodic

¹¹² Motion to Strike at 8.

¹¹³ For example, as to a 2004 contractor article on piping liner installation that Pilgrim Watch sought to introduce, the Board noted Entergy’s claim that it disclosed to Pilgrim Watch other documents (some attached to Entergy’s response) that were “consistent with” and which “fully described in greater detail” the “design, installation, repairs, and testing of the liners.” See Board Order Denying Pilgrim Watch Motions at 7. The Board highlighted Pilgrim Watch’s concession that it “failed before the hearing to find among the documents Entergy provided those that describe the design, installation, repairs and testing of the liners.” *Id.*

¹¹⁴ See Staff Answer at 15.

¹¹⁵ See Board Order Ruling on Pilgrim Watch Motions at 8; see *also id.* at 9-10 (noting that issue before Board was whether Entergy’s aging management programs are adequate “as they currently exist”).

protection. Therefore, we can discern no reason – and Pilgrim Watch provides none – why additional descriptions or clarifications on the relative safety or difficulty of utilizing cathodic protection would undermine the ultimate conclusions of the Board.

Nor can we discern how a 2004 contractor’s article, which Pilgrim Watch sought to introduce, would have materially affected the Board’s conclusions. The article, apparently prepared for a trade organization presentation, described the contractor’s experience installing cured-in-place pipe (CIPP) liner in one of two loops (Loop A) of the salt service water discharge piping at Pilgrim. The article noted challenges involved with the installation of the CIPP liner in Loop A, and earlier errors requiring correction that had been made in the installation of the CIPP liner in the other loop (Loop B) of the discharge piping. Pilgrim Watch does not describe how the majority’s decision, which does not mention the CIPP liner, would be materially affected by the information contained in the 2004 article.

And while Judge Young’s concurring opinion mentions the CIPP liner – among numerous other factors – it is evident that Judge Young expressly considered the 2004 article on the CIPP liner installation, but found it immaterial. Judge Young notes that the contractor’s article describes how challenges confronted were addressed with “favorable results,” and piping was “tested to ‘confirm compliance with physical property specifications.’”¹¹⁶ We cannot discern any reason why the 2004 article would materially affect the Board’s conclusions in this case.¹¹⁷

¹¹⁶ See LBP-08-22, 68 NRC at 650 n.285 (Young, J., concurring). Similarly, the Board’s decision denying the Pilgrim Watch motions also had concluded, “in light of information *in the document itself*,” that the 2004 report was unlikely to “lead to a materially different result.” See Board Order Denying Pilgrim Watch Motions at 7 (emphasis added).

¹¹⁷ Like the majority, the concurring opinion concludes that “[i]t is clear that the only way that [salt service water system] pipe corrosion might trigger the loss of [salt service water system] safety function would be a total collapse of both discharge pipes so that the flow

(continued . . .)

In short, Pilgrim Watch gives us no reason to conclude that the information sought to be stricken or added to the record would have materially changed the Board's ultimate finding of "reasonable assurance." Therefore, even if the Board erroneously rejected Pilgrim Watch's motions, which we do not find, the record before us does not suggest that Pilgrim Watch suffered any prejudicial error warranting Commission review.¹¹⁸

In summary, Pilgrim Watch raises no substantial question warranting review of the Board's merits determination on Contention 1.

C. Contention 4

The Board declined to admit for hearing Pilgrim Watch's Contention 4, which claimed that Entergy's Environmental Report was deficient because its SAMA analysis addressed only reactor accidents and not, additionally, possible mitigation alternatives for spent fuel pool accidents.¹¹⁹ Citing our decision in the *Turkey Point* license renewal proceeding, the Board found that environmental impacts from the spent fuel pool (including potential beyond-design basis accidents and the need for mitigation measures) are addressed generically in the NRC's Generic Environmental Impact

path was completely blocked," a scenario found simply not to be credible, for a number of reasons. See LBP-08-22, 68 NRC at 637-42, 649-50 (Young, J., concurring). The concurring opinion further highlights upcoming required inspections of the CIPP liner ("[t]he CIPP liner for Loop B would be subject to a complete examination in 2011, before the period of extended operation . . . commences"; the "CIPP liner for Loop A would be subject to a complete examination in 2013, shortly after the period of extended operation commences"). *Id.* at 637; see also *id.* at 650.

¹¹⁸ See, e.g., *Nat'l Whistleblower Ctr. v. NRC*, 208 F.3d 256, 264-65 (D.C. Cir. 2000).

¹¹⁹ See LBP-06-23, 64 NRC at 280-300; Petition for Hearing at 50.

Statement for License Renewal (GEIS), and do not require a site-specific analysis as part of an individual license renewal environmental review.¹²⁰

License renewal applicants need not provide site-specific analyses of environmental impacts of subjects identified as “Category 1” issues in Appendix B to 10 C.F.R Part 51, subpart A.¹²¹ Such issues are generically addressed in the GEIS, and the GEIS’s generic analysis and conclusion “may be adopted in each plant-specific review.”¹²² For all Category 1 issues, the need for “mitigation of adverse impacts associated with the issue” was considered, and “it has been determined that additional plant-specific mitigation measures are likely not to be sufficiently beneficial to warrant implementation.”¹²³ A license renewal applicant therefore “need not address mitigation for issues” designated Category 1.¹²⁴ The license renewal rulemaking history makes clear that an issue cannot be identified as Category 1 if the NRC has not made a generic determination that additional mitigation measures are unlikely to be warranted, given “mitigation practices” already in place.¹²⁵

¹²⁰ See LBP-06-23, 64 NRC at 289-93 (referencing *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 21-23 (2001)).

¹²¹ See 10 C.F.R. § 51.53(c)(3)(i).

¹²² See, e.g., “Environmental Review for Renewal of Nuclear Power Plant Operating Licenses,” Final Rule, 61 Fed. Reg. 28,467, 28,474 (1996) (Environmental Rules); NUREG-1437, Vol. 1, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Main Report, Final Report (May 1996) (GEIS) at 1-5.

¹²³ See GEIS at 1-5.

¹²⁴ See Environmental Rules, 61 Fed. Reg. at 28,484.

¹²⁵ See *id.* at 28,474.

Part 51 designates the environmental impacts pertaining to on-site spent fuel a Category 1 issue.¹²⁶ The GEIS generically addresses “onsite storage of spent fuel during a renewal period of up to 20 years.”¹²⁷ Chapter six of the GEIS addresses the “environmental impacts associated with the uranium fuel cycle as they apply to license renewal,” and the “environmental impacts specifically associated with the management of radiological and nonradiological wastes resulting from license renewal.”¹²⁸ Chapter six finds “ample basis to conclude that continued storage of existing spent fuel and storage of spent fuel generated during the license renewal period can be accomplished safely and without significant environmental impacts.”¹²⁹

Chapter six further specifies – without qualification or other exception – that “the need for mitigation alternatives within the context of [license] renewal . . . has been considered, and the Commission concludes that its regulatory requirements already in place provide adequate mitigation incentives for on-site storage of spent fuel.”¹³⁰ Therefore, “[o]n-site storage of spent fuel during the term of a renewed operating license is a Category 1 issue.”¹³¹

Section 51.53(c)(3)(ii)(L) requires a SAMA analysis “[i]f the Staff has not previously considered severe accident mitigation alternatives for the applicant’s plant in an environmental impact statement or related supplement or in an environmental

¹²⁶ 10 C.F.R. Part 51, subpart A, Appendix B, Table B-1.

¹²⁷ Environmental Rules, 61 Fed. Reg. at 28,480.

¹²⁸ GEIS at 6-1.

¹²⁹ *Id.* at 6-91.

¹³⁰ *Id.* at 6-92.

¹³¹ *Id.*

assessment.”¹³² In *Turkey Point*, we clarified that because onsite storage of spent fuel during the license renewal term is a Category 1 issue, and as such explicitly has been found not to warrant any additional site-specific analysis of mitigation measures, the required SAMA analysis for license renewal is intended to focus on reactor accidents.¹³³ We reiterated this in CLI-07-3, addressing a similar spent fuel pool contention raised by the Attorney General of Massachusetts in this and the *Vermont Yankee* license renewal proceedings.¹³⁴

On appeal, Pilgrim Watch argues that we misread the NEPA regulations and supporting GEIS analyses. Specifically, Pilgrim Watch claims that chapter six of the GEIS, which we referenced in *Turkey Point*, only “deals with *normal operations*” associated with the spent fuel pool.¹³⁵ As Pilgrim Watch’s argument goes, because only the environmental impacts of “normal [spent fuel pool] operations” have been found in the GEIS to be a Category 1 issue, license renewal applicants must provide a SAMA analysis encompassing beyond design basis spent fuel pool accidents.

In support, Pilgrim Watch cites to two sentences from the introductory section in chapter six of the GEIS:

Accidental releases or noncompliance with [regulatory] standards could conceivably result in releases that would cause moderate or large radiological impacts. Such conditions are beyond the scope of regulations controlling normal operations and providing an adequate level of protection.¹³⁶

¹³² 10 C.F.R. § 51.53(c)(3)(ii)(L).

¹³³ See *Turkey Point*, CLI-01-17, 54 NRC at 21-23.

¹³⁴ See *Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station); *Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-07-3, 65 NRC 13, 19-21 (2007).

¹³⁵ Petition for Review at 22 (emphasis in original).

¹³⁶ GEIS at 6-1.

But Pilgrim Watch reads these statements out of context. These sentences do not mean that chapter six only addresses “normal” conditions. The purpose of the passage in which these statements are found is to explain that, in response to comments on the draft GEIS, the NRC changed “the standard defining *small radiological impact* . . . from a comparison with background radiation to compliance with the dose and regulatory release limits applicable to various stages of the fuel cycle.”¹³⁷ As the passage explains, NRC regulations and related inspections and other oversight and enforcement activities “provide an adequate level of protection of the public health and safety and the environment.”¹³⁸ Therefore, “[f]or the purposes of assessing radiological impacts, the Commission . . . concluded that impacts are of small significance if doses and releases [would] not exceed permissible levels in the Commission’s regulations.”¹³⁹

The sentences Pilgrim Watch cites merely make the corollary point: “accidental releases” or “noncompliance” with NRC standards “could conceivably result in releases that would cause moderate or large radiological impacts.”¹⁴⁰ Such releases would represent conditions beyond the “adequate level of protection” provided by NRC regulations. The GEIS concludes that “the Commission has no reason to expect that such noncompliance will occur at any significant frequency,” and instead expects that future radiological impact from the fuel cycle will represent releases and impacts within

¹³⁷ *Id.* (emphasis in original).

¹³⁸ *Id.*

¹³⁹ *Id.*

¹⁴⁰ *Id.*

applicable regulatory limits.”¹⁴¹ Chapter six outlines the reasons for this conclusion, addressing numerous potential environmental impacts associated with the fuel cycle.

Chapter six clearly is not limited to discussing only “normal operations,” but also discusses potential accidents and other non-routine events.¹⁴² For onsite spent fuel pool storage, the GEIS analysis addresses concerns related to expanded spent fuel pool capacity and the risk that “plant life extension could possibly increase the likelihood of criticality through dense-racking or spent fuel handling accidents.”¹⁴³ It specifically addresses spent fuel pool accidents and abnormal incidents, both actual events that occurred and the “worst probable cause of a loss of spent-fuel pool coolant (a severe seismic-generated accident causing a catastrophic failure of the pool),” concluding that “the likelihood of a fuel-cladding fire is highly remote,” and that “[i]nadvertent criticality and acute occupational exposure are remote risks of dense-racking.”¹⁴⁴

The Category 1 finding for onsite spent fuel storage (and chapter six of the GEIS upon which the finding is based) is not limited to routine or “normal operations.”¹⁴⁵ As

¹⁴¹ *Id.* at 6-7.

¹⁴² *See, e.g., id.* at 6-19, 6-28 (referencing scenarios including “catastrophic release of [high-level waste] repository inventory by a direct meteor strike”); *id.* at 6-21 (describing fatal accident and offsite contamination caused by rupture of overfilled cylinder of UF₆); *id.* at 6-31 (addressing “accidents in transport” of radioactive waste); *id.* at 6-34 (addressing concern of “theft or sabotage leading to a release that could pose a major risk of occupational and population exposure” and environmental harm).

¹⁴³ *See id.* at 6-80 to 6-81; *see also id.* at 6-70 to 6-86.

¹⁴⁴ *Id.* at 6-74 to 6-75.

¹⁴⁵ Admittedly, § 51.53(c)(3)(ii)(L), the rule requiring a SAMA analysis for certain applicants, does not specify this limitation. But the GEIS discussion of the requirement provides the necessary context. It specifies that our policy statement for severe accidents called for licensees to examine severe accident vulnerabilities and potential cost-effective mitigation on a plant-specific basis, focused on “core melt or unusually poor containment.” *See* GEIS at 5-106; *see also id.* at 5-107 to 5-114. At the time of the GEIS’s issuance, IPEs [individual plant examinations] and IPEEs [individual plant

(continued . . .)

specified in the Environmental SRP, there are “no Category 2 issues related to the uranium fuel cycle and solid waste management.”¹⁴⁶ The NRC recently reiterated that a “SAMA that addresses [spent fuel pool] accidents would not be expected to have a significant impact on total risk for the site” because the spent fuel pool accident “risk level is less than that for a reactor accident.”¹⁴⁷

examinations external events] had not been completed for all plants, and therefore the GEIS explains that “it would be premature to generically conclude that a consideration of severe accident mitigation is not required for license renewal.” *Id.* at 5-113. The Statements of Consideration for the rule further “notes that upon completion of its IPE/IPEEE program, [the Commission] may review the issue of severe accident mitigation for license renewal and consider, by separate rulemaking, reclassifying severe accidents as a Category 1 issue.” See Environmental Rules, 61 Fed. Reg. at 28,481.

The IPE and IPEEE programs, as well as the policy statement calling for them, are focused on reactor accidents, not spent fuel pool accidents. See Policy Statement on Severe Reactor Accidents Regarding Future Designs and Existing Plants, 50 Fed. Reg. 32,138 (Aug. 8, 1995) (“severe nuclear accidents are those in which substantial damage is done to the reactor core whether or not there are serious offsite consequences”); *id.* at 32,139 (“fundamental objective” of “Commission’s severe accident policy is . . . to take all reasonable steps to reduce the chances of occurrence of a severe accident involving substantial damage to the reactor core and to mitigate the consequences of such an accident should one occur”). See *also* Generic Letter 88-20, “Individual Plant Examination for Severe Accident Vulnerabilities” (Nov. 23, 1988) at 7 (purpose of IPE reviews is to obtain “reasonable assurance that the licensee has adequately analyzed the plant and operations to discover instances of particular vulnerability to core melt or unusually poor containment performance given a core melt accident”); *id.*, Appendix 2 (outlining criteria for IPE sequences, focusing on core damage and containment performance). See *also* NUREG-1555, Supplement 1, Environmental Standard Review Plan (Mar. 2000) (Environmental SRP) at 5.1.1-4 (purpose of § 51.53(c)(3)(ii)(L) SAMA analysis is to review and evaluate design and procedural changes that “could significantly reduce the radiological risk from a severe accident by preventing substantial core damage (i.e. preventing a severe accident) or by limiting releases from containment in the event that substantial core damage occurs (i.e. mitigating the impacts of a severe accident).”

¹⁴⁶ Environmental SRP at 6.1-1. The NRC currently is in the process of revising the GEIS. The proposed GEIS revision does not change the Category 1 finding for onsite spent fuel storage. See Proposed Rule, Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 74 Fed. Reg. 38,117 (July 31, 2009).

¹⁴⁷ See Attorney General of Massachusetts, Attorney General of California; Denial of Petitions for Rulemaking, 73 Fed. Reg. 46,204, 46,207-08, 46,211-12 (Aug. 8, 2008) (“[r]isk is defined as the probability of the occurrence of a given event multiplied by the

(continued . . .)

Alternatively, Pilgrim Watch argues that Contention 4 presented new and significant information demonstrating that “the risk and consequences of spent fuel pool fires is much greater than previously thought,” and that the Board improperly rejected these claims.¹⁴⁸ Rejecting the claims, the Board explained that petitioners with new and significant information challenging a Category 1 finding could (1) seek a waiver of the generic rule, pursuant to 10 C.F.R. § 2.335 (if there are particular plant or site-specific circumstances that render the generic analysis inapplicable); or (2) petition for rulemaking.¹⁴⁹ Pilgrim Watch did neither.

Addressing similar claims of “new and significant” spent fuel pool information raised by the Attorney General of Massachusetts in this and the *Vermont Yankee* proceedings, we held that “[a]djudicating Category 1 issues site by site based merely on a claim of ‘new and significant information,’ would defeat the purpose of resolving generic issues in a GEIS.”¹⁵⁰ The United States Court of Appeals for the First Circuit affirmed our decision, finding that NRC regulations provide procedural channels through which new and significant information may be brought to the Staff’s attention for review to determine if a generic Category 1 finding warrants modification.¹⁵¹ Additionally, many of the spent fuel pool arguments that Pilgrim Watch suggested were new and significant

consequences of that event”). The NRC has found the “risk of beyond design-basis accidents (DBAs) in [spent fuel pools] . . . to be several orders of magnitude below those involving the reactor core.” See *id.* at 46,207.

¹⁴⁸ Petition for Review at 23.

¹⁴⁹ See LBP-06-23, 64 NRC at 294-300; see also GEIS at 1-10 to 1-11.

¹⁵⁰ See CLI-07-3, 65 NRC at 21.

¹⁵¹ See *Massachusetts v. NRC*, 522 F.3d at 120-21, 125-27.

we have since addressed and found insufficient to warrant revision of the Category 1 finding regarding the environmental impacts of onsite spent fuel.¹⁵²

Pilgrim Watch further argues that the Board improperly rejected its argument that the Pilgrim SAMA analysis failed to consider “the contribution to severe accident costs made by intentional attacks on Pilgrim’s reactor or spent fuel pool.”¹⁵³ We have stated that NEPA “imposes no legal duty on the NRC to consider intentional malevolent acts . . . in conjunction with commercial power reactor license renewal applications.”¹⁵⁴ We further have stressed that, in any event, in developing the GEIS, the NRC “performed a discretionary analysis of terrorist acts in connection with license renewal, and concluded that the core damage and radiological release from such acts would be no worse than the damage and release expected from internally initiated events.”¹⁵⁵ The United States Court of Appeals for the Third Circuit recently affirmed both of these positions.¹⁵⁶

We are not persuaded by the Chairman’s dissent. We recognize the differing opinions of the Ninth and Third Circuits on this issue, but our ruling today reflects our consistent position on the requirements of NEPA and their application, namely, that the agency will conduct environmental analyses of terrorist scenarios only for facilities within

¹⁵² See Denial of Petitions for Rulemaking, 73 Fed. Reg. at 46,208-12.

¹⁵³ Petition for Review at 19.

¹⁵⁴ *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-07-8, 65 NRC 124, 129 (2007) (quoting *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-26, 56 NRC 358, 365 (2002)).

¹⁵⁵ *Id.* at 131 (citation omitted).

¹⁵⁶ See *N.J. Dep’t of Env’tl. Prot. v. NRC*, 561 F.3d 132, 137-44 (3d Cir. 2009) (holding that an aircraft attack on a nuclear power plant does not warrant NEPA evaluation. The Third Circuit discussed its departure from the Ninth Circuit’s reasoning in *San Luis Obispo Mothers for Peace v. NRC. Id.* at 142-43. In *Mothers for Peace*, the Ninth Circuit held that it was unreasonable for the NRC to refuse to consider the environmental effects of a terrorist attack on a “categorical” basis. 449 F.3d 1016 (9th Cir. 2006).

the Ninth Circuit.¹⁵⁷ We have complied with the Ninth Circuit's ruling for facilities within that Circuit, as we are required to do. Our experience within the Ninth Circuit, however, is very limited and does not demonstrate that conducting environmental analyses of terrorist scenarios for the licensing of all major facilities would be practicable or further the agency's commitment to transparency. Moreover, there is no dispute that the agency has devoted enormous resources and effort to ensure the adequate protection of public health and safety from the risks of terrorism after the events of September 11, 2001.

¹⁵⁷ See, e.g., *South Carolina Electric and Gas Co. and South Carolina Public Service Authority (also Referred to as Santee Cooper)* (Virgil C. Summer Nuclear Station, Units 2 and 3), CLI-10-1, 71 NRC ___ (Jan. 7, 2010) (slip op. at 16-17); *Progress Energy Carolinas, Inc.* (Shearon Harris Nuclear Power Plant, Units 2 and 3), CLI-10-9, 71 NRC ___ (Mar. 11, 2010) (slip op. at 16-17).

III. CONCLUSION

We have given careful consideration to Pilgrim Watch's petition for review. As earlier noted, in a separate decision (CLI-10-11), we addressed Pilgrim Watch's challenge to LBP-07-13. For the reasons outlined above, we find that Pilgrim Watch's petition for review does not raise a substantial question warranting review of the other challenged Board rulings.¹⁵⁸ We therefore *deny* the balance of the Pilgrim Watch petition for review.

It is so ORDERED.¹⁵⁹

For the Commission

[NRC SEAL]

/RA/

Annette L. Vietti-Cook
Secretary of the Commission

Dated at Rockville, Maryland,
this 17th day of June, 2010.

¹⁵⁸ See note 5, *supra* (listing challenged rulings).

¹⁵⁹ Commissioner Apostolakis did not participate in this matter.

Chairman Gregory Jaczko Dissents in Part:

I respectfully disagree with the majority's approval of a policy of ignoring terrorism when conducting environmental reviews for certain facilities located outside the Ninth Circuit. As I explained in detail in my dissent in *Oyster Creek*, CLI-06-24, 64 NRC 111, 127 (2007). I believe that the agency should have a consistent, nationwide approach to the consideration of terrorism under NEPA. As we conduct terrorism reviews under NEPA for some facilities, but not others, we create a disparity in the information provided to the public. I see no reason to provide this important information selectively, especially now that our experience demonstrates we can provide valuable information to the public while protecting sensitive security information. Fundamentally, we cannot reconcile a policy that denies this information to a significant portion of the public with our agency commitment to transparency.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
ENERGY NUCLEAR GENERATION CO.)
AND)
ENERGY NUCLEAR OPERATIONS, INC.) Docket No. 50-293-LR
)
(Pilgrim Nuclear Power Station))

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing COMMISSION MEMORANDUM AND ORDER (CLI-10-14) in the above captioned proceeding have been served upon the following persons by electronic mail this date, followed by deposit of paper copies in the U.S. mail, first class, and NRC internal mail.

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Docket No. 50-293-LR
COMMISSION MEMORANDUM AND ORDER (CLI-10-14)

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[Original signed by Nancy Greathead]

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Dated at Rockville, Maryland
this 17th day of June 2010