Case Nos. 12-1404 and 12-1772 (Consolidated)

UNITED STATES COURT OF APPEALS
FOR THE FIRST CIRCUIT

COMMONWEALTH OF MASSACHUSETTS,
Petitioner,
v.

UNITED STATES; UNITED STATES NUCLEAR REGULATORY COMMISSION,
Respondents

and

ENTERGY NUCLEAR OPERATIONS, INC., AND ENTERGY NUCLEAR GENERATION COMPANY,
Intervenors.

On Petitions for Review of Final Decisions of the
United States Nuclear Regulatory Commission

BRIEF OF INTERVENORS ENTERGY NUCLEAR OPERATIONS, INC., AND ENTERGY NUCLEAR GENERATION COMPANY

Elise N. Zoli
Kevin P. Martin
GOODWIN PROCTER LLP
53 State Street
Boston, MA 02109
Tel: (617) 570-1000

David R. Lewis
Paul A. Gaukler
Timothy J. V. Walsh
PILLSBURY WINTHROP SHAW PITTMAN LLP
2300 N St., NW
Washington DC, 20037
Tel: (202) 663-8000

October 10, 2012

Counsel for Entergy

CORPORATE DISCLOSURE STATEMENT

Entergy Nuclear Operations, Inc., a Delaware corporation, is a direct wholly owned subsidiary of Entergy Nuclear Holding Company #2 and an indirect wholly owned subsidiary of Entergy Corporation. No other publicly held company has a ten percent or more equity interest in Entergy Nuclear Operations, Inc.

Entergy Nuclear Generation Company, a Massachusetts corporation, is a direct wholly owned subsidiary of Entergy Nuclear Holding Co. #1 and an indirect wholly owned subsidiary of Entergy Corporation. No other publicly held company has a ten percent or more equity interest in Entergy Nuclear Generation Company.

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Cases Page

Federal Statutes and Regulations

Other Authorities

ABBREVIATIONS

AEA	Atomic Energy Act
ASLB	Atomic Safety and Licensing Board
CLB	Current Licensing Basis
EIS	Environmental Impact Statement
ER	Environmental Report
GEIS	Generic Environmental Impact Statement
JA	Joint Appendix
LRA	License Renewal Application
NEPA	National Environmental Policy Act
NRC	Nuclear Regulatory Commission
Petr. Br.	Petitioner's Brief
SAMA	Severe Accident Mitigation Alternative
SEIS	Supplemental Environmental Impact Statement

Intervenors Entergy Nuclear Operations, Inc. and Entergy Nuclear Generation Company (collectively "Entergy") submit this brief in support of the U.S. Nuclear Regulatory Commission ("Commission" or "NRC") and the United States.

STATEMENT OF THE CASE

This case concerns NRC's renewal of the operating license for the Pilgrim Nuclear Power Station, which the NRC issued following more than six years of safety and environmental review and hearings on Entergy's license renewal application ("LRA"). Before issuing this renewed license, the NRC prepared, *inter alia*, (1) a "generic" environmental impact statement, or "GEIS," analyzing the environmental impacts associated with license renewal on a generic basis, and (2) a Pilgrim-specific supplemental environmental impact statement, or "SEIS," supplementing the GEIS's already extensive analysis. Together, the GEIS and SEIS took the "hard look" required by the National Environmental Policy Act ("NEPA") at all impacts of a twenty-year license renewal for Pilgrim, including accident risk and mitigation. In addition, the NRC carefully considered (and denied) a rulemaking petition by the Commonwealth concerning the highly-remote risk of a spent nuclear fuel pool accident, and held hearings on the methodology for evaluating severe accident mitigation alternatives ("SAMAs") at Pilgrim.

Near the end of this lengthy and thorough proceeding, after the record had closed, the March 2011 Japanese earthquake and tsunami occurred, resulting in the well-publicized accident at the Fukushima nuclear power station. The NRC responded to this incident quickly and thoroughly, including by appointing a Task Force to determine any lessons to be learned for U.S. nuclear facilities. Following issuance of the Task Force's Report, the NRC ordered that nuclear plants throughout the country take certain actions to improve protection of public health and safety. While the NRC ordered these additional measures as a precaution, neither the NRC nor the Task Force concluded or even suggested that the risk of accidents or environmental impacts previously described in the GEIS and SEIS was understated or deficient based on what occurred at Fukushima.

Nonetheless, the Commonwealth then moved to reopen the closed record in the Pilgrim proceeding for a hearing on a new contention alleging that the previously completed environmental analyses of reactor and nuclear spent fuel pool accident risk needed to be supplemented. The Atomic Safety and Licensing Board ("ASLB") presiding over the Pilgrim proceeding carefully scrutinized the Commonwealth's claims and opposing answers, including expert declarations, and denied the motion.[1] The ASLB found that the Commonwealth's claims "simply implicate no environmental impact changes" in the Pilgrim analysis. LBP-11-35 at

[1] *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), LBP-11-35, 74 N.R.C. __, slip op. (Nov. 28, 2011) ("LBP-11-35") (JA63).

57 (JA121). The ASLB further ruled that the Commonwealth was not entitled to a hearing on whether the NRC's generic findings concerning risk of spent fuel pool accidents apply to Pilgrim.

On administrative appeal by the Commonwealth, the Commission carefully reviewed and affirmed the ASLB's rulings.[2] As part of that decision, the Commission referred to the NRC Staff the Commonwealth's alternative request to treat its claims relating to spent fuel pools as another petition for rulemaking, but denied its related request to suspend the Pilgrim LRA proceeding pending disposition of this rulemaking petition. In denying the suspension request, the Commission noted the absence of any significant new information affecting the NRC's prior environmental analysis. CLI-12-06 at 27-32 (JA27-32).

The Commonwealth now seeks review of the denial of its motion to reopen the Pilgrim proceeding and the Commission's subsequent authorization and issuance of the renewed license for Pilgrim. Although primarily styled as an action under NEPA, the Commonwealth essentially ignores the ASLB's and Commission's detailed technical determinations that none of the Commonwealth's claims implicated any change in the previous evaluation of environmental impacts for Pilgrim. The Commonwealth argues that new information from Fukushima necessarily requires supplementation of the Pilgrim SEIS, but it is hornbook law

---

[2] *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-06, 75 N.R.C.__, slip op. (Mar. 8, 2012) (JA1) ("CLI-12-06") (JA1).

that environmental analysis need be supplemented only when new information paints a dramatically different picture of impacts than was previously considered. The Commission's finding that the Commonwealth did not present any information rising to that level was not arbitrary and capricious, wherefore the Commonwealth's petition should be denied.

STATEMENT OF THE FACTS

I. STATUTORY AND REGULATORY BACKGROUND

The NRC's licensing of nuclear power plants is governed principally by two separate statutes: the Atomic Entergy Act ("AEA") and NEPA. To discharge its responsibilities under these statutes, the Commission has "two distinct sets of regulations containing requirements for license renewal applications." *Massachusetts v. United States*, 522 F.3d 115, 119 (1st Cir. 2008). The first, 10 C.F.R. Part 54, "focuses on technical issues such as equipment aging." *Id*. The second set, in 10 C.F.R. Part 51, fulfills the NRC's obligations under NEPA. *Id.*

A. The Atomic Energy Act and Safety Rules

The AEA is NRC's organic statute establishing the agency's substantive duty to provide adequate protection of the public health and safety. *See* 42 U.S.C. § 2232(a). Section 103(c) of the AEA, 42 U.S.C. § 2133(c), authorizes the Commission to issue a license to operate a nuclear power plant for a specified term

not to exceed 40 years.[3] Although the AEA permits the renewal of facility operating licenses, *id.*, it "says nothing more about requirements for re-licensing, instead delegating to the NRC authority to determine applicable rules and regulations." *Massachusetts*, 522 F.3d at 119 (citation omitted). *See also N.J. Envtl. Fed'n v. NRC*, 645 F.3d 220, 224 (3d Cir. 2011). Indeed, the AEA is "a regulatory scheme which is virtually unique in the degree to which broad responsibility is reposed in the administering agency, free of close prescription in its charter as to how it shall proceed in achieving its statutory objectives." *Siegel v. AEC*, 400 F.2d 778, 783 (D.C. Cir. 1968) (citations omitted).

Pursuant to the Commission's broad discretion, the NRC rules at 10 C.F.R. Part 54 focus the safety review on managing the aging of important plant systems, structures, and components. *See Massachusetts,* 522 F.3d at 119*; see also* 10 C.F.R. §§ 54.21, 54.29(a). This limited scope is based on the fundamental principle that, with the exception of the detrimental effects of aging, the NRC's existing regulatory processes function to ensure that the "current licensing basis" ("CLB") for each nuclear plant provides and maintains an adequate level of safety. *Final Rule, Nuclear Power Plant License Renewal; Revisions*, 60 Fed. Reg. 22,461, 22,464, 22,481-82 (May 8, 1995). As the name suggests, a plant's CLB is

[3] Pilgrim was licensed under Section 104(b) of the AEA, 42 U.S.C. § 2134, and the NRC applies the same 40-year limit to such licenses. *See* 55 Fed. Reg. 29,043, 29,050 & n.1 (July 17, 1990).

not static, but rather is an "evolving set of requirements and commitments for a specific plant that are modified as necessary over the life of a plant to ensure continuation of an adequate level of safety." *Id.* at 22,473. As the Commission has explained,

> [t]he Commission engages in a large number of regulatory activities which, when considered together, constitute a regulatory process that provides ongoing assurance that the licensing bases of nuclear power plants provide an acceptable level of safety. This process includes research, inspections, audits, investigations, evaluations of operating experience, and regulatory actions to resolve identified issues. The Commission's activities may result in changes to the license bases for nuclear power plants through the promulgation of new and revised regulations, acceptance of licensee commitments for the modification to nuclear power plant designs and procedures, and the issuance of orders or confirmatory action letters or confirmation that there is no need to change the license basis. In this way, the Commission's consideration of new information provides ongoing assurance that the licensing bases for all nuclear power plants provides an acceptable level of safety.

Final Rule, Nuclear Power Plant License Renewal, 56 Fed. Reg. 64,943, 64,947 (Dec. 13, 1991). Thus, license renewal does not focus on operational issues or on the adequacy of a plant's CLB (other than with respect to aging) because these issues "are effectively addressed and maintained by ongoing agency oversight, review, and enforcement."[4]

[4] *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-04-36, 60 N.R.C. 631, 638 (2004) (footnote omitted).

B. NEPA and the Environmental Rules

Under Section 102 of NEPA, 42 U.S.C. § 4332, federal agencies are required to take a "hard look" at the environmental impacts of major actions. *Massachusetts*, 522 F.3d at 127 (citing *Baltimore Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 101 (1983)). NRC regulations state that this includes license renewals, *see* 10 C.F.R. § 51.20(b)(2); 61 Fed. Reg. 66,537, 66,541 (Dec. 18, 1996), and therefore an environmental impact statement ("EIS") satisfying the requirements of NEPA Section 102(2)(C), 42 U.S.C. § 4332(2)(C), must be prepared in connection with an LRA. 10 C.F.R. § 51.20(b)(2).

To improve the regulatory efficiency of environmental reviews for license renewal, the Commission, drawing on the operating history of the existing fleet of more than one hundred commercial nuclear power plants, has prepared a Generic Environmental Impact Statement ("GEIS")[5] to evaluate and document certain well-understood environmental impacts.[6] Based on the GEIS, the Commission has adopted by rule findings on those environmental impacts (referred to as "Category 1" impacts) for which a generic determination can be made and included by

---

[5] U.S. NRC, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, NUREG-1437 (May 1996). Relevant excerpts of the GEIS are set forth in the Joint Appendix (*see* JA 363-500) and in the Addendum bound at the end of this Brief in accordance with First Circuit Rule 28.0(b)(1). *See* Addendum at 11-19.

[6] *Final Rule, Environmental Review for Renewal of Nuclear Power Plant Operating Licenses*, 61 Fed. Reg. 28,647 (June 5, 1996).

reference in individual LRA proceedings. *See Massachusetts*, 522 F.3d at 119. The Commission also identified by rule those environmental impacts (called "Category 2" impacts) that require plant-specific analysis during the LRA review. *Id.*

Under NRC rules, an LRA must include an environmental report ("ER") analyzing Category 2 issues. 10 C.F.R. § 51.53(c). The NRC uses this information along with other independent sources to prepare a plant-specific supplemental EIS ("SEIS") for each plant seeking license renewal. 10 C.F.R. §§ 51.71(d), 51.95(c). The plant-specific SEIS "addresses Category 2 issues and complements the GEIS, which covers Category 1 issues." *Massachusetts*, 522 F.3d at 120. "When the GEIS and SEIS are combined, they cover all issues that NEPA requires to be addressed in an EIS for a nuclear power plant license renewal proceeding." *Id*.

While the NRC has resolved such Category 1 issues by rule, normally precluding their litigation in individual licensing proceedings (*see* 10 C.F.R. § 2.335), the NRC has also established procedures by which generic determinations can be reopened based on significant new information. These procedures include petitioning the Commission for rulemaking to alter a generic finding if there is evidence that it is wrong for all nuclear generating plants, and seeking a waiver of the rule in an individual LRA proceeding if the evidence shows the rule would not

serve its purpose at a particular plant. *Massachusetts*, 522 F.3d at 120; *see also* 10 C.F.R. § 2.335(b).

One of the issues that the GEIS has generically addressed and resolved is the impact of onsite storage of spent nuclear fuel, which the NRC has determined to be small for all plants. 10 C.F.R. Part 51, App. B, Table B-1; *see also Massachusetts*, 522 F.3d at 121-22. This generic finding encompasses the environmental impacts that might result from potential accidents. *See* GEIS at xlviii, 6-72 to 6-76, 6-86, and 6-92 (JA378, Addendum at 11-15, 17, 19). In particular, the GEIS states:

> NRC has also found that, even under worst possible cause of a loss of spent fuel pool coolant (a severe seismic generated accident causing a catastrophic failure of the pool), the likelihood of a fuel-cladding fire is highly remote.

Id. at 6-72, 6-75 (Addendum at 11, 14). As the Commission has explained:

> The NRC has spent years studying in great detail the risks and consequences of potential spent fuel pool accidents, and the GEIS analysis is rooted in these earlier studies . . . . Because the GEIS analysis of onsite fuel storage encompasses the risk of accidents, [a contention seeking to raise spent fuel accidents in a license renewal proceeding] falls beyond the scope of individual license renewal proceedings.

Florida Power & Light Co. (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 N.R.C. 3, 21 (2001).

The GEIS also generically evaluates environmental impacts and risks due to postulated severe reactor accidents during the license renewal term. *See* GEIS at 5-12 – 5-116 (JA392-500). While the GEIS determines that the probability-

weighted consequences (i.e., risk) of severe accidents are small for all plants, it nevertheless determines, based on ongoing programs related to severe accident mitigation, that severe accident mitigation alternatives ("SAMAs") could be cost beneficial. *Id.* at 5-113-114 (JA493-494). NRC rules therefore require license renewal applicants to consider SAMAs using a rigorous, site-specific, quantitative cost-benefit analysis. 10 C.F.R. § 51.53(c)(3)(ii)(L). This involves evaluating the degree to which specific additional mitigation measures may further reduce the already low risk of a variety of potential severe accident sequences or scenarios, and determining whether this potential benefit for each such specific enhancement outweighs its cost.[7] SAMA analysis uses a probabilistic risk assessment,[8] based on plant-specific reactor and containment design features, operating procedures, and site considerations for evaluating vulnerabilities.[9] Various computer codes are used to calculate the probabilities and consequences of different potential accident scenarios that could lead to core damage, containment failure and release of

---

[7] *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-15, 75 N.R.C. __, slip op. at 2-3 (June 7, 2012), 2012 NRC LEXIS 15, at *3. This decision, relating to another party's contention, is part of the record (Item No. 1061 on the Certified Index) but is not in the Appendix.

[8] *Id.*

[9] Declaration of Joseph R. Lynch, Lori Ann Potts, and Dr. Kevin R. O'Kula in Support of Entergy's Answer Opposing Commonwealth of Massachusetts Contention Regarding New and Significant Information Revealed by the Fukushima Radiological Accident (June 26, 2011) ("Entergy Decl.") at ¶¶ 18, 25 (JA1990, 1993-1995).

radionuclides into the environment, and to estimate offsite consequences including both radiological effects and economic losses.[10]

C. The NRC Hearing Process

In accordance with AEA Section 189, the NRC provides an opportunity for a hearing at the outset of each licensing proceeding, 42 U.S.C. § 2239(a),[11] including with respect to NEPA issues. At that time, a petitioner must propose, based on the LRA and supporting materials, at least one "contention" that meets the Commission's contention admissibility standards. 10 C.F.R. § 2.309(a), (f). Those standards require that contentions be reasonably specific and supported by sufficient evidence to demonstrate the existence of a genuine, material dispute. 10 C.F.R. § 2.309(f)(1). NRC rules also allow later submission of new or amended contentions if there is new information that is materially different from that previously available, including new information in a SEIS.[12]

---

[10] CLI-12-15, 2012 NRC LEXIS 15, at *3-*5.

[11] Although NEPA requires that an agency fully consider environmental issues, NEPA itself does not provide for hearings on environmental matters. *Union of Concerned Scientists v. NRC*, 920 F.2d 50, 56 (D.C. Cir. 1990) ("*UCS II*"); *see also San Luis Obispo Mothers for Peace v. NRC*, 635 F.3d 1109, 1115 (9th Cir. 2011). Nonetheless, the NRC has extended the opportunity for hearing to NEPA matters.

[12] During the proceedings below, the rule permitting new or amended contentions was set forth at 10 C.F.R. § 2.309(f)(2), with additional standards in 10 C.F.R. § 2.309(c) applying if such a filing were untimely. These standards were subsequently amended and simplified. *See Amendments to Adjudicatory Process*

Once the hearing record has closed, a higher procedural standard must be met to reopen the record to introduce new or amended contentions. A motion to reopen a closed record must satisfy the following criteria:

> (1) The motion must be timely. However, an exceptionally grave issue may be considered in the discretion of the presiding officer even if untimely presented;
>
> (2) The motion must address a significant safety or environmental issue; and
>
> (3) The motion must demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially.

10 C.F.R. § 2.326(a)(1)-(3).

II. THE PILGRIM LICENSE RENEWAL PROCEEDING

A. The Proceedings Prior to Events at Fukushima

Entergy submitted the Pilgrim LRA in January 2006,[13] providing the required ER analyzing Category 2 issues including SAMAs.[14] The accident scenarios analyzed in the SAMA analysis considered a range of potential accident risks and mitigation measures, including hypothetical events similar to those that later occurred at Fukushima, such as complete loss of offsite and emergency AC electrical power (a condition known as station blackout), various postulated

---

Rules and Related Requirements, 77 Fed. Reg. 46,562, 46,571, 46,591 (Aug. 3, 2012).

[13] *See* 71 Fed. Reg. 15,222 (Mar. 27, 2006).

[14] JA1235-1386. Additional information supplementing the SAMA analysis was provided during the course of the proceeding. *See* JA955-1025, 1049-1081.

operator failures (including the failure to vent reactor containment to reduce pressure inside the containment during an accident), and the possibility that hydrogen gas could be generated during a core-damage accident and could result in an explosion. *See* Pilgrim ER, Tables E.1-3, E.1-8, E.2-1 (JA1267-89, JA1299-1305, JA1349-1378).[15]

On May 26, 2006, the Commonwealth petitioned to intervene in the proceeding and requested a hearing on a single contention: the purported need for the ER to address the environmental impacts of spent fuel pool accidents, including the possibility that a loss of water in the spent fuel pool could result in a fire. JA625, JA637, 724. Approximately three months later, based on the same claims, the Commonwealth submitted a petition for rulemaking to the Commission, requesting that the Commission revoke its Category 1 determination that the environmental impacts of spent fuel storage are small. JA1027.

The ASLB denied the Commonwealth's hearing request as an impermissible challenge to the Category 1 determination in an LRA proceeding, explaining that such a challenge instead must be brought as a petition for rulemaking. *Massachusetts,* 522 F.3d at 125. The Commission affirmed the ASLB's ruling, *id.*,

[15] *See also* Entergy Decl. ¶¶ 79-88 (JA2025-2030); Affidavit of Dr. S. Tina Ghosh in Support of NRC Staff's Response to Massachusetts' Motion to Admit New Contention and Reopen to Admit New and Significant Information (June 27, 2011) ("NRC Staff Aff.") at ¶ 6 (JA1904).

and this Court upheld the Commission's ruling. *Massachusetts,* 522 F.3d at 118, 129-30.

The NRC later denied the Commonwealth's rulemaking petition,[16] finding that the studies on which the Commonwealth relied did not constitute new and significant information, and that the NRC findings related to the storage of spent fuel set forth in the GEIS and NRC rules remain valid. 73 Fed. Reg. at 46,212 (JA1207). The NRC first explained:

> "The [spent fuel pools] at all nuclear plants in the United States are massive, extremely-robust structures designed to safely contain the spent fuel discharged from a nuclear reactor under a variety of normal, off-normal, and hypothetical accident conditions (e.g., loss of electrical power, floods, earthquakes, or tornadoes). [Spent fuel pools] are made of thick, reinforced, concrete walls and floors lined with welded, stainless-steel plates to form a leak-tight barrier. Racks fitted in the [spent fuel pools] store the fuel assemblies in a controlled configuration (i.e., so that the fuel is both sub-critical and in a coolable geometry). Redundant monitoring, cooling, and makeup-water systems are provided. The spent fuel assemblies are positioned in racks at the bottom of the pool, and are typically covered by at least 25 feet of water. [Spent fuel pools] are essentially passive systems."

Id. at 46,206 (JA1201). The Commission then explained that:

- A National Laboratory study showed that "there is a significant amount of time between the spent fuel becoming uncovered and the possible onset of

[16] *The Attorney General of Commonwealth of Massachusetts; the Attorney General of California; Denial of Petitions for Rulemaking*, 73 Fed. Reg. 46,204, 46,209 (Aug. 8, 2008) (JA1199).

such a zirconium fire, thereby providing a substantial opportunity for both operator and system event mitigation." *Id.* at 46,208 (JA1203).

- Additional mitigation measures required after September 11, 2001 and subsequent studies confirmed the mitigation measures' effectiveness to maintain spent fuel pool cooling even if a spent fuel pool is entirely drained. *Id.* Thus, the risk of a fire is "very low." *Id.* at 46,208-09 (JA1203-04).
- The probability of a spent fuel pool fire resulting from a sequence of events similar to those alleged by the Commonwealth had been conservatively estimated in the range of two or less occurrences in 10 million years of reactor operation, falling within the category of remote and speculative matters. *Id.* at 46,210 (JA1205). In contrast, the Commonwealth's claims were based "an unsubstantiated assumption" that 50 percent of all severe accidents will also lead to a consequential spent fuel pool fire. *Id.* at 46,209 (JA1204).

The Second Circuit affirmed the Commission's denial of the Commonwealth's petition for rulemaking, holding that the NRC had given due consideration to the relevant studies, and that the Commonwealth "simply disagree[d] with the NRC's

interpretation of those studies." *New York v. NRC*, 589 F.3d 551, 553-54 (2d Cir. 2009).[17]

In the meantime, following the issuance of the NRC's final SEIS[18] for Pilgrim and completion of the NRC Staff's safety review, the ASLB completed its evidentiary hearings, closing the hearing record in June 2008 and issued its initial decision in October 2008.[19] However, following a lengthy administrative appeal, the Commission in March 2010 partially reversed an earlier ASLB decision and remanded one limited issue (relating to a model used in SAMA analysis) to the ASLB for further hearing.[20]

---

[17] The Commonwealth asserts that the Second Circuit did not apply the test of reasonableness generally applied to NEPA decisions. Petr. Br. at 13. The Court's standard of review assured that the Commission's decision was "reasoned," considering the relevant factors, 589 F.3d at 554, 555, and the Court found that "the relevant studies cited by the NRC in this case constitute a sufficient 'substantial basis in fact' for its conclusion that the overall risk is low." 589 F.3dat 555. "The NRC relies on numerous studies detailing the effectiveness of its required mitigation measures; these studies constitute substantial evidence." *Id.* The Commission's substantive, reasoned, and amply supported determinations clearly satisfied NEPA's "hard look" requirement.

[18] NUREG-1437, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supplement 29 Regarding Pilgrim Nuclear Power Station (July 2007). Relevant excerpts are included at JA1083-1137. The FESIS includes the NRC's evaluation of SAMAs. JA1093-1137.

[19] *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), LBP-08-22, 68 N.R.C. 590, 596-97 & n.26 (2008).

[20] *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 N.R.C. 287 (2010).

B. The Fukushima Event and the NRC's Response

On March 11, 2011, shortly after the ASLB had received evidence on the remanded issue, but before it had issued a decision, the Great East Japan Earthquake occurred in a subduction zone off the east coast of Honshu, Japan, resulting in a magnitude 9.0 earthquake.[21] The resulting tsunami was approximately 14 meters high at the site of the Fukushima nuclear power plant. Task Force Report at 7 (JA2449). The earthquake and tsunami caused a station blackout at five of the six Fukushima units. *Id.* at 9 (JA2451). Without AC electrical power, cooling of the shutdown reactor cores in Fukushima Units 1, 2, and 3 could not be maintained, resulting in significant damage to the reactor cores of these three units, as well as explosions caused by hydrogen buildup in the secondary containment structures. *Id.* However, despite the complete loss of power and cooling capability for an extended period of time, there was no damage to the spent fuel stored in any of the Fukushima spent fuel pools. Entergy Decl. at ¶ 56 (JA2014-2015) (citing a report from the International Atomic Energy Agency

---

[21] U.S. NRC, Recommendations for Enhancing Reactor Safety in the 21st Century, the Near-Term Task Force Review of Insights from the Fukushima-Daiichi Accident (July 12, 2011) ("Task Force Report") at 7 (JA2449). A subduction zone is a place "where two lithospheric plates come together, one riding over the other." http://earthquake.usgs.gov/learn/glossary/?term=subduction%20zone. "[T]he only major subduction zones in the Atlantic Ocean are along the Caribbean Sea . . . ." http://earthquake.usgs.gov/learn/topics/canit.php

that verified water levels in the spent fuel pools and determined that the spent fuel stored in the Fukushima spent fuel pools was "intact" and "near normal").

In response to these events, the NRC established the NRC Near Term Task Force ("Task Force") "to conduct a systematic and methodical review of [NRC] processes and regulations to determine whether the agency should make additional improvements to its regulatory system and to make recommendations to the Commission for its policy direction." Task Force Report at vii (JA2439). During this process, the Task Force received extensive input from internal and external stakeholders and the public. *Id.* at 2 (JA2444).

On July 12, 2011, the Task Force issued its report, making 12 recommendations "intended to clarify and strengthen the regulatory framework" for protecting against such accidents. Task Force Report at viii-ix (JA2440-2441). The Task Force expressly recognized that its recommendations proposed "redefining the level of protection that is regarded as adequate" under the AEA. *Id.* at viii (JA2440); *see also id.* at 3-4 (JA2440, JA2445-2446).[22] The Task Force also concluded that a confluence of events such as that which occurred at Fukushima is unlikely to occur in the United States, and continued reactor

[22] The Task Force noted that "[a]dequate protection has been, and should continue to be, an evolving safety standard supported by new scientific information, technologies, methods and operating experience." Task Force Report at 18 (JA2460).

operation and continued NRC licensing activities do not pose an imminent risk to public health and safety. Task Force Report at vii (JA2439).

On March 12, 2012, the Commission issued three orders to implement certain of the Fukushima Task Force recommendations:

1. An order for all reactors requiring "provisions for mitigation strategies for beyond-design-basis external events" (JA3125);
2. An order to all boiling water reactor licensees with Mark I and Mark II containments (including Pilgrim) requiring the implementation of requirements for reliable hardened containment vents at their facilities (JA3203); and
3. An order to all power reactors requiring provisions for reliable spent fuel pool instrumentations and indications (JA3163). [23]

Each of these orders stated that the required actions were being imposed to ensure adequate protection of the public health and safety (*e.g.*, JA3131-3133), and each

[23] This third order only requires better instrumentation to monitor the spent fuel pool's water level because the NRC found that, during the Fukushima accident, "responders were without reliable instrumentation to determine water level in the spent fuel pool," resulting in numerous attempts to refill them, unnecessarily, thus "*divert[ing] resources and attention from other efforts*." (JA3163) (emphasis added). This order does not require any measure to mitigate spent fuel pool risk. Indeed, the order notes that the water level in the spent fuel pool for Unit 4 – the pool with the highest heat load and thus of greatest concern – never dropped below the top of the fuel and no significant fuel damage occurred. (JA3168).

of these orders provided an opportunity for any person adversely affected by the orders to request a public hearing (*e.g.*, JA3137).[24]

C. Further Proceedings on the Pilgrim LRA

On June 2, 2011, one month before the Task Force Report was issued and nine months before the Commission orders were issued, the Commonwealth moved to reopen the Pilgrim record[25] for a hearing on a new contention alleging that the environmental impact analysis and SAMA analysis in the Pilgrim SEIS were inadequate because they did not address purportedly new and significant information revealed by the Fukushima accident. JA 1667, JA1759. Specifically, the Commonwealth's contention alleged that (1) information from Fukushima shows that the risk of core melt and spent fuel pool accidents are significantly more likely than estimated in the SEIS and the Pilgrim SAMA analysis (JA1763);

---

[24] The Commonwealth's Statement of Case discusses a recent D.C. Circuit decision, issued after Pilgrim's license was renewed, vacating a 2010 update to the NRC's Waste Confidence Decision and 2010 amendment to NRC's rule on temporary onsite storage of spent nuclear fuel after a nuclear plant permanently ceases operation. Petr. Br. at 27, citing *New York v. NRC*, 681 F.3d 471 (D.C. Cir 2012). The NRC's 2010 update to its Waste Confidence Decision and 2010 amendment to its temporary storage rule were not challenged by the Commonwealth. Further, the issue in that case was the adequacy of a particular Environmental Assessment ("EA") that the Commission had prepared supporting its 2010 rule change. The adequacy of this EA was not raised in the Pilgrim proceeding. Consequently, the issues raised in *New York v. NRC* are not properly before this Court. *E.g., Town of Winthrop v. FAA*, 535 F.3d 1, 14 (1st Cir. 2008) ("that argument was waived because it was not raised before the agency").

[25] The Commission's remand (*see supra* note 20) had only reopened the record with respect to the remanded issue. CLI-12-06 at 17 (JA17).

and (2) the Pilgrim SAMA analysis was "deficient" because it ignored or rejected "mitigative measures that may now prove to be cost-effective" in light of this information (JA1763-1764). The Commonwealth conceded, however, "that affirmative evidence of a pool fire [at Fukushima] has not emerged." JA1760.

Because it sought to challenge spent fuel pool accident impacts, the Commonwealth included a petition for waiver of the NRC's generic determination that such impacts are small or, in the alternative (and for a second time), for rulemaking to rescind that determination. JA1727. In addition, the Commonwealth filed with the Commission a conditional motion to suspend the Pilgrim proceeding pending resolution of its alternative rulemaking petition. JA1769.

Both the NRC Staff and Entergy opposed the Commonwealth's motion to reopen the record and waiver petition. JA1877; JA1859, JA1907. The NRC Staff's and Entergy's oppositions were each supported by sworn expert declarations addressing the Commonwealth's claims.[26]

Following release of the Task Force Report, the Commonwealth moved to supplement the bases of its proposed contention based on the Task Force's recommendations. JA2535. Both the NRC Staff and Entergy responded, explaining why the Task Force Report provided no basis for supplementation.

[26] NRC Staff Aff., *supra* note 15 (JA1901); Entergy Decl., *supra* note 9 (JA1981).

JA2637, JA2609. As the NRC Staff explained, "the [Task Force] recommendations that the NRC take additional steps to ensure adequate protection do not have any bearing on whether the agency has fully considered environmental impacts in this proceeding." JA2631.

On November 28, 2011, the ASLB denied the Commonwealth's motion to reopen the record and waiver petition. LBP-11-35 (JA63). The ASLB found that the Commonwealth's contention did not meet either the reopening standards or the admissibility standards (LBP-11-35 at 70 (JA134)), and the Commission affirmed. CLI-12-06 at 13 (JA13). In so doing and consistent with Commission practice, the ASLB equated the standard for when an environmental issue is considered significant for purposes of reopening a closed record with the standard for when an EIS is required to be supplemented: that "there must be new and significant information that will 'paint a seriously different picture of the environmental landscape.'" LBP-11-35 at 56-57 & n. 218 (JA120-21). The ASLB then carefully considered each of the Commonwealth's claims and found that none raised significant new information that might affect the Pilgrim SAMA analysis or require supplementation of the Pilgrim SEIS.

The Commission in turn carefully reviewed and affirmed the ASLB's conclusions. The Commission did refer the Commonwealth's alternative rulemaking petition concerning spent fuel pool accident impacts to the NRC Staff

for consideration. CLI-12-06 at 16, 27 (JA16, 27). However, the Commission denied the Commonwealth's request that the Pilgrim LRA proceeding be suspended pending resolution of the rulemaking petition, finding that the request did not meet the Commission's standards for such suspension (*id.* at 28-31 (JA28-31)) and that Fukushima had not revealed sufficient information to make a significant difference in the Pilgrim environmental review. *Id.* at 32 (JA32).

On May 25, 2012, the Commission authorized the NRC Staff to issue the renewed operating license for Pilgrim. JA39.

SUMMARY OF ARGUMENT

The Commission has fulfilled its NEPA obligations. NEPA does not require a supplemental EIS whenever new information surfaces, but only where the information is significant enough to substantially alter the environmental landscape. The NRC examined the Commonwealth's new information and concluded that it did not rise to the requisite level. The Commonwealth's information did not show any significantly higher risk of environmental impacts at Pilgrim than were previously considered. The Commonwealth's claim that the NRC did not take the requisite "hard look" at the information is belied by the NRC's extensive discussion and analysis of the information in the decisions below. And while the Commonwealth further argues that the NRC's resolution of the issue was arbitrary and capricious, the NRC's well-reasoned decision on a highly

technical matter is entitled to substantial deference, and the Commonwealth never explains why the NRC's rejection of its arguments was clearly erroneous.

The Commonwealth erroneously asserts that the NRC must supplement the Pilgrim environmental analyses because the NRC's response to Fukushima represents a concession that events there revealed new and significant information. The Commonwealth conflates the NRC's responsibilities under the AEA and its obligations under NEPA. The Task Force recommendations and the Commission Orders implementing certain of those recommendations were undertaken pursuant to the NRC's authority under the AEA to define what constitutes adequate protection of public health and safety. Neither the Task Force recommendations nor the Commission Orders indicated any increase in the probabilities or consequences of severe reactor accidents, and thus did not present any different picture, let alone a seriously different picture, of the environmental landscape with respect to severe reactor accidents presented in the NEPA documents supporting renewal of the Pilgrim license.

The Commission's decision was also fully consistent with statutory hearing rights under the AEA. While the AEA provides hearing rights, those rights are properly conditioned on meeting the NRC's procedural rules, including those governing reopening. If the NRC were obligated to reopen hearings based on a mere claim that significant new information exists, its administrative process

would never be consummated. The Commission would be required to hold an adjudicatory hearing, or to suspend its licensing proceedings, *every* time someone alleged the existence of new and significant information. That is not the law.

Finally, the Commonwealth's brief does not seek review of the Commission's denial of its suspension request, so any challenge to that ruling has been waived. Although the Commonwealth makes no argument in this regard, it bears noting that the denial was anything but arbitrary and capricious. The Commission's determination not to grant the Commonwealth's suspension request is rational because Fukushima does not call into question the Commission's current understanding of the likelihood of a spent fuel pool fire. As the Commonwealth concedes, there was no spent fuel pool fire at Fukushima.

ARGUMENT

I. THE COMMISSION FULFILLED ITS OBLIGATIONS UNDER NEPA

A. The Duty To Supplement Under NEPA

In this case, there is no dispute that the NRC has taken a hard look at the environmental impacts of Pilgrim license renewal, including consideration of accident risk and mitigation measures. Together, the GEIS and the SEIS have evaluated severe accident risk, spent fuel pool accident risk, and SAMAs. GEIS at xlviii, 5-1 to 5-116, 6-72 to 6-76, 6-86, and 6-92 (JA378, 381-500, Addendum at 11-15, 17, 19); SEIS at 5-1 to 5-10, Appendix G (JA1089-1099, JA1101-1137).

These analyses used "fully explained assumptions and established risk assessment models," contained "detailed quantitative analysis of the economic impacts that would follow" an accident, "used conservative methodology," and, "[m]ost importantly . . . specifically addressed the uncertainties in the analysis" – characteristics that have been ruled by Federal courts as meeting the hard look requirement. *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719, 746 (3d Cir. 1989). The Commonwealth presents absolutely no argument in its brief that, separate and apart from the alleged failure to consider "new information" learned from Fukushima in the context of the LRA, the NRC's NEPA analysis was in any way deficient.

The only question raised by the Commonwealth in this case is whether the Commission fulfilled its duty under NEPA to consider the Commonwealth's claims based on "new information" regarding the Fukushima accident. Under NEPA,

> an agency need not supplement an EIS every time new information comes to light after the EIS is finalized. To require otherwise would render agency decision-making intractable, always awaiting updated information only to find the new information outdated by the time a decision is made.

Marsh v. Oregon Nat. Res. Council, 490 U.S. 360, 373 (1989). Rather, an agency need only prepare a supplemental EIS if there are "significant new circumstances

or information." *Town of Winthrop*, 535 F.3d at 7.[27] To be significant, new information must "paint[] a dramatically different picture of impacts compared to the description of impacts in the EIS." *Id.; see also Wisconsin v. Weinberger*, 745 F.2d 412, 418 (7th Cir. 1984) (the need for supplementation depends on whether new information "provides a *seriously* different picture of the environmental landscape" from that presented in the "already existing, in-depth review of the likely environmental consequences of the proposed action") (emphasis in original); *S. Utah Wilderness Alliance v. Norton*, 301 F.3d 1217, 1238 (10th Cir. 2002) ("the issue is whether the subsequent information raises new concerns of sufficient gravity such that another, formal in-depth look at the environmental consequences of the proposed action is necessary") (internal quotation marks and citation omitted), *rev'd on other grounds sub nom. Norton v. S. Utah Wilderness Alliance*, 542 U.S. 55 (2004).

B. The Commission Took a Hard Look at the Commonwealth's Information

When purportedly new information of significance is brought to an agency's attention, the agency must take a "hard look" at the information to determine whether the significance standard is met. *S. Utah Wilderness Alliance*, 301 F.3d at 1238. "In applying the hard look test, courts may consider whether the agency

[27] This standard is reflected in the NRC's regulations governing supplementation, which mirrors the standard in the Council of Environmental Quality ("CEQ") regulations. *Compare* 10 C.F.R. § 51.92(a)(2) *with* 40 C.F.R. § 1502.9(c)(1).

obtains opinions from its own experts, obtains opinions from experts outside the agency, gives careful scientific scrutiny, responds to all legitimate concerns that are raised, or otherwise provides a reasoned explanation for the new circumstance's lack of significance." *Id.* (internal citation omitted).

The Commonwealth asserts that the NRC "reject[ed] the Commonwealth's request to take a hard look" at its new information and "refused to complete its hard look review" of lessons from Fukushima "before granting a twenty-year license extension for the Pilgrim plant." Petr. Br. at 33-35. But those assertions are impossible to square with the record. The ASLB that initially considered the Commonwealth's "new information" issued a 77-page decision discussing and analyzing the issues the Commonwealth had raised. The lengthy opinion touched on all of the indicia of a "hard look" identified by the courts. The ASLB first described the "new information" brought forth by the Commonwealth, including that presented by the Commonwealth's expert, Dr. Thompson. LBP-11-35 at 26-27 (JA90-91). The ASLB then considered not only Dr. Thompson's report, but also expert declarations submitted by the NRC staff and by Entergy refuting Dr. Thompson's methodology. *See, e.g., id.* at 33-35 (JA97-99). The opinion discusses in great detail the technical problems with Dr. Thompson's report that the NRC staff and the experts identified. *Id.* at 30-43 (JA94-107).

Finally, having laid out all of the evidence and argument on both sides, the ASLB set forth its reasoning over nearly twenty pages. As a threshold matter, the ASLB considered whether the information on which the Commonwealth relied was even relevant to the Pilgrim environmental review, and found that the Commonwealth failed to show the relevance of Fukushima-derived information to Pilgrim:

> [A]s the IAEA Mission Report and Japanese Government Report . . . make clear, the root cause of the accident at Fukushima was the beyond-design-basis Tsunami which resulted in beyond-design-basis duration of station blackout. The Commonwealth indicates no linkage whatsoever between these events and the potential for a beyond-design-basis duration of station blackout at Pilgrim. Therefore the Commonwealth proffers no new information relevant to the Pilgrim plant regarding station blackout or mitigation measures implemented at Pilgrim to prevent or ameliorate the effects of station blackout.

LBP-11-35 at 50 (JA114).

The ASLB then analyzed and rejected each of the Commonwealth's arguments in turn. For example, the Commonwealth contended that the "direct experience" of Fukushima and other nuclear accidents showed that the risk of core melt and spent fuel pool accidents is significantly more likely than was assumed in the SEIS and SAMA analysis (JA1764). The ASLB considered and rejected that "direct experience" argument, finding it flawed (LBP-11-35 at 50-51 & n.203 (JA114-115)), not comparable to the rigorous plant specific analysis that had been

performed for Pilgrim (*id.* at 53 n.207 (JA117)), and indeed, an "apples and bricks" comparison (*id.*). As the ASLB explained, *inter alia*:

- "[T]he Commonwealth's claim has a fatal flaw; it fails completely to indicate how [Dr. Thompson's] 'direct-experience' [approach] leads to any data affecting the [core damages frequencies] for the Pilgrim Plant. As Entergy's arguments make consummately clear, the Commonwealth makes no linkage between the macroscopic observation of the overall frequency of material offsite radiological release for nuclear power plants worldwide and the event sequence analysis employed in the Pilgrim SAMA analysis. For this reason, the Commonwealth's contention fails to indicate any new information respecting the Pilgrim Plant." *Id.* at 51-52 (footnote omitted) (JA115-16).

- "[T]he Commonwealth's approach fails to address linkage between core damage and containment failure which is necessary to result in release of radiation to locations offsite, and to discuss how the initiating events at Fukushima (earthquake followed by tsunami, resulting in station blackout) can be expected to occur at Pilgrim, or how those events, if they did occur at Pilgrim, might result in offsite radiation release at Pilgrim." *Id.* at 51 n.203 (JA115).

- "In our view, [Dr. Thompson's approach] is an attempt to compare apples and bricks; the overall macroscopic observation that there have been a certain numerical value of occurrences of severe accidents for all operating reactors worldwide is simply not comparable to the rigorous event chain analysis whereby probabilities are determined for each such event in the chain and then a wide range of possible accident sequences are analyzed to develop an overall probability of occurrence of severe accidents." *Id.* at 53 n.207 (JA117).[28]

[28] As the NRC Staff's experts had explained in responding to the Commonwealth's claims, the "Pilgrim specific [probabilistic risk assessment] is expected to yield a much more accurate estimate of risk . . . than a historical rate calculation using an extremely limited set of data points that aggregates all different plant designs, operational practices, and site conditions around the world." JA1903. Further, the Commonwealth's own expert conceded that his data set "does not provide a

The Commission agreed, finding that, although the Commonwealth had suggested a different methodology for performing the SAMA analysis, it failed to show how the probabilistic risk assessment currently used is inadequate to satisfy NEPA's "hard look" requirement, or is otherwise unreasonable or insufficient, and failed to challenge the Pilgrim site-specific spectrum of events making up the probabilistic risk assessment core damage frequency used in the SEIS. CLI-12-06 at 21 (JA21).

The Commonwealth also argued that the SAMA analysis ignored or rejected mitigation measures that *might* prove to be cost effective (JA1764-1766) in light of Fukushima. The ASLB and Commission, however, found that the Commonwealth's expert had provided *no information* indicating that any additional mitigation measure *would* be cost effective, that the issues that the Commonwealth raised were already addressed in the SAMA analysis (such as possible failure of operators to take actions, hydrogen explosions and the cost-benefit of filtered venting), and that the Commonwealth had not shown how any of this information was affected. LPB-11-35 at 58-61 (JA122-125); CLI-12-06 at 24-27 (JA24-27). As the ASLB explained:

> [Dr. Thompson's beliefs] fail to offer any specific information that is applicable to, or connects the Fukushima accidents to, the Pilgrim plant, and merely point to reasons why he *believes* consideration of information from the Fukushima accident would lead to revisions to the Pilgrim SAMA analysis that, in turn, could lead to other SAMAs

---

statistical basis for a high-confidence estimate of [core damage frequency]." JA1694.

> becoming cost effect. Dr. Thompson's statements respecting the impact of the information from Fukushima are bare and unsupported, and therefore speculative . . . .

LPB-11-35 at 54 (JA118) (emphasis in original).[29]

In short, the ASLB's analysis, affirmed by the Commission, was a textbook example of the "hard look" required by NEPA and by precedent. The agency looked at the relevant evidence, including competing expert reports and the analysis of its own specialists. It then explained what evidence it did and did not credit and why, and tied this review to its ultimate conclusions. Nothing more is required. Unsurprisingly, the Commonwealth nowhere in its brief points to any information that the NRC should have considered in the context of the LRA but did not. On this record the Commonwealth's "hard look" argument must be rejected.

Similarly, contrary to the Commonwealth's assertion (Petr. Br. at 28-29, 38, 41), the Commission did not reject the Commonwealth's claims based on inchoate information. This assertion ignores the detailed rulings by the ASLB and the Commission that, far from painting a seriously different picture of environmental impacts, the Commonwealth's claims "simply implicate[d] no specific environmental impact changes" whatsoever. LBP-11-35 at 57 (JA121). The

[29] Again, these determinations were based on expert analysis in the record. *See* Entergy Decl. at ¶¶ 81, 85 (JA2026, JA2028); *id. at* ¶¶ 85-88 (JA2028-29); *id.* at ¶¶ 92-99 (JA2031-32); s*ee also* NRC Staff Decl. at ¶ 6 (JA1904).

Commission's only reference to inchoate information related to its denial of the Commonwealth's request to suspend the Pilgrim proceeding while its alternate rulemaking petition on spent fuel pool risk was being considered. *See* CLI-12-06 at 32 (JA32). Even here, the Commission found insufficient information to make a difference in the Pilgrim environmental review. *Id.* Because the Fukushima accident resulted in no spent fuel pool fires (thus providing no support for the Commonwealth's expert's claims that there was a substantial conditional probability that reactor accidents would cause spent fuel fires), and in fact did not even result in any apparent damage to spent fuel, this conclusion is amply supported by the record.[30] Indeed, the Commonwealth conceded that *no* "affirmative evidence" of a spent fuel pool fire has been revealed by the Fukushima accident. JA1760.

C. The NRC's Determination That Further Environmental Review Was Not Required Was Not Arbitrary And Capricious

Because the NRC took the necessary "hard look" at the Commonwealth's "new information," the only question becomes whether its decision not to supplement the SEIS in light of that information was arbitrary and capricious. *Marsh*, 490 U.S. at 378. An agency's decision is not arbitrary and capricious if it

[30] JA3168 (NRC Order stating that the water level in the spent fuel pool for Fukushima Unit 4 – the pool with the highest heat load and thus of greatest concern – never dropped below the top of the fuel and no significant fuel damage occurred); Entergy Decl. at ¶ 56 (JA2014).

has considered the relevant factors and the decision is not a "clear error of judgment." *Id*.

An agency "need only articulate a rational connection between the facts it has found and its conclusions" why no supplemental environmental analysis is required. *Friends of the Clearwater v. Dombeck*, 222 F.3d 552, 561 (9th Cir. 2000). Where, as here, the decision whether "new information" is significant enough to require an SEIS "requires a high level of technical expertise," reviewing courts "must defer to the informed discretion of the responsible federal agencies." *Marsh*, 490 U.S. at 377 (internal quotation marks and citation omitted); *see also Town of Winthop*, 535 F.3d at 8 ("The agency's resolution of this question is thus one to which a reviewing court owes considerable deference"). Put another way, "[w]hen specialists express conflicting views, an agency must have discretion to rely on the reasonable opinions of its own qualified experts . . . ." *Marsh*, 490 U.S. at 378.[31]

As set forth above, the NRC's analysis in this case concerns precisely the type of highly-technical issues, about which there are competing opinions of expert witnesses, on which courts grant substantial deference to NRC decisionmaking. Remarkably, nowhere in its brief does the Commonwealth even attempt to explain

[31] *See also New York*, 589 F.3d at 555 ("Courts should be particularly reluctant to second-guess agency choices involving scientific disputes that are in the agency's province of expertise") (quotation omitted).

what—if anything—the NRC got wrong in its analysis, let alone what errors rise to the level of a "clear error of judgment." Having failed to address the NRC's reasoning, the Commonwealth cannot obtain a ruling from this Court that the NRC acted arbitrarily and capriciously.

Rather than disputing (or even acknowledging) the Commission's technical evaluation of its claims, the Commonwealth's principal argument on appeal appears to be that the Commission has confirmed the significance of its Task Force's recommendations by relying on them to issue orders, wherefore it necessarily must also supplement the EIS. Petr. Br. at 33, 40-42. This argument confuses the regulatory significance of the new information with the question whether, for purposes of NEPA, the new information paints a dramatically different picture of environmental impacts compared to the description in the GEIS and SEIS. *See supra* at pp. 26-27. Nothing in the Task Force Report or Commission orders indicates that the environmental impacts from Pilgrim's continued operation (and, specifically, the probability or consequences of an accident at Pilgrim) are expected to be greater than those that previously were estimated in the GEIS or the Pilgrim-specific SEIS. To the contrary, the Task Force Report indicates that the triple core melt accident at Fukushima resulted in "no fatalities and the expectation of no significant radiological health effects" (Task Force Report at iii (JA2435)), while the Pilgrim SAMA analysis postulates a

radioactive release *greater than the radioactive releases from all three unit core melts at Fukushima combined*. Entergy Decl. at ¶¶ 89-91 (JA2030-2031).

The NRC Task Force, moreover, found that a Fukushima-type accident is unlikely to occur in the U.S., and continued operation of U.S. plants poses no imminent risk to public health and safety. Task Force Report at vii (JA2439). The ASLB too found "no linkage whatsoever between [the beyond design basis earthquake that caused a beyond design basis Tsunami which resulted in a beyond design basis duration of station blackout at Fukushima] and the potential for a beyond design basis duration of station blackout at Pilgrim." LBP-11-35 at 50 (JA114). As Entergy demonstrated and the Commonwealth did not dispute, no similar risk of a subduction earthquake followed by a tsunami, as occurred at Fukushima, exists for Pilgrim. There are no subduction zones in the Atlantic Ocean, except where it borders the Caribbean Sea.[32] In addressing similar claims raised by another party in this proceeding, the Commission explained:

> [T]he extended duration of the loss of offsite power at Fukushima cannot be divorced from the vast and devastating effects of the major earthquake and tsunami, *which occurred in a region susceptible to severe seismic activity*. . . . In terms of the probabilities and probable

[32] Entergy Decl. at ¶ 35 (JA2000-2001) (citing sources prepared by the United States Geological Survey); *see also Ameren Missouri* (Callaway Plant, Unit 2), *et al.*, CLI-11-05, 74 N.R.C. __ (slip op.) at 27 (JA2697) ("no information showing that U.S. plants (particularly those on the east coast) are vulnerable to the type of accident scenarios that occurred at Fukushima"); http://earthquake.usgs.gov/learn/topics/canit.php.

> consequences of severe accidents, . . . generalized assertions about the Fukushima accident do not raise a genuine material dispute with the site-specific Pilgrim SAMA analysis."

CLI-12-15, 2012 NRC LEXIS 15, at *28 (emphasis added).[33]

The Task Force Report and Commission Orders do not provide any information that might indicate that additional mitigation measures are cost beneficial, as relevant to the Pilgrim SAMA analysis. To the contrary, the Commission has explained that "[w]e issued this order [requiring licensees to increase the capability of nuclear power plants to mitigate beyond design basis external events] without conducting plant-specific probabilistic or quantitative cost-benefit analysis, but instead, 'consistent with the overall defense-in-depth philosophy,' to provide even 'greater assurance that the challenges posed by beyond-design-basis external events to power reactors do not pose an undue risk to the public health and safety ….'" CLI-12-15, 2012 NRC LEXIS 15, at *7. Further, the measures that the Commission has ordered cannot possibly increase the probability or consequences of accidents, or make additional mitigation measures cost beneficial,[34] because the measures ordered by the Commission are

[33] This explanation is part of the record and was provided before issuance of the renewed license, and therefore may appropriately be considered as supporting the determination that supplementation was unnecessary. *Highway J Citizens Group v. Mineta*, 349 F.3d 938, 958 (7th Cir. 2003), *cert. denied*, 541 U.S. 974 (2004).

[34] "[W]hether a SAMA alternative is worthy of more detailed analysis in an Environmental Report or SEIS *hinges* upon whether it may be cost-beneficial to implement ." *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2;

safety enhancements that reduce risk.[35] Thus, nothing in the Task Force Report or Commission Orders paints a dramatically different picture of accident impacts from that presented in the GEIS and SEIS.[36]

In sum, the Commonwealth's argument improperly conflates safety requirements that the NRC has imposed under its AEA authority to ensure adequate protection of the public health and safety with the NRC's NEPA analysis of the impacts of severe reactor accidents and its analysis of SAMA. NEPA requires that the NRC assess environmental impacts of proposed major actions and discuss mitigation measures in sufficient detail to ensure that environmental consequences have been fairly evaluated. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351-52 (1989). NEPA does not require the NRC to make substantive determinations regarding what should be *required* under the AEA. *See id.* at 350-51, 353. NEPA does not require the NRC to define what constitutes

---

Catawba Nuclear Station, Units 1 and 2), CLI-02-17, 56 N.R.C. 1, 11-12 (2002) (emphasis added).

[35] If the Commonwealth believed that any of the measures required by the Commission Orders would increase either the probability or consequences on an accident at Pilgrim, it could have sought a hearing opposing those orders, as those orders provided. *See, e.g.*, JA3137. The Commonwealth did not.

[36] The Commonwealth criticizes the Commission for not discussing the Task Force recommendations in its denial of the Commonwealth's motion to reopen. *See* Petr. Br. at 29, 41. Because the ASLB found that the Commonwealth's claims "simply implicate[d] no specific environmental impact changes" – LBP-11-35 at 57 (JA121) – there was no need for any further discussion. As the NRC Staff had explained, the Task Force Report did not have any bearing on whether the NRC had fully considered environmental impacts. JA2631.

adequate protection to the public health and safety as part of its environmental review, or preclude the NRC from doing so outside this environmental review. Otherwise, the NRC's ongoing consideration of new safety requirements would prevent its NEPA reviews from ever being completed.

D. NEPA Does Not Obviate the Commission's Procedural Rules

There is similarly no merit to the Commonwealth's argument that the Commission may not rely upon the heightened reopening standards in its rules as a means of complying with NEPA. Petr. Br. at 39-40. The Commission did not avoid compliance with NEPA, as the Commonwealth asserts, but instead applied its reopening standards in a manner fully consistent with NEPA, as it has the discretion to do.

It is well established that Federal agencies have the discretion to choose the procedures used to implement their obligations under NEPA. NEPA "does not require agencies to adopt any particular internal decisionmaking structure." *Robertson*, 490 U.S. at 353. Rather, "[t]he only procedural requirements imposed by NEPA are those stated in the plain language of the Act." *Vermont Yankee Nuclear Power Corp. v. NRDC,* 435 U.S. 519, 548 (1978) (citation omitted). As stated by this Court,

> although NEPA does impose an obligation on the NRC to consider environmental impacts of the Pilgrim and Vermont Yankee license renewal before issuing a final decision, the statute does not mandate ***how*** the agency must fulfill that obligation . . . Beyond "the statutory

> minima" imposed by NEPA . . . *the implementing procedures are committed to the agency's judgment.*

Massachusetts, 522 F.3d at 130 (bold emphasis in original; italicized emphasis added).

Neither NEPA nor the CEQ regulations prescribe how an agency is to determine the existence of new and significant information that would require supplementation under NEPA.[37] Because NEPA does not prescribe any particular approach, Courts have upheld use of a variety of "non-NEPA procedures 'for the purpose of determining whether new information or changed circumstances require the preparation of a supplemental EA or EIS.'" *Pennaco Energy Inc. v. DOI*, 377 F.3d 1147, 1151, 1162 (10th Cir. 2004) and cases cited therein. For example, a Federal agency may conduct an independent review of the data and conclusions from a state agency analysis to determine that an environmental impact statement need not be supplemented. *Airport Impact Relief v. Wykle*, 192 F.3d 197, 199, 208 (1st Cir. 1999). Such independent review need not be in writing. *Id.* at 208. A Federal agency may also conduct a reevaluation of the data underlying the environmental impact statement to confirm its continued validity and, thus, to determine that no supplementation is required. *Town of Winthrop*, 535 F.3d at 7-

[37] *See generally* 42 U.S.C. § 4332; 40 C.F.R. Parts 1500-08.

10.[38] As reflected in the types of procedures that have been allowed, neither an environmental assessment nor an environmental impact statement with public participation is required.

Thus, NEPA does not require that the NRC abandon its procedural requirements for reopening a closed record every time someone comes forward with an allegation of new and significant information.[39] Rather, as long as the Commission's procedural rules do not violate the AEA or the Administrative Procedure Act, they are also consistent with NEPA. *UCS II*, 920 F.2d at 56-57. Therefore, it is well within the Commission's discretion to consider claims regarding the need for supplementation within the framework of its procedural standards.

Further, there is no inherent conflict between the Commission's reopening standards and the standards for supplementing a NEPA analysis. As previously discussed, the standard for supplementation is information that is new and

---

[38] *See also Marsh*, 490 U.S. at 383-85 (agency supplemental information report based on agency-requested expert analysis); *N. Id. Comty Action Network v. DOT*, 545 F.3d 1147, 1154 (9th Cir. 2008) (agency internal reevaluation of projected impacts resulting from new information); *NRDC v. FAA*, 564 F.3d 549, 562 (2d Cir. 2009) (agency review of relevant data and scientific literature).

[39] *UCS II*, 920 F.2d at 55 ("it [is] unreasonable to suggest that the NRC must disregard its procedural timetable every time a party realizes based on NRC environmental studies that maybe there was something after all to a challenge it either originally opted not to make or which simply did not occur to it at the outset") (footnote omitted).

significant, painting a seriously different picture of the environmental impacts. The NRC standards for reopening are timeliness (which is dependent on new information providing good cause for reopening), significance of the issue, and demonstration that a materially different result would be likely. *See* 10 C.F.R. § 2.326. Not only is the compatibility of these standards obvious, but the ASLB also interpreted and applied the reopening standards with direct reference to the standards for supplementation. LBP-11-35 at 56-57 (JA120-121). The Commission affirmed, ruling that the ASLB appropriately "applied these standards to the issues identified in Massachusetts' new contention." CLI-12-06 at 17-18 (JA17-18).[40]

II. THE COMMISSION DID NOT VIOLATE THE COMMONWEALTH'S RIGHT TO A HEARING

The Commonwealth is also incorrect in arguing that the Commission was statutorily required to grant the Commonwealth a hearing on its claims (Petr. Br. at 42-44). Although NEPA requires that an agency fully consider environmental issues, NEPA does not require a hearing on those issues. *UCS II*, 920 F.2d at 56, citing *Aberdeen & Rockfish R. R. Co. v. SCRAP*, 422 U.S. 289, 305, 319 (1975).[41]

---

[40] In any event, the Commonwealth's arguments regarding application of the heightened reopening standards ignore the fact that the ASLB *also* found that the Commonwealth's contention did not even meet the normal admissibility standards in 10 C.F.R. § 2.309(f)(1), LBP-11-35 at 65-67, 70 (JA129-131, JA70), which ruling the Commission affirmed. CLI-12-06 at 13 (JA13).

[41] *See also San Luis Obispo Mothers for Peace*, 635 F.3d at 1115.

"As a result, NEPA does not alter the procedures agencies may employ in conducting public hearings." *Id*. (citing *Vermont Yankee*, 435 U.S. at 548). Further, agencies may determine whether there is a need to supplement environmental documents without public involvement. *See supra* at pp. 40-41.

In addition, and contrary to the Commonwealth's argument, there is no absolute right to a hearing under the AEA. The Commonwealth incorrectly relies on *Union of Concerned Scientists v. NRC*, 735 F.2d 1437, 1446 (D.C. Cir. 1984) ("*UCS I"*) for the proposition that the AEA entitles it to a hearing on any material issue, and alleges that the Commission failed to satisfy its "nondiscretionary" duty to grant that hearing. Petr. Br. at 43-44. In *UCS II*, the D.C. Circuit rejected such an interpretation of *UCS I*, holding that AEA Section 189(a) "'does not confer the automatic right of intervention upon anyone,'" and does not "compel the NRC to reopen a hearing to anyone and everyone filing a contention based on a new issue . . . ." *UCS II*, 920 F.2d at 55 (citation omitted).

Consequently, federal courts have repeatedly upheld application of the Commission's reopening and late-filed standards to requests for hearings on purportedly new and material issues. *UCS II*, 920 F.2d at 55; *Massachusetts v. NRC*, 924 F.2d 311, 333-34 (D.C. Cir. 1991); *N.J. Envtl. Fed'n*, 645 F.3d at 235-36; *Ohio v. NRC*, 814 F.2d 258, 262 (6th Cir. 1987). Moreover, the Supreme Court has repeatedly held that reopening is not automatic and is necessarily within

the discretion of the agency. *ICC v. Jersey City*, 322 U.S. 503, 514-15 (1944); *Bowman Transp. v. Arkansas-Best Freight Sys., Inc.*, 419 U.S. 281, 294-95 (1974). As the Court has explained:

> Administrative consideration of evidence … always creates a gap between the time the record is closed and the time the administrative decision is promulgated . . . If upon the coming down of the order litigants might demand rehearings as a matter of law because some new circumstance has arisen, some new trend has been observed, or some new fact discovered, there would be little hope that the administrative process could ever be consummated in an order that would not be subject to reopening. It has been almost a rule of necessity that rehearings were not matters of right, but were pleas to discretion.

Jersey City, 322 U.S. at 514; *see also Marsh*, 490 U.S. at 373 n.19.

III. THE COMMONWEALTH DOES NOT CHALLENGE THE NRC'S DENIAL OF ITS SUSPENSION REQUEST

While the Commonwealth sought suspension of the Pilgrim LRA proceeding pending resolution of its alternative rulemaking petition (JA1679), there is no indication in its brief that the Commonwealth is now seeking review of the Commission's denial of that request. As explained in some detail in this Court's prior decision upholding the Commission's authority to consider generic claims through a petition for rulemaking, the Commonwealth had the option of seeking judicial review of this denial if it was concerned that the rulemaking petition might not move quickly enough to address the Commonwealth's concerns before the Commission rendered a re-licensing decision. *Massachusetts*, 522 F.3d at 127-28.

For whatever reason, the Commonwealth has not challenged this denial before this Court. Its statement of "Issues Presented for Review" does not allude to the suspension decision (Petr. Br. at 4), nor do any of its arguments. Nowhere in its brief is there any claim that the Commission acted unlawfully or arbitrarily and capriciously in denying the suspension request, and nowhere does the Commonwealth grapple with the Commission's reasoning in doing so. Consequently, any challenge to the NRC denial of the suspension request has been waived. *United States v. Berk*, 652 F.3d 132, 137 n.5 (1st Cir. 2011) (issues not developed in the opening brief are waived). Because it has waived any challenge to the suspension denial, it has no basis to challenge the Commission's issuance of Pilgrim's renewed license for preceding final disposition of the rulemaking petition.[42]

Cryptic references to generic evaluations being "plugged into" individual licensing proceedings (*see* Petr. Br. at 7, 30, 43) would not satisfy "the settled appellate rule that issues adverted to in a perfunctory manner, unaccompanied by some effort at developed argumentation, are deemed waived." *United States v. Zannino*, 895 F.2d 1, 17 (1st Cir. 1990). As this Court has explained:

> It is not enough merely to mention a possible argument in the most skeletal way, leaving the court to do counsel's work, create the

[42] Nor does the Commonwealth request an injunction pertaining to the renewal license, or make any argument that the standards for injunctive relief have been satisfied.

> ossature for the argument, and put flesh on its bones. . . . . Consequently, a litigant has an obligation "to spell out its arguments squarely and distinctly, or else forever hold its peace."

Id. (citation omitted). More would be required to satisfy minimum pleading requirements.

Although the Commonwealth provides no argument explaining why the suspension denial was improper, it bears noting that the denial was anything but arbitrary and capricious. The Commission acted well within its broad discretion in denying the Commonwealth's suspension request.[43] Its decision was rational based on the information concerning the Fukushima spent fuel pools. Not only had the NRC previously fully considered and rejected essentially the same allegation (that there was a substantial probability that a reactor accident would lead to such a spent fuel pool fire), but there is no evidence of any spent fuel pool fires at Fukushima. The Commonwealth conceded the point, admitting that *no* "affirmative evidence" of a spent fuel pool fire has been revealed by the Fukushima accident. JA1760. Indeed, the Commonwealth asserted that Fukushima revealed nothing new about spent fuel pool accident risks since its previously rejected 2006 challenge. *Id.* (alleging that the Fukushima accident

[43] Any suggestion that the Commission has such no discretion would imply that Commission's duly promulgated substantive rules are immediately negated by any rulemaking petition alleging that new and significant information exists. It would also mean that any opponent of a licensing proceeding may perpetually delay a licensing proceeding simply by filing a succession of rulemaking petitions challenging the Commission's generic determinations.

serves only to "confirm[] the validity of the concern *raised in the Commonwealth's 2006 contention and rulemaking petition*…") (emphasis added). If anything, the Fukushima accident reaffirms the NRC's prior conclusions that the risk of spent fuel pool accidents is very low and already adequately mitigated.

The Commission's denial of the suspension request follows this Court's precedent finding agency action "reasonabl[e]" when it is "based on the information [the agency] had at the time." *Town of Winthrop*, 535 F.3d at 9-15. Citing *Town of Winthrop*, the Commission held that "NEPA requires that [it] conduct [its] environmental review with the best information available now" and "does not . . . require [it to] wait until inchoate information matures into something that later might affect [its] review." CLI-12-06 at 32 (JA32) (citing *Town of Winthrop*, 535 F.3d at 9-13 and other cases). Here, with respect to the Commonwealth's spent fuel pool claims, the Commission found insufficient information to make a difference in the Pilgrim environmental review. CLI-12-06 at 32 (JA32). Since the Fukushima accident provided no information supporting the Commonwealth's claim of a 50% conditional probability of a spent fuel pool fire following a severe reactor accident (no such fire occurred in any of the Fukushima units), or general claim of an increase in spent fuel pool accident risk (no significant spent fuel damage occurred at Fukushima), the Commission's

determination not to suspend the proceeding was manifestly reasonable based on the information it had available and entirely consistent with this Court's precedent.

CONCLUSION

For all of the reasons above, the Commonwealth's petitions for review should be denied.

Respectfully submitted,

/s/ David R. Lewis

David R. Lewis
Paul A. Gaukler
Timothy J. V. Walsh
PILLSBURY WINTHROP SHAW PITTMAN LLP
2300 N St., NW
Washington, DC 20037
Tel: (202) 663-8000

Elise N. Zoli
Kevin P. Martin
GOODWIN PROCTER LLP
53 State Street
Boston, MA 02109
Tel: (617) 570-1000

Counsel for Entergy

October 10, 2012

CERTIFICATE OF COMPLIANCE

1. This brief complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B) because this brief contains 11,454 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii).

2. This brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6) because this brief has been prepared in a proportionally spaced typeface using Microsoft Office Word 2010 in 14 point Times New Roman font.

/s/ David R. Lewis
David R. Lewis
Counsel for Intervenors

CERTIFICATE OF SERVICE

I hereby certify that on this 10th day of October, 2012, the foregoing Brief of Intervenors Entergy Nuclear Operations, Inc., and Entergy Nuclear Generation Company was served via the First Circuit's Case Management/Electronic Case Files system on the following counsel of record, all of whom are CM/ECF filers.

Counsel for Respondents U.S. Nuclear Regulatory Commission and United States:
John F. Cordes, Esq. (john.cordes@nrc.gov)
James E. Adler, Esq. (james.adler@nrc.gov)
J. David Gunter, II, Esq. (David.gunter2@usdoj.gov)

Counsel for the Commonwealth of Massachusetts:
Matthew Brock, Esq. (matthew.brock@state.ma.us)

/s/ David R. Lewis
David R. Lewis
Counsel for Intervenors

ADDENDUM

Table of Contents

Federal Regulations

Excerpts from the Record

the service method used to deliver the entire document, excluding courtesy copies, to all of the other participants in the proceeding. The presiding officer may determine the calculation of additional days when a participant is not entitled to receive an entire filing served by multiple methods.

(4) In mixed service proceedings when all participants are not using the same filing and service method, the number of days for service will be determined by the presiding officer based on considerations of fairness and efficiency.

(c) To be considered timely, a document must be served:

(1) By 5 p.m. Eastern Time for a document served in person or by expedited service; and

(2) By 11:59 p.m. Eastern Time for a document served by the E-Filing system.

[72 FR 49151, Aug. 28, 2007]

§ 2.307 Extension and reduction of time limits; delegated authority to order use of procedures for access by potential parties to certain sensitive unclassified information.

(a) Except as otherwise provided by law, the time fixed or the period of time prescribed for an act that is required or allowed to be done at or within a specified time, may be extended or shortened either by the Commission or the presiding officer for good cause, or by stipulation approved by the Commission or the presiding officer.

(b) If this part does not prescribe a time limit for an action to be taken in the proceeding, the Commission or the presiding officer may set a time limit for the action.

(c) In circumstances where, in order to meet Commission requirements for intervention, potential parties may deem it necessary to obtain access to safeguards information (as defined in §73.2 of this chapter) or to sensitive unclassified non-safeguards information, the Secretary is delegated authority to issue orders establishing procedures and timelines for submitting and resolving requests for this information.

[69 FR 2236, Jan. 14, 2004, as amended at 73 FR 10980, Feb. 29, 2008]

§ 2.308 Treatment of requests for hearing or petitions for leave to intervene by the Secretary.

Upon receipt of a request for hearing or a petition to intervene, the Secretary will forward the request or petition and/or proffered contentions and any answers and replies either to the Commission for a ruling on the request/petition and/or proffered contentions or to the Chief Administrative Judge of the Atomic Safety and Licensing Board Panel for the designation of a presiding officer under §2.313(a) to rule on the matter.

§ 2.309 Hearing requests, petitions to intervene, requirements for standing, and contentions.

(a) *General requirements.* Any person whose interest may be affected by a proceeding and who desires to participate as a party must file a written request for hearing and a specification of the contentions which the person seeks to have litigated in the hearing. In a proceeding under 10 CFR 52.103, the Commission, acting as the presiding officer, will grant the request if it determines that the requestor has standing under the provisions of paragraph (d) of this section and has proposed at least one admissible contention that meets the requirements of paragraph (f) of this section. For all other proceedings, except as provided in paragraph (e) of this section, the Commission, presiding officer, or the Atomic Safety and Licensing Board designated to rule on the request for hearing and/or petition for leave to intervene, will grant the request/petition if it determines that the requestor/petitioner has standing under the provisions of paragraph (d) of this section and has proposed at least one admissible contention that meets the requirements of paragraph (f) of this section. In ruling on the request for hearing/petition to intervene submitted by petitioners seeking to intervene in the proceeding on the HLW repository, the Commission, the presiding officer, or the Atomic Safety and Licensing Board shall also consider any failure of the petitioner to participate as a potential party in the pre-license application phase under subpart J of this part in addition to the factors

in paragraph (d) of this section. If a request for hearing or petition to intervene is filed in response to any notice of hearing or opportunity for hearing, the applicant/licensee shall be deemed to be a party.

(b) *Timing*. Unless otherwise provided by the Commission, the request and/or petition and the list of contentions must be filed as follows:

(1) In proceedings for the direct or indirect transfer of control of an NRC license when the transfer requires prior approval of the NRC under the Commission's regulations, governing statute, or pursuant to a license condition, twenty (20) days from the date of publication of the notice in the FEDERAL REGISTER.

(2) In proceedings for the initial authorization to construct a high-level radioactive waste geologic repository, and the initial licensee to receive and process high level radioactive waste at a geological repository operations area, thirty (30) days from the date of publication of the notice in the FEDERAL REGISTER.

(3) In proceedings for which a FEDERAL REGISTER notice of agency action is published (other than a proceeding covered by paragraphs (b)(1) or (b)(2) of this section), not later than:

(i) The time specified in any notice of hearing or notice of proposed action or as provided by the presiding officer or the Atomic Safety and Licensing Board designated to rule on the request and/or petition, which may not be less than sixty (60) days from the date of publication of the notice in the FEDERAL REGISTER; or

(ii) If no period is specified, sixty (60) days from the date of publication of the notice.

(4) In proceedings for which a FEDERAL REGISTER notice of agency action is not published, not later than the latest of:

(i) Sixty (60) days after publication of notice on the NRC Web site at *http://www.nrc.gov/public-involve/major-actions.html*, or

(ii) Sixty (60) days after the requestor receives actual notice of a pending application, but not more than sixty (60) days after agency action on the application.

(5) For orders issued under § 2.202 the time period provided therein.

(c) *Nontimely filings*. (1) Nontimely requests and/or petitions and contentions will not be entertained absent a determination by the Commission, the presiding officer or the Atomic Safety and Licensing Board designated to rule on the request and/or petition and contentions that the request and/or petition should be granted and/or the contentions should be admitted based upon a balancing of the following factors to the extent that they apply to the particular nontimely filing:

(i) Good cause, if any, for the failure to file on time;

(ii) The nature of the requestor's/petitioner's right under the Act to be made a party to the proceeding;

(iii) The nature and extent of the requestor's/petitioner's property, financial or other interest in the proceeding;

(iv) The possible effect of any order that may be entered in the proceeding on the requestor's/petitioner's interest;

(v) The availability of other means whereby the requestor's/petitioner's interest will be protected;

(vi) The extent to which the requestor's/petitioner's interests will be represented by existing parties;

(vii) The extent to which the requestor's/petitioner's participation will broaden the issues or delay the proceeding; and

(viii) The extent to which the requestor's/petitioner's participation may reasonably be expected to assist in developing a sound record.

(2) The requestor/petitioner shall address the factors in paragraphs (c)(1)(i) through (c)(1)(viii) of this section in its nontimely filing.

(d) *Standing*. (1) General requirements. A request for hearing or petition for leave to intervene must state:

(i) The name, address and telephone number of the requestor or petitioner;

(ii) The nature of the requestor's/petitioner's right under the Act to be made a party to the proceeding;

(iii) The nature and extent of the requestor's/petitioner's property, financial or other interest in the proceeding; and

(iv) The possible effect of any decision or order that may be issued in the

proceeding on the requestor's/petitioner's interest.

(2) State, local governmental body, and affected, Federally-recognized Indian Tribe. (i) A State, local governmental body (county, municipality or other subdivision), and any affected Federally-recognized Indian Tribe that desires to participate as a party in the proceeding shall submit a request for hearing/petition to intervene. The request/petition must meet the requirements of this section (including the contention requirements in paragraph (f) of this section), except that a State, local governmental body or affected Federally-recognized Indian Tribe that wishes to be a party in a proceeding for a facility located within its boundaries need not address the standing requirements under this paragraph. The State, local governmental body, and affected Federally-recognized Indian Tribe shall, in its request/petition, each designate a single representative for the hearing.

(ii) The Commission, the presiding officer or the Atomic Safety and Licensing Board designated to rule on requests for hearings or petitions for leave to intervene will admit as a party to a proceeding a single designated representative of the State, a single designated representative for each local governmental body (county, municipality or other subdivision), and a single designated representative for each affected Federally-recognized Indian Tribe. In determining the request/petition of a State, local governmental body, and any affected Federally-recognized Indian Tribe that wishes to be a party in a proceeding for a facility located within its boundaries, the Commission, the presiding officer or the Atomic Safety and Licensing Board designated to rule on requests for hearings or petitions for leave to intervene shall not require a further demonstration of standing.

(iii) In any proceeding on an application for a construction authorization for a high-level radioactive waste repository at a geologic repository operations area under parts 60 or 63 of this chapter, or an application for a license to receive and possess high-level radioactive waste at a geologic repository operations area under parts 60 or 63 of this chapter, the Commission shall permit intervention by the State and local governmental body (county, municipality or other subdivision) in which such an area is located and by any affected Federally-recognized Indian Tribe as defined in parts 60 or 63 of this chapter if the requirements of paragraph (f) of this section are satisfied with respect to at least one contention. All other petitions for intervention in any such proceeding must be reviewed under the provisions of paragraphs (a) through (f) of this section.

(3) The Commission, the presiding officer, or the Atomic Safety and Licensing Board designated to rule on requests for hearing and/or petitions for leave to intervene will determine whether the petitioner has an interest affected by the proceeding considering the factors enumerated in § 2.309(d)(1)–(2), among other things. In enforcement proceedings, the licensee or other person against whom the action is taken shall have standing.

(e) *Discretionary Intervention*. The presiding officer may consider a request for discretionary intervention when at least one requestor/petitioner has established standing and at least one admissible contention has been admitted so that a hearing will be held. A requestor/petitioner may request that his or her petition be granted as a matter of discretion in the event that the petitioner is determined to lack standing to intervene as a matter of right under paragraph (d)(1) of this section. Accordingly, in addition to addressing the factors in paragraph (d)(1) of this section, a petitioner who wishes to seek intervention as a matter of discretion in the event it is determined that standing as a matter of right is not demonstrated shall address the following factors in his/her initial petition, which the Commission, the presiding officer or the Atomic Safety and Licensing Board will consider and balance:

(1) Factors weighing in favor of allowing intervention—

(i) The extent to which the requestor's/petitioner's participation may reasonably be expected to assist in developing a sound record;

(ii) The nature and extent of the requestor's/petitioner's property, financial or other interests in the proceeding; and

(iii) The possible effect of any decision or order that may be issued in the proceeding on the requestor's/petitioner's interest;

(2) Factors weighing against allowing intervention—

(i) The availability of other means whereby the requestor's/petitioner's interest will be protected;

(ii) The extent to which the requestor's/petitioner's interest will be represented by existing parties; and

(iii) The extent to which the requestor's/petitioner's participation will inappropriately broaden the issues or delay the proceeding.

(f) *Contentions.* (1) A request for hearing or petition for leave to intervene must set forth with particularity the contentions sought to be raised. For each contention, the request or petition must:

(i) Provide a specific statement of the issue of law or fact to be raised or controverted, *provided further*, that the issue of law or fact to be raised in a request for hearing under 10 CFR 52.103(b) must be directed at demonstrating that one or more of the acceptance criteria in the combined license have not been, or will not be met, and that the specific operational consequences of nonconformance would be contrary to providing reasonable assurance of adequate protection of the public health and safety;

(ii) Provide a brief explanation of the basis for the contention;

(iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding;

(iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding;

(v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue;

(vi) In a proceeding other than one under 10 CFR 52.103, provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact. This information must include references to specific portions of the application (including the applicant's environmental report and safety report) that the petitioner disputes and the supporting reasons for each dispute, or, if the petitioner believes that the application fails to contain information on a relevant matter as required by law, the identification of each failure and the supporting reasons for the petitioner's belief; and

(vii) In a proceeding under 10 CFR 52.103(b), the information must be sufficient, and include supporting information showing, *prima facie*, that one or more of the acceptance criteria in the combined license have not been, or will not be met, and that the specific operational consequences of nonconformance would be contrary to providing reasonable assurance of adequate protection of the public health and safety. This information must include the specific portion of the report required by 10 CFR 52.99(c) which the requestor believes is inaccurate, incorrect, and/or incomplete (i.e., fails to contain the necessary information required by § 52.99(c)). If the requestor identifies a specific portion of the § 52.99(c) report as incomplete and the requestor contends that the incomplete portion prevents the requestor from making the necessary *prima facie* showing, then the requestor must explain why this deficiency prevents the requestor from making the *prima facie* showing.

(2) Contentions must be based on documents or other information available at the time the petition is to be filed, such as the application, supporting safety analysis report, environmental report or other supporting document filed by an applicant or licensee, or otherwise available to a petitioner. On issues arising under the National Environmental Policy Act, the petitioner shall file contentions based on the applicant's environmental report. The petitioner may amend those contentions or file new contentions if there are

data or conclusions in the NRC draft or final environmental impact statement, environmental assessment, or any supplements relating thereto, that differ significantly from the data or conclusions in the applicant's documents. Otherwise, contentions may be amended or new contentions filed after the initial filing only with leave of the presiding officer upon a showing that—

(i) The information upon which the amended or new contention is based was not previously available;

(ii) The information upon which the amended or new contention is based is materially different than information previously available; and

(iii) The amended or new contention has been submitted in a timely fashion based on the availability of the subsequent information.

(3) If two or more requestors/petitioners seek to co-sponsor a contention, the requestors/petitioners shall jointly designate a representative who shall have the authority to act for the requestors/petitioners with respect to that contention. If a requestor/petitioner seeks to adopt the contention of another sponsoring requestor/petitioner, the requestor/petitioner who seeks to adopt the contention must either agree that the sponsoring requestor/petitioner shall act as the representative with respect to that contention, or jointly designate with the sponsoring requestor/petitioner a representative who shall have the authority to act for the requestors/petitioners with respect to that contention.

(g) *Selection of hearing procedures.* A request for hearing and/or petition for leave to intervene may, except in a proceeding under 10 CFR 52.103, also address the selection of hearing procedures, taking into account the provisions of § 2.310. If a request/petition relies upon § 2.310(d), the request/petition must demonstrate, by reference to the contention and the bases provided and the specific procedures in subpart G of this part, that resolution of the contention necessitates resolution of material issues of fact which may be best determined through the use of the identified procedures.

(h) *Answers to requests for hearing and petitions to intervene.* Unless otherwise specified by the Commission, the presiding officer, or the Atomic Safety and Licensing Board designated to rule on requests for hearings or petitions for leave to intervene—

(1) The applicant/licensee, the NRC staff, and any other party to a proceeding may file an answer to a request for a hearing, a petition to intervene and/or proffered contentions within twenty-five (25) days after service of the request for hearing, petition and/or contentions. Answers should address, at a minimum, the factors set forth in paragraphs (a) through (g) of this section insofar as these sections apply to the filing that is the subject of the answer.

(2) Except in a proceeding under 10 CFR 52.103, the requestor/petitioner may file a reply to any answer. The reply must be filed within 7 days after service of that answer.

(3) No other written answers or replies will be entertained.

(i) *Decision on request/petition.* In all proceedings other than a proceeding under 10 CFR 52.103, the presiding officer shall, within 45 days after the filing of answers and replies under paragraph (h) of this section, issue a decision on each request for hearing/petition to intervene, absent an extension from the Commission. The Commission, acting as the presiding officer, shall expeditiously grant or deny the request for hearing in a proceeding under 10 CFR 52.103. The Commission's decision may not be the subject of any appeal under 10 CFR 2.311.

[69 FR 2236, Jan. 14, 2004, as amended at 72 FR 49474, Aug. 28, 2007; 73 FR 44620, July 31, 2008]

§ 2.310 Selection of hearing procedures.

Upon a determination that a request for hearing/petition to intervene should be granted and a hearing held, the Commission, the presiding officer, or the Atomic Safety and Licensing Board designated to rule on the request/petition will determine and identify the specific hearing procedures to be used for the proceeding as follows—

(a) Except as determined through the application of paragraphs (b) through (h) of this section, proceedings for the grant, renewal, licensee-initiated amendment, or termination of licenses

is necessary to prevent detriment to the public interest or unusual delay or expense, or if the presiding officer determines that the decision or ruling involves a novel issue that merits Commission review at the earliest opportunity, the presiding officer may refer the ruling promptly to the Commission. The presiding officer must notify the parties of the referral either by announcement on-the-record or by written notice if the hearing is not in session.

(2) A party may petition the presiding officer to certify an issue to the Commission for early review. The presiding officer shall apply the alternative standards of §2.341(f) in ruling on the petition for certification. No motion for reconsideration of the presiding officer's ruling on a petition for certification will be entertained.

(g) *Effect of filing a motion, petition, or certification of question to the Commission.* Unless otherwise ordered, neither the filing of a motion, the filing of a petition for certification, nor the certification of a question to the Commission stays the proceeding or extends the time for the performance of any act.

(h) *Motions to compel discovery.* Parties may file answers to motions to compel discovery in accordance with paragraph (c) of this section. The presiding officer, in his or her discretion, may order that the answer be given orally during a telephone conference or other prehearing conference, rather than in writing. If responses are given over the telephone, the presiding officer shall issue a written order on the motion summarizing the views presented by the parties. This does not preclude the presiding officer from issuing a prior oral ruling on the matter effective at the time of the ruling, if the terms of the ruling are incorporated in the subsequent written order.

§ 2.324 Order of procedure.

The presiding officer or the Commission will designate the order of procedure at a hearing. The proponent of an order will ordinarily open and close.

§ 2.325 Burden of proof.

Unless the presiding officer otherwise orders, the applicant or the proponent of an order has the burden of proof.

§ 2.326 Motions to reopen.

(a) A motion to reopen a closed record to consider additional evidence will not be granted unless the following criteria are satisfied:

(1) The motion must be timely. However, an exceptionally grave issue may be considered in the discretion of the presiding officer even if untimely presented;

(2) The motion must address a significant safety or environmental issue; and

(3) The motion must demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially.

(b) The motion must be accompanied by affidavits that set forth the factual and/or technical bases for the movant's claim that the criteria of paragraph (a) of this section have been satisfied. Affidavits must be given by competent individuals with knowledge of the facts alleged, or by experts in the disciplines appropriate to the issues raised. Evidence contained in affidavits must meet the admissibility standards of this subpart. Each of the criteria must be separately addressed, with a specific explanation of why it has been met. When multiple allegations are involved, the movant must identify with particularity each issue it seeks to litigate and specify the factual and/or technical bases which it believes support the claim that this issue meets the criteria in paragraph (a) of this section.

(c) A motion predicated in whole or in part on the allegations of a confidential informant must identify to the presiding officer the source of the allegations and must request the issuance of an appropriate protective order.

(d) A motion to reopen which relates to a contention not previously in controversy among the parties must also satisfy the requirements for nontimely contentions in §2.309(c).

(b) The final environmental impact statement will discuss any relevant responsible opposing view not adequately discussed in the draft environmental impact statement or in any supplement to the draft environmental impact statement, and respond to the issues raised.

(c) The final environmental impact statement will state how the alternatives considered in it and decisions based on it will or will not achieve the requirements of sections 101 and 102(1) of NEPA and of any other relevant and applicable environmental laws and policies.

(d) The final environmental impact statement will include a final analysis and a final recommendation on the action to be taken.

§51.92 Supplement to the final environmental impact statement.

(a) If the proposed action has not been taken, the NRC staff will prepare a supplement to a final environmental impact statement for which a notice of availability has been published in the FEDERAL REGISTER as provided in §51.118, if:

(1) There are substantial changes in the proposed action that are relevant to environmental concerns; or

(2) There are new and significant circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

(b) In a proceeding for a combined license application under 10 CFR part 52 referencing an early site permit under part 52, the NRC staff shall prepare a supplement to the final environmental impact statement for the referenced early site permit in accordance with paragraph (e) of this section.

(c) The NRC staff may prepare a supplement to a final environmental impact statement when, in its opinion, preparation of a supplement will further the purposes of NEPA.

(d) The supplement to a final environmental impact statement will be prepared in the same manner as the final environmental impact statement except that a scoping process need not be used.

(e) The supplement to an early site permit final environmental impact statement which is prepared for a combined license application in accordance with §51.75(c)(1) and paragraph (b) of this section must:

(1) Identify the proposed action as the issuance of a combined license for the construction and operation of a nuclear power plant as described in the combined license application at the site described in the early site permit referenced in the combined license application;

(2) Incorporate by reference the final environmental impact statement prepared for the early site permit;

(3) Contain no separate discussion of alternative sites;

(4) Include an analysis of the economic, technical, and other benefits and costs of the proposed action, to the extent that the final environmental impact statement prepared for the early site permit did not include an assessment of these benefits and costs;

(5) Include an analysis of other energy alternatives, to the extent that the final environmental impact statement prepared for the early site permit did not include an assessment of energy alternatives;

(6) Include an analysis of any environmental issue related to the impacts of construction or operation of the facility that was not resolved in the proceeding on the early site permit; and

(7) Include an analysis of the issues related to the impacts of construction and operation of the facility that were resolved in the early site permit proceeding for which new and significant information has been identified, including, but not limited to, new and significant information demonstrating that the design of the facility falls outside the site characteristics and design parameters specified in the early site permit.

(f)(1) A supplement to a final environmental impact statement will be accompanied by or will include a request for comments as provided in §51.73 and a notice of availability will be published in the FEDERAL REGISTER as provided in §51.117 if paragraphs (a) or (b) of this section applies.

(2) If comments are not requested, a notice of availability of a supplement

to a final environmental impact statement will be published in the FEDERAL REGISTER as provided in § 51.118.

[72 FR 49515, Aug. 28, 2007]

§ 51.93 Distribution of final environmental impact statement and supplement to final environmental impact statement; news releases.

(a) A copy of the final environmental impact statement will be distributed to:

(1) The Environmental Protection Agency.

(2) The applicant or petitioner for rulemaking and any other party to the proceeding.

(3) Appropriate State, regional and metropolitan clearinghouses.

(4) Each commenter.

(b) Additional copies will be made available in accordance with § 51.123.

(c) If the final environmental impact statement is unusually long or there are so many comments on a draft environmental impact statement or any supplement to a draft environmental impact statement that distribution of the entire final statement to all commenters is impracticable, a summary of the final statement and the substantive comments will be distributed. When the final environmental impact statement has been prepared by adding errata sheets to the draft environmental impact statement as provided in § 51.91(a)(3), only the comments, the responses to the comments and the changes to the environmental impact statement will be distributed.

(d) A supplement to a final environmental impact statement will be distributed in the same manner as the final environmental impact statement to which it relates.

(e) News releases stating the availability and place for obtaining or inspecting a final environmental impact statement or supplement will be provided to local newspapers and other appropriate media.

(f) A notice of availability will be published in the FEDERAL REGISTER in accordance with § 51.118.

§ 51.94 Requirement to consider final environmental impact statement.

The final environmental impact statement, together with any comments and any supplement, will accompany the application or petition for rulemaking through, and be considered in, the Commission's decisionmaking process. The final environmental impact statement, together with any comments and any supplement, will be made a part of the record of the appropriate adjudicatory or rulemaking proceeding.

FINAL ENVIRONMENTAL IMPACT STATEMENTS—PRODUCTION AND UTILIZATION FACILITIES

§ 51.95 Postconstruction environmental impact statements.

(a) *General.* Any supplement to a final environmental impact statement or any environmental assessment prepared under the provisions of this section may incorporate by reference any information contained in a final environmental document previously prepared by the NRC staff that relates to the same production or utilization facility. Documents that may be referenced include, but are not limited to, the final environmental impact statement; supplements to the final environmental impact statement, including supplements prepared at the operating license stage; NRC staff-prepared final generic environmental impact statements; environmental assessments and records of decisions prepared in connection with the construction permit, the operating license, the early site permit, or the combined license and any license amendment for that facility. A supplement to a final environmental impact statement will include a request for comments as provided in § 51.73.

(b) *Initial operating license stage.* In connection with the issuance of an operating license for a production or utilization facility, the NRC staff will prepare a supplement to the final environmental impact statement on the construction permit for that facility, which will update the prior environmental review. The supplement will only cover matters that differ from the final environmental impact statement or that reflect significant new information concerning matters discussed in the final environmental impact statement. Unless otherwise determined by

as common timing, impacts, alternatives, methods of implementation, media, or subject matter.

(3) By stage of technological development including federal or federally assisted research, development or demonstration programs for new technologies which, if applied, could significantly affect the quality of the human environment. Statements shall be prepared on such programs and shall be available before the program has reached a stage of investment or commitment to implementation likely to determine subsequent development or restrict later alternatives.

(d) Agencies shall as appropriate employ scoping (§ 1501.7), tiering (§ 1502.20), and other methods listed in §§ 1500.4 and 1500.5 to relate broad and narrow actions and to avoid duplication and delay.

§ 1502.5 Timing.

An agency shall commence preparation of an environmental impact statement as close as possible to the time the agency is developing or is presented with a proposal (§ 1508.23) so that preparation can be completed in time for the final statement to be included in any recommendation or report on the proposal. The statement shall be prepared early enough so that it can serve practically as an important contribution to the decisionmaking process and will not be used to rationalize or justify decisions already made (§§ 1500.2(c), 1501.2, and 1502.2). For instance:

(a) For projects directly undertaken by Federal agencies the environmental impact statement shall be prepared at the feasibility analysis (go-no go) stage and may be supplemented at a later stage if necessary.

(b) For applications to the agency appropriate environmental assessments or statements shall be commenced no later than immediately after the application is received. Federal agencies are encouraged to begin preparation of such assessments or statements earlier, preferably jointly with applicable State or local agencies.

(c) For adjudication, the final environmental impact statement shall normally precede the final staff recommendation and that portion of the public hearing related to the impact study. In appropriate circumstances the statement may follow preliminary hearings designed to gather information for use in the statements.

(d) For informal rulemaking the draft environmental impact statement shall normally accompany the proposed rule.

§ 1502.6 Interdisciplinary preparation.

Environmental impact statements shall be prepared using an inter-disciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts (section 102(2)(A) of the Act). The disciplines of the preparers shall be appropriate to the scope and issues identified in the scoping process (§ 1501.7).

§ 1502.7 Page limits.

The text of final environmental impact statements (e.g., paragraphs (d) through (g) of § 1502.10) shall normally be less than 150 pages and for proposals of unusual scope or complexity shall normally be less than 300 pages.

§ 1502.8 Writing.

Environmental impact statements shall be written in plain language and may use appropriate graphics so that decisionmakers and the public can readily understand them. Agencies should employ writers of clear prose or editors to write, review, or edit statements, which will be based upon the analysis and supporting data from the natural and social sciences and the environmental design arts.

§ 1502.9 Draft, final, and supplemental statements.

Except for proposals for legislation as provided in § 1506.8 environmental impact statements shall be prepared in two stages and may be supplemented.

(a) Draft environmental impact statements shall be prepared in accordance with the scope decided upon in the scoping process. The lead agency shall work with the cooperating agencies and shall obtain comments as required in part 1503 of this chapter. The draft statement must fulfill and satisfy to the fullest extent possible the requirements established for final statements

in section 102(2)(C) of the Act. If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion. The agency shall make every effort to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts of the alternatives including the proposed action.

(b) Final environmental impact statements shall respond to comments as required in part 1503 of this chapter. The agency shall discuss at appropriate points in the final statement any responsible opposing view which was not adequately discussed in the draft statement and shall indicate the agency's response to the issues raised.

(c) Agencies:

(1) Shall prepare supplements to either draft or final environmental impact statements if:

(i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or

(ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

(2) May also prepare supplements when the agency determines that the purposes of the Act will be furthered by doing so.

(3) Shall adopt procedures for introducing a supplement into its formal administrative record, if such a record exists.

(4) Shall prepare, circulate, and file a supplement to a statement in the same fashion (exclusive of scoping) as a draft and final statement unless alternative procedures are approved by the Council.

§ 1502.10 Recommended format.

Agencies shall use a format for environmental impact statements which will encourage good analysis and clear presentation of the alternatives including the proposed action. The following standard format for environmental impact statements should be followed unless the agency determines that there is a compelling reason to do otherwise:

(a) Cover sheet.

(b) Summary.

(c) Table of contents.

(d) Purpose of and need for action.

(e) Alternatives including proposed action (sections 102(2)(C)(iii) and 102(2)(E) of the Act).

(f) Affected environment.

(g) Environmental consequences (especially sections 102(2)(C)(i), (ii), (iv), and (v) of the Act).

(h) List of preparers.

(i) List of Agencies, Organizations, and persons to whom copies of the statement are sent.

(j) Index.

(k) Appendices (if any).

If a different format is used, it shall include paragraphs (a), (b), (c), (h), (i), and (j), of this section and shall include the substance of paragraphs (d), (e), (f), (g), and (k) of this section, as further described in §§ 1502.11 through 1502.18, in any appropriate format.

§ 1502.11 Cover sheet.

The cover sheet shall not exceed one page. It shall include:

(a) A list of the responsible agencies including the lead agency and any cooperating agencies.

(b) The title of the proposed action that is the subject of the statement (and if appropriate the titles of related cooperating agency actions), together with the State(s) and county(ies) (or other jurisdiction if applicable) where the action is located.

(c) The name, address, and telephone number of the person at the agency who can supply further information.

(d) A designation of the statement as a draft, final, or draft or final supplement.

(e) A one paragraph abstract of the statement.

(f) The date by which comments must be received (computed in cooperation with EPA under § 1506.10).

The information required by this section may be entered on Standard Form 424 (in items 4, 6, 7, 10, and 18).

§ 1502.12 Summary.

Each environmental impact statement shall contain a summary which adequately and accurately summarizes the statement. The summary shall stress the major conclusions, areas of controversy (including issues raised by agencies and the public), and the issues to be resolved (including the choice

Although plants running out of storage space may enter into agreements with others that have space for sale or lease, this approach is widely viewed as an interim measure practical only for utilities that own more than one nuclear plant (Asselstine 1985; DOE/RW-0187). Interim storage needs vary among plants, with older units likely to lose pool storage capacity sooner than newer ones. Robinson, for example, owned by Carolina Power and Light, has shipped some spent fuel to Shearon Harris, which is owned by the same utility. Transfer of spent fuel from one nuclear plant site to another requires authorization by the receiving plant's operating license (55 FR 29181).

Table 6.15 lists historic and projected trends for spent-fuel discharges and radioactivity levels for LWRs. Projections in Table 6.15 are based on the assumptions that (1) no new units will enter operation, (2) installed capacity will gradually decline, (3) no spent fuel removed from reactors will be reinserted for further irradiation later, and (4) average burnup rate of spent fuel at all LWRs will increase by nearly one-third by 2000 (DOE/RW-0006). In the conservative scenario depicted in Table 6.15, annual spent-fuel discharges are expected to decline for BWRs and PWRs early in the next century. However, total accumulated spent-fuel volumes will more than triple between 1990 and 2020. Thus, continued storage of spent fuel on site may be an issue for some utilities regardless of their license renewal plans. At-reactor pool storage capacity has been increased under original operating licenses through (1) enlarging the capacity of spent-fuel racks, (2) adding racks to existing pool arrays ("dense-racking"), (3) reconfiguring spent fuel with neutron-absorbing racks, and (4) employing double-tiered storage (installing a second tier of racks above those on the pool floor). Each of these methods requires both the repackaging of spent-fuel rods and the handling associated with fuel bundles and racks.

Zircalloy-clad fuel bundles do not appear to degrade as a result of long-term pool storage (Gilbert et al. 1990), and accidental damage to spent-fuel bundles through mishandling or component failure during emplacement or removal from pools has occurred infrequently. A few spent-fuel assemblies have been inadvertently dropped or mishandled. A small fraction of these assemblies has suffered major mechanical damage through such incidents. In most cases, when spent-fuel assemblies were damaged during handling (mostly during refueling operations, with only 10 percent occurring within the spent-fuel pool), only minor degradation of fuel-bundle components occurred. No cases of breaching of fuel cladding or release of radioactive gases or solids to the environment have been reported (EPRI NP-3765; Bailey 1990). Operational incidents involving spent-fuel pools have occurred infrequently. One incident, at Hatch in December 1986, took place during an exceptional handling procedure in a transfer canal between two pools. At Turkey Point, the failure of a circulation pump in August 1988 led to a breach of pool containment and the flow of water into a closed-loop canal, confining the radiation release on site. While the safety significance of both events appears to have been low, subsequent inspection and enforcement actions have been instituted by NRC to reduce the likelihood of such occurrences in the future (55 FR 38472). NRC has also found that, even under the worst probable cause of a loss of spent-fuel pool coolant (a severe seismic-generated accident causing a catastrophic failure of

Table 6.15 Historic and projected spent-fuel inventories from commercial light-water reactors, 1970–2030 (not including license renewal)

Year	Fuel assemblies		Mass (MTIHM)[a]		Radioactivity (10^6 Ci)[b]	
	Annual	Total	Annual	Total	Annual	Total
			Boiling-water reactors			
Historic						
1970		6	16	1	11	
1971		64	80	190	197	
1972		142	222	431	466	
1973		95	317	349	441	
1974		245	561	908	1,042	
1975		226	787	920	1,218	
1976		297	1,084	1,151	1,581	
1977		383	1,467	1,566	2,129	
1978		383	1,850	1,618	2,412	
1979		400	2,250	1,734	2,728	
1980		620	2,870	2,685	3,888	
1981		459	3,329	2,014	3,664	
1982		357	3,686	1,582	3,362	
1983		491	4,177	2,218	4,015	
1984		498	4,675	2,211	4,283	
1985		515	5,190	2,246	4,519	
1986		458	5,648	1,963	4,404	
1987		699	6,347	2,919	5,411	
1988		536	6,883	2,363	5,177	
1989		715	7,598	3,090	6,038	
1990		633	8,231	2,821	6,101	
1991		588	8,819	2,696	6,186	
1992		729	9,547	3,359	7,037	
Projected						
1995	4,700	64,600	800	11,700	4,000	8,600
2000	3,900	82,400	700	14,800	3,300	9,100
2005	3,100	100,500	500	18,000	2,700	9,600
2010	3,800	120,500	700	21,500	3,200	11,100

See footnotes at end of table.

Table 6.15 Historic and projected spent-fuel inventories from commercial light-water reactors, 1970–2030 (not including license renewal)

Year	Fuel assemblies		Mass (MTIHM)[a]		Radioactivity (10^6 Ci)[b]	
	Annual	Total	Annual	Total	Annual	Total
2015	2,100	139,600	400	24,800	1,900	10,800
2020	1,700	150,000	300	26,700	1,500	9,600
2025	2,200	162,000	400	28,800	1,900	10,000
2030	0	165,900	0	29,500	0	7,000
			Pressurized-water reactors			
Historic						
1970		39	39	204	204	
1971		44	83	247	296	
1972		100	183	545	638	
1973		67	250	374	571	
1974		208	458	1,098	1,320	
1975		322	780	1,683	2,098	
1976		401	1,181	2,222	2,894	
1977		467	1,648	2,660	3,677	
197.		699	2,347	4,030	5,428	
1979		721	3,068	4,185	6,254	
1980		618	3,686	3,667	6,248	
1981		676	4,362	4,025	6,887	
1982		640	5,002	3,797	7,037	
1983		772	5,775	4,590	8,077	
1984		842	6,616	4,978	8,943	
1985		861	7,478	5,196	9,641	
1986		1,001	8,478	5,969	10,909	
1987		1,114	9,592	6,687	12,240	
1988		1,125	10,717	6,865	13,132	
1989		1,227	11,944	7,422	14,347	
1990		1,532	13,476	9,405	17,026	
1991		1,298	14,774	8,049	16,881	
1992		1,601	16,375	10,032	19,374	

See footnotes at end of table.

Table 6.15 Historic and projected spent-fuel inventories from commercial light-water reactors, 1970–2030 (not including license renewal)

Year	Fuel assemblies		Mass (MTIHM)[a]		Radioactivity (10^6 Ci)[b]	
	Annual	Total	Annual	Total	Annual	Total
Projected						
1995	3,500	48,200	1,500	20,700	9,800	21,400
2000	3,300	63,400	1,400	27,300	9,400	23,700
2005	2,900	78,700	1,300	33,800	8,500	25,500
2010	2,500	93,600	1,100	40,200	7,400	26,900
2015	1,900	106,900	800	46,000	5,600	26,800
2020	1,600	116,000	700	50,000	4,800	24,900
2025	1,200	123,200	500	53,100	3,500	23,000
2030	300	127,000	100	54,800	900	18,000
Total spent fuel (all light-water reactors)—projections						
1995	8,200	112,800	2,300	32,400	13,800	29,900
2000	7,200	145,800	2,100	42,100	12,700	32,800
2005	6,100	179,200	1,800	51,800	11,200	35,100
2010	6,400	214,100	1,800	61,700	10,600	38,000
2015	4,000	246,400	1,200	70,800	7,500	37,600
2020	3,300	266,000	1,000	76,700	6,300	34,500

[a]MTIHM = metric tons of initial heavy metal; 1 metric ton equals 2204.62 lb.
[b]Curies; 1 curie = 37×10^9 becquerels.
Source: DOE/RW-0006, Rev. 9.

the pool), the likelihood of a fuel-cladding fire is highly remote (55 FR 38474).

Inadvertent criticality and acute occupational exposure are remote risks of dense-racking (DOE/RW-0220). NRC requires licensees to ensure against inadvertent criticality in fuel storage facilities by limiting quantities of stored fuel and by regulating the configuration of fuel bundles (NUREG-0575; 10 CFR 50). The latter includes regulating proper spacing between spent-fuel assemblies and using boron carbide in storage racks (DOE/RW-0220).

Dry storage technologies such as casks, silos, dry wells, and vaults have been developed in conjunction with dry-rod consolidation (EPRI NP-3765; Gilbert et al. 1990; Schneider et al. 1992). Monitoring of occupational exposure in pilot studies of dry-rod consolidation indicates that, because of reliance on remote manipulation techniques, doses received by workers are similar to those from normal fuel movement, in-service inspection, and

repair activities (Gerstberger 1987; Zacha 1988; Johnson 1989). In addition, dry storage generates no LLW. Ten countries have at least small amounts of spent nuclear fuel in dry storage, with Canada, the United Kingdom, and the United States having industrial-scale facilities (Schneider et al. 1992). Dry storage appears to be a safe, economical method of spent-fuel storage (Roberts 1987; Johnson 1989). Fuel rods in dry storage appear to be environmentally secure for long periods of time (EPRI NP-3765). Dry storage is also simpler and more readily maintained than spent-fuel pools (DOE/RW-0220; 55 FR 38472).

All U.S. commercial nuclear reactors that are storing or planning to store nuclear fuel assemblies in an ISFSI are covered in Table 6.14, which lists data for each of these utilities and affected reactors. Utilities are listed by the date the dry storage license was issued. Environmental assessments for operational ISFSIs at these plants (in a number of different regions) indicate that long-term material and system degradation effects are minimal and that licensees can ensure the use of such systems in full compliance with health, safety, environmental, and safeguards and security criteria (55 FR 29181).

The three utilities that currently use the Nutec Horizontal Modular Storage (NUHOMS) Spent Fuel Storage System are Baltimore Gas and Electric Company, Carolina Power and Light Company, and Duke Power Company. Both GPU Nuclear Corporation and Sacramento Municipal Utility District plan to employ the NUHOMS system. The system consists of three major safety-related components: a dry shielded canister (DSC), which provides a high-integrity containment boundary; a controlled concrete horizontal storage module (HSM), which houses the stored DSC and provides radiation shielding, protection against natural phenomena, and an efficient means for decay heat removal; and a transfer cask, which provides for the safe shielded transfer of the DSC from the plant spent-fuel pool to the storage module. The NUHOMS system is designed and licensed to meet the requirements of 10 CFR 72 and ANS/ANSI 57.9 for ISFSIs.

From the standpoint of emergency preparedness, the impacts of dry cask storage installations should be minor for three reasons. First, because of the reduced radioactive inventory in the fuel stored in dry cask facilities, accidents involving such storage facilities are likely to develop more slowly than those involving the nearby operating reactors. Second, accident impacts should be low, again because of the reduced inventories of radioactive materials in the stored fuel but also because of the correspondingly reduced level of decay heat compared with fuel still in-reactor. Thus, emergency plans formulated for operating reactors should encompass accidents at dry cask storage facilities. Third, it is NRC policy that plants with dry cask storage facilities incorporate the potential sources of hazard from these storage facilities in their emergency plans, as well as the potential hazard from all radiological source terms at the plant site.

Table 6.16 shows present and anticipated spent-fuel management methods in 8 of the 10 plants in the study sample. Practices in these eight plants are illustrative of industry-wide trends. While pool storage remains the most widespread method of spent-fuel management, dry storage and extended burnup are actively under development, mirroring national trends. NRC-licensed, full-scale demonstrations of

The Commission prepares an EA for each approved cask listed in 10 CFR 72.214. These EAs are tiered off the "Final Waste Confidence Decision," August 31, 1984 (49 FR 34688), the *Environment Assessment for 10 CFR 72 "Requirements for the Independent Storage of Spent Fuel and High-Level Radioactive Waste,"* NUREG-1092 (August 1984), and the "Environmental Assessment for Proposed Rule Entitled 'Storage of Spent Nuclear Fuel in NRC-Approved Storage Casks at Nuclear Power Reactor Sites,'" for the proposed rule published on May 5, 1989 (54 FR 19379). Additional impacts evaluated are those associated with the construction, use, and disposal of the cask. These impacts are very small compared to the total impact of the steel industry, plastics industry, and the concrete industry. The incremental impacts of cask use are considered small. No effluents, either gaseous or liquid, are expected from the sealed casks. Incremental radiation doses off site are also considered to be small compared to those from the other operations on the site. Based on the above summary a finding of no significant impact is appropriate. This finding has been made for each of the seven casks listed in 10 CFR 72.214. Power reactor licensees using one of the listed casks under a general license do not need to prepare an environmental report, nor does the NRC have to prepare an EA.

6.4.6.5 Expanding Fuel-Pool Capacity

The Commission prepares an EA for each request to expand the capacity of a spent-fuel pool. The EA prepared for the increase in the allowed fuel assembly storage for the Pilgrim Nuclear Power Station is a typical example of this type of action. Alternatives looked at include (1) shipment of fuel to a permanent federal fuel-storage/disposal facility, (2) shipment of fuel to a reprocessing facility, (3) shipment of fuel to another utility or site for storage, (4) reduction of spent-fuel generation, (5) construction of a new independent spent-fuel storage installation, and (6) no action. After evaluating the alternatives, the proposed action of increasing the capacity of the spent-fuel pool is the best one at the time; however, in the longer term, an ISFSI is the solution. Radioactive exposures, waste generation, and releases were evaluated and found to be incrementally small. The only nonradiological effluent is additional heat rejected from the plant. This additional heat is small compared to the total rejected by the rest of the plant, and it will have a negligible effect on the environment. The risks due to accidents and their environmental effects are found to be not significant.

6.4.6.6 Regulations Applicable

10 CFR Parts 72, 60, and 61.

6.4.6.7 Conclusion

The Commission's waste confidence finding at 10 CFR 51.23 leaves only the on-site storage of spent fuel during the term of plant operation as a high-level-waste storage and disposal issue at the time of license renewal. The Commission's regulatory requirements and the experience with on-site storage of spent fuel in fuel pools and dry storage has been reviewed. Within the context of a license renewal review and determination, the Commission finds that there is 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. Radiological

impacts will be well within regulatory limits; thus radiological impacts of on-site storage meet the standard for a conclusion of small impact. The nonradiological environmental impacts have been shown to be not significant; thus they are classified as small. The overall conclusion for on-site storage of spent fuel during the term of a renewed license is that the environmental impacts will be small for each plant. The need for the consideration of mitigation alternatives within the context of renewal of a power reactor license 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. On-site storage of spent fuel during the term of a renewed operating license is a Category 1 issue.

6.5 NONRADIOLOGICAL WASTES

Nonradiological wastes from routine plant operations include those from cooling system blowdown (continual or periodic purging of impurities from cooling systems), water treatment wastes (sludges and high-saline streams whose residues are disposed of as solid waste), boiler metal cleaning, floor and yard drains, storm-water runoff, sewage wastes, and cleaning solvents (NUREG-0020). Descriptions of these waste-generating systems are provided in Section 2.1.6. If nonradiological sanitary wastes cannot be processed by on-site water treatment systems, they are collected by independent contractors and trucked to off-site treatment facilities. If wastes have hazardous constituents, proper handling and disposal are required to minimize potential contamination of surface water and groundwater. In this section, a review of literature on nonradiological waste management throughout the industry was used to depict baseline conditions and to infer the effects of license renewal.

6.5.1 Baseline

Stringent regulations governing the generation of nonradioactive solid waste and the resulting efforts of utilities to establish waste minimization and pollution prevention programs are expected to produce a general decline in the general production of waste by nuclear power plants during the period prior to license renewal. Nonradioactive hazardous solid waste disposal from all nuclear power plants is governed by RCRA (Pub. L. 94-580). RCRA requires EPA and state agencies to establish a permit system for disposal of these wastes in licensed landfills. Utilities have undertaken changes in operation to ensure proper handling and disposal of these wastes in accordance with RCRA, including periodic removal of septic tank sludge by a licensed contractor and disposal on or off site in an approved sanitary system. Construction-related solid wastes are discharged to holding ponds until chemical discharges and runoff are suitable for discharge to surface waters on a batch basis. These latter discharges must comply with allowable standards under RCRA permits.

6.5.2 Effects of License Renewal

Solid nonradiological waste from blowdown, water treatment, boiler metal cleaning, floor and yard drains, storm-water runoff, and sewage wastes will likely remain of limited concern during license renewal for three reasons. First, no changes to the systems that generate these wastes are anticipated as a result of license renewal for all plants. Second, existing regulations, including National Pollutant

site storage of low-level waste and that for off-site disposal mitigation would be a site-specific consideration in the licensing of each facility. In addition, the Commission concludes that there is reasonable assurance that sufficient low-level waste disposal capacity will be made available when needed for facilities to be decommissioned consistent with NRC decommissioning requirements. Low-level waste is a Category 1 issue.

- The radiological and nonradiological environmental impacts from the storage and disposal of mixed waste attributable to license renewal of a power reactor have been reviewed. The comprehensive regulatory controls and the facilities and procedures that are in place ensure proper handling and storage, as well as negligible doses and exposure to toxic materials for the public and the environment at all plants. License renewal will not increase the small, continuing risk to human health and the environment posed by mixed waste at all plants. The radiological and nonradiological environmental impacts of long-term disposal of mixed waste from any individual plant at licensed sites are small. The maximum additional on-site land that may be required for mixed waste is a small fraction of that needed for low-level waste storage during the term of a renewed license, and associated impacts will be small. Nonradiological environmental impacts on air and water will be negligible. The radiological and nonradiological environmental impacts of long-term disposal of mixed waste from any individual plants at licensed sites are small. The need for the consideration of mitigation alternatives within the context of renewal of a power reactor license has been considered and the Commission concludes that its regulatory requirements already in place provide adequate mitigation incentives for on-site storage of mixed waste and that for off-site disposal mitigation would be a site-specific consideration in the licensing of each facility. In addition, the Commission concludes that there is reasonable assurance that sufficient mixed-waste-disposal capacity will be made available when needed for faculties to be decommissioned consistent with NRC decommissioning requirements. Mixed waste is a Category 1 issue.

- The Commission's waste confidence finding at 10 CFR 51.23 leaves only the on-site storage of spent fuel during the term of plant operation as a high-level waste storage and disposal issue at the time of license renewal. The Commission's regulatory requirements and the experience with on-site storage of spent fuel in fuel pools and dry storage has been reviewed. Within the context of a license renewal review and determination, the Commission finds that there is 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. Radiological impacts will be well within regulatory limits, thus radiological impacts of on-site storage meet the standard for a conclusion of small impact. The nonradiological environmental impacts have been shown to be not significant; thus they are classified as small. The overall conclusion for on-site storage of spent fuel during the term of a renewed

license is that the environmental impacts will be small for each plant. The need for the consideration of mitigation alternatives within the context of renewal of a power reactor license 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. On-site storage of spent fuel during the term of a renewed operating license is a Category 1 issue.

- The environmental impacts from the storage and disposal of nonradiological waste attributable to the license renewal of a power reactor have been reviewed. Regulatory and operational trends suggest a gradual decrease in quantifies generated annually and the impacts during the terms of renewed licenses. Facilities and procedures are in place to ensure continued proper handling and disposal at all plants. Consequently, the generation and management of solid nonradioactive waste during the term of a renewed license is anticipated to result in only small impacts to the environment. Because the facilities and procedures that are in place are expected to ensure continued proper handling and disposal at each plant, additional mitigative measures are not a consideration in the context of a license renewal review. Nonradiological waste is a Category 1 issue.

6.7 ENDNOTES

1. The expiration dates of the 109 operating reactor licenses are presented in Table 12 of NUREG-1350, Vol 7. Nine expire in the period 2000–2009, 55 in 2010–2019, 43 in 2020–2029, 1 in 2030, and 1 in 2033.
2. The first new LLW sites are forecast in 1997 and 1998 (California, North Carolina, and Texas) and seven in the period 1999–2002.
3. 40 CFR 190.10 Standards for normal operations—"Operations covered by this Subpart shall be conducted in such a manner as to provide reasonable assurance that:
   (a) The annual dose equivalent does not exceed 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of any member of the public as the result of exposures to planned discharges of radioactive materials, radon and its daughters excepted, to the general environment from uranium fuel cycle operations and to radiation from these operations.
   (b) The total quantity of radioactive materials entering the general environment from the entire uranium fuel cycle, per gigawatt-year of electrical energy produced by the fuel cycle, contains less than 50,000 curies of krypton-85, 5 millicuries of iodine-129, and 0.5 millicuries combined of plutonium-239 and other alpha-emitting transuranic radionuclides with half-lives greater than one year."

6.8 REFERENCES

AIF/NESP-032, *The Environmental Consequences of Higher Fuel Burn-up*, prepared by Envirosphere Co. and Babcock and Wilcox, Inc., Bethesda, Md. for the National Environmental Studies Project of the Atomic Industrial Forum, Inc., June 1985.