LBP-06-23

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

RAS 12381 **DOCKETED 10/16/06**

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judges: **SERVED 10/16/06**

Ann Marshall Young, Chair
Dr. Paul B. Abramson
Dr. Richard F. Cole

In the Matter of:	Docket No. 50-293-LR
ENTERGY NUCLEAR GENERATION COMPANY AND ENTERGY NUCLEAR OPERATIONS, INC. (Pilgrim Nuclear Power Station)	ASLBP No. 06-848-02-LR
	October 16, 2006

MEMORANDUM AND ORDER
(Ruling on Standing and Contentions of Petitioners Massachusetts Attorney General and Pilgrim Watch)

I. Introduction

This proceeding involves the application of Entergy Nuclear Operations, Inc., to renew its operating license for the Pilgrim Nuclear Power Station for an additional twenty-year period. The Massachusetts Attorney General and the non-profit citizens' organization, Pilgrim Watch, have filed petitions to intervene, in which they submit contentions challenging various safety and environmental aspects of the proposed license renewal. In addition, the Town of Plymouth, Massachusetts, where the Pilgrim plant is located, is participating in this proceeding as an interested local governmental body, pursuant to 10 C.F.R. § 2.315(c).

In this Memorandum and Order we find that both Petitioners have shown standing to participate in the proceeding and that Pilgrim Watch has submitted two admissible contentions. We therefore grant the hearing request of Pilgrim Watch as to Contentions 1 and 3, to the extent discussed and defined below. These contentions relate, respectively, to the aging management program for the Pilgrim plant with regard to inspection for corrosion of buried pipes and tanks and detection of leakage of radioactive water that might result from undetected corrosion and aging; and to certain input data that Pilgrim Watch asserts should have been considered by the Applicant in its "severe accident mitigation alternatives," or "SAMA," analysis.

II. Background

Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc. ("Entergy" or "Applicant") submitted its application requesting renewal of the Pilgrim Nuclear Power Station ("PNPS," or "Pilgrim") operating license on January 25, 2006.[1] In response to a March 27,

[1] *See* 71 Fed. Reg. 15,222 (Mar. 27, 2006); *see also* Pilgrim Nuclear Power Station License Renewal Application, ADAMS Accession No. ML060300028 [hereinafter Application]. In addition to other appendices, the Pilgrim Application includes the Applicant's Environmental Report for Operating License Renewal Stage, ADAMS Accession No. ML060830611 [hereinafter Environmental Report or ER].

2006, Federal Register notice of opportunity for hearing on the proposed license renewal,[2] timely requests for a hearing and petitions to intervene were filed by Petitioners Pilgrim Watch ("PW")[3] and the Massachusetts Attorney General ("AG"),[4] on May 25 and 26, 2006, respectively. Pilgrim Watch's Petition included five contentions; the Petition filed by the Attorney General proffered a single contention. Subsequently, on June 5, 2006, Pilgrim Watch gave notice pursuant to 10 C.F.R. §§ 2.309(f)(3) and 2.323 of its adoption of the contention filed by the Attorney General,[5] and on June 16 the Attorney General filed a letter requesting that the Licensing Board apply the June 2, 2006, decision of the U.S. Court of Appeals for the Ninth

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[2] *See* 71 Fed. Reg. at 15,222.

[3] *See* Request for Hearing and Petition to Intervene by Pilgrim Watch (May 25, 2006) [hereinafter Pilgrim Watch Petition or PW Petition].

[4] *See* Massachusetts Attorney General's Request for a Hearing and Petition for Leave to Intervene With Respect to Entergy Nuclear Operation's Inc.'s Application for Renewal of the Pilgrim Nuclear Power Plant Operating License and Petition for Backfit Order Requiring New Design Features to Protect Against Spent Fuel Pool Accidents (May 26, 2006) [hereinafter Attorney General Petition or AG Petition].

As indicated by its title, the AG in its Petition also requests the Commission "to initiate a proceeding for the backfitting of the Pilgrim nuclear power plant to protect against a design-basis accident involving a fire in the spent fuel pool." Attorney General Petition at 50; *see id.* at 48-50. As this part of the petition is directed to the Commission and not this Licensing Board, we have not ruled on it. *See* Tr. at 157; *see also* Massachusetts Attorney General's Reply to Entergy's and NRC Staff's Responses to Hearing Request and Petition to Intervene with Respect to Pilgrim License Renewal Proceeding (June 29, 2006) at 31 [hereinafter Attorney General Reply or AG Reply]. We note that on October 10, 2006, the Commission issued an Order denying the Attorney General's petitions for backfitting in this and the *Vermont Yankee* proceeding (in which the AG filed an essentially identical contention to that filed in this proceeding, *see* Massachusetts Attorney General's Request For a Hearing and Petition for Leave to Intervene With Respect To Entergy Nuclear Operations Inc.'s Application For Renewal Of The Vermont Yankee Nuclear Power Plant Operating License and Petition For Backfit Order Requiring New Design Features To Protect Against Spent Fuel Pool Accidents (May 26, 2006), ADAMS Accession No. MLO61640065), and advising that if the AG wishes to pursue the matter he may file a request for NRC enforcement action under 10 C.F.R. § 2.206. *See* CLI-06-26, 64 NRC __, __(slip op. at 2-3) (Oct. 10, 2006).

In addition, the Attorney General on August 25, 2006, filed with the Commission a Petition for Rulemaking to Amend 10 C.F.R. Part 51 with respect to issues relating to spent fuel storage, which likewise is not before this Licensing Board. *See* Massachusetts Attorney General's Petition for Rulemaking to Amend 10 C.F.R. Part 51 (Aug. 25, 2006), ADAMS Accession No. ML062640409.

[5] *See* Notice of Adoption of Contention by Pilgrim Watch (June 5, 2006).

Circuit in the case, *San Luis Obispo Mothers for Peace v. Nuclear Regulatory Commission*, in ruling on its contention.[6]

Meanwhile, on June 7, 2006, a Licensing Board constituted of Judges Young, Cole, and Nicholas Trikouros was established to preside over this proceeding, and on June 14 the Board issued a scheduling order, providing guidance for the conduct of the proceeding.[7] The Board subsequently, on June 20, 2006, held a telephone conference to address various prehearing matters,[8] and, in an Order issued June 21, among other things scheduled, in response to the requests of the Petitioners and the Town of Plymouth, a limited appearance session to hear comments from the public pursuant to 10 C.F.R. § 2.315(a), to be held in early July in conjunction with oral argument on Petitioners' contentions.[9]

The NRC Staff responded to Pilgrim Watch's Notice of Adoption on June 15, 2006,[10] and to the Petitions of Pilgrim Watch and the Attorney General on June 19 and 22, 2006, respectively.[11] Entergy filed its Answer to the Attorney General's Petition on June 22, and responded to the Pilgrim Watch Petition on June 26, 2006, including therein its response to

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[6]Letter from Diane Curran to Licensing Board (June 16, 2006), providing Recent Decision by U.S. Court of Appeals for the Ninth Circuit (June 16, 2006), ADAMS Accession No. ML061740349 [hereinafter AG Letter]. The *Mothers for Peace* decision was subsequently published at 449 F.3d 1016 (9th Cir. 2006).

[7]*See* 71 Fed. Reg. 34,170 (June 13, 2006); Licensing Board Order (Regarding Schedule and Guidance for Proceedings) (June 14, 2006) (unpublished).

[8]*See* Transcript at 1-42.

[9]*See* Licensing Board Order and Notice (Regarding Oral Argument and Limited Appearance Statement Sessions) (June 21, 2006) (unpublished); Request of Town of Plymouth to Participate as of Right Under 2.315(c) (June 16, 2006).

[10]*See* NRC Staff Answer to Notice of Adoption of Contentions By Pilgrim Watch (June 15, 2006).

[11]*See* NRC Staff's Response to Request for Hearing and Petition to Intervene Filed by Pilgrim Watch (June 19, 2006) [hereinafter Staff Response to PW Petition]; NRC Staff Answer Opposing Massachusetts Attorney General's Request for Hearing and Petition for Leave to Intervene and Petition for Backfit Order (June 22, 2006) [hereinafter Staff Response to AG Petition].

Pilgrim Watch's Notice of Adoption of Contention.[12] On June 29, 2006, the Massachusetts Attorney General filed a combined reply to the Answers of Entergy and the NRC Staff.[13] Pilgrim Watch filed its Replies to the Answers of the NRC Staff and Entergy on June 27 and July 3, 2006, respectively.[14]

On July 6 and 7, 2006, the Board held oral argument on the admissibility of the Petitioner's contentions, with the Petitioners, the NRC Staff, Entergy, and the Town of Plymouth participating, in Plymouth, Massachusetts.[15] Following oral argument, the Board required the participants to file supplemental briefs on material insufficiently addressed by the participants to that point.[16] The parties submitted these briefs on July 21,[17] and the Attorney General filed a reply to the briefs filed by Entergy and the NRC Staff on July 26, 2006.[18] On July 27, 2006, the

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[12] *See* Entergy's Answer to the Massachusetts Attorney General's Request for a Hearing, Petition for Leave to Intervene, and Petition for Backfit Order (June 22, 2006) [hereinafter Entergy Answer to AG Petition]; Entergy's Answer to the Request for Hearing and Petition to Intervene by Pilgrim Watch and Notice of Adoption of Contention (June 26, 2006) [hereinafter Entergy Answer to PW Petition].

[13] *See* Attorney General Reply.

[14] *See* Pilgrim Watch Reply to NRC Answer to Request for Hearing and Petition to Intervene by Pilgrim Watch (June 27, 2006) [hereinafter PW Reply to NRC Staff]; Pilgrim Watch Reply to Entergy Answer to Request for Hearing and Petition to Intervene by Pilgrim Watch (July 3, 2006) [hereinafter PW Reply to Entergy].

[15] *See* Tr. at 40-456. While in Plymouth the Board also conducted the previously-scheduled limited appearance session, hearing statements of members of the public pursuant to 10 C.F.R. § 2.315(a). Limited Appearance Transcript at 1-36.

[16] *See* Licensing Board Order (Regarding Need for Further Briefing on Definition of "New and Significant Information" As Addressed in Participants' Petitions, Answers and Replies Relating to Massachusetts Attorney General Contention and Pilgrim Watch Contention 4) (July 14, 2006) (unpublished).

[17] *See* Entergy's Brief on New and Significant Information in Response to Licensing Board Order of July 14, 2006 (July 21, 2006); Massachusetts Attorney General's Brief Regarding Relevance to this Proceeding of Regulatory Guide's Definition of "New and Significant Information" (July 21, 2006); NRC Staff's Response to July 14, 2006 Licensing Board Order (July 21, 2006).

[18] *See* Massachusetts Attorney General's Reply Brief Regarding Relevance to this Proceeding of Regulatory Guide's Definition of "New and Significant Information" (July 26, 2006).

Board held a teleconference to discuss the supplemental briefs and topics regarding two of the proffered NEPA-based contentions.[19]

Additionally, at the conclusion of the July 27 teleconference, Judge Trikouros read into the record a disclosure statement outlining work that was previously performed by a consulting company of which he was a principal, which included certain analytical services for Entergy regarding a spent fuel pool for another pressurized water reactor owned and operated by Entergy.[20] This was followed by the August 4 filing, by the Attorney General and Pilgrim Watch, of Motions for Disqualification of Judge Trikouros, which were opposed by Entergy in a Response filed August 14, 2006.[21] Acting on the Motions, Judge Trikouros recused himself from the proceeding on August 30, 2006; on the same date, the Chief Administrative Judge of the Atomic Safety and Licensing Board Panel reconstituted the Licensing Board by appointing Administrative Judge Paul B. Abramson to sit in place of Judge Trikouros.[22] The deliberations that have led to the rulings herein stated have been among the members of the Board as currently constituted.

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[19] *See* Tr. at 457-93.

[20] *See* Tr. at 489-492.

[21] *See* Massachusetts Attorney General's Motion for Disqualification of Judge Nicholas Trikouros (Aug. 4, 2006); Motion on Behalf of Pilgrim Watch for Disqualification of Judge Nicholas Trikouros in the Pilgrim Nuclear Power Station Re-Licensing Proceeding (Aug. 4, 2006); Entergy's Response to Motions for Disqualification of Judge Nicholas Trikouros (Aug. 14, 2006).

[22] *See* Notice of Reconstitution (Aug. 30, 2006), 71 Fed. Reg. 52,590 (Sept. 6, 2006).

III. Board Rulings on Standing of Petitioners to Participate in Proceeding

A petitioner's standing, or right to participate in a Commission licensing proceeding, is derived from section 189a of the Atomic Energy Act (AEA), which requires the NRC to provide a hearing "upon the request of any person whose interest may be affected by the proceeding."[23] The Commission has implemented this requirement in its regulations at 10 C.F.R. § 2.309.[24]

When determining whether a petitioner has established the necessary "interest" under Commission rules, licensing boards are directed by Commission precedent to look to judicial concepts of standing for guidance.[25] Under this authority, in order to qualify for standing a petitioner must allege "(1) a concrete and particularized injury that is (2) fairly traceable to the challenged action and (3) likely to be redressed by a favorable decision" — three criteria commonly referred to as "injury in fact," causality, and redressability.[26] The requisite injury may be either actual or threatened,[27] but must arguably lie within the "zone of interests" protected by the statutes governing the proceeding — here, either the AEA or the National Environmental

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[23] 42 U.S.C. § 2239(a)(1)(A) (2000).

[24] Subsection (d)(1) of § 2.309 provides in relevant part that the Board shall consider three factors when deciding whether to grant standing to a petitioner: the nature of the petitioner's right under the AEA to be made a party to the proceeding; the nature and extent of the petitioner's property, financial, or other interest in the proceeding; and the possible effect of any order that may be entered in the proceeding on the petitioner's interest. 10 C.F.R. § 2.309(d)(1)(ii)-(iv). The provisions of 10 C.F.R. § 2.309 were formerly found at 10 C.F.R. § 2.714, prior to a major revision of the Commission's procedural rules for adjudications in 2004.

[25] *See, e.g., Yankee Atomic Elec. Co.* (Yankee Nuclear Power Station), CLI-98-21, 48 NRC 185, 195 (1998); *Quivira Mining Co.* (Ambrosia Lake Facility, Grants, New Mexico), CLI-98-11, 48 NRC 1, 5-6 (1998); *Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), CLI-95-12, 42 NRC 111, 115 (1995).

[26] *Yankee*, CLI-98-21, 48 NRC at 195 (citing *Steel Co. v. Citizens for a Better Env't*, 523 U.S. 83, 102-04 (1998); *Kelley v. Selin*, 42 F.3d 1501, 1508 (6th Cir. 1995)).

[27] *Id.* (citing *Wilderness Soc'y v. Griles*, 824 F.2d 4, 11 (D.C. Cir. 1987)).

Policy Act (NEPA).[28] Additionally, Commission caselaw has established a "proximity presumption," whereby an individual may satisfy these standing requirements by demonstrating that his or her residence is within the geographical area that might be affected by an accidental release of fission products, and in proceedings involving nuclear power plants this area has been defined as being within a 50-mile radius of such a plant.[29] Accordingly, it will be presumed that the elements of standing are satisfied if an individual lives within the zone of possible harm from the significant source of radioactivity, without requiring a party to specifically plead injury, causation, and redressability.[30]

An organization, such as Pilgrim Watch, that wishes to establish standing to intervene may do so by either demonstrating organizational standing or representational standing. In order to establish organizational standing it must show that the interests of the organization will be harmed by the proceeding, while an organization seeking representational standing must demonstrate that the interests of at least one of its members will be harmed by the proceeding.[31] For an organization to establish representational standing, the organization must: (1) show that at least one of its members may be affected by the licensing action and, accordingly, would have standing to sue in his or her own right; (2) identify that member by name and address; and (3) show that the organization is authorized to request a hearing on

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[28] *Id.* at 195-196 (citing *Ambrosia Lake Facility*, CLI-98-11, 48 NRC at 6).

[29] *See Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Units 1 and 2), CLI-89-21, 30 NRC 325, 329 (1989); *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plants, Units 3 and 4), LBP-01-06, 53 NRC 138, 146-150 (2001); *Virginia Elec. and Power Co.* (North Anna Nuclear Power Station, Units 1 & 2), ALAB-522, 9 NRC 54, 56 (1979) ("close proximity [to a facility] has always been deemed to be enough, standing alone, to establish the requisite interest" to confer standing).

[30] *See id.*

[31] *See Yankee*, CLI-98-21, 48 NRC at 195.

behalf of that member.[32] Further, the Commission's regulations explain that a State "that wishes to be a party in a proceeding for a facility located within its boundaries need not address the standing requirements." 10 C.F.R. § 2.309(d)(2).

Entergy does not challenge either the Massachusetts Attorney General's or Pilgrim Watch's standing to participate in this proceeding.[33] The NRC Staff does not contest the standing of the Massachusetts Attorney General to intervene in this proceeding,[34] and because Pilgrim Watch's representative, Mary Lampert, meets the longstanding "proximity presumption" principle in NRC adjudicatory proceedings the NRC Staff does not dispute that Pilgrim Watch has demonstrated representational standing.[35]

We agree, based on the physical proximity of their representative to the Pilgrim Nuclear Power Station, and because the affected member has authorized the Petitioner organization to represent her in this proceeding, that the Pilgrim Watch has demonstrated representational standing to participate under AEA § 189a and the Commission's rules.[36] Further, we find that the Massachusetts Attorney General has standing to participate in this proceeding as a representative of the State of Massachusetts as outlined by the Commission in 10 C.F.R. § 2.309(d)(2).

IV. Standards for Admissibility of Contentions in License Renewal Proceedings

A. Regulatory Requirements on Contentions

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[32] *See GPU Nuclear, Inc.* (Oyster Creek Nuclear Generating Station), CLI-00-06, 51 NRC 193, 202 (2000).

[33] *See* Entergy Answer to AG Petition at 2; Entergy Answer to Pilgrim Watch at 2.

[34] *See* NRC Staff Answer to AG Petition at 3.

[35] *See* NRC Staff Answer to Pilgrim Watch at 5.

[36] *See Yankee*, CLI-98-21, 48 NRC at 195; *Georgia Tech*, CLI-95-2, 42 NRC at 115; *Turkey Point*, LBP-01-6, 53 NRC at 146-50.

To intervene in an NRC proceeding, a petitioner must, in addition to demonstrating standing, submit at least one contention meeting the requirements of 10 C.F.R. § 2.309(f)(1).[37] Failure of a contention to meet any of the requirements of § 2.309(f)(1) is grounds for its dismissal.[38] Heightened standards for the admissibility of contentions originally came into being in 1989, when the Commission amended its rules to "raise the threshold for the admission of contentions."[39] The Commission has more recently stated that the "contention rule is strict by design," having been "toughened . . . in 1989 because in prior years licensing boards had

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[37] *See* 10 C.F.R. § 2.309(a). 10 C.F.R. § 2.309(f)(1) states that:

> (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;
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> (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; and
>
> (vi) 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 the 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.

[38] *See Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-99-10, 49 NRC 318, 325 (1999); *Arizona Pub. Serv. Co.* (Palo Verde Nuclear Generating Station, Units 1, 2, and 3), CLI-91-12, 34 NRC 149, 155-56 (1991).

[39] Rules of Practice for Domestic Licensing Proceedings – Procedural Changes in the Hearing Process, 54 Fed. Reg. 33,168, 33,168 (Aug. 11, 1989); *see also Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2, and 3), CLI-99-11, 49 NRC 328, 334 (1999).

admitted and litigated numerous contentions that appeared to be based on little more than speculation."[40]

The Commission has explained that the "strict contention rule serves multiple interests."[41] These include the following (quoted in list form):

> First, it focuses the hearing process on real disputes susceptible of resolution in an adjudication. For example, a petitioner may not demand an adjudicatory hearing to attack generic NRC requirements or regulations, or to express generalized grievances about NRC policies.
>
> Second, the rule's requirement of detailed pleadings puts other parties in the proceeding on notice of the Petitioners' specific grievances and thus gives them a good idea of the claims they will be either supporting or opposing.
>
> Finally, the rule helps to ensure that full adjudicatory hearings are triggered only by those able to proffer at least some minimal factual and legal foundation in support of their contentions.[42]

In February 2004 a new revision of the procedural rules came into effect.[43] Although these rules no longer incorporate provisions formerly found at 10 C.F.R. §§ 2.714(a)(3), (b)(1), which permitted the amendment and supplementation of petitions and the filing of contentions after the original filing of petitions,[44] and contain various changes to provisions relating to the hearing process,[45] they contain essentially the same substantive admissibility standards for contentions.

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[40] *Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-01-24, 54 NRC 349, 358 (2001) (citing *Oconee*, CLI-99-11, 49 NRC at 334).

[41] *Oconee*, CLI-99-11, 49 NRC at 334.

[42] *Id.* (citations omitted).

[43] "Changes to Adjudicatory Process," 69 Fed. Reg. 2182 (Jan. 14, 2004).

[44] Under the current rules contentions must be filed with the original petition, within 60 days of notice of the proceeding in the *Federal Register* (unless another period is therein specified). *See* 10 C.F.R. § 2.309(b)(3)(iii).

[45] In this connection we note that a challenge to the new rules by several public interest groups (supported by several states including Massachusetts) was overruled in the case of *Citizens Awareness Network, Inc. v. NRC [CAN v. NRC]*, 391 F.3d 338 (1st Cir. 2004). The Court denied the petitions for review, finding that the new procedures "comply with the relevant provisions of the APA and that the

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In its Statement of Considerations adopting the new rules, the Commission reiterated the same principles that previously applied; namely, that "[t]he threshold standard is necessary to ensure that hearings cover only genuine and pertinent issues of concern and that the issues are framed and supported concisely enough at the outset to ensure that the proceedings are effective and focused on real, concrete issues."[46] Additional guidance with respect to each of the requirements now found in subsections (i) through (vi) of § 2.309(f)(1) is found in NRC case law.

Although we do not recount this guidance in any detail in the body of this Memorandum, primarily in view of the sheer size of this body of law, we have — because of its critical importance in determining whether petitioners are granted evidentiary hearings in NRC adjudicatory proceedings — attached as an Appendix to our Memorandum and Order a more detailed and in-depth discussion highlighting the contention admissibility standards as they have been interpreted in various NRC adjudication proceedings. Our rulings herein are informed by these requirements and principles.

B. Scope of Subjects Admissible in License Renewal Proceedings

One of the contention admissibility standards limits contentions to issues demonstrated to be "within the scope" of a proceeding.[47] Commission regulations and case law address in some detail the scope of license renewal proceedings, which generally concern requests to renew 40-year operating licenses for additional 20-year terms.[48] The regulatory authority relating to

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[45](...continued)
Commission has furnished an adequate explanation for the changes." *Id.* at 343.

[46]69 Fed. Reg. at 2189-90.

[47]*See* 10 C.F.R. § 2.309(f)(1)(iii).

[48]10 C.F.R. § 54.31(b) provides that:

[a] renewed license will be issued for a fixed period of time, which is the sum of the

(continued...)

license renewal is found at 10 C.F.R. Parts 51 and 54. Part 54 concerns the "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," and addresses safety-related issues in license renewal proceedings.[49] Part 51, concerning "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," addresses the environmental aspects of license renewal.[50] The Commission has interpreted these provisions in various adjudicatory proceedings, probably most extensively in a decision in the 2001 *Turkey Point* proceeding.[51]

Safety-Related Issues in License Renewal Proceedings

Various sections of Part 54 speak to the scope of safety-related issues in license renewal proceedings. First, 10 C.F.R. § 54.4, titled "Scope," specifies the plant systems, structures, and components that are within the scope of this part.[52] Sections 54.3 (containing definitions),

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[48](...continued)
additional amount of time beyond the expiration of the operating license (not to exceed 20 years) that is requested in a renewal application plus the remaining number of years on the operating license currently in effect. The term of any renewed license may not exceed 40 years.

10 C.F.R. § 50.51(a) states in relevant part that "[e]ach [original] license will be issued for a fixed period of time to be specified in the license but in no case to exceed 40 years from date of issuance."

[49]*See* 10 C.F.R. Part 54.

[50]*See* 10 C.F.R. Part 51.

[51]*See Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 11-13 (2001); *see also Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2, Catawba Nuclear Station, Units 1 and 2), CLI-02-26, 56 NRC 358, 363-64 (2002); *Baltimore Gas & Elec. Co.* (Calvert Cliffs Nuclear Power Plant, Units 1 and 2), CLI-98-14, 48 NRC 39, 41 (1998), *motion to vacate denied*, CLI-98-15, 48 NRC 45 (1998); *Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2 and 3), CLI-98-17, 48 NRC 123, 125 (1998); *Turkey Point*, CLI-00-23, 52 NRC 327, 329 (2000); *Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 and 3), LBP-04-15, 60 NRC 81, 90, *aff'd*, CLI–04-36, 60 NRC 631 (2004).

[52]10 C.F.R. § 54.4(a) describes those "systems, structures, and components" that are within scope as:

(1) Safety-related systems, structures, and components which are those relied upon to remain functional during and following design-basis events (as defined in 10 CFR 50.49 (b)(1)) to ensure the following functions--

(continued...)

54.21 (addressing technical information to be included in an application and further identifying relevant structures and components), and 54.29 (stating the "Standards for issuance of a renewed license") provide additional definition of what is encompassed within a license renewal review, limiting the scope to aging-management issues and some "time-limited aging analyses" that are associated with the functions of relevant plant systems, structures, and components.[53] Applicants must "demonstrate how their programs will be effective in managing the effects of aging during the proposed period of extended operation," at a "detailed . . . 'component and structure level,' rather than at a more generalized 'system level.'"[54]

The Commission in *Turkey Point* stated that, in developing 10 C.F.R. Part 54 beginning in the 1980s, it sought "to develop a process that would be both efficient, avoiding duplicative assessments where possible, and effective, allowing the NRC Staff to focus its resources on the most significant safety concerns at issue during the renewal term."[55] Noting that the "issues and concerns involved in an extended 20 years of operation are not identical to the issues

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[52](...continued)
(i) The integrity of the reactor coolant pressure boundary;
(ii) The capability to shut down the reactor and maintain it in a safe shutdown condition; or
(iii) The capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to those referred to in § 50.34(a)(1), § 50.67(b)(2), or § 100.11 of this chapter, as applicable.
(2) All nonsafety-related systems, structures, and components whose failure could prevent satisfactory accomplishment of any of the functions identified in paragraphs (a)(1)(i), (ii), or (iii) of this section.
(3) All systems, structures, and components relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with the Commission's regulations for fire protection (10 CFR 50.48), environmental qualification (10 CFR 50.49), pressurized thermal shock (10 CFR 50.61), anticipated transients without scram (10 CFR 50.62), and station blackout (10 CFR 50.63).

[53]*See* Final Rule, Nuclear Power Plant License Renewal; Revisions, 60 Fed. Reg. 22,461, 22,463 (May 8, 1995).

[54]*Turkey Point*, CLI-01-17, 54 NRC at 8 (quoting 60 Fed. Reg. at 22,462).

[55]*Id.* at 7.

reviewed when a reactor facility is first built and licensed," the Commission found that requiring a full reassessment of safety issues that were "thoroughly reviewed when the facility was first licensed" and continue to be "routinely monitored and assessed by ongoing agency oversight and agency-mandated licensee programs" would be "both unnecessary and wasteful."[56] Nor did the Commission "believe it necessary or appropriate to throw open the full gamut of provisions in a plant's current licensing basis to re-analysis during the license renewal review."[57]

The Commission chose, rather, to focus the NRC license renewal safety review "upon those potential detrimental effects of aging that are not routinely addressed by ongoing regulatory oversight programs," which it considered "the most significant overall safety concern posed by extended reactor operation."[58] The Commission in *Turkey Point* described some of the "Detrimental Effects of Aging and Related Time-Limited Issues" as follows:

> By its very nature, the aging of materials "becomes important principally during the period of extended operation beyond the initial 40-year license term," particularly since the design of some components may have been based explicitly upon an assumed service life of 40 years. See id.; see also Final Rule, "Nuclear Power Plant License

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[56] *Id.*

[57] *Id.* at 9. "Current licensing basis" (CLB) is described by the Commission in *Turkey Point* as follows:

> ["CLB" is] a term of art comprehending the various Commission requirements applicable to a specific plant that are in effect at the time of the license renewal application. The current licensing basis consists of the license requirements, including license conditions and technical specifications. It also includes the plant-specific design basis information documented in the plant's most recent Final Safety Analysis Report, and any orders, exemptions, and licensee commitments that are part of the docket for the plant's license, *i.e.*, responses to NRC bulletins, generic letters, and enforcement actions, and other licensee commitments documented in NRC safety evaluations or licensee event reports. *See* 10 C.F.R. § 54.3. The current licensing basis additionally includes all of the regulatory requirements found in Parts 2, 19, 20, 21, 30, 40, 50, 55, 72, 73, and 100 with which the particular applicant must comply. *Id.*
>
> . . . . The [CLB] represents 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." 60 Fed. Reg. at 22,473. It is effectively addressed and maintained by ongoing agency oversight, review, and enforcement.

Id.

[58] *Turkey Point*, CLI-01-17, 54 NRC at 7.

> Renewal; Revisions," 60 Fed. Reg. 22,461, 22,479 (May 8, 1995). Adverse aging effects can result from metal fatigue, erosion, corrosion, thermal and radiation embrittlement, microbiologically induced effects, creep, and shrinkage. Such age-related degradation can affect a number of reactor and auxiliary systems, including the reactor vessel, the reactor coolant system pressure boundary, steam generators, electrical cables, the pressurizer, heat exchangers, and the spent fuel pool. Indeed, a host of individual components and structures are at issue. See 10 C.F.R. § 54.21(a)(1)(i). Left unmitigated, the effects of aging can overstress equipment, unacceptably reduce safety margins, and lead to the loss of required plant functions, including the capability to shut down the reactor and maintain it in a shutdown condition, and to otherwise prevent or mitigate the consequences of accidents with a potential for offsite exposures.[59]

The Commission has also framed the focus of license renewal review as being on "plant systems, structures, and components for which current [regulatory] activities and requirements *may not* be sufficient to manage the effects of aging in the period of extended operation."[60] An issue can be related to plant aging and still not warrant review at the time of a license renewal application, if an aging-related issue is "adequately dealt with by regulatory processes" on an ongoing basis.[61] For example, if a structure or component is already required to be replaced "at mandated, specified time periods," it would fall outside the scope of license renewal review.[62]

Environmental Issues in License Renewal Proceedings

Regulatory provisions relating to the environmental aspects of license renewal arise out of the requirement that the National Environmental Policy Act (NEPA) places on Federal agencies to "include in every recommendation or report on . . . major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on [ ] the environmental impact of the proposed action . . . ."[63] As has been noted by the

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[59] *Id.* at 7-8.

[60] *Id.* at 10 (citing 60 Fed. Reg. at 22,469) (alteration in original).

[61] *Id.* at 10 n.2.

[62] *Id.*

[63] 42 U.S.C. § 4332; *see Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 348 (1989).

Supreme Court, the "statutory requirement that a federal agency contemplating a major action prepare such an environmental impact statement [EIS] serves NEPA's 'action-forcing' purpose in two important respects":

> It ensures that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision.[64]

10 C.F.R. Part 51 contains NRC's rules relating to and implementing relevant NEPA requirements, and § 51.20(a)(2) requires an environmental impact statement for issuance or renewal of a nuclear reactor operating license. Other sections relating to license renewal include, most significantly, 10 C.F.R. §§ 51.53(c), 51.95(c), and 51.103(a)(5), and Appendix B to Subpart A.

Although the requirements of NEPA are directed to Federal agencies and thus the primary duties of NEPA fall on the NRC Staff in NRC proceedings,[65] the initial requirement to analyze the environmental impacts of an action, including license renewal, is directed to applicants under relevant NRC rules.[66] Accordingly, § 51.53(c) requires a license renewal applicant to submit with its application an environmental report (ER), which "must contain a description of the proposed action, including the applicant's plans to modify the facility or its administrative

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[64] *Robertson*, 490 U.S. at 349. Of course, as the Court also noted, "NEPA itself does not mandate particular results, but simply prescribes the necessary process. . . . If the adverse environmental effects of the proposed action are adequately identified and evaluated, the agency is not constrained by NEPA from deciding that other values outweigh the environmental costs." *Id.* at 350 (citations omitted). As the Court also observed, in the companion case of *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 371 (1989), "by focusing Government and public attention on the environmental effects of proposed agency action," NEPA "ensures that the agency will not act on incomplete information, only to regret its decision after it is too late to correct."

[65] *See*, *e.g.*, 10 C.F.R. § 51.70(b), which states among other things that "[t]he NRC Staff will independently evaluate and be responsible for the reliability of all information used in the draft environmental statement."

[66] *See* 10 C.F.R. § 51.41.

control procedures as described in accordance with § 54.21," and "describe in detail the modifications directly affecting the environment or affecting plant effluents that affect the environment."[67] The report is not required to contain analyses of environmental impacts identified as "Category 1," or "generic," issues in Appendix B to Subpart A of Part 51, but "must contain analyses of the environmental impacts of the proposed action, including the impacts of refurbishment activities, if any, associated with license renewal and the impacts of operation during the renewal term," for those issues identified as "Category 2," or "plant specific," issues in appendix B to subpart A.[68]

As required under 10 C.F.R. § 51.95(c), the Commission in 1996 adopted a "Generic Environmental Impact Statement for License Renewal of Nuclear Plants" (GEIS), an extensive study of the potential environmental impacts of extending the operating licenses for nuclear power plants, which was published as NUREG-1437 and provides data supporting the table of Category 1 and 2 issues in Appendix B.[69] Issuance of the 1996 GEIS was part of an amendment of the requirements of Part 51 undertaken by the Commission to establish environmental review requirements for license renewals "that were both efficient and more effectively focused."[70]

Issues on which the Commission found that it could draw "generic conclusions applicable to all existing nuclear power plants, or to a specific subgroup of plants," were, as indicated above,

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[67] 10 C.F.R. § 51.53(c)(2); *see* § 51.53(c)(1).

[68] 10 C.F.R. § 51.53(c)(3)(i), (ii).

[69] *See* NUREG-1437, Generic Environmental Impact Statement for License Renewal of Nuclear Plants (May 1996) [hereinafter GEIS]; Final Rule, "Environmental Review for Renewal of Nuclear Power Plant Operating Licenses," 61 Fed. Reg. 28,467 (June 5, 1996), *amended by* 61 Fed. Reg. 66,537 (Dec. 18, 1996); 10 C.F.R. Pt. 51, Subpt. A, App. B n.1.

[70] *Turkey Point*, CLI-01-17, 54 NRC at 11.

identified as “Category 1" issues.[71] This categorization was based on the Commission’s conclusion that these issues involve “environmental effects that are essentially similar for all plants,” and thus they “need not be assessed repeatedly on a site-specific basis, plant-by-plant.”[72] Thus, under Part 51, license renewal applicants may — with an exception relevant in this case that we discuss further below, requiring that ERs contain “any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware”[73] — in their site-specific ERs refer to and adopt the generic environmental impact findings found in Table B-1, Appendix B, for all Category 1 issues.[74]

On the other hand, environmental issues for which the Commission was not able to make generic environmental findings are designated as Category 2 matters, and applicants must provide plant-specific analyses of the environmental impacts of these.[75] These issues are characterized by the Commission as involving environmental impact severity levels that “might differ significantly from one plant to another,” or impacts for which additional plant-specific mitigation measures should be considered.[76] For example, the “impact of extended operation on endangered or threatened species varies from one location to another,” according to the Commission, and is thus included within Category 2.[77] Another example, relevant in this proceeding, is the requirement that “alternatives to mitigate severe accidents must be

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[71] *Id.* at 11 (citing 10 C.F.R. Pt. 51, Subpt. A, App. B).

[72] *Id.*

[73] 10 C.F.R. § 51.53(c)(3)(iv).

[74] *Turkey Point*, CLI-01-17, 54 NRC at 11 (citing 10 C.F.R. § 51.53(c)(3)(i)).

[75] *Id.* (citing 10 C.F.R. Pt. 51, Subpt. A, App. B).

[76] *Id.*

[77] *Id.* at 12.

considered for all plants that have not [previously] considered such alternatives."[78] Again, although the initial requirement falls upon applicants, the ultimate responsibility lies with the Staff, who must address these issues in a Supplemental Environmental Impact Statement (SEIS)[79] that is specific to the particular site involved and provides the Staff's independent assessment of the Applicant's ER.[80]

Finally, § 51.103 defines the requirements for the "record of decision" relating to any license renewal application, including the standard that the Commission, in making such a decision pursuant to Part 54, "shall determine whether or not the adverse environmental impacts of license renewal are so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable."[81]

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[78] 10 C.F.R. Part 51, Subpart A, Appendix B; *see* § 51.53(c)(3)(ii)(L). This requirement arises out of "NEPA's 'demand that an agency prepare a detailed statement on 'any adverse environmental effects which cannot be avoided should the proposal be implemented,' 42 U.S.C. § 4332(C)(ii)," implicit in which "is an understanding that the EIS will discuss the extent to which adverse effects can be avoided." *Robertson*, 490 U.S. at 351-52. The basis for the requirement is that "omission of a reasonably complete discussion of possible mitigation measures would undermine the 'action-forcing' function of NEPA. Without such a discussion, neither the agency nor other interested groups or individuals can properly evaluate the severity of the adverse effects." *Id.* at 352.

[79] *See* 10 C.F.R. § 51.95(c).

[80] *See Turkey Point*, CLI-01-17, 54 NRC at 12 (citing 10 C.F.R. §§ 51.70, 51.73–.74).

[81] 10 C.F.R. § 51.103(a)(5).

V. Petitioners' Contentions, Party Arguments, and Board Analysis and Rulings

With the preceding general contention admissibility requirements and license renewal scope principles in mind, we turn now to the Petitioners' contentions.

A. Massachusetts Attorney General's Contention And Pilgrim Watch Contention 4 (Regarding Spent Fuel Pool Accidents)

Because of their similarity, and because Pilgrim Watch has also sought to adopt the Attorney General's Contention, we consider this contention together with Pilgrim Watch Contention 4. Our discussion addresses the points raised in support of both, and the arguments raised in opposition to both. Because we do not admit either contention, it is not necessary that we rule on Pilgrim Watch's motion to adopt the AG's contention, and therefore we do not address it herein.

The contentions here at issue state as follows:

> AG Contention: The Environmental Report for Renewal of the Pilgrim Nuclear Power Plant Fails to Satisfy NEPA Because it Does Not Address the Environmental Impacts of Severe Spent Fuel Pool Accidents.[82]
>
> Pilgrim Watch Contention 4: The Environmental Report Fails to Address Severe Accident Mitigation Alternatives (SAMAs) Which Would Reduce the Potential for Spent Fuel Pool Water Loss and Fires.[83]

Pilgrim Watch in its contention centers on the SAMA argument, stating as follows:

> The Environmental Report [ER] is inadequate because it fails to address the environmental impacts of the on-site storage of spent fuel assemblies which, already densely packed in the cooling pool, will be increased by fifty percent during the renewal period. A severe accident in the spent fuel pool should have been considered in Applicant's SAMA review just as accidents involving other aspects of the uranium fuel cycle were. In addition, new information shows spent fuel will remain on-site longer than was anticipated and is more vulnerable than previously known to accidental fires and acts of malice and insanity. The ER should address [SAMAs] that would substantially

[82]AG Petition at 21.

[83]PW Petition at 50.

reduce the risks and the consequences associated with on-site spent fuel storage. Petitioners have outlined some of these alternatives.[84]

Pilgrim Watch argues that "[a]ny exemption in the [GEIS] and 10 C.F.R. § 51.53 for spent fuel storage covers normal operations only, not severe accidents," and therefore severe accidents involving the spent fuel pool should also be considered to be a Category 2 issue.[85] PW also claims to have brought forth "new and significant information that makes consideration of the spent fuel pool necessary under NEPA."[86] Pilgrim Watch suggests that an adjudicatory hearing is the "only way to properly address Petitioners' concerns,"[87] arguing that other means such as a petition for enforcement under 10 C.F.R. § 2.206 or a rulemaking petition under 10 C.F.R. § 2.802 could not realistically address their concerns in a timely fashion.[88]

Among other arguments offered as basis to support Contention 4, PW urges that new information, relating to questions about national storage of high-level waste, indicates that spent fuel "will remain on-site longer than anticipated" at the time either the GEIS or the Waste Confidence Rule was adopted.[89] In PW's view, "it makes more sense and is more protective of the environment to assess the impacts of on-site spent fuel storage *before* permission is given to generate more waste."[90] PW also contends that new information suggests a greater risk of

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[84] *Id.*

[85] *Id.; see id*. at 52.

[86] *Id.* at 50.

[87] *Id.* at 54.

[88] *See* id at 55.

[89] *Id.* at 56; *see id.* at 56-61.

[90] *Id.* at 61-62; *see also* 10 C.F.R. § 51.23. We note that the U.S. Court of Appeals for the D.C. Circuit recently dismissed a challenge to the Waste Confidence Rule brought by the State of Nevada, finding, in an unpublished decision, that Nevada did not have standing because it "can point to no injury in fact as a legal or practical consequence of the rule," and that "[t]he rule has no legal effect in the anticipated Yucca Mountain proceeding." *Nevada v. NRC*, No. 05-1350, 2006 WL 2828864, at *1 (D.C.

(continued...)

accidental fires in spent fuel pools than previously thought, in part because the fuel is more densely packed than originally planned; in part because an accident or act of malice or insanity could lead to loss of water from the pool; in part because the spent fuel pools of boiling-water Mark I and Mark II reactors like Pilgrim are particularly vulnerable to attack, being above ground; and in part because terrorist attacks on nuclear plants are asserted to be reasonably foreseeable threats in the wake of September 11, 2001.[91]

Emphasizing the SAMA aspect of its contention, PW argues that the consequences of water loss as a result of any of several causes could be catastrophic and suggests several mitigation alternatives for consideration, including: using a combination of low-density, reconfigured storage of spent fuel assemblies and moving older assemblies to dry cask storage; installing a spray cooling system; and limiting the frequency of full core offloads.[92] Finally, PW suggests that dry cask storage makes sense from an economic, cost-benefit perspective, and calls for further analysis on SAMAs.[93]

Using some of the same arguments and supporting its contention as well with expert reports and other sources, the AG in his sole contention also argues that the ER fails to satisfy 10 C.F.R. § 51.53(c)(3)(iii) because it does not considers SAMAs for a severe spent fuel pool accident.[94] His primary argument, however, essentially consists of the assertion that Entergy's ER "does not satisfy the requirements of 10 C.F.R. § 51.53(c)(3)(iv) and NEPA . . . because it fails to address new and significant information regarding the reasonably foreseeable potential

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[90](...continued)
Cir., Sept. 22, 2006).

[91]PW Petition at 62-71.

[92]*See id.* at 73-75.

[93]*See id.* at 75-77.

[94]AG Petition at 23.

for a severe accident involving nuclear fuel stored in high-density storage racks in the Pilgrim fuel pool."[95] As with PW's contention, the AG points out that NEPA and 10 C.F.R. § 51.53(c)(3)(iv) require that "new and significant information" not previously considered by the NRC in an environmental impact statement (EIS) be included in the ER.[96] More specifically, the AG argues that the regulation requires the ER to include new and significant information even if it concerns a Category 1 matter otherwise covered in the GEIS.[97] Also, just as PW does, the AG asserts that such new and significant information exists concerning the potential impact of an accident involving a high-density spent fuel pool storage facility, and that the ER is deficient because it fails to include such new and significant information.[98] The AG argues that he has presented "sufficient information to create a 'genuine material dispute of fact or law adequate to warrant further inquiry' into the question of whether the likelihood of a pool fire falls within the range of probability considered reasonably foreseeable by the NRC."[99]

The AG summarizes the key principles arising out of the "new and significant information" he submits, relating to the risks of a spent fuel pool fire, as follows:

> (a) if the water level in a fuel storage pool drops to the point where the tops of the fuel assemblies are uncovered, the fuel will burn, (b) the fuel will burn

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[95] *Id.* at 21.

[96] *Id.* at 15. The AG acknowledges that the NRC issued a generic EIS (GEIS) to evaluate many of the common environmental impacts of license renewals and therefore NRC regulations do not require the preparation of a complete ER and EIS for all aspects of each license renewal application. AG Petition at 12-13 (citing 10 C.F.R. §§ 51.53(c)(3)(i), 51.71(d)). However, the AG points to 10 C.F.R. § 51.53(c)(3)(iv), which, consistent with the Court's decision in *Marsh*, 490 U.S. at 374, requires that an ER "contain any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware." AG Petition at 15.

[97] AG Petition at 15; AG Reply at 8.

[98] *See* AG Petition at 22; PW Petition at 50.

[99] AG Petition at 23 (citing *Carolina Power & Light* (Shearon Harris NPP), LBP-00-19, 52 NRC 85, 97-98 (2000)).

regardless of its age, (c) the fire will propagate to other assemblies in the pool, and [d] the fire may be catastrophic.[100]

The AG supports his allegation that such new and significant information exists with five "facts or expert opinion[s]"[101]: (1) the expert declaration and report of Dr. Gordon Thompson,[102] (2) the expert declaration and report of Dr. Jan Beyea,[103] (3) excerpts from NUREG-1738, (4) the 2006 "Safety and Security of Commercial Spent Nuclear Fuel Storage" report of the National Academy of Sciences,[104] and (5) the terrorist attacks of September 11, 2001.[105]

The AG argues that NRC never considered this information in its original EIS for Pilgrim or in the GEIS for license renewals, and that Entergy's failure to include this new and significant information in its ER thus contravenes 10 C.F.R. § 51.53(c)(3)(iv) and the Supreme Court

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[100] *Id.* at 22.

[101] *See id.*

[102] AG Petition, Exh. 1, Decl. of Dr. Gordon Thompson in Support of [AG]'s Contention and Petition for Backfit Order (May 25, 2006).

[103] AG Petition, Exh. 2, Decl. of Dr. Jan Beyea in Support of [AG]'s Contention and Petition for Backfit Order (May 25, 2006).

[104] AG Petition, Exh. 4, Committee on the Safety and Security of Commercial Spent Nuclear Fuel Storage, Board on Radioactive Waste Management, National Research Council, Safety and Security of Commercial Spent Nuclear Fuel Storage: Public Report (Washington, DC: National Academies Press, 2006). This report is also cited by PW in support of its Contention 4. *See* PW Petition at 65.

[105] *See*, *e.g.*, AG Petition at 22, 33-40. As indicated above, the Attorney General also, on June 16, 2006, filed a letter requesting the Licensing Board to apply the June 2, 2006, decision of the U.S. Court of Appeals for the Ninth Circuit in the case, *San Luis Obispo Mothers for Peace v. Nuclear Regulatory Commission*, "by ruling that the environmental impacts of an intentional attack on the Pilgrim fuel storage pool must be addressed in an EIS, or seek appropriate guidance from the Commission." AG Letter at 2. (In *Mothers for Peace*, the Court reversed the Commission's determination that NEPA does not require an analysis of the environmental impact of terrorism, in that the NRC's "categorical refusal to consider the environmental effects of a terrorist attack" is unreasonable under NEPA. Thus, the Court found, the "EA [environmental assessment] prepared in reliance on that determination is inadequate and fails to comply with NEPA's mandate." 449 F.3d at 1028,1035. The Court denied the petition for review with regard to additional claims by the petitioner that the NRC's actions had violated the Atomic Energy Act and the Administrative Procedure Act, noting among other things that NRC's "reliance on its own prior opinions in its decision in this case does not violate the APA's notice and comment provisions," and that "[t]he agency has the discretion to use adjudication to establish a binding legal norm." *Id*. at 1027.)

decision in the *Marsh* case.[106] The AG also contends that the environmental impacts of a spent fuel pool accident must be considered by the Staff in the SEIS in order for the Staff to comply with its obligation to consider significant new information relevant to the environmental impacts of license renewal because this information has not been considered by the NRC in a previous EIS.[107] Further, the AG asserts, when the likelihood of a terrorist attack is taken into account, the estimated probability of this type of accident is within the range that must be discussed in an ER and EIS.[108]

With respect to its argument that the ER is deficient because it does not consider reasonable alternatives for avoiding or mitigating the environmental impacts of a severe spent fuel pool fire, the AG contends that a combination of two potential SAMAs "would virtually eliminate the vulnerability of the Pilgrim fuel pool to attack": low-density racking of fuel assemblies in the pool, and dry storage in casks.[109]

Entergy's Answer to Massachusetts AG Contention and Pilgrim Watch Contention 4

Entergy opposes both the AG's contention and Pilgrim Watch Contention 4, claiming that the environmental impacts of spent fuel storage are codified as Category 1 environmental issues, and thus are beyond the scope of this license renewal proceeding.[110] According to Entergy, the attempt to bring these issues within the scope of the proceeding by invoking § 51.53(c)(3)(iv) falls short because the generic Category 1 findings resulting from the analysis

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[106] *See* AG Petition at 23, 24-30.

[107] *Id.* at 15, 21.

[108] *Id.* at 33-41.

[109] *Id.* at 41; *see also id.* at 23, 47. As discussed above, *see supra* at 22-23, PW also suggests these same two mitigation alternatives. *See* PW Petition at 73.

[110] *See* Entergy Answer to AG Petition at 11-13 (citing 10 C.F.R. Part 51, App. B, Table B-1, 10 C.F.R. §§ 51.53(c), 51.95(c)); Entergy Answer to PW Petition at 46-48 (citing 10 C.F.R. Part 51, App. B, Table B-1, 10 C.F.R. §§ 51.53(c), 51.95(c); GEIS at 6-72 – 6-75).

of the GEIS are NRC rules and, as such, may only be challenged or altered upon the granting of a waiver or rulemaking petition.[111] Moreover, Entergy argues that the recent decision in *San Luis Obispo Mothers for Peace v. NRC* is inapplicable here because Commission case law establishes that, even if terrorism issues require analysis under NEPA, the GEIS concluded that "if such an event were to occur, the resultant core damage and radiological release would be no worse than those expected from internally initiated events."[112]

Entergy challenges the AG's claim that new and significant information exists, arguing that the risks associated with high density racking in spent fuel pools were known and considered by NRC long ago and that nothing new is contained in the AG's exhibits.[113] In any event, Entergy asserts, none of the sources cited by the Attorney General contain new or significant information, or "controvert[ ] the conclusion in the GEIS that the occurrence of a zirconium spent fuel pool fire is 'highly remote.'"[114] In addition, the NRC "has fully considered the NAS report and found no basis, even in the context of a terrorist attack, to change its conclusion regarding the risks of spent fuel pool fires stated in the GEIS,"[115] and has concluded that the Alvarez report cited in the Thompson and Beyea reports "suffer[s] from excessive conservatisms, with the result that its recommendations do not have a sound technical basis."[116] Entergy characterizes the claims of the Thompson report as being "broad, unsupported claims," and argues that the Attorney General's contention is "not supported by any credible basis

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[111]Entergy Answer to AG Petition at 13; Entergy Answer to PW Petition at 49-50.

[112]Entergy Answer to AG Petition at 26 (quoting *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-26, 56 NRC 358, 365 n.24 (2002)); Entergy Answer to PW Petition at 54.

[113]*See* Entergy Answer to AG Petition at 14-15.

[114]*Id.* at 15; *see id*. at 15-16.

[115]*Id.* at 15-16.

[116]*See id.* at 16, 17.

establishing the probability of a spent fuel fire or demonstrating that it is sufficiently foreseeable to warrant consideration under NEPA."[117]

Entergy also argues that SAMAs are limited to nuclear reactor accidents and do not include spent fuel storage accidents,[118] that the challenge to the Waste Confidence rule is based upon information that is neither new nor significant,[119] and that PW's remaining arguments provide insufficient support to admit the contentions at issue.[120]

Staff's Response to Massachusetts AG Contention and Pilgrim Watch Contention 4

The Staff likewise argues that Category 1 environmental issues are outside of the scope of license renewal proceedings, citing 10 C.F.R. §51.53(c)(2) and *Turkey Point*[121] for the proposition that a license renewal ER need not provide information regarding the storage of spent fuel.[122] The Staff also relies on *Turkey Point* in arguing that an ER need not address SAMAs for mitigating spent fuel pool accidents.[123] According to the Staff, by asking the Board to address a spent fuel storage issue, the AG and PW essentially seek to have the Board treat spent fuel pool issues as a Category 2 issue, which runs counter to the prohibition against challenging a regulation in an adjudicatory proceedings without seeking a waiver.[124] The Staff also argues that the information in the AG petition is not new and, therefore, need not be

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[117] *Id.* at 19, 25; *see id*. at 17-25.

[118] *See* Entergy Answer to PW Petition at 48-49.

[119] *Id.* at 51 (citing *Oconee*, CLI-99-11, 49 NRC at 344-45).

[120] *See id.* at 51-56.

[121] *Turkey Point*, CLI-01-17, 54 NRC at 6-13.

[122] *See* Staff Response to AG Petition at 10-12; Staff Response to PW Petition at 34-36; *see also Turkey Point*, CLI-01-17, 54 NRC at 6-13.

[123] *See* Staff Response to AG Petition at 9-11; Staff Response to PW Petition at 34-36 (citing *Turkey Point*, CLI-01-17, 54 NRC at 21-22).

[124] *See* Staff Response to AG Petition at 10-11, 14; Staff Response to PW Petition at 36.

included in the Entergy's ER as it has already been presented to the NRC.[125] Finally, the Staff asserts that, to the extent the AG's contention attempts to raise terrorism issues, these issues are also outside of the scope the proceeding.[126]

Massachusetts AG and Pilgrim Watch Replies to Entergy and NRC Staff

In its reply to Entergy and the Staff, the AG argues that the case law and regulatory history make clear that "Category 1 impacts are included in the scope of the new and significant impacts that must be discussed in an ER pursuant to 10 C.F.R. § 51.53(c)(3)(iv)."[127] The AG maintains that the alternative procedures suggested in *Turkey Point* (*e.g.*, the filing of a waiver petition or a rulemaking petition) are inconsistent with NEPA as construed by the Supreme Court in *Marsh*.[128] Further, the AG asserts that *Turkey Point* is inapposite because it did not deal with a contention alleging new and significant information, and that its discussion of issues relating to new and significant information is dicta.[129] The AG goes on to explain how in its view the information in its petition is indeed "new and significant." [130] Finally, the AG asks the Board

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[125] *See* Staff Response to PW Petition at 37; Staff Response to AG Petition at 15-18.

[126] *See* Staff Response to AG Petition at 19-20; Staff Response to PW Petition at 38.

[127] AG Reply at 8.

[128] *See id*. at 9-10. The Attorney General has also argued that, "in order to get a hearing and in order to raise a legitimate contention," the "one door" open to it was to file a contention, Tr. at 87, in part because it did not believe it met the requirements for a waiver under 10 C.F.R. § 2.335 that "*special circumstances with respect to the subject matter of the particular proceeding* [must be] such that application of the rule . . . would not serve the purposes for which the rule . . . was adopted," or as characterized by the Commission in *Turkey Point*, in which it stated that "[i]n the hearing process . . . petitioners with new information showing that a generic rule would not serve its purpose at a particular plant may seek a waiver of a rule," but "[p]etitioners with evidence that a generic finding is incorrect for all plants may petition [for a] rulemaking." *Turkey Point*, CLI-01-17, 54 NRC at 12; *see* Tr. at 88-90, 109-115, 138-140. The AG argues that the "new and significant information" at issue concerns not only the Pilgrim plant but also others. *Id.* at 88. As indicated above, *see supra* n. 4, the AG has filed a rulemaking petition.

[129] *Id.* at 11.

[130] *See id.* at 12-27.

to rule that NEPA requires that Entergy and the Staff consider the environmental impacts of an intentional attack on the Pilgrim spent fuel pool, and then to refer its ruling to the Commission to determine the applicability of the *Mothers for Peace* decision.[131]

Pilgrim Watch replies that the inclusion of on-site spent fuel as a Category 1 issue under "Uranium Fuel Cycle" in Appendix B to Subpart A of Part 51 relate only to normal operations and "does not prevent it from being a Category 2 issue for the purposes of 'Severe Accidents.'"[132] PW cites the Licensing Board's decision in *Turkey Point* as distinguishing SAMAs when it denied a contention relating only to "severe accidents" and not SAMAs,[133] and argues that the alternative procedural avenues of waiver and rulemaking petitions are inconsistent with *Marsh* and NEPA's requirement for supplementation of EISs.[134] It further argues that the issue it has raised is site-specific rather than generic, and that it has "submitted new and significant information which casts doubt on the current generic treatment of this issue and supports its contention that NEPA requires that this issue be reviewed as part of the license renewal process."[135] PW makes similar arguments in its Reply to the Staff,[136] and also cites the *Mothers for Peace* decision[137] in support of its contention insofar as it raises terrorist attacks as a new and significant issue.[138]

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[131] *Id.* at 27-28.

[132] PW Reply to Entergy at 25.

[133] *Id.* at 26-27.

[134] *Id.* at 27-28.

[135] *Id.* at 30; *see id*. at 28-30.

[136] PW Reply to NRC Staff at 19-20.

[137] *See id.* at 20.

[138] *Id.* at 20-21.

Licensing Board Ruling on Massachusetts AG Contention and PW Contention 4

We find these contentions to be inadmissible, on two separate grounds. We address first the Petitioners' arguments (primarily espoused by Pilgrim Watch) that the contentions should be admitted because they raise matters relating to "severe accidents" and "severe accident mitigation alternatives," or "SAMAs," a site-specific Category 2 issue[139] that must be addressed in a license renewal under 10 C.F.R. § 51.53(c)(ii)(L) and Appendix B to Subpart A of 10 C.F.R. Part 51. For reasons we set forth in some detail below, we find that these arguments fail because of Commission precedent interpreting the term, "severe accidents," to encompass only reactor accidents and not spent fuel pool accidents, which fall within the analysis of the generic Category 1 issue of on-site storage of spent fuel.

Next, we address the Petitioners' arguments (indeed, the Attorney General's central argument) that the contentions should be admitted because they challenge the Applicant's failure to address various matters that they contend constitute "new and significant information," which must be addressed under 10 C.F.R. § 51.53(c)(3)(iv), *even if* they concern a Category 1 issue. Again, these arguments fail in the face of Commission precedent, in this instance establishing that, notwithstanding the responsibility of an Applicant in its ER (and the NRC Staff in the SEIS) to address "new and significant information" relating even to Category 1 issues, an *alleged failure to address* such "new and significant information" does not give rise to an admissible contention, absent a waiver of the rule at 10 C.F.R. § 51.53(c)(3)(i) that Category 1 issues need not be addressed in a license renewal.

We would note with regard to both of these issues that the analysis that brings us to our conclusions regarding them does not follow an entirely straight path, primarily because relevant rules in neither instance directly resolve the issues in question. However, Commission

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[139] *See supra* Section IV.B, discussion of "Category 1," or "generic" issues, and "Category 2," or "site-specific" issues.

precedent in the *Turkey Point* license renewal proceeding, interpreting the rules in question and the regulatory framework within which they fall, mandates our rulings on both issues.

We note further that we do *not* rule herein on two other questions relating to the contentions at issue. First, in light of our rulings on the preceding two primarily legal issues, we need not, and do not, go into the question whether either Petitioner has sufficiently supported either contention insofar as it alleges as a factual matter that there exists "new and significant information" that should have been addressed by the Applicant, relating to the risks and environmental impacts of high density racking in, and accidents involving, spent fuel pools. Nor should our rulings herein be interpreted as suggesting a finding on this in either direction.

Second, regarding the petitioners' arguments based on the Ninth Circuit's decision in *Mothers for Peace v. NRC*, we again follow Commission precedent, in this instance declining to rule on such matters at this time in light of the procedural posture of that case. We recognize, as another Licensing Board has recently observed (ruling in the *Vermont Yankee* license renewal proceeding on a virtually identical contention filed by the Massachusetts Attorney General in that case), that the *Mothers for Peace* decision might impact our rulings herein.[140] However, a majority of the Commission has recently issued two rulings declining to apply the Court's decision in *Mothers for Peace* in NRC proceedings at this time. First, in the NRC proceeding from which the *Mothers for Peace* decision arose, it denied Petitioners' motion for various relief based on the Court's decision, finding it "unnecessary and premature," and noting as well that the Court's ruling did not "circumscrib[e] the procedures that the NRC must employ" for addressing terrorism in the NEPA context and thus the Commission has "maximum

[140] *Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), LBP-06-20, 64 NRC __, __ (slip op. at 28) (Sept. 22, 2006) (citing 449 F.3d at 1016).

procedural leeway" to address the issue.[141] Second, it postponed addressing a request of the State of New Jersey in the *Oyster Creek* license renewal proceeding that it consider the Ninth Circuit's decision in ruling on the State's appeal of the Licensing Board's denial of its contention relating, *inter alia*, to SAMAs and spent fuel pool vulnerability.[142] Based upon this authority, we also will refrain from issuing a ruling based on the *Mothers for Peace* decision at this time, without, however, foreclosing the possibility that future pleadings may be filed based on future developments in that case, as appropriate at such time.

Ruling on "Severe Accident"- and SAMA-related arguments

As indicated above, the critical determinative issue relating to severe accidents and SAMAs is what the term "severe accident" encompasses, thus defining what accidents are to be examined in the context of a "*severe accident* mitigation alternatives," or "SAMA," analysis. At first blush, the arguments of PW and the AG, to the effect that severe accidents include spent fuel pool accidents and that a SAMA analysis must therefore address such accidents, seem plausible. The Licensing Board in *Turkey Point* indeed distinguished SAMAs in denying contentions concerning "severe accidents" that contained no mention of "mitigation alternatives," which is the crux of a SAMA.[143] In addition, NRC regulations offer little guidance,

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[141] *See Pacific Gas & Electric Co.* (Diablo Canyon Power Plant ISFSI), CLI-06-23, 64 NRC __, __ (slip op. at 2) (Sept. 6, 2006).

[142] *See Amergen Energy Company, LLC* (License Renewal for Oyster Creek Nuclear Generating Station), CLI-06-24, 64 NRC __, __ (slip op. at 2) (Sept. 6, 2006).

[143] *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-01-6, 53 NRC 138 (2001). That Licensing Board stated:

> [S]ection 51.53 does not require the Applicant broadly to consider severe accident risks. Rather, it only requires the Applicant to consider 'severe accident mitigation alternatives.' (SAMAs). 10 C.F.R. § 51.53(c)(3)(ii)(L). The Commission, therefore, has left consideration of SAMAs as the only Category 2 issue with respect to severe accidents, but this portion of Ms. Lorion's contention does not seek to raise any issue related to severe accident mitigation alternatives. Her contention neither identifies any mitigation alternatives that should be considered nor challenges the Applicant's evaluation of SAMAs in its environmental report.

(continued...)

providing neither a definition of the term "severe accident," nor stating explicitly whether the "severe accidents" to be examined in SAMA analyses include or exclude spent fuel pool accidents.

10 C.F.R. § 51.53(c)(3)(ii) states that the environmental report must contain analyses of the environmental impacts of the proposed action that are identified as Category 2 issues in Appendix B to Subpart A of Part 50, and then goes on to recount in narrative form the same issues identified as Category 2 issues in Appendix B (with SAMAs addressed at § 51.53(c)(3)(ii)(L)). It does not, however, define "severe accidents" or "SAMAs," or limit SAMAs in any way other than as stated in subsection (L) — *i.e.*, "a consideration of alternatives to mitigate severe accidents must be provided" only "[i]f the staff has not previously considered severe accident mitigation alternatives for the applicant's plant in an [EIS] or related supplement or in an environmental assessment." And the entry in Appendix B, Table B-1, likewise provides no assistance on the question before us, stating merely as follows:

> Severe accidents - 2 - SMALL. The probability weighted consequences of atmospheric releases, fallout onto open bodies of water, releases to ground water, and societal and economic impacts from severe accidents are small for all plants. However, alternatives to mitigate severe accidents must be considered or all plants that have not considered such alternatives. See § 51.53(c)(ii)(L).

Certainly, "severe accidents" is a term of art long used in the nuclear industry and incorporated into Commission guidance documents, including NUREG 1150, which is focused

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[143](...continued)
Id. at 160-61. Further:

> Mr. Oncavage's allegation that an accident involving spent fuel is a Category 2 issue does not make the contention admissible. As discussed earlier (*see supra* p. 160), only severe accident mitigation alternatives may be considered for license renewal severe accident Category 2 issues, and Mr. Oncavage has not raised any issue involving mitigation alternatives.

Id. at 165.

singularly upon accidents involving damage to the reactor core.[144] But the rules themselves contain no such reference or limitation.

The most on-point source on the issue is Commission case law in the *Turkey Point* proceeding. It must be noted that, when it considered the question of severe accidents and SAMAs, on the appeal of one of the petitioners in that proceeding, the Commission endorsed the distinction made by the Licensing Board, between the need to propose a SAMA and the more substantive question of risk associated with severe accidents.[145] It then went on, however, to focus upon what is essentially an alternative, and ultimately more significant, rationale for its ruling upholding the denial of the contention in question — that SAMAs apply only to reactor accidents, not to spent fuel pool accidents.[146]

It is argued that the Commission's language in this regard is "gratuitous," on an issue that did not need to be decided directly.[147] The length and specificity of the Commission's discussion, however, belies such an interpretation, and suggests that the Commission saw this second ground for its ruling as being more important than, and indeed in effect rendering irrelevant, the question whether that petitioner mentioned SAMAs in his "severe accident" contention. We quote at length from this discussion in order to illustrate this:

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[144]NUREG-1150, Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants (Dec. 1990). *See also* "Policy Statement on Severe Reactor Accidents Regarding Future Designs and Existing Plants" (50 Fed. Reg. 32, 138 (Aug. 1985)).

[145]*Turkey Point*, CLI-01-17, 54 NRC at 21-22.

[146]*Id.*

[147]*See* PW Reply to NRC Staff at 19.

a. Onsite Storage of Spent Fuel Is a Category I Issue

Our rules explicitly conclude that "[t]he expected increase in the volume of spent fuel from an additional 20 years of operation can be safely accommodated on site with small environmental effects through dry or pool storage at all plants if a permanent repository or monitored retrievable storage is not available." Table B-1, Subpart A, Appendix B to Part 51. See Oconee, CLI-99-11, 49 NRC at 343-44. The GEIS provides the background analyses and justification for this generically applicable finding. See GEIS at 6-70 to 6- 86. It finds "ample basis to conclude that continued storage of existing spent fuel and storage of spent fuel generated during the license renewal period can be accomplished safely and without significant environmental impacts." Id. at 6-85. The GEIS takes full account of "the total accumulated volumes of spent fuel after an additional 20 years of operation." Id. at 6- 79; see also id. at 6-80 to 6-81.

The GEIS's finding encompasses spent fuel accident risks and their mitigation, See GEIS, at xlviii, 6-72 to 6-76, 6-86, 6-92. 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. NRC studies and the agency's operational experience support the conclusion that onsite reactor spent fuel storage, which has continued for decades, presents no undue risk to public health and safety. Because the GEIS analysis of onsite spent fuel storage encompasses the risk of accidents, Contention 2 falls beyond the scope of individual license renewal proceedings.

Mr. Oncavage argues, however, that a "catastrophic radiological accident at a spent fuel facility would be a severe accident which is a category 2 issue." Amended Petition at 2. Part 51 does provide that "alternatives to mitigate severe accidents must be considered for all plants that have not considered such alternatives." See Appendix B to Subpart A of Part 51; see also GEIS at 5-106 to 5-116. But Mr. Oncavage's Contention 2 says nothing about mitigation alternatives. And, *in any event, Part 51's reference to "severe accident mitigation alternatives" applies to nuclear reactor accidents, not spent fuel storage accidents. Not only Mr. Oncavage, but also the NRC Staff and FPL, apparently was confused on this point, for no one raised the important distinction between reactor accidents and spent fuel accidents.* As we have seen, the GEIS deals with spent fuel storage risks (including accidents) generically, and concludes that "regulatory requirements already in place provide adequate mitigation." GEIS at 6-86, 6-92, xlviii; see also id. at 6- 72 to 6-76.

On the issue of onsite fuel storage, then, the GEIS rejects the need for further consideration of mitigation alternatives at the license renewal stage. Id. Indeed, for all issues designated as Category 1, the Commission has concluded that additional site-specific mitigation alternatives are unlikely to be beneficial and need not be considered for license renewal. See 61 Fed. Reg. At 28,484; GEIS at 1-5, 1-9.

The NRC customarily has studied reactor accidents and spent fuel accidents separately. For instance, *our "Policy Statement on Severe Reactor Accidents Regarding Future Designs and Existing Plants*" discusses only reactor accidents *and defines* "*[s]evere nuclear accidents [as] those in which substantial damage is done to the reactor core whether or not there are serious offsite consequences.*" 50 Fed. Reg. 32,138 (Aug. 1985) (emphasis added). Similarly, the various NRC studies on severe

accidents typically focus upon potential damage to the reactor core of nuclear power plants.[10] A different set of studies altogether is devoted to spent fuel pool accidents, and has concluded that the risk of accidents is acceptably small.[11] Hence, Part 51 and the GEIS treat the matter generically. Indeed, the events that could lead to a severe reactor accident vary significantly from plant to plant, thereby requiring plant-specific consideration, whereas accidents involving spent fuel pools or dry casks are more amenable to generic consideration.

[Discussion of possibility of spent fuel pool accidents caused by hurricanes.] Mr. Oncavage did not seek a waiver of the Category 1 determination for spent fuel issues, nor did his hurricane discussions raise any information that might render the GEIS's Category 1 finding inapplicable to the Turkey Point facility. Nothing in Mr. Oncavage's "hurricane" claim renders it litigable under our license renewal rules.

In short, Part 51's license renewal provisions cover environmental issues relating to onsite spent fuel storage generically.[14] All such issues, including accident risk, fall outside the scope of license renewal proceedings.

FN10. See, e.g., NUREG-1150, "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants (Dec. 1990) (examining core meltdown risks); NUREG/CR-5042, "Evaluation of External Hazards to Nuclear Power Plants in United States" (Dec. 1987) (examining the risk of core damage from external events).

FN11. See, e.g., NUREG-1353, "Regulatory Analysis for the Resolution of Generic Issue 82, 'Beyond Design Basis Accidents in Spent Fuel Pools' (April 1989); NUREG/CR-4982, "Severe Accidents in Spent Fuel Pools in Support of Generic Safety Issue 82" (July 1987); NUREG/CR-5281, "Value/Impact Analyses of Accident Preventive and Mitigative Options for Spent Fuel Fools" (Mar. 1989); NUREG/CR-5176, "Seismic Failure and Cask Drop Analysis of the Spent Fuel Pools at Two Representative Nuclear Power Plants (Jan. 1989). A recent study of spent fuel storage risks at decommissioning reactors finds the risk of accident somewhat greater than originally believed, but still very low. See NUREG-1738, "Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants (Feb. 2001).

FN14. [Discussion noting that Waste Confidence rule applies only to storage of spent fuel after a reactor ceases operation.] As we hold in the text, it is Part 51, with its underlying GEIS, that precludes litigation of that issue.[148]

The Commission in the preceding passage clearly did not address merely in passing the issue of whether the severe accidents to be addressed in a SAMA analysis under 10 C.F.R. Part 51 include spent fuel pool accidents. Rather, it explicitly noted that all participants in that proceeding had overlooked the "important distinction between reactor accidents and spent fuel

[148] *Turkey Point*, CLI-01-17, 54 NRC at 21-22 (emphasis added).

accidents," going into great detail discussing the differences between reactor and spent fuel pool accidents, and explaining why it found that SAMAs do not apply to accidents involving spent fuel pools. It cited the GEIS extensively in support of its statements to this effect. The passage indeed may be read as emphasizing that, even were the contention in question there to have been read as implicitly bringing SAMAs into play, it would not have been deemed admissible. In this light, and taking into account the references to the cited portions of the GEIS, noted by the Commission as underlying Part 51 of the regulations, while we might observe that it would have been preferable to include specific language in the actual SAMA rule limiting SAMAs to reactor accidents if that is what was intended, the Commission is hardly equivocal in the interpretation provided in the passage quoted above.

On this basis, we are constrained to find the Massachusetts AG Contention and PW Contention 4 to be inadmissible insofar as they are based on the SAMA-related arguments summarized above.

Ruling on Legal Issues Involved in "New and Significant Information"-Related Arguments

We likewise must find the contentions at issue to be inadmissible insofar as they are based on the requirement at 10 C.F.R. § 51.53(c)(3)(iv) that the ER "must contain any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware."

Again, the rule itself does not dictate this ruling. Indeed, § 51.53(c)(3)(iv) may be read as in effect creating an exception to § 51.53(c)(3)(i)'s allowance that an applicant's ER "is not required to contain analyses of the environmental impacts of the license renewal issues identified as Category 1 issues in Appendix B." Commission precedent supports this reading that the requirement of § 51.53(c)(3)(iv) applies not only to Category 2 issues but also to Category 1 issues — at least to the extent that it applies to the responsibilities of the Applicant and the Staff. In *Turkey Point* the Commission stated that, "[e]ven where the GEIS has found

that a particular impact applies generically (Category 1), the applicant *must still provide* additional analysis in its Environmental Report if new and significant information may bear on the applicability of the Category 1 finding at its particular plant."[149] Later, in the *McGuire* proceeding, the Commission reinforced this ruling, stating again that "the applicant must provide additional analysis of even a Category 1 issue if new and significant information has surfaced."[150] Similarly, the Commission has indicated in its rulemaking that the Staff must, when preparing the SEIS, consider any significant new information related to Category 1 issues.[151]

On the basis of the foregoing, one might read subsection (c)(3)(iv) of § 51.53 as an exception to subsection (c)(3)(i) also in an adjudication context, particularly in light of the Commission's statement in *Turkey Point* that "[a]djudicatory hearings in individual license renewal proceedings will share the same scope of issues as our NRC Staff review."[152] Thus the Petitioners' argument, that an alleged failure of an applicant to comply with the requirement of § 51.53(c)(3)(iv) may give rise to an admissible contention (assuming proper support under the contention admissibility rules), might also be persuasive — but for other statements of the Commission in *Turkey Point* that lead to a contrary conclusion.

In these other statements, the Commission has indicated that any new and significant information on matters designated as Category 1 issues in Part 51 may be initiated by

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[149] *Id.* at 11 (emphasis added).

[150] *Duke Energy Corp.* (McGuire Nuclear Station Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-14, 55 NRC 278, 290 (2002).

[151] *See* 10 C.F.R. §§ 51.92(a)(2), 51.95(c)(3); 61 Fed. Reg. at 28,470. In addition, in *Turkey Point* the Commission stated that the "final SEIS also takes account of public comments, including . . . new information on generic findings." *Turkey Point*, CLI-01-17, 54 NRC at 12; *see also McGuire*, CLI-02-14, 55 NRC at 290-91.

[152] *Turkey* Point, CLI-01-17, 54 NRC at 10.

petitioners only through means other than the submission of contentions. First, the Commission identified three specific options that individuals and petitioners might pursue to address new and significant information that may have arisen after the GEIS on Category 1 issues was finalized:

> The Commission recognizes that even generic findings sometimes need revisiting in particular contexts. Our rules thus provide a number of opportunities for individuals to alert the Commission to new and significant information that might render a generic finding invalid, either with respect to all nuclear power plants or for one plant in particular. In the hearing process, for example, petitioners with new information showing that a generic rule would not serve its purpose at a particular plant may seek a waiver of the rule. . . . Petitioners with evidence that a generic finding is incorrect for all plants may petition the Commission to initiate a fresh rulemaking. . . . Such petitioners may also use the SEIS notice and comment process to ask the NRC to forgo use of the suspect generic finding and to suspend license renewal proceedings, pending a rulemaking or updating of the GEIS. *See* 61 Fed. Reg. at 28,470; GEIS at 1-10 to 1-11.[153]

Later in its decision, in the specific context of spent fuel pool accidents (which, as indicated above, it found to fall within the Category 1 issue of on-site storage of spent fuel[154]), the Commission made clear that its intent was that these options were to be the exclusive options open to members of the public on the issue, stating that "Part 51 treats all spent fuel accidents, whatever their cause, as generic, Category 1 events *not suitable for case-by-case adjudication*."[155] Further, removing any doubt as to its intent, the Commission added, "As we

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[153] *Turkey Point*, CLI-01-17, 54 NRC at 12. We note that the Commission's language referring to the waiver process when information relates to "a particular plant" supports the AG's argument that it would need to show some special circumstances relating to the Pilgrim plant in particular in order to qualify for a waiver. *See supra* n. 128.

[154] *See id.* at 21-23; 10 C.F.R. Part 51, App. B, Table B-1.

[155] *Id.* at 22 (emphasis added).

hold in the text, it is part 51, with its underlying GEIS, that *precludes the litigation* of that issue."[156]

As the *Vermont Yankee* Licensing Board noted in its decision in that license renewal proceeding, the preceding reading of *Turkey Point* is consistent with the regulatory history of 10 C.F.R. § 51.53(c)(3)(iv).[157] The requirement that the ER include any new and significant information was not part of the original proposed rule.[158] It was added in the final rule in response to objections from the Council on Environmental Quality (CEQ), the U.S. Environmental Protection Agency (EPA), and members of the public. As the Commission noted:

> Federal and State agencies questioned how new scientific information could be folded into the GEIS findings because the GEIS would have been performed so far in advance of the actual renewal of an operating license. . . . A group of commenters, including CEQ and EPA noted that the rigidity of the proposed rule hampers the NRC's ability to respond to new information or to different environmental issues not listed in the proposed rule.[159]

The Commission in response added 10 C.F.R. § 51.53(c)(3)(iv), to expand "the framework for consideration of significant new information."[160] The Statement of Considerations to the final rule refers to SECY-93-032, a Staff memorandum to the Commission proposing certain rule changes, including the addition of the provision at 10 C.F.R. § 51.53(c)(3)(iv), to resolve the CEQ and EPA concerns.[161] One of the proposed changes was that "[l]itigation of environmental

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[156] *Id.* at 23 n.14 (emphasis added).

[157] *See Vermont Yankee*, LBP-06-20, 64 NRC at __ (slip op. at 24-26).

[158] *See* Proposed Rule, "Environmental Review for Renewal of Operating Licenses," 56 Fed. Reg. 47,016, 47,027-28 (Sept. 17, 1991).

[159] 61 Fed. Reg. at 28,470.

[160] *Id.*

[161] *See id.*; SECY-93-032, Memorandum from James M. Taylor, EDO, to the Commissioners (Feb. 9, 1993) (ADAMS Accession No. ML051660667).

issues in a hearing will be limited to unbounded category 2 and category 3 issues unless the rule is suspended or waived."[162] The Commission approved modification of the proposed rule and specifically endorsed SECY-93-032.[163] Commission approval of SECY-93-032 may thus be read as demonstrating that, when the Commission adopted the final rule, it contemplated that Category 1 issues could be litigated only after the granting of a waiver petition pursuant to 10 C.F.R. § 2.335, suspending the provision at 10 C.F.R. § 51.53(c)(3)(i) that an ER need not address "Category 1" issues and thus allowing Petitioners to challenge a failure of the ER to address alleged "new and significant information" with regard to such an issue.[164]

The failure to adopt an actual rule provision stating that "litigation of environmental issues in a hearing will be limited to category 2 issues unless the rule is suspended or waived" might well, as argued by Petitioners, be taken to indicate that the Commission ultimately decided against such a provision, except for subsequent indications of the Commission's intent to the contrary, both at the rulemaking stage and in its later *Turkey Point* decision, as discussed above. With respect to the former, we consider a dialogue that occurred when the Commission was deliberating the final rule and discussing SECY-93-032.[165] The briefing covered the resolution of the CEQ and EPA objections and included an exchange between Commissioner James R. Curtiss and Martin Malsch, the Deputy General Counsel for Licensing and Regulation. Twice

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[162]SECY-93-032 at 4. We note that Category 2 and 3 issues were eventually combined into Category 2. *See* 61 Fed. Reg. at 28,474.

[163] Memorandum from Samuel J. Chilk, Secretary, to James M. Taylor, EDO (Apr. 22, 1993) (ADAMS Accession No. ML003760802).

[164] The additional change to the rule combining "category 2" and "category 3" issues into, simply, "category 2," would itself not appear to alter this conclusion, as the pertinent distinction being drawn was between those issues that were generic and those that were plant-specific, which would not affect the procedures contemplated vis a vis members of the public who might want to challenge an applicant's failure to address "new and significant information" about an otherwise "category 1" issue.

[165]*See* Public Meeting, "Briefing on Status of Issues and Approach to GEIS Rulemaking for Part 51," (Feb. 19, 1993) (ADAMS Accession No. ML051660665).

the Commissioner asked whether, under 10 C.F.R. § 51.53(c)(3)(iv) or any other part of the license renewal regulations, a petitioner could litigate a Category 1 issue on the claim that there was new and significant information on the issue.[166] The Deputy General Counsel of NRC answered that such a claim could not be litigated without first obtaining approval, in the form of a waiver, from the Commission itself.[167] With this understanding of the regulations, the Commission approved and finalized § 51.53(c)(3)(iv).[168]

With regard to whether the NRC's resolution of the matters raised by the CEQ and EPA commenters — requiring applicants and the NRC Staff to address any "new and significant information" but taking the position that any alleged lack of such information could *not* be the subject of an admissible contention absent a waiver — satisfies NEPA and caselaw interpreting it including the *Marsh* case, we find that this would not contravene such law, given that other

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[166] *Id.* at 14.

[167] *See id.* The discussion in question was as follows:

> Commissioner Curtiss: "[A]ssume for the sake of discussion that the staff says, "This is not significant new information," is that kind of issue subsequently one that can be or you intend to be cognizable before the board?
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> Mr. Malsch: Well, it would depend. If the information is – the basic answer is they have to come to the Commission first. If the information is considered significant by the interested party and staff says, "Now, this is not significant." If it's generic information, then the remedy is a petition for rulemaking and that usually comes to the Commission. Before the Commission would grant a petition for rulemaking, it would consider the merits of the information. If the information is site specific, then they'd need to petition for a waiver. But after being screened by the board, the board is referred to the Commission and only the Commission can grant waivers. So, again it comes before the Commission.
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> So, the procedural route is somewhat different, but no matter how it gets there, the Commission would be looking at the staff judgment, looking at what other parties say about it, and making its own determination about significance.
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> . . . .
>
> Commissioner Curtiss: So, there's no circumstance, in other words, where you envision that once a determination is made under the procedures that you've described with regard to the significance of the information by the Commission upon the staff's recommendation, that we would then in turn need to litigate before the board the significance of that information, whether it was or wasn't significant?
>
> Mr. Malsch: Not without the Commission's approval.

Id.

[168] *See* 61 Fed. Reg. at 28,467.

means are provided for public participation in the SEIS process. It is not required that the public participation aspect of NEPA be accomplished in an adjudicatory proceeding.[169]

Again, while it might have been preferable to have written into the rule itself the prohibition on allowing contentions based on the exception to § 51.53(c)(3)(i) found at § 51.53(c)(3)(iv) and on allegations of "new and significant information" as therein provided, we must, based on the Commission precedent in *Turkey Point* and the preceding analysis, and as in the *Vermont Yankee* proceeding, rule in this proceeding that Petitioners Massachusetts Attorney General and Pilgrim Watch may not challenge in a contention the Applicant's ER for any alleged failure to consider new and significant information with regard to the Category 1 issue of on-site storage of spent fuel, without seeking and obtaining a waiver of the generic rule.[170] Although

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[169]This public participation aspect of NEPA arises from the "informational role" played by the EIS, in "giv[ing] the public the assurance that the agency 'has indeed considered environmental concerns in its decisionmaking process,' . . . and, perhaps more significantly, provid[ing] a springboard for public comment." *Robertson*, 490 U.S. at 349 (quoting *Baltimore Gas & Elec. Co. V. Natural Resources Defense Council*, 462 U.S. 87, 97 (1983)). The court in *Robertson* noted relevant Council on Environmental Quality (CEQ) regulations requiring agencies to request and consider comments from "other federal agencies, appropriate state and local agencies, affected Indian tribes, any relevant applicant, the public generally, and, in particular, interested or affected persons or organizations." *Id.* at 350 n.13 (citing 40 C.F.R. § 1503.1). Other CEQ regulations specifically address "Public involvement," and "public hearings or public meetings," but do not require adjudicatory hearings. 40 C.F.R. § 1506.6c. The Court also noted, in *Marsh*, that the required dissemination of information "permits the public . . . to react to the effects of a proposed action at a meaningful time." *Marsh*, 490 U.S. at 371. *See also* 10 C.F.R. § 51.92(d)(1).

[170]We note the Attorney General's argument in his reply that a "plain reading" of § 51.53(c)(3)(iv) leads not only to the conclusion that the "new and significant information" a licensee must provide includes information regarding Category 1 issues, but also to a finding that petitioners are entitled to challenge the adequacy of the ER in this regard in contentions. AG Reply at 9; *see id*. at 5-9. We note also his argument to the effect that any limitation associated with SECY-93-032, so as to exclude *litigation* of Category 1 issues without a waiver, should not be followed because it was "never codified in the final rule." *Id.* at 8 n.7. However, the AG also relies on regulatory history in arguing that its interpretation of the rule — *i.e.*, that Entergy is required under § 51.53(c)(3)(iv) to address "new and significant information" even relating to Category 1 issues — should be followed. *See id*. at 6. Indeed, we agree with the AG on this interpretation, as evidenced in our discussion in the text. And, as we also discuss in the text, to construe § 51.53(c)(3)(iv) as an exception to § 51.53(c)(3)(i) also in a litigation context is a reasonable reading of the rule.

However, our inquiry cannot end so quickly, because, although "interpretation of any regulation must begin with the language and structure of the provision itself," *see Wrangler Laboratories et al.*, ALAB-951, 33 NRC 505, 513 (1991) (cited by the AG in his Reply at 6), "administrative history and other

(continued...)

the Attorney General has recently filed a Petition for Rulemaking with regard to the matters at issue in its Contention,[171] neither the AG nor Pilgrim Watch have sought a waiver,[172] and thus the contention must be ruled inadmissible insofar as it seeks to challenge the absence of alleged new and significant information in the Applicant's ER.[173]

Absent future developments in the *Mothers for Peace* case to the contrary,[174] this would include the matter of the alleged potential for terrorist attacks on the spent fuel pool. In *McGuire*, the Commission held that there is no need to address terrorism issues in license

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[170](...continued)
available guidance may be consulted for . . . the resolution of ambiguities in a regulation's language[, so long as an] interpretation [does] not conflict with the plain meaning of the wording used in [a] regulation." *Wrangler*, ALAB-951, 33 NRC at 513-14. Section 51.53(c)(3)(iv) may well be viewed as being ambiguous, in that it clearly conflicts with § 51.53(c)(3)(i) and there is no "plain language" explicitly stating that § 51.53(c)(3)(iv) creates an exception to § 51.53(c)(3)(i) — in *any* context. From this perspective, the Commission — which, "[a]bsent constitutional constraints or extremely compelling circumstances . . . 'should be free to fashion [its] own rules of procedure and to pursue methods of inquiry capable of permitting [it] to discharge [its]multitudinous duties,'" *Vermont Yankee v. Natural Resources Defense Council*, 435 U.S. 519, 543 (1978) (citations omitted), and which may choose, "in its informed discretion," to proceed "by general rule or by individual, ad hoc litigation," *SEC v. Chenery*, 332 U.S. 194, 203 (1947) — may be viewed as having the discretion to state its interpretation of these regulatory provisions as it did in*Turkey Point.* And thus this Licensing Board would appear to be bound by the Commission's interpretation of § 51.53(c)(3)(iv) in *Turkey Point*, to the effect that § 51.53(c)(3)(iv) creates an exception to § 51.53(c)(3)(i) in the context of the requirements for ERs and EISs but *not* with regard to the scope of issues permitted to be raised in contentions in a license renewal adjudication context, absent a waiver, as discussed in the text. *See also CAN v. NRC*, 391 F.3d at 349, 360-61; *Mothers for Peace*, 449 F.3d at 1027.

[171]*See* Massachusetts Attorney General's Petition for Rulemaking to Amend 10 C.F.R. Part 51 (Aug. 25, 2006), ADAMS Accession No. ML062640409.

[172]With respect to a petitioner who alleges "new and significant information" that applies not only to a particular plant or plants involved in a proceeding, but is more broadly applicable and thus raises a more "generic" issue, it would seem that the only recourse is indeed, as discussed at oral argument, *see supra* n. 128, a petition for rulemaking, such as that filed by the Attorney General. We note that the AG and the City of Plymouth have both indicated that they are less concerned about *how* the matters at issue are addressed than that they *are* in fact addressed, not merely generically but in a manner that assures that the situation at Pilgrim is in fact addressed and not overlooked, as might be the case were any rulemaking not to become effective until *after* this license renewal proceeding is completed. *See* Tr. at 140, 144-47; *see id.* at 148-156.

[173]Thus we need not address, and have not addressed herein, the question whether there is indeed new and significant information in this instance.

[174]*See supra* at 32-33.

renewal proceedings because "it is sensible not to devote resources to the likely impact of terrorism during the license renewal period, but instead to concentrate on how to prevent a terrorist attack in the near term at the already licensed facilities."[175] The Commission also, in holding that the GEIS adequately addresses terrorism issues generically, stated:

> Even if we were required by law to consider terrorism under NEPA, the NRC has already issued a . . . GEIS that considers sabotage in connection with license renewal. . . . The GEIS concluded that, if such an event were to occur, the resultant core damage and radiological releases would be no worse than those expected for internally initiated events.[176]

This authority supports a conclusion that terrorism concerns, even assuming new and significant information is presented, are not litigable in a license renewal proceeding without a waiver.

In conclusion, based on the preceding analysis, the Massachusetts Attorney General's Contention and Pilgrim Watch Contention 4 must be ruled inadmissible and are consequently denied.

B. Pilgrim Watch Contention 1: The Aging Management Plan Does Not Adequately Inspect and Monitor for Leaks in All Systems and Components That May Contain Radioactively Contaminated Water

Petitioner Pilgrim Watch in this contention states:

> The Aging Management program proposed in the Pilgrim application for license renewal is inadequate because (1) it does not provide for adequate inspection of all systems and components that may contain radioactively contaminated water and (2) there is no adequate monitoring to determine if and when leakage from these areas occurs. Some of these systems include underground pipes and tanks which the current aging management and inspection programs do not effectively inspect and monitor.[177]

As basis for this contention, Pilgrim Watch states that:

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[175] *McGuire*, CLI-02-26, 56 NRC at 361.

[176] *Id.* at 365 n.24.

[177] PW Petition at 4.

> . . . recent events around the country have demonstrated that leaks of underground pipes and tanks can result in the release of massive amounts of radioactive materials into the ground water. Exposure to this radiation can be a threat to human health, and is a violation of NRC regulations. Because older plants are more likely to experience corrosion and leakage problems, and low energy radionuclides can speed up the rate of corrosion, Pilgrim should be required, as part of its Aging Management Program, to adequately inspect and monitor any systems and components that carry radioactive water. The Aging Management Plan should be revised to include this inspection and monitoring before a license renewal is granted.[178]

Relying on the requirement for an aging management program that addresses structures and components including pipes, and referring to the provision for inspection of buried pies and tanks at § B.1.2 of Entergy's Application, PW argues that deficiencies in the aging management plan for such pipes and tanks that contain radioactive water could "endanger the safety and welfare of the public"[179] and "significantly impact health,"[180] and therefore this contention is within the scope of this license renewal proceeding and material to the findings that must be made to support the action at issue in this proceeding.[181]

Pilgrim Watch has submitted exhibits produced by the Union of Concerned Scientists documenting leaks of radioactively contaminated water at eight nuclear facilities,[182] and also supports its contention by reference to various other documents. These include, with regard to health concerns related to radioactive material in ground water, statements by Arjun Makhijani,

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[178] *Id.* at 6.

[179] *Id.* at 5.

[180] *Id.* at 6.

[181] *Id.* at 4-6 (citing *Turkey Point*, CLI-00-23, 52 NRC at 329; *Turkey Point*, CLI-01-17, 54 NRC at 7; 10 C.F.R. § 54.21; Application at p. B-17; *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2, and 3), 60 NRC 81 (2004); *Private Fuel Storage, LLC* (Independent Spent Fuel Storage Installation), LBP-98-7, 47 NRC 142, 179-80 (1998), *aff'd in part*, CLI-98-13, 48 NRC 26 (1998)).

[182] PW Petition, Exh. A, Contaminated Water Leakage, A-1. Union of Concerned Scientists et al, Petition Pursuant to 10 CFR 2.206 - Enforcement Action - Longstanding Leakage of Contaminated Water, Appendix A, January 25, 2006; A-1, NRC Preliminary Notification of Event Or Unusual Occurrence - PNP-III-06-004B, Byron NPS, April 20, 2006; A-3. NRC Event Number 42381, Palo Verde, NRC: Event Notification Report of March 3, 2006.

Ph.D.,[183] scholarly and newspaper articles,[184] and the "BIER VII report."[185] Cited with regard to plant aging and corrosion are additional publications of the Union of Concerned Scientists[186] and NASA,[187] on the greater likelihood of aging-related problems in later phases of life,[188] and a book by G. Bellanger on low-energy radionuclides inducing corrosion through degradation of the passive oxide layers that protect metals.[189] On the Pilgrim plant's asserted vulnerability to undetected leaks, PW cites a U.S. Government Accounting Office report discussing suspected counterfeit or substandard pipe fittings at the plant.[190] In support of its assertion that monitoring wells should be placed between the plant and the ocean, PW submits the final EIS for the

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[183]PW Petition at 8 nn.2 & 3.

[184]PW Pet at 8 n.3 (citing J.D. Harrison, A. Khursheed, & B.E. Lambert, "Uncertainties in Dose Coefficients for Intakes of Tritiated Water and Organically Bound Forms of Tritium by Members of the Public," *Radiation Protection Dosimetry*, Vol. 98, No. 3, 2002, pp. 299-311); PW Pet at 9 (*Indian Point officials zero in on leak: Source of Radioactive Strontium 90 Turning up in Groundwater Believed to be from Spent Fuel Rod Pool*, Associated Press (May 12, 2006)).

[185]PW Petition at 9 (citing National Academy of Science, *Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII Phase 2* (2006)).

[186]PW Petition at 9 (citing David Lochbaum, Union of Concerned Scientists, U.S. Nuclear Plants: the risk of a lifetime (2004)).

[187]PW Petition at 9-10 (citing National Aeronautics and Space Administration (NASA), *Using Reliability-Centered Maintenance As The Foundation For An Efficient And Reliable Overall Maintenance Strategy* (2001)).

[188]PW cites the NASA-originated example of the "Bathtub Curve" graph, used in the Union of Concerned Scientists publication to illustrate that "after a relatively stable (bottom of the bathtub) period in the middle life of [a] subject, a steep rise in age-related failures occurs towards the end of its life." PW Petition at 10 (citing Lochbaum at 4).

[189]PW Petition at 10-11 (citing G. Bellanger, Corrosion Induced by Low Energy Radionuclides: Modeling of Tritium and Its Radiolytic and Decay Products Formed in Nuclear Installations (Elsevier Publications, 2006)).

[190]PW Petition at 11 (citing U.S. GAO, Nuclear Safety and Health Counterfeit and Substandard Products are a Government-Wide Concern (Oct. 1990)).

original licensing of the plant, in which it is noted that "[s]urface topography is such that surface drainage from the station is seaward . . . ."[191]

Pilgrim Watch refers to Appendices A and B of Entergy's Application, including specifically Appendix A, § A.2.1.2 at page A-14, and Appendix B, § B.1.2 at page B-17, in support of its challenge to the Applicant's stated plans regarding its "Buried Pipes and Tanks Inspection Program."[192] The former describes the "Buried Piping and Tanks Inspection Program" as including "(a) preventive measures to mitigate corrosion and (b) inspections to manage the effects of corrosion on the pressure-retaining capability of buried carbon steel, stainless steel, and titanium components"; states that "[b]uried components are inspected when excavated during maintenance"; and states further that, "[i]f trending within the corrective action program identifies susceptible locations, the areas with a history of corrosion problems are evaluated for the need for additional inspection, alternate coating, or replacement."[193] The cited section from Appendix B, also titled "Buried Piping and Tanks Inspection," states that this program "is comparable to the program described in NUREG-1801, Section XI.M34, Buried Piping and Tanks Inspection," and provides that "[b]uried components are inspected when excavated during maintenance" and that a "focused inspection will be performed within the first 10 years of the period of extended operation, unless an opportunistic inspection (or an inspection via a method that allows assessment of pipe condition without excavation [such as 'phased array' ultrasonic, or 'UT,' technology]) occurs within this ten-year period."[194]

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[191]PW Petition at 13 n.5 (quoting Atomic Energy Commission, Pilgrim Nuclear Power Station Final EIS (May 1972)).

[192]*Id.* at 11-12.

[193]Application, Appendix A, § A.2.1.2, at A-14.

[194]Application, Appendix B, § B.1.2 at B-17.

PW argues that the preceding "are insufficient if there is a potential leak of radioactive water from corroded components that could be migrating off-site,"[195] that the plan to use "opportunistic inspections" gives the "appearance [of] the matter of discovering leaks [ ] being left to chance," that the UT technology in question is untested by plant operating experience, and that instead there should be "regular and frequent inspections of all components that contain radioactive water."[196]

Emphasizing that small leaks, "if undetected, can eventually result in much larger releases of radioactive liquid into the ground, PW notes that smaller leaks are also more difficult to detect with measures such as noting drops in water levels in tanks.[197] Thus, according to PW, also relying on the fact that some of the recent cases of leaked radioactive water were detected through the use of monitoring wells, the "only effective way to monitor for [radioactive water being drained into the ground and then the ocean] would be to have on-site monitoring wells located between Pilgrim and the ocean," which would be suitably arrayed and sampled regularly, and used to supplement the Applicant's planned visual and ultrasonic tests.[198] Citing 10 C.F.R. § 20.1302 and Part 50, Appendix A,[199] for the proposition that licensees such as the Applicant are required to "demonstrate that effluents, including those from 'anticipated

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[195]PW Petition at 12.

[196]*Id.*

[197]*Id.* at 13.

[198]*Id.*

[199]*Id.* at 14 nn. 6 & 7.

operational occurrences,' do not expose members of the public to excessive radiation doses,"[200] PW argues:

> While leaks of radioactively contaminated water into the ground for extended periods of time may not have been operational occurrences anticipated when the facilities were initially designed and licensed, they can scarcely be 'unanticipated' following the series of occurrences summarized in Exhibit A. As those events demonstrated, unless nuclear facilities aggressively monitor for leaks both off-site and on-site, a leak can go undetected for years, and potentially life threatening releases of radiation can migrate off-site before any problem is detected.[201]

PW concludes by asserting that "[m]anagement to detect possible leaks is a site specific safety issue which has not been properly addressed in the [Application] and has not been adequately dealt with by the [NRC] in a generic way at this time," and that, because of the potential for harm to public health and safety, the Applicant should be required to address this issue "more thoroughly . . . before a license extension for Pilgrim is granted."[202]

Entergy's Answer to Pilgrim Watch Contention 1

Applicant Entergy argues that Pilgrim Watch's first contention "is inadmissible because (1) the Contention is overbroad and unduly vague and impermissibly challenges Commission regulation; (2) the Contention provides no basis to dispute the adequacy of aging management program for underground pipes and tanks; and (3) the Contention is beyond the scope of this proceeding."[203]

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[200]PW Petition at 14. PW quotes 10 C.F.R. § 20.1302, which requires licensees to survey radiation levels so as to "demonstrate compliance with the dose limits for individual members of the public," and 10 C.F.R. Part 50, Appendix A, which refers, *inter alia*, to the requirement to "control suitably the release of radioactive materials . . . produced during normal reactor operation, including anticipated operational occurrences."

[201]PW Petition at 15.

[202]*Id.* at 15-16.

[203]Entergy Answer to PW Petition at 11.

The Applicant insists that PW's claim, that the "Aging Management Plan does not adequately inspect and monitor for leaks in all systems and components that may contain radioactively contaminated water," is impermissibly overbroad because the scope of license renewal proceedings, as confined by 10 C.F.R. § 54.4, "does not encompass 'all systems and components that may contain radioactive water,'"[204] and "[m]any plant systems and components that may contain radioactively contaminated water do not fall within this defined scope of 10 C.F.R. Part 54."[205] Furthermore, the Applicant asserts, because the Commission has explicitly rejected a petition for rulemaking of the Union of Concerned Scientists, seeking to expand the scope of the license renewal rule to include "liquid and gaseous radioactive management systems," the contention "directly challeng[es] the Commission's contrary determination."[206] Thus, "[a]s such, the Contention impermissibly challenges Commission regulation, and to the extent the Contention encompasses systems and components that are not subject to the license renewal requirements of 10 C.F.R. Part 54, the Contention must be rejected as beyond the scope of this proceeding."[207]

Attacking PW's asserted failure to identify "specific PNPS systems or components within the scope of the rule that will not be adequately managed for aging, or that contain radioactive water that might be released,"[208] Applicant argues that the contention "fails to provide a factual

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[204] *Id.* at 11.

[205] *Id.* at 12.

[206] *Id.* at 12 (citing 66 Fed. Reg. 65,141 (Dec. 18, 2001) ("Union of Concerned Scientists; Denial of Petition for Rulemaking")).

[207] *Id.*

[208] *Id.* at 13.

basis to support *any* claim challenging the adequacy of the Application."[209] Citing PW's reference to reports of radioactive water leaks at other nuclear power plants, the Applicant avers that PW fails to provide a basis to link those leaks "to any in-scope license renewal systems and components or to any claimed inadequacy of the Pilgrim aging management plan for buried piping and tanks."[210] Applicant distinguishes the Pilgrim plant, among other things as being a boiling water reactor with an elevated, above-grade spent fuel pool, unlike examples cited by PW,[211] and charges that PW has failed to provide support either for its allegations of "'site specific attributes due to [the Pilgrim plant's] history and location which makes leaks from components and systems . . . more likely and more difficult to detect,'"[212] or for its claims regarding inadequate "'current methods for monitoring systems and components such as buried piping and underground tanks.'"[213] Additionally, the Applicant argues that PW's references to expected failures over the life of a component or structure, and to the past use of "counterfeit or substandard pipe fittings and flanges," provide no support for the contention because the former is not site-specific to Pilgrim and the latter would be covered by a current design and licensing basis and is not an aging issue.[214]

Addressing claims regarding inspection and potential leaks of radioactive water from corroded components, Applicant argues that PW has provided nothing more than unsupported allegations regarding the adequacy of the inspection and aging management programs for

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[209] *Id.* (emphasis in original).

[210] *Id.* at 13-14.

[211] *See id.* at 14.

[212] *Id.* at 15-16 (quoting Pilgrim Watch Petition at 8).

[213] *Id.* at 16 (quoting Pilgrim Watch Petition at 9).

[214] *Id.* at 16-17 (quoting Pilgrim Watch Petition at 11).

underground pipes and tanks.[215] According to the Applicant, "[n]o facts or expert opinion are provided to support the claimed inadequacy of the aging management program," and "[n]o basis is offered to suggest that components are corroding nor is any information offered indicating the appropriateness of any other inspection period."[216]

The Applicant suggests that the contention's "real focus is not on aging management, but on the adequacy of the PNPS radiological monitoring program, which is beyond the scope of this proceeding."[217] Asserting that what PW is really requesting is an expanded radiological monitoring program at the site,[218] the Applicant contends that this concerns a current operational program that is "not properly part of this license renewal proceeding."[219]

NRC Staff's Response to PW Contention 1

The NRC Staff agrees with Petitioner PW that Contention 1 is within the scope of license renewal proceedings, but argues that it is inadmissible, first, because it fails to meet the requirements of 10 C.F.R. § 2.309(f)(1)(vi) that it demonstrate that a genuine dispute exists with the Applicant regarding a material issue of law or fact, and that it challenge either specific portions of or alleged omissions from the Application, and instead relies on "vague or generalized studies and unsubstantiated assertions without reference to the LRA [and thus]

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[215] *See id.* at 17.

[216] *Id.* at 17. Applicant cites *Georgia Tech.*, LBP-95-6, 41 NRC at 305; and *Turkey Point*, LBP-90-16, 31 NRC at 521 & n.12, for the propositions that a petition must provide "'[t]echnical analyses and expert opinion' or other factual information 'showing why its bases support its contention,'" and that "an allegation that some aspect of a license application is 'inadequate' or 'unacceptable' does not give rise to a genuine dispute unless it is supported by facts and a reasoned statement of why the application is unacceptable in some material respect." *Id.* at 18.

[217] *Id.* at 18.

[218] *Id.* at 18-19.

[219] *Id.* at 20.

fails to demonstrate that there are material issues of fact in dispute."[220] In addition, the Staff argues, the asserted bases for the contention "lack sufficient facts and contain no supporting expert opinion" as required under 10 C.F.R. § 2.309(f)(1)(v), and instead "impermissibly rel[y] on generalized suspicions and vague references to alleged events at other plants and equally unparticularized portions of general studies for providing a factual basis."[221]

Following the outline headings used by PW in its petition and treating the various outline points of PW's Contention 1 and its basis essentially as separate bases, the Staff challenges each separately.[222] According to the Staff, PW's references to leaks at other facilities does not support the contention's admissibility, because no site-specific facts relevant to the Pilgrim plant have been provided.[223] Nor, according to the Staff, does that part of the basis for the contention in which PW asserts that "[e]xposure to this radiation can be a threat to human health[ ] and is a violation of NRC regulations" pass muster "because Petitioner has failed to demonstrate that there is a genuine dispute as a matter of law or fact . . . and fails to provide an adequate basis in fact or expert opinion to support its assertion."[224] No deficiency or dispute with the Application is cited, according to the Staff, "that would lead to like releases," and the

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[220]NRC Staff Response to PW Petition at 10.

[221]*Id.*

[222]We note that the Staff approaches this and other contentions by addressing the information under different headings in the bases separately, without appearing to draw any connections between the various sections. We find it more appropriate to consider, and have considered, the basis for each contention as a whole, taking into account any logical connections between sections as well as any supporting material in one section for the point(s) made in any other section or sections.

[223]*See* Staff Response to PW Petition at 11. The Staff notes PW's statement that the Pilgrim plant has "site-specific attributes due to its history and location which make leaks from components and systems such as underground piping more likely and difficult to detect," but argues that "Petitioner does not provide site-specific facts to support this assertion nor identify with any specificity how purported leaks at other plants are relevant to Pilgrim." *Id.* (quoting PW Petition at 7-8).

[224]Staff Response to PW Petition at 12 (citations omitted).

reference to the BEIR VII Report for the proposition that "there is no safe dose of radiation" is an "impermissible challenge to the Commission's regulations."[225]

Regarding the studies cited by PW related to aging and corrosion, the Staff argues that these are too general to support an admissible contention,[226] and with respect to the studies cited on low energy radiation and corrosion, asserts that any suggestion that the Pilgrim plant suffers from the same effects constitutes "mere speculation" and "bare assertions" insufficient to support a contention.[227] The Staff also notes that PW mentions neither the NRC's response to the GAO study on counterfeit or substandard pipe fittings, nor subsequent actions taken in response to it, and suggests that this should be taken as a failure "to provide a reason why the GAO study is significant to this proceeding" and as "impermissibly seek[ing] the Licensing Board to make erroneous assumptions of fact."[228] The Staff considers PW's references to ultrasonic testing to be asking the Board to "make an impermissible assumption of fact," and its call for "regular and frequent inspections of all components that contain radioactive water" to be unsupported by any "factual or expert support."[229]

Finally, the Staff suggests PW has provided no expert or factual support for its challenge to the adequacy of the monitoring provided in the Application, or for its assertion that the monitoring program at Pilgrim must be improved.[230] According to the Staff, PW bases its arguments relating the purported need for monitoring to the discoveries of leaks at other

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[225] *Id.* at 12-13.

[226] *See id.* at 13-14.

[227] *Id.* at 14.

[228] *Id.* at 15.

[229] *Id.* at 15-16.

[230] *Id.* at 16.

facilities on speculation and "generalized suspicion," and cites no part of the Application with which it has a dispute.[231]

Pilgrim Watch Replies to Entergy and Staff

In its replies to Entergy and the Staff, Pilgrim Watch charges both with attempting to hold it to an incorrect standard of having to prove its contention at this stage of this proceeding, relying on the Commission's 1989 rulemaking statement to the effect that this is not part of the contention admissibility requirements.[232] Citing in addition the Commission's advice that the factual support necessary to show that a genuine dispute exists in relation to a contention "need not be of the quality necessary to withstand a summary disposition motion," PW states that, while it has not yet formally engaged the services of an expert, it "has provided the board with extensive sources as the basis for its contentions, gleaned from scientific, technical, public policy and government reports."[233] PW avers that the Staff also purports to make the rule stricter than it already is when it argues that expert opinion is always required, whereas the actual requirement is for "facts *or* expert opinion."[234]

In response to Entergy and Staff challenges to that part of the basis for Contention 1 that concerns leaks at other facilities, PW points out that, in reading the Application, it looked for assurances "that such an event at Pilgrim would be quickly detected and remedied and discovered that the Aging Management Plan does not give this assurance."[235] PW asserts that "[t]his is exactly the sort of 'deficiency or error' in an Application that has 'independent health

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[231] *Id.* at 17-18.

[232] PW Reply to Entergy at 3; PW Reply to NRC Staff at 3 (citing, in each, 54 Fed. Reg. 33,170 (Aug. 11, 1989)).

[233] PW Reply to NRC Staff at 4-5; PW Reply to Entergy at 4.

[234] PW Reply to NRC Staff at 4.

[235] *Id.* at 5; *see also* PW Reply to Entergy at 6.

and safety significance' that is material to these proceedings, and Petitioners referred directly to the Application sections as was required."[236] PW notes that the significance of the leaks at other facilities has been shown by the fact that the NRC has appointed a special tritium task force to address the problem.[237]

In response to Entergy's argument that the contention is overbroad in referring generally to pipes and other components, PW points out that its discussion is focused on those systems, including pipes and tanks, that are addressed in the Application at § B.1.2, page B-17, and that it is these pipes and tanks that are at issue in the contention.[238]

PW further notes that it included a discussion of the "site-specific" fact of the coastal topography of the Pilgrim plant in the basis for the contention, and cites its references to the various reports discussed in its Petition, provided to support the various "pieces" of its basis — noting that each piece is but a part of its overall basis.[239] With regard to the reports in question, PW points out that the issues they address — health, aging and corrosion of components, and low-energy radionuclides and corrosion — would be applicable to Pilgrim, even though they might not be specifically about the Pilgrim plant.[240]

PW emphasizes that the deficiency with regard to inspection that it alleges is the schedule of an inspection within the first 10 years, or "opportunistically."[241] PW notes that it highlighted the novelty of ultrasonic testing to support its "claim that additional monitoring is necessary to

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[236]PW Reply to NRC Staff at 5.

[237]*See id.*; PW Reply to Entergy at 6.

[238]*See* PW Reply to Entergy at 5.

[239]PW Reply to NRC Staff at 6-7.

[240]*See id.* at 6-8; PW Reply to Entergy at 7-8. PW observes that "[f]or the Staff to imply that Petitioners cannot even rely on pertinent scientific studies conducted in other parts of the country to support our basis in Massachusetts raises the bar very high indeed." *Id.*at 8.

[241]PW Reply to NRC Staff at 8.

complement it,"[242] a proposal that is intended as an "adjunct to inspections, and as an integral part of the Aging Management Program at Pilgrim, not as part of its operational radiological monitoring program."[243] PW notes that "it was through monitoring wells that leaks at other facilities were discovered, and yet Pilgrim does not currently have monitoring wells that would detect leaks of radioactive water before that water was washed into Cape Cod Bay," and asserts that "[o]n-site wells in strategic locations could alert Licensee about possible problems in a more timely way."[244] Maintaining that it has shown "why it is unrealistic to expect to happen upon a leaking pipe during routine maintenance activities, particularly if those activities only take place every ten years," PW continues to argue that the "only effective way to monitor for such an occurrence would be to have on-site monitoring wells located between Pilgrim and the ocean."[245] According to PW, "[t]he genuine and material issue in dispute is whether or not the Licensee's application sufficiently deals with th[e] safety issue" presented in its contention.[246]

Licensing Board Ruling on Pilgrim Watch Contention 1

We find this contention, as limited below, admissible, based upon the following analysis:

We turn first to the question of whether this contention falls within the scope of a license renewal proceeding. We agree with the Staff in its concession that Pilgrim Watch's first contention is within this scope, as defined at 10 C.F.R. Part 54.[247] Indeed, the fact that the Application itself contains sections concerning "Buried Piping and Tanks Inspection," both cited

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[242] *Id.*

[243] PW Reply to Entergy at 8.

[244] PW Reply to NRC Staff at 8.

[245] PW Reply to Entergy at 8.

[246] *Id.*; *see* PW Reply to NRC Staff at 9.

[247] *See* our discussion above at section IV.B of this Memorandum and Order.

by Petitioner, indicates that Entergy implicitly agrees that this subject, insofar as it concerns those buried pipes and tanks in its aging management program, is within the scope of license renewal.[248] Obviously, if there are some pipes or tanks that do not for one reason or another individually fall within the scope of license renewal, issues concerning such pipes and/or tanks may not be litigated in this proceeding. But this is a different matter than whether *any* buried pipes and tanks are within scope, as some undisputedly are. While it is true that the contention's mention of "all systems and components" may, on its face, implicate systems and components that are not within the scope of a license renewal as defined in 10 C.F.R. Part 54, such language does not remove the entire contention from the scope of this proceeding.

We find that Pilgrim Watch, among other things by referencing the Application's aging management plan regarding buried pipes and tanks, has supported its contention "sufficient to establish that it falls directly within the scope" of this proceeding,[249] and therefore satisfies the requirements of 10 C.F.R. § 2.309(f)(1)(iii), to the extent that the contention concerns underground pipes and tanks that fall within the Pilgrim aging management plan. We further find that the contention — again, insofar as it concerns underground pipes and tanks that are part of Pilgrim's aging management program — does not improperly challenge any Commission rule or regulation.

We find that PW has fulfilled the requirements of 10 C.F.R. §§ 2.309(f)(1)(i) and (ii) by providing a sufficiently specific statement of the issue raised in the contention and the requisite brief explanation of the basis for the contention. Briefly summarized, PW in Contention 1 challenges Pilgrim's aging management program relating to the inspection of buried pipes and

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[248]Application, §§ A.2.1.2, B.1.2.

[249]*Arizona Pub. Serv. Co*. (Palo Verde Nuclear Generating Station, Units 1, 2, and 3), LBP-91-19. 33 NRC 397, 412 (1991), appeal denied on other grounds, CLI-91-12, 34 NRC 149 (1991). *See* PW Petition at 5.

tanks for corrosion, and to detection of leakage of radioactive water that might result from undetected corrosion and aging. The essence of the contention is that the aging management plan incorporates no mechanism for early detection of leaks, and should do so, through the use of appropriately placed monitoring wells.[250] The basis for the contention includes two factors: First, the infrequency of inspections for corrosion of relevant pipes and tanks that are underground, viewed in light of recent discoveries of leaks at various nuclear facilities, supported by various factual arguments and sources; and second, the fact that the plan contains no mechanism for monitoring for leaks.

With regard to whether, as required at 10 C.F.R. § 2.309(f)(1)(iv), the issue raised in the contention is material to the findings that must be made to support the sought license renewal, we find that this requirement has been met. Obviously, the adequacy of the aging management program as it relates to underground pipes and tanks has health and safety significance[251] and is material to whether the license renewal may be granted.

We also find that PW has satisfied the requirements of 10 C.F.R. § 2.309(f)(1)(v) for a concise statement of the alleged facts or expert opinion supporting the contention, including references to sources and documents to be relied upon. PW has raised significant factual allegations about the matters at issue and provided various support for its contention. Petitioner alleges as fact that the aging management plan for buried pipes and tanks that is in the Application is deficient in limiting inspections to focused inspections within 10 years of the license renewal, "opportunistic inspections," and inspections during excavations for maintenance (along with additional inspections if "trending . . . identifies susceptible locations,"

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[250]PW Reply to NRC Staff at 8-9; PW Reply to Entergy at 8.

[251]*See Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 and 3), LBP-04-15, 60 NRC 81, 89 (2004); *Private Fuel Storage, LLC* (Independent Spent Fuel Storage Installation), LBP-98-7, 47 NRC 142, 179-80 (1998), *aff'd in part*, CLI-98-13, 48 NRC 26 (1998).

and the possibility of some ultrasonic testing).[252] It points out that the plan does not include any monitoring wells, and urges that in addition to "regular and frequent inspections," the aging management program should include "monitoring wells in suitable locations . . . to supplement visual and ultrasonic tests."[253] Moreover, PW has referred to a number of scientific articles and reports in support of this contention, and we note that, according to some of these reports, discovery of some of the recently-found leaks in various facilities was achieved through use of monitoring wells.[254]

In litigation of this contention, various scientific articles and reports referenced by PW, as well as the existence of leaks at other facilities and the response to those leaks, may, along with whatever other evidence and expert testimony is provided, be relevant evidence on the factual issue of whether Pilgrim's aging management program for underground pipes and tanks is satisfactory or deficient, and whether as a result — again, as a factual matter — the sort of monitoring wells that PW seeks should be included in this program.[255] No doubt there will be

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[252]PW Petition at 12-13.

[253]*Id.* at 11-14.

[254]*See id.* at 13-14; PW Petition, Exh. A.

[255]As with many scientific reports and studies, and as with many factual circumstances that are discovered at a number of locations, each of these may be quite relevant to conditions at an individual facility. The NRC's "lessons learned" approach to analyzing a problem at one or more facilities in a manner so as to prevent future occurrences at other facilities illustrates this. Indeed, we note the recent issuance of the Liquid Radioactive Release Lessons Learned Task Force Final Report (Sept. 1, 2006; issued publicly Oct. 4, 2006), available at http://www.nrc.gov/reactors/operating/ops-experience/tritium/lr-release-lessons-learned.pdf [hereinafter Tritium Report]. In this report, although the task force "did not identify any instances where the health of the public was impacted," *id*. at Executive Summary I, it did conclude that "under the existing regulatory requirements the potential exists for unplanned and unmonitored releases of radioactive liquids to migrate offsite into the public domain undetected," based on several elements, including the fact that some components such as buried pipes are not physically visible, the general absence of NRC requirements for monitoring groundwater onsite, and the possibility of migration of groundwater contamination offsite undetected. *Id.* at ii; *see id*. at 50. The report mentions the relevance of the 10 C.F.R. Part 54 license renewal requirements to the matters at issue, *id.* at 22; notes that buried systems and structures such as pipes are "particularly susceptible to undetected leakage," *id*. at 26; and recommends that the staff verify that the license renewal process "reviews

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[255](...continued)
degradation of systems containing radioactive material" as discussed in the report, *id.* at 27. (We would further note that, as the report does not appear to be accompanied by any planned rulemaking at this time, it does not raise any questions about litigation of the matters at issue in this contention in this proceeding, which, in any event, as with the instances discussed in the report, involve various site-specific elements in addition to more generally relevant considerations that may be informed by the report, as well as by other relevant documents and sources. *See Oconee*, CLI-99-11, 49 NRC at 345 (quoting *Potomac Elec. Power Co.* (Douglas Point Nuclear Generating Station, Units 1 & 2), ALAB-218, 8 AEC 79, 85 (1974) ("It has long been agency policy that Licensing Boards 'should not accept in individual license proceedings contentions which are (or are about to become) the subject of general rulemaking by the Commission.'")); see also Duke Power Co. (Catawba Nuclear Station, Units 1 & 2), ALAB-813, 22 NRC 59, 86 (1985); Private Fuel Storage, L.L.C. (ISFSI), LBP-98-7, 47 NRC 142, 179 (1998); PW Petition at 7.)

We would note that any NRC guidance documents on subjects related to Contention 1, while not controlling, may be relevant evidence on subjects relating to Contention 1. In this regard we observe as well that Entergy has, in support of its assertions that its aging management program for buried pipes and tanks is sufficient, directed us to the "GALL Report," which provides the NRC Staff's regulatory guidance on aging management of buried piping and tanks. NUREG 1801, Generic Aging Lessons Learned (GALL) Report, Vol. 2, Rev. 1 at XI —M-95; *see* Entergy Answer to PW at 18 n.9; Tr. at 325-6. Without making any determination on the merits of this contention, it does appear that the Applicant's proposed program likely complies with the minimum standards of the guidance therein set out.

However, several factors with regard to the GALL Report are particularly noteworthy in the context of Contention 1 and the arguments regarding it. First, of course, the GALL Report represents general guidance for the Staff's review, and does not specify the only acceptable way to satisfy the requirements of 10 C.F.R. § 54.21. *Curators of the University of Missouri*, CLI-95-8, 41 NRC 386, 397 (1995) ("NUREGs and Regulatory Guides are advisory by nature and do not themselves impose legal requirements on either the Commission or its licensees."). Second, the guidance of the report focuses primarily upon ensuring the continuing effectiveness of external coatings and wrappings to manage the effects of corrosion, rather than on any methods to detect failure other than by physical inspection. Third, while the report states that "inspections performed to confirm that coating and wrapping are intact are an effective method to ensure that corrosion of external surfaces has not occurred and the intended function is maintained," NUREG 1801, GALL Report, Vol. 2, Rev. 1 at XI-M-III, it goes on to indicate that, "because the inspection frequency is plant-specific and depends on the plant operating experience, the applicant's plant specific operating experience is further evaluated for the extended period of operation." *Id.* at point 10. Thus, the report implicitly contemplates that an acceptable plan will be plant-specific and depend on operating experience.

In this instance, Applicant has proposed to comply with the suggested general guideline for frequency of inspection — "an opportunistic inspection" within a ten-year period — that is the *minimum* suggested in the guidance (wherein it is stated that "it is anticipated that one *or more* opportunistic inspections may occur within a ten year period" and that "prior to entering the period of extended operation, the applicant is to verify that there is *at least one* opportunistic or focused inspection . . . performed within the past ten years"). *Id.* at XI-M-111–112 No party here argues that the applicant has failed to follow this guidance; rather, insofar as the report is viewed as providing guidance on an acceptable plan, at issue here is *sufficiency* of a plan that complies *only* with the *minimum* requirements thereof — which may or may not be sufficient based on circumstances including site-specific factors.

Pilgrim Watch questions whether visual inspection at the proposed intervals, together with possible use of ultrasonic testing (at only a selected sample of locations) is sufficient to manage the effects of aging by detecting *incipient* failure of the buried pipes and tanks (whether by incipient failure of coatings and wrappings or otherwise), and suggests that the plan should include leak detection mechanisms (such as monitoring wells) to discover any actual failure, rather than rely only on the

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argument about the extent to which various items of evidence are relevant and do or do not establish various facts. But Petitioners are not required to prove alleged facts at the contention admissibility stage. In addition, although PW has indicated that it will have an expert to support its admitted contention(s),[256] it is not required to have such an expert at this time.[257]

We would also note that the subject of "monitoring" is not irrelevant merely because some monitoring may be part of operational activities on a continuing basis. The fact that some "monitoring" may occur as part of ordinary plant operations does not exclude it from license renewal, as illustrated, for example, by section A.2.1.10 of the Application, concerning the "Diesel Fuel Monitoring Program." PW alleges that the aging management program of inspection for corrosion and leakage from underground pipes and tanks at Pilgrim is insufficient, supported by various facts, documents, sources and a reasoned fact-based argument, and asserts that the best way to address this deficiency (based on topographical facts set forth in the original FEIS for the Pilgrim plant) is to add leak detection through

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[255](...continued)
proposed periodic visual inspections and potential use of ultrasonic testing. *See* PW Petition at 11-14.

We find that this challenge raises factual issues from two perspectives: First, it can be viewed, in its most direct form, as a challenge to the adequacy of the proposed interval of inspection. Second, it can be viewed, in its pointing out of the lack of monitoring for leaks that would be indicative of pipe or tank failure, as a challenge to the adequacy of a plan which merely satisfies the minimum requirements of regulatory guidance which, in and of itself, appears to contemplate some plant-specific elements. With regard to the first perspective, it is unclear at this point whether or not this proposed periodicity is sufficient for *this* plant, and with regard to the second, it is likewise premature to say whether or not monitoring for leaks is properly part of an aging management plan designed to prevent leaks. Thus, insofar as the Applicant may be viewed as arguing that it has complied with the requirements of NUREG 1801, we find such argument to be insufficient, for the purposes of contention admissibility considerations, to overcome such factual challenges. These are matters that are properly addressed on the merits at the appropriate stage of the proceeding for such consideration.

[256]Tr. at 300.

[257]If the remainder of the basis and support for a contention were so sparse as to preclude admission of the contention based solely on such other support, then the presence or absence of an expert might come into play in ruling on the admissibility of the contention. But this is not the situation with PW's Contention 1, which we find to be sufficiently supported, without indication of a retained expert at this point.

monitoring wells between the plant and Cape Cod Bay. Whether the addition of such wells may be appropriate and necessary, as part of Pilgrim's aging management plan for underground pipes and tanks, is, as indicated above, a factual matter, the answer to which depends upon whether the plan, absent such monitoring, is adequate to detect and remedy any corrosion or other potential for leakage, and any leakage that may actually occur, in a timely and effective manner. If a plan is found as a factual matter to be inadequate in this regard, and that additional inspection and other measures are unduly difficult or expensive such that monitoring wells or other leak detection devices may be the most efficient and cost-effective way of addressing the inadequacy, then they might well be called for, as a factual matter, to augment existing parts of the aging management plan.

Finally, with respect to the requirement at 10 C.F.R. § 2.309(f)(1)(vi) that PW provide sufficient information to show a genuine dispute on a material issue of law or fact, including specific references to portions of the Application it disputes and the reasons for the dispute, there is no doubt that Petitioners must provide something more than bare allegations or "unsubstantiated assertions." We find that PW has done more, and has satisfied the requirements of § 2.309(f)(1)(vi), insofar as the contention asserts that the aging management plan is inadequate in not including leak detection methods (such as monitoring wells) as a part of it, to supplement existing provisions. In support of this PW has made a reasoned argument supported, as we note above, by facts, exhibits, scientific reports, and by reference to Appendices A and B of the Application, more specifically at sections A.2.1.2, page A-14, and B.1.2, page B-17. It challenges the absence of monitoring wells to serve as leak detection devices, strategically placed between the plant and the coast toward which all water that may be released through any leaks from such pipes and tanks would flow. It asserts that such wells are a necessary part of a system to manage the aging of buried pipes and tanks, particularly where the plan is to inspect only once within the first 10 years of the new license unless an

opportunistic occasion arises. It is clear that the participants are genuinely in dispute on this material issue of fact, which we find Petitioner PW has raised and supported sufficiently to admit Contention 1.

In admitting this contention, however, we limit it in two respects. First, the contention is limited to those underground pipes and tanks that do fall within those described in 10 C.F.R. Part 54,[258] which is an issue that may require further clarification as this proceeding progresses. Second, although PW in its basis for Contention 1 has specifically referenced "violation[s] of 10 C.F.R. § 20.1302 and § 50 Appendix A";[259] the basis also contains certain suggestions that doses *not in violation* of NRC regulations might be harmful to health.[260] The former may be litigated with respect to this contention; the latter may not. With such limitations, the contention we admit states as follows:

> The Aging Management program proposed in the Pilgrim Application for license renewal is inadequate with regard to aging management of buried pipes and tanks that contain radioactively contaminated water, because it does not provide for monitoring wells that would detect leakage.[261]

C. Pilgrim Watch Contention 2: The Aging Management Plan at Pilgrim Fails to Adequately Monitor for Corrosion in the Drywell Liner

Pilgrim Watch in their second contention states:

> The Aging Management program proposed in the Pilgrim application for license renewal fails to adequately assure the continued integrity of the drywell liner, or shell, for the requested license extension. The drywell liner is a safety-related containment component, and its actual wall thickness should be confirmed by periodic ultrasonic testing (UT) measurements at all critical areas, including those which are inaccessible for visual

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[258] *See* 10 C.F.R. § 54.21(a)(1)(i) ("These structures and components *include*, *but are not limited to*, . . . piping . . . ." (emphasis added)); *see also* PW Petition at 4.

[259] PW Petition at 8.

[260] *See* PW Petition at 8-9.

[261] With respect to exactly which pipes and tanks do fall within Pilgrim's aging management program, this is addressed to an extent in the Application, although further definition may be required as the adjudication of this case proceeds forward.

inspection. The current plan does not adequately monitor for corrosion in these inaccessible areas, nor does it include a requirement for a root cause analysis when corrosion is found.[262]

As basis for this contention, Pilgrim Watch states that:

A contention about a matter not covered by a specific rule need only allege that the matter poses a significant safety problem. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), LBP-82-116, 16 NRC 1937, 1946 (1982). The drywell liner has been identified by the NRC and the Applicant as a safety-related structure to be maintained both as a pressure-related boundary and for structural support. It is required to contain and control the release of fission products to the Reactor Building in the event of a Design Basis Accident, including a Loss-Of-Coolant-Accident (LOCA) so that the off-site radiation dose to the surrounding communities remains within NRC designated limits. This structure is therefore vital to the protection of the health, safety and welfare of the public and Petitioners' members. Recent events cited herein have demonstrated that the corrosion of Mark I Drywells is a major safety issue that is not addressed by current NRC Guidance Documents. Pilgrim has a history of corrosion in different areas of the drywell and there has been a reduction in drywell wall thickness. Despite this fact, the Aging Management Program does not adequately monitor for corrosion in the drywell and drywell wall thickness. The Aging Management Program should address this issue, and perform root cause analysis where any corrosion is found, before a license renewal is granted.[263]

To support its allegation that corrosion of Mark I drywells is a major safety related issue, Pilgrim Watch has referenced a 1986 NRC Information Notice (IN 86-99) acknowledging the potential for corrosion, as well as a 1992 NRC Safety Evaluation of drywell integrity at the Oyster Creek Nuclear Generating Station — also a Mark I reactor — discussing corrosion detected by UT measurements.[264] In conjunction with its discussion of known corrosion problems at Mark I steel containment shells, PW also notes a January 31, 2006, meeting held by NRC "to discuss the proposed interim staff guidance [ISG] for license renewal associated with Mark I steel containment drywell shell[s]."[265] Citing sentiments expressed by the NRC Staff

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[262]PW Petition at 17.

[263]*Id.* at 18-19.

[264]Pilgrim Watch Petition at 19-20.

[265]*Id.* at 20 n.9 (citing "NRC Conference Call January 31, 2006 to discuss the proposed interim (continued...)

in the meeting, PW argues that the NRC has recognized that a relevant "Generic Aging Lesson Learned" (GALL) report "does not provide sufficient guidance for detecting and monitoring potential corrosion in the drywell shell, particularly in inaccessible areas," and that "all Mark I reactors have a potential problem and require evaluation.[266] Pilgrim Watch cites, and includes as an attachment to its Petition, a 2006 Federal Register notice entitled "Proposed License Renewal Interim Staff Guidance LR–ISG-2006-01: Plant-Specific Aging Management Program for Inaccessible Areas of Boiling Water Reactor Mark I Steel Containment Drywell Shell"[267]; PW explains that it seeks to intervene on the drywell corrosion issue "because the license renewal process for Pilgrim has already begun and will likely be completed before a final Staff Guidance on this problem is issued."[268]

Petitioners argue that unless they are allowed to intervene on this issue — in effect, if this contention is not admitted — "these concerns will not be adequately addressed as part of the Pilgrim license renewal."[269] Conceding that the issue clearly now has the attention of the NRC, PW argues that the possibility of a future Staff Guidance being issued "should not preclude Petitioners' intervention on this issue," citing case law for the principle that "[p]articipation of the NRC Staff in a licensing proceeding is not equivalent to participation by a private intervenor."[270]

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[265](...continued)
staff guidance for license renewal association with Mark I steel containment drywell shell. Power point Presentation and discussion by Ms. Linh Tran" (*see* NIRS Oyster Creek Motion for Leave to Add Contentions or Supplement, (Feb 7, 2006"), ADAMS Accession No. ML0604705540).

[266]*Id.* at 20.

[267]71 Fed. Reg. 27,010 (May 9, 2006).

[268]PW Petition at 21.

[269]*Id.*

[270]*Id.* (citing *Washington Public Power Supply System* (WPPSS Nuclear Project No. 3), ALAB-747, 18 NRC 1167, 1175-76 (1983)).

According to Pilgrim Watch, in addition to the evidence regarding all Mark I Steel Containment Drywell Shells, the Pilgrim Nuclear Power Station "has a history of corrosion in different areas of the drywell, and there has been a reduction in drywell wall thickness."[271]

Pointing to Appendix B of the Application, PW asserts that the Applicant has identified specific instances of corrosion that were discovered and remedied and that the Applicant incorrectly suggests that such discovery and remedy is evidence of a successful aging management program.[272] Instead, PW argues, this demonstrates that corrosion is occurring and does not prove that all corrosion and degradation is being detected and remedied.[273] To further support its assertions that corrosion and degradation is occurring or will occur at Pilgrim, Petitioner references the same "bathtub curve" risk-profile it cited in support of its first contention as applying to aging nuclear power plants, again claiming that in the renewal period Pilgrim will be in the "wear-out" phase, making degradation more likely.[274]

Turning to the specifics of the Aging Management Program at Pilgrim, Pilgrim Watch argues that an inspection of the drywell liner every ten years is not adequate, nor is the primary reliance on visual examinations of the drywell because such inspections cannot monitor inaccessible areas.[275] Assessing the procedures set forth in Appendix A.2.1.17 of the Application, and the Aging Management Program's reference to the use of ultra-sonic testing of drywell thickness, Pilgrim Watch states that it is "not clear from the Application where and how

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[271] *Id.* at 22.

[272] *Id.*

[273] *Id.*

[274] *Id.* at 22-23.

[275] *Id.* at 23.

often" the drywell thickness would be measured using such tests.[276] Pilgrim Watch cites the work of Dr. Rudolf H. Hausler for the proposition that reliance on visual inspections would be of "limited usefulness."[277] Thus, PW asserts, noting the overall difficulty of inspecting inaccessible areas, visually or by UT, "the Aging Management Plan should require a root cause analysis any time water leakage into the drywell region has been found."[278]

Concluding, Pilgrim Watch contends that the Pilgrim aging management plan "should include regular UT measurements of all critical areas of the drywell liner and a root cause analysis of any drywell areas where water has been found before license renewal is granted."[279] PW advocates frequent enough UT measurements "to confirm that the actual corrosion measurement results are as projected"; that the measurements should be expanded into areas not previously inspected, including multiple measurements to determine "crevice corrosion" in the liner that is submerged in the concrete floor as well as those areas identified by a root cause analysis that may have caused leakage; submission of results to the NRC as publicly available documents in this license renewal proceeding; concurrence with relevant ASME standards; and immediate incorporation of` the NRC Staff Interim Staff Guidance into the Aging Management Program.[280]

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[276] *Id.*

[277] *Id.* at 24.

[278] *Id.*

[279] *Id.*

[280] Id. at 24-25.

Entergy's Answer to Pilgrim Watch Contention 2

The Applicant argues that Contention 2 is inadmissible because "it does not address and therefore fails to identify any deficiency in the discussion of this issue in the Application[,] . . . provides no basis to dispute the adequacy of aging management program for the drywell liner[, and t]herefore, fails to establish any genuine dispute concerning a material issue."[281] Turning first to Pilgrim Watch's references to the "Proposed License Renewal Interim Staff Guidance LR-ISG-2006-01: Plant-Specific Aging Management Program for Inaccessible Areas of Boiling Water Reactor Mark I Steel Containment Drywell Shell,"[282] the Applicant states that Pilgrim Watch has failed to acknowledge or "address the amendment to the license renewal application that Entergy submitted on May 11, 2006, to provide additional information responsive to this proposed guidance."[283] The Applicant argues that the contention "does not directly controvert [the] position taken by the applicant," in its application amendment, and thus, the "contention is subject to dismissal."[284]

The Applicant claims that "the proposed interim staff guidance does not support Pilgrim Watch's allegation that Entergy's aging management program does not adequately monitor for corrosion in inaccessible areas."[285] Insisting that the proposed guidance does not require monitoring in the inaccessible areas, Applicant argues that it instead "recommends development of a corrosion rate that can be inferred from past UT examinations." Pointing to

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[281]Entergy Answer to PW Petition at 20.

[282]71 Fed. Reg. 27,010.

[283]Entergy Answer to PW Petition at 21 (citing Letter from S. Bethay to U.S. Nuclear Regulatory Commission, License Renewal Application, Amendment No. 1 (May 11, 2006), ADAMS Accession No. ML061380549).

[284]*Id.* at 21.

[285]*Id.*

Amendment No. 1 of its license renewal application, Applicant states that it "has addressed this issue in the manner recommended in the NRC proposed guidance.[286] The Applicant challenges other of PW's allegations as well, including those asserting inadequacies in the aging management program for the drywell liner. Applicant notes that PW has failed to contradict or assess the programs outlined in the Amendment to the Application, which include "[a] host of actions . . . not limited to 'inspection of the drywell liner every 10 years' as alleged in the Contention."[287] Applicant states that no basis has been shown for PW's allegation of a history of corrosion, and, finally, argues that PW has failed to address the root cause discussion in Section B.0.3 of Appendix B to the Application when it asserts that the aging management program for the drywell shell impermissibly omits a requirement for root cause analysis when corrosion is found.[288]

NRC Staff Response to Pilgrim Watch Contention 2

The NRC Staff does not dispute that the contention falls within the scope of the license renewal proceeding, but, like the Applicant, argues that it is inadmissible because it fails to present a genuine issue of law or fact as required by 10 C.F.R. § 2.309(f)(1)(vi), and also asserts that "it lacks a basis in fact or expert opinion" as required by § 2.309(f)(1)(v).[289] Instead, the Staff asserts, the "Petitioner impermissibly attempts to piggyback on to the Staff's dialogue with industry and the public relative to forthcoming Interim Support Guidance (ISG) . . . as a substitute for Petitioner's obligation to provide facts or technical expertise in support of its

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[286] *Id.* at 22.

[287] *Id.* at 22-23.

[288] *Id.* at 24.

[289] Staff Response to PW Petition at 19.

assertions."[290] PW has failed, Staff argues, to provide "independent facts or expert opinion beyond Staff dialogue with industry.[291] Further, the Staff faults Pilgrim Watch for making only vague references to the Application, and thus failing to include any challenge to specific deficiencies in the application.[292] With regard to the allegations of a "history of corrosion in different areas of the drywell" at Pilgrim, the Staff argues that the contention's reference to the "torus bays and drywell spray header" is misdirected, stating that these "are entirely distinct features from the drywell shell."[293] Similarly, the Staff contends that the Union of Concerned Scientists Report cited by Pilgrim Watch fails to provide a factual basis for the contention because it "makes no mention of Pilgrim, the LRA or drywell shell region."[294] Finally, regarding PW's argument that the Pilgrim Aging Management Plan is deficient for failing to provide for sufficient inspection of the drywell, the Staff also faults PW for failing to address the May amendment to the Application and urges that as a result PW's argument does not support admission of the contention because it fails to present a genuine dispute of law or fact.[295]

Pilgrim Watch Replies to Applicant and Staff

In its reply to the Applicant, Pilgrim Watch concedes that it did not mention the Applicant's License Amendment regarding drywell monitoring in its Petition, but insists that the Applicant did not notify the Petitioner as to its existence, nor was the Amendment made part of the

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[290] *Id.* (citations omitted).

[291] *Id.*

[292] *See id.* at 21.

[293] *Id.*

[294] *Id.* at 22.

[295] *Id.*

Application "on the Pilgrim I License Renewal Site."[296] However, having now assessed the Amendment, Pilgrim Watch argues that the Applicant fails to satisfy the standards in the recently released proposed guidance regarding this issue.[297] The guidance, according to Pilgrim Watch, requires the development of a plant specific aging management plan to address corrosion in the inaccessible areas of the drywell shell, and a development of "corrosion rates" for these areas.[298] Pilgrim Watch faults the Applicant because "it appears that measurements have only been taken twice in the inaccessible embedded areas, and these measurements have been discontinued"; according to PW, "[t]his does not appear to conform with the proposed ISG."[299]

Responding to the Staff, PW disputes the argument that it "impermissibly attempts to piggyback" on the Staff's dialogue with industry as the basis for its contention.[300] According to PW, unlike instances where a Petitioner relies wholly on the "existence of RAIs to establish deficiencies in the application," as cited by the Staff, here Pilgrim Watch is simply arguing that Pilgrim should "at least meet the new standards outlined in [the] ISG."[301] Petitioner further contends that its contention and basis "directly refer to sections of the Licensee's Aging Management Program for the drywell liner,"[302] and, based on the inadequacies that it has

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[296]Pilgrim Watch Reply to Entergy at 10-11.

[297]*Id.* at 12; *see* LR-ISG-2006-01, Plant-Specific Aging Management Program for Inaccessible Areas of Boiling Water Reactor Mark I Steel Containment Drywell Shell.

[298]PW Reply to Entergy at 12.

[299]*Id.*

[300]PW Reply to NRC Staff at 10.

[301]*Id.*

[302]*Id*.

shown in this program again requests incorporation of the proposed NRC requirements into the Pilgrim aging management program before any license renewal is granted.[303]

Licensing Board Ruling on Contention 2

We find this contention, though within the scope of license renewal and meeting other relevant requirements of 10 C.F.R. § 2.309(f), to be inadmissible because it fails to meet the requirement of 10 C.F.R. § 2.309(f)(vi) that sufficient information be shown to demonstrate that a genuine dispute exists with the applicant on a material issue of law or fact. In this contention, as argued by Staff, PW essentially relies on the interim Staff guidance, seeking to require Applicant to comply with the guidance. Moreover, particularly with regard to the May 11, 2006, amendment to the Application, PW does not state with any specificity or provide information showing *how* the actions and proposed actions of the Applicant do not comply with the Staff guidance, stating only, in its reply, that "[t]his does not *appear* to conform with the proposed ISG."[304] The Board is not permitted to draw any inferences on behalf of a petitioner, and in the absence of any more specific statement than has been provided, showing how the specific actions of Applicant fall short, or some nexus with problems at other plants, we find the contention fails to show any genuine dispute on a material issue of fact relating to the matters at issue.

Applicant Entergy has detailed in its amendment how it has in fact done UT testing of the drywell shell, both at points adjacent to the inaccessible sand cushion region and also, on two occasions, of the shell immediately above the sand cushion area, by chipping away the concrete above the points of testing.[305] It has stated that the result of this testing has been that

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[303] *See id.* at 11.

[304] PW Reply to Entergy at 12.

[305] *See* Pilgrim License Renewal Application, Amendment 1 (May 11, 2006) at 3, ADAMS
(continued...)

the thickness of the shell at the areas tested is "essentially as-built."[306] It has explained that it ceased doing UT measurements in the inaccessible sand cushion region, based on satisfactory results from monitoring for leakage from the annulus air gap drains (which provide for drainage from the sand cushion area); satisfactory thickness at the 9-foot elevation sand cushion region (and upper drywell); the existence of high radiation in the areas where the sand cushion UT exams were performed; and the potential for damage to the drywell shell from the tools used to chip away concrete when UT testing of the sand cushion area was performed.[307] With no more specific information being provided to show that these are not acceptable reasons for ceasing the UT testing or that other measures taken by Applicant are unsatisfactory than that it "does not appear" that these satisfy the ISG, we see no genuine dispute being raised about the actions taken by the Applicant and whether they satisfy the ISG. Whether the Applicant's actions and procedures do or do not satisfy the ISG will be determined by the Staff in the course of their license renewal review, and Staff has indicated that it will assure compliance with the ISG.[308] In order for a petitioner to have a contention admitted on this subject, however, more information must be shown than has been shown here.[309]

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[305](...continued)
Accession No. ML061380549 [hereinafter Amendment]..

[306]*Id.*

[307]*See id.* at 2-3.

[308]At oral argument, the Staff stated that they "intend to apply the elements of the draft ISG to the renewal application. The extent to which those amendments address the ISG is just going to be a matter of review." Tr. at 353. The Staff responded affirmatively to questioning from the Licensing Board Chair as to whether they would "make sure the ISG is complied with completely." *Id*. Entergy counsel stated that, although Entergy would "like to see the finalized ISG before I commit to say[,] I would assume that if it's along the lines of the proposed ISG that we would [commit to complying with the ISG]." Tr. at 356.

[309]Reference may be made to the information provided by a petitioner in the *Oyster Creek* proceeding for comparison purposes. In that case, for example, among other facts shown by petitioners in their first contention relating to drywell corrosion, it was demonstrated that 60 out of 143 UT
(continued...)

D. Pilgrim Watch Contention 3: The Environmental Report is inadequate because it ignores the true off-site radiological and economic consequences of a severe accident at Pilgrim in its Severe Accident Mitigation Alternatives (SAMA) analysis.

Pilgrim Watch here contends:

> The Environmental Report inadequately accounts for off-site health exposure and economic costs in its SAMA analysis of severe accidents. By using probabilistic modeling and incorrectly inputting certain parameters into the modeling software, Entergy has downplayed the consequences of a severe accident at Pilgrim and this has caused it to draw incorrect conclusions about the costs versus benefits of possible mitigation alternatives.[310]

Pilgrim Watch's argument that this contention is within the scope of license renewal[311] is not disputed;[312] severe accidents, and alternatives to mitigate severe accidents, are listed as a "Category 2" issue in 10 C.F.R. Part 51, Subpart A, Appendix B. Petitioner also cites Council on Environmental Quality (CEQ) regulatory authority for the proposition that environmental impacts that are "reasonably foreseeable" and have "catastrophic consequences, even if their probability of occurrence is low," must still be considered in an EIS;[313] and NRC regulatory authority for the proposition that difficulty in quantification does not excuse inclusion in the EIS,

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[309](...continued)
measurements at the 11-foot level of the sand cushion region indicated a reduction of more than 1/4 inch from the original design thickness of 1.154 inch at that point. *Amergen Energy Company* (Oyster Creek Nuclear Generating Station), LBP-06-7, 63 NRC 188, 213 (2006). By contrast, no reason has been provided to doubt Entergy's statement that UT measurements in the sand cushion region indicated essentially no reduction in thickness.

In a second contention on drywell corrosion, admitted in part after the first contention on the subject was ruled moot based on actions taken by that Applicant to address a deficiency alleged in that contention, *see AmerGen Energy Company, LLC* (Oyster Creek Nuclear Generating Station), LBP-06-22, 64 NRC __, __ (slip op. at 1-2) (Oct. 10, 2006), the Petitioners provided a relatively detailed argument in contrast to the contention before us. For example, that portion of the contention that was admitted concerned a very specific assertion that the drywell shell at Oyster Creek was "0.026 inches or less from violating AmerGen's acceptance criteria" in the sand bed region "due to prior corrosion." *Id.* at 15, 18.

[310]PW Petition at 26.

[311]*See id.*

[312]*See* Staff Response to PW Petition at 25; Entergy Answer to PW Petition at 25-46.

[313]PW Petition at 26 (quoting 40 C.F.R. § 1502.22(b)(1)).

because, "to the extent that there are important qualitative considerations that cannot be quantified, these considerations or factors will be discussed in qualitative terms."[314]

Petitioner argues that this contention is material because it alleges a deficiency in the Application that "could significantly impact health and safety"[315] — it is asserted that the use of "probabilistic modeling and incorrect parameters in its SAMA analysis" results in a downplaying of the likely consequences of a severe accident at Pilgrim, which "thus incorrectly discounts possible mitigation alternatives" that might prevent or reduce the impact of an accident.[316]

As basis for Contention 3, PW notes that the Appendix B requirement on SAMAs provides that, even though "[t]he probability weighted consequences of atmospheric releases, fallout onto open bodies of water, releases to ground water, and societal and economic impacts from severe accidents are small for all plants," alternatives to mitigate severe accidents must still be considered.[317] Petitioner suggests that by virtue of Entergy's use of probabilistic modeling, the deaths, injuries, and economic consequences of an accident can be underestimated, citing various legal and technical authority."[318]

Further, PW asserts, Applicant used outdated versions of the MACCS2[319] Code and MACCS2 User Guide, ignoring warnings about the code's limitations and using incorrect input parameters.[320] Citing criticisms of the code, PW points to, among other things, limitations on the code's failure to "model dispersion close to the source . . . or long range dispersion," and to

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[314] *Id.* at 27 (citing 10 C.F.R. § 51.71).

[315] *Id.* at 28 (citing *Millstone*, LBP-04-15, 60 NRC at 89).

[316] *Id.* at 28.

[317] *Id.* at 29-30 (citing 10 C.F.R. Part 51, Subpart A, Appendix B).

[318] *Id.* at 30-31.

[319] MACCS stands for "MELCOR Accident Consequence Code System;" *see* PW Petition at 31.

[320] *See* PW Petition at 31.

a user's "ability to affect the output from the code by manipulating the inputs and choosing parameters."[321] Stating that it is impossible for PW to fully evaluate the SAMA conclusions of the Applicant, "[w]ithout knowing what parameters were chosen by the Applicant," PW posits several "reasons that Entergy's described consequences of a severe accident at Pilgrim look so small," based on the ER, and discusses several specific categories of what it contends are incorrect input data to the SAMA analysis.[322] These alleged errors relate to meteorological data (including wind speed, wind direction, and dispersion), demographic and emergency response data relating to evacuation delay time and speed, and economic data.[323] PW alleges that the Applicant's undercounting of the costs of a severe accident could have led to erroneous rejection of mitigation alternatives, and that further analysis is necessary.[324]

Pilgrim Watch challenges the modeling of the Application's atmospheric dispersion of a point release of radionuclides because it allegedly does not take into account meteorological conditions such as wind speed and direction changes, the sea breeze phenomenon, and coastal topography.[325] Citing various authority in support of its arguments, including a Massachusetts Department of Public Health report on the "Feasibility of Exposure Assessment for the Pilgrim Nuclear Power Plant," and NRC Regulatory Guide 1.194,[326] PW contends that

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[321] *Id.* at 33; *see id.* at 31-34 & nn.13, 14 (citing D.E. Chanin and M.L. Young, Code Manual for MACCS2: Vol. 1, User's Guide (Sandia Nat. Lab. 1997); MACCS2 *Computer Code Application Guidance for Documented Safety Analysis* (DOE 2004).

[322] PW Petition at 34.

[323] *See id.* at 34-45.

[324] *See id.* at 48-49.

[325] *See id.* at 34-38.

[326] *See id.* at 34-38 (citing J.D. Spengler and G.J. Keeler, Feasibility of Exposure Assessment for the Pilgrim Nuclear Power Plant (1988); NRC Regulatory Guide 1.194 (June 2003); Edwin S. Lyman, Union of Concerned Scientists, "Chernobyl on the Hudson? The Health and Economic Impact of a Terrorist Attack at the Indian Point Nuclear Plant," at 16 (2004)).

the data used in the Application — taken from the reactor site and the Plymouth airport — should be replaced with more specific data that takes into account the specific characteristics of the Plymouth area.[327]

Pilgrim Watch challenges the demographic and other data used in the Application, arguing that, because of the unpredictability and complexity of the winds at the Pilgrim site, a larger, more inclusive population, located "within rings around the plant," should be used when calculating off-site dose costs.[328] Noting that the sensitivity analysis used in the Application does not include the most current information on emergency evacuation needs,[329] and suggesting that it does include a faulty assumption "that the longest likely delay before residents begin to evacuate is 2 hours," PW proposes that the analysis should take into account phenomena such as the need for some who cannot evacuate to shelter in place, special events that bring large numbers of the public onto the roads at times, and "shadow evacuation," or voluntary evacuation by persons not within the formal evacuation area.[330] Petitioner suggests the need for greater realism and accuracy in the evacuation analysis, as well as assumption of "the worst case scenario."[331] PW supports these arguments with a factual discussion, along

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[327] *See id.* at 37-38.

[328] *Id.* at 38.

[329] PW indicates that a later report prepared for Entergy than that used in the Pilgrim SAMA analysis "relies on newer census data and newer roadway geometric data." PW Petition at 39-40 (citing *Pilgrim Nuclear Power Station Development of Evacuation Time Estimates*, KLD TR-382, Rev. 6 (Oct. 2004)); *cf.* KLD, *Pilgrim Station Evacuation Time Estimates and Traffic Management. Plan Update*, Rev. 5 (Nov. 1998).

[330] PW Petition at 41-43.

[331] *Id.* at 40.

with references to specific sections of the Application and various other documents and studies.[332]

Noting "[o]ne of the cited criticisms of the MACCS2 Code — "*i.e.*, "that 'the economic model included in the code models only the economic cost of mitigative actions'" — PW points out that, although costs of decontamination, condemnation of property that cannot be sufficiently decontaminated, and compensation to persons forced to relocate as a result of an accident are included, not accounted for is any resulting loss of economic activity in Plymouth County or other neighboring counties with significant tourism (including the Cape Cod area), travel to which is through Plymouth County.[333] One example provided is that of Plimoth Plantation, which is "less than five miles from the plant [and] brings in almost $10 million per year."[334] PW also attaches as an exhibit to this contention a study on the economic impact of travel on Massachusetts counties, prepared for the Massachusetts Office of Travel and Tourism.[335]

Finally, PW provides an example of an alternative that it contends the Applicant wrongly dismissed as a result of its SAMA analysis — namely, adding a filter to the Direct Torus Vent.[336]

Entergy's Answer to Pilgrim Watch Contention 3

The Applicant argues that Contention 3 is inadmissible "because (1) the Contention impermissibly challenges Commission regulation, and (2) the Contention provides no basis to

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[332]*See id.* at 39-42 (citing KLD-TR-382, Rev. 6; Rev. 5; Calculation of Reactor Accident Consequences (CRAC-2) (Sandia Nat. Lab. 1982); NAS, The Safety & Security of Commercial Spent Nuclear Fuel Storage Public Report (2005); Donald Ziegler and James Johnson, Jr., Evacuation Behavior in Response to Nuclear Power Plant Accidents, *The Professional Geographer* (May 1984)).

[333]*Id.* at 43-44 (internal quotations omitted).

[334]*Id.* at 44.

[335]*See* PW Petition, Exhibit D, *The Economic Impact of Travel on Massachusetts Counties*, 2003, prepared for the Massachusetts Office of Travel and Tourism by the Research Department of the Travel Industry Association of America, Washington, D.C. (January 2005).

[336]PW Petition at 45-48.

establish a material dispute of fact regarding the adequacy of the SAMA analysis in the ER."[337] In its first argument, Applicant asserts that Pilgrim Watch has "misread," thus misapplied, and in effect challenged Commission regulations regarding SAMA analysis.[338] The root of this problem, according to the Applicant, is Pilgrim Watch's assertion that SAMA analysis should be focused on severe accident mitigation alternatives and not severe accident risks.[339] Pointing to the Third Circuit decision in *Limerick Ecology Action, Inc. v. NRC*,[340] and the Commission decision in *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2), CLI-02-17,[341] the Applicant argues that the Commission and reviewing courts have endorsed the position that "the evaluation of risk is at the heart of a SAMA analysis," that "only by considering risk can one determine those alternatives that provide the greatest benefit for the dollars expended," and that PW is in error in suggesting that a SAMA analysis is "to focus solely on mitigation of consequences without regard to the likelihood of their occurrence."[342] Applicant emphasizes the centrality of the risk calculation by describing the Third Circuit's discussion of how the probability of a risk may change with population density,[343] and the Commission's statement that reductions in risk are "assessed in terms of the total *averted risk*: averted public exposure (health risk converted into dollars to estimate the cost of the public health consequence), averted onsite cleanup cost, averted offsite property damage costs, averted exposure costs,

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[337]Entergy Answer to PW Petition at 25.

[338]*See id.*

[339]*Id.* at 25-26.

[340]869 F. 2d 719 (3d Cir. 1989).

[341]CLI-02-17, 56 NRC 1 (2002).

[342]Entergy Answer to PW Petition at 26.

[343]*Id.* at 27; *see Limerick*, 869 F.2d at 738-39.

and averted power replacement costs."[344] Applicant also quotes from a Commission decision in the *Duke* license renewal proceeding:

> Whether a SAMA may be worthwhile to implement is based upon a cost-benefit analysis — a weighing of the cost to implement the SAMA with the *reduction in risks* to public health, occupational health, and offsite and onsite property.[345]

Applicant characterizes PW's argument as being that "risk is to be ignored [in a SAMA analysis] and that only consequences are to be considered," and argues that this approach is contrary to the SAMA rule.[346] Applicant concludes its argument that Contention 3 "impermissibly challenges Commission Regulation" with the following statement:

> In short, Pilgrim Watch's claim that the Pilgrim SAMA analysis erroneously focuses on risk so as to improperly minimize the consequences of a SAMA is not supported. The reduction of risk (likelihood of occurrence times severity of consequences) is *the* fundamental tenet of SAMA analysis. Moreover, because the impacts from severe accidents as determined by the Commission are 'SMALL' the Commission does not expect a properly conducted SAMA analysis 'to identify *significant* [plant] modifications that are cost-beneficial' . . . , which is exactly counter to the underlying premise of Contention 3.[347]

In its second argument, Applicant urges that Contention 3 fails to raise any material dispute of fact, insisting that it lacks any "factual basis to show that the different modeling assumptions and estimates that it claims should have been used in the SAMA analysis would have any material impact on the results of the analysis."[348] Asserting that the "contention rests on several faulty premises," Applicant reiterates its argument described above and claims that the

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[344]Entergy Answer to PW Petition at 27 n.15 (citing *McGuire*, CLI-02-17, 56 NRC at 8 n.14). Applicant notes as well the Commission's prediction that it would be "unlikely that any site-specific consideration of severe accident mitigation alternatives for license renewal will identify *major plant design changes or modifications* that will prove to be cost-beneficial for reducing severe accident frequency or consequences." *Id.* at 28 (citing 61 Fed. Reg. 28,467, 28,481 (June 5, 1996) (emphasis added by Applicant)).

[345]Entergy Answer to PW Petition at 26 (quoting *McGuire*, CLI-02-17, 56 NRC at 7-8).

[346]*Id.* at 27.

[347]*Id.* at 29.

[348]*Id.* at 29-30.

"mischaracterization of the SAMA analysis" has tainted its contention and "provides no basis for an admissible contention."[349] Applicant notes that, "[a]s would be expected by the Commission," its SAMA analysis "does not identify any significant modification to mitigate severe accidents to be cost-beneficial," but does find five alternatives to be "potentially cost beneficial" and recommends further evaluation and consideration of these.[350] In addition, it points out that it identified benefits for more than 50 of the 59 SAMAs it did evaluate, contrary to Petitioner's assertion of "zero" benefits identified.[351]

Applicant argues that "Contention 3 impermissibly presumes the materiality of its asserted deficiencies and pleads no facts to establish their materiality."[352] According to the Applicant, "the Contention sets forth nothing to establish that the asserted deficiencies would, if corrected as claimed by the Contention, alter the *result* of the SAMA evaluations."[353] Applicant suggests that:

> In light of the large conservatisms inherent in the [SAMA] analyses, the significant differences between the cost and benefit of implementing the various SAMAs, and the sensitivity analyses showing that the results are not sensitive to changes in assumptions, it is behoven for Pilgrim Watch to have pled facts to establish the materiality of its asserted deficiencies, [which is] necessary to avoid a meaningless 'EIS editing session[ ]' of the type that the Commission has warned against.[354]

The Applicant also takes issue with the Contention's assertion that the "severe accident analysis should assume the worst case scenario."[355] Arguing that "NEPA's 'Rule of Reason'

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[349] *Id.* at 30.

[350] *Id.* at 30 (citing Application, ER at E.4-49).

[351] *Id.* at 30-31.

[352] *Id.* at 31.

[353] *Id.* (emphasis in original).

[354] *Id.* at 32-33 (citations omitted).

[355] *Id.* at 33.

provides no exception for SAMA analysis," the Applicant claims that Pilgrim Watch has no legal basis for its proposition.[356] Therefore, according to the Applicant, only "reasonable scenarios" need be considered, "'limited to effects which are shown to have some likelihood of occurring.'"[357] Applicant cites both Commission and Supreme Court caselaw suggesting that the SAMA analysis "requires no different level of consideration or evaluation than that employed for analyzing mitigation generally under NEPA,"[358] and quotes the Commission's statement in *McGuire* that "[u]nder NEPA, mitigation (and the SAMA issue is one of mitigation) need only be discussed in 'sufficient detail to ensure that environmental consequences [of the proposed project] have been fairly evaluated.'"[359]

In the Applicant's view, PW has also failed to establish a factual basis for its challenges regarding (1) the Applicant's use of an "outdated" version of MACCS2 Code and User Guide and analysis performed with such tools; (2) the Applicant's meteorological data analysis; (3) the Applicant's demographic and emergency response data and analysis; or (4) its economic data and analysis.[360] With regard to the MACCS2, the Applicant asserts that the code is "state-of-the-art," and that "Pilgrim Watch [does not] provide any basis whatsoever for its allegations that Entergy 'ignored warnings about the limitations of the model,'"[361] or "any basis to show that any of the inherent limitations of the MACCS2 Code are of any significance and would in any way

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[356] *Id.*

[357] *Id.* (quoting *Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, New Mexico 87313), LBP-04-23, 60 NRC 441, 447 (2004)).

[358] *See id.* at 35 (citing *Robertson*, 490 U.S. at 344-347).

[359] *Id.* (citing *McGuire*, CLI-03-17, 58 NRC at 431).

[360] *Id.* at 36-46.

[361] *Id.* at 36.

alter the outcome of the SAMA analysis with respect to determining potentially cost beneficial SAMAs."[362]

While Applicant agrees that "additional data may always be desirable," it again argues that Petitioner has not made any showing that the alleged deficiencies in any way materially affect the SAMA analysis.[363] In addition, Applicant suggests that Regulatory Guide 1.194 does not support the need for more than the year's worth of meteorological data it utilized in its analysis,[364] and states that "[PW] makes *no* claim that the 12 month period of meteorological data used for the Pilgrim SAMA analysis is unrepresentative of the Pilgrim site's meteorology in any respect."[365] Noting PW's suggestion that "'measurements from multiple sites in the field' are needed to '*better* characterize meteorological conditions,'" Applicant suggests that the "real thrust" of PW's claim is "an asserted need for an expanded radiological monitoring program for the Pilgrim plant, which is an operational issue beyond the scope of this license renewal proceeding," just as with Contention 1.[366]

The Applicant suggests a similar lack of basis to show that different data would materially affect the outcome of the SAMA analysis with respect to population demographics and emergency response data, noting that the latter were derived from the Pilgrim Emergency Plan,

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[362] *Id.* at 37.

[363] *Id.* at 38.

[364] *Id.* Applicant notes that by its terms Regulatory Guide 1.194 does not apply for modeling offsite accident radiological consequences. Instead, according to Applicant, the applicable NRC guidance is found in Regulatory Guide 1.145, which points to Regulatory Guide 1.23, "which provides for the use of 'data gathered on a continuous basis for a representative 12 month period' (although '[t]wo full cycles of data are desirable')." *Id.* (citing Reg. Guide 1.194 at 1.194-1 – 1.194-3; Reg. Guide 1.145 at 1.145-2; Reg. Guide 1.23 at 23.2). Applicant also notes that Edwin Lyman, one of Petitioner's sources, has recognized that the MACCS2 Code cannot process more than a year's worth of data. *Id.* (citing Lyman, *supra*, at 26, 33).

[365] Entergy Answer to PW Petition at 38.

[366] *Id.* at 39.

and suggesting that Petitioner has not shown that use of more recent data "would have exceeded the bounds of . . . sensitivity analyses [performed by Applicant] or altered the outcome of the analysis in any material way."[367] In addition, Applicant notes that it evaluated "a wide range of scenarios for which evacuation time estimates were developed," including varying weather conditions, times of day and year, and amounts of traffic.[368]

Finally, with regard to emergency response data, Applicant argues that these should not be subject to challenge in this proceeding, citing Commission precedent for the principle that "[e]mergency planning . . . is one of the safety issues that need not be re-examined within the context of license renewal."[369] Applicant suggests that it follows from this precedent that "assumptions that are consistent with the established emergency plan should be accepted as reasonable in this proceeding," and that PW's suggestion that the evacuation zone should be greater than the 10 miles provided for in "applicable NRC requirements" is "a direct, impermissible challenge to the Commission's emergency planning requirements."[370] In any event, according to Applicant, its analysis takes into account dose to the public within a 50-mile radius "and thus fully accounts for the risk beyond 10 miles."[371] With respect to "shadow evacuation," Applicant views this as a call by PW for an impermissible "worst case scenario," and asserted in oral argument that local law enforcement will assure absence of shadow

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[367] *Id.* at 41; *see id*. at 40-41.

[368] *Id.* at 42. Again, however, Applicant in its pleadings offers no quantification of either the range of scenarios investigated or the effects of the variation in assumptions.

[369] Entergy Answer to PW Petition at 43 (quoting *Turkey Point*, CLI-01-17, 54 NRC at 9); *see id.* at 42-43.

[370] *Id.* at 43.

[371] *Id.*

evacuation[372]; and, with respect to the need of some to "shelter in place," Applicant points out that the existing emergency plan provides for state and local governments to provide assistance to immobile and handicapped persons in the evacuation zone.[373]

Applicant defends its sensitivity analysis as incorporating "large conservatisms" such as using the 2-hour time prior to beginning of evacuation rather than the 40-minute time in the base case, which it says "show a maximum change in the population dose estimates of 'less than 2%.'"[374] Applicant argues to the effect that using larger changes in the evacuation times would still produce only negligible changes in the result, and that the Contention provides no basis to show that its challenges would alter the outcome of the analysis.[375] Finally, Applicant asserts (without quantification of its sensitivity analysis results) that the same conclusion must be drawn regarding the economic data suggested by Petitioner, and that "even with its asserted limitations, the MACCS2 code is state-of-the-art and can be properly applied to yield valid results."[376]

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[372] *See* Tr. at 426-27.

[373] *Id.* at 44.

[374] *Id.* at 45 (internal quotation omitted).

[375] *See id.* at 45-46.

[376] *Id.* at 46. We also note Entergy's concession at oral argument that "the one insightful aspect of the petition was that we made a mistake in one of our SAMAs." Tr. At 399. With respect to the direct filtered vent, which was cited by PW as evidence of faulty SAMA analyses, the applicant stated that it made an "error in inputting the appropriate source term," but that the error was not indicative of code errors or incorrect economic inputs, evacuation time estimates or meteorological data. Tr. At 400. Furthermore, according to the Applicant the error was corrected in a response to a Staff Request for Additional Information. *See id.*

NRC Staff's Response to Contention 3

The Staff's position is that, while the subject of SAMAs is clearly within the scope of a license renewal proceeding, this contention is inadmissible.[377] The Staff challenges the contention as raising issues that are "not material to the findings that must be made in this matter" and "not supported by expert opinion or sufficient facts, as required by 10 CFR § 2.309(f)(1)(v)."[378] The Staff insists that SAMA analysis is a "technical area" and that a Petitioner "cannot rely on its own assertions."[379] The Staff also defends the use of "probability risk analysis" (PRA) as utilized in the SAMAs, arguing that "[u]se of the PRA in this manner is an essential and widely accepted part of the cost-benefit methodology as described in Section 5.6 of NUREG/BR-0184."[380]

Regarding Pilgrim Watch's assertion that probabilistic modeling can underestimate the true consequences of a severe accident, the Staff notes that the Applicant followed accepted NRC and industry practice by comparing the costs and benefits of each identified SAMA, used the correct definition of risk ("the product of consequence and frequency of accidental release"),

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[377] *See* Staff Response to PW Petition at 25.

[378] *Id.*

[379] *Id.*

[380] *Id.* at 26. The Staff explains that, in determining whether any of the 281 possible SAMAs Entergy identified for Pilgrim (from a number of sources, including the Pilgrim PRA analysis) should be implemented,

> the licensee performed a cost-benefit analysis using a methodology that is consistent with the NRC Regulatory Analysis Technical Evaluation Handbook (NUREG/BR-0184). This analysis is designed to identify and estimate the relevant values and impacts of a each proposed change, and provides a structured approach for balancing benefits and costs in determining whether implementation is justified. The PRA is used within this analysis to evaluate the reduction in probabilities (core damage frequency) and consequences (population dose) that would be associated with implementation of each alternative. Use of the PRA in this manner is an essential and widely accepted part of the cost-benefit methodology, as described in Section 5.6 of NUREG/BR-0184.

Id.

and properly discarded SAMA candidates not found to be viable.[381] Staff suggests that the fact that the Applicant evaluated 281 SAMAs negates any implication that Applicant "did not consider a full range of SAMAs."[382]

The Staff dismisses PW's concerns regarding the alleged use of "an outdated version of the MACCS2 Code" as "mere speculation," citing PW's statement that "Entergy *may* have 'minimized consequences by using incorrect input parameters."[383] In addition, the Staff counters PW's suggestion that the Code and/or its user guide are out-of-date or contain known flaws, asserting that Pilgrim Watch has "insufficient basis" for its claims.[384] The Staff also argues that Pilgrim Watch's related claim that the applicant used incorrect input data in the models (including meteorological, demographic, emergency response, and regional economic data) is not supported and is not material in that it has not been "established that any of these alleged shortcomings of MACCS2 are, in fact, deficiencies, or that they impact the results of the SAMA analysis."[385] Noting that the MACCS2 code "has been previously evaluated and found to be sufficient to support regulatory analyses and cost-benefit analyses" in NUREG/BR-0184 and NUREG/CR-6853, Staff contends that PW's challenge of the use of the code is unsupported.[386]

The Staff also argues that there is "no legal support for the position that the Applicant should be required to provide the complete inputs," and that the failure to do so "is not a

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[381] *See* Staff Response to PW Petition at 27-28.

[382] *Id.* at 28.

[383] *Id.* at 28-29 (emphasis supplied by Staff).

[384] Id. at 29.

[385] Id. at 31.

[386] *Id.* (citing NUREG/BR-0184, NRC Regulatory Analysis Technical Evaluation Handbook, p. 5.38; NUREG/CR-6853, Comparison of Average Transport and Dispersion Among a Guassian, a Two-dimensional, and a Three-dimensional Model, Lawrence Livermore National Laboratory, p. 5 (October 2004)).

sufficient basis for asserting or concluding that the input is flawed, or that the applicant has inappropriately manipulated the input."[387] Noting that "a summary description of the site-specific input parameters in each of the major modeling areas is provided in Section E.1.5.2 of the ER," the Staff faults PW for "not [having] taken issue with any of these specific inputs, other than raising more general concerns . . . ."[388] The Staff states that the "request for a complete input listing appears to be designed to obtain discovery to be used as a basis for additional contentions, and as such, is specifically prohibited by the Commission."[389]

The Staff challenges PW's claims about the sea breeze phenomenon, asserting that PW has not sufficiently shown that:

> (1) the phenomenon is unique to the Pilgrim site and not present at many other coastal sites where MACCS2 has been utilized, (2) the Applicant did not, in fact, model this phenomenon, or (3) the claimed failure to fully characterize or model the phenomenon would result in any meaningful difference in results of the SAMA evaluation or render the site-specific MACCS2 data inadequate.[390]

Arguing in a vein similar to that of Entergy, the Staff maintains that Pilgrim Watch has not shown that Regulatory Guide 1.194, cited by PW as authority for the argument that more data may be required, is applicable to SAMA analysis, nor has it shown "that additional data is necessary or that the one year of data is insufficient."[391] Further, Staff insists:

> [T]he Petition fails to establish why the applicant's approach is inadequate, and that the petitioner's "more realistic approach" would have any impact on SAMA results. . . . Nowhere does the petition establish why Entergy's approach is inadequate or that an alternative approach would have any impact on the SAMA results. Thus, Petitioner has

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[387] *Id.* at 30.

[388] *Id.*

[389] *Id.*

[390] *Id.* at 32.

[391] *Id.* (citing Regulatory Guide 1.194, § C.1 at 1.194-3, 1.194-5 and 6; NUREG/CR-6613, Vol. 1, App. A, § A.1 at a-1).

failed to show that the issue is material to the findings or that a genuine dispute exists on a material issue of law or fact.[392]

Finally, regarding PW's suggestion that Entergy wrongly dismissed the SAMA of adding a filter to the Direct Torus Vent, the Staff argues that Petitioner "fails to establish that a more appropriate treatment of the benefits of the filtered vent would result in the filtered vent becoming cost-beneficial."[393]

Pilgrim Watch Replies to Entergy and Staff

Pilgrim Watch states that Entergy has "misconstrued the substance of the Petitioner's contention completely."[394] PW denies that it challenges NRC regulations, noting that, to the contrary, it quoted and relied on the SAMA regulation.[395] PW notes that it does not argue that mitigation alternatives must be adopted, only that they must be "considered," as required in the regulation.[396] Regarding its argument that "multiplying the probability of an accident by the consequences of an accident . . . can distort the analysis by making even reasonable mitigation appear more costly than the costs of an accident," PW points out that this argument is "not central to [its] Contention, which focuses mainly on the input parameters used in the accident modeling software."[397]

Petitioner suggests further that some of Entergy's arguments actually support the contention, including its reliance on the *Limerick* decision.[398] It is asserted that the Third

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[392] *Id.* at 33 (footnote omitted).

[393] *Id.*

[394] Pilgrim Watch Reply to Entergy at 12.

[395] *Id.* at 13.

[396] *Id.*

[397] *Id.* at 14.

[398] *Id.* at 14-15.

Circuit's recognition in *Limerick* of different risk profiles for plants in densely populated areas as compared to areas of low population actually supports PW's argument "that the *consequences* of a severe accident are the important consideration in evaluating the costs and benefits of implementing SAMAs," and posits that, because Pilgrim is in a densely populated area, the emergency response inputs used for Pilgrim "underestimate evacuation delay times."[399]

Petitioner questions Entergy's argument that significant plant modifications are not expected as a result of a SAMA analysis, suggesting that "this is not the 'hard look' required by NEPA," and reiterates that what it is calling for is "further analysis," not, as Entergy suggests, that NEPA requires implementation of particular SAMAs.[400] The bulk of the contention, PW emphasizes, highlights "input data that were incorrect, incomplete or inadequate."[401] Since it does not have access to the input parameters used by Entergy, it cannot show what impact any one defect might have on the results of the SAMA analysis, as Entergy argues it must do, but this is not, PW contends, the same as showing an impact on the outcome of a proceeding, which, along with showing that an alleged deficiency has "some independent health and safety significance," is the correct standard for materiality.[402] PW argues that it has met the requirement of materiality by demonstrating "that there are deficiencies in Applicant's SAMA analysis that, by minimizing the true consequences of severe accidents, could have independent health and safety significance."[403] It cites authority for the principle that "further analysis" is a "valid and meaningful remedy" to call for under NEPA, given that, "[w]hile NEPA does not require

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[399] *Id.*

[400] *Id.* at 15-16.

[401] *Id.* at 16.

[402] *Id.* at 17.

[403] *Id.*

agencies to select particular options, it is intended to 'foster both informed decision-making and informed public participation, and thus to ensure the agency does not act on incomplete information, only to regret its decision after it is too late to correct.'"[404]

Petitioner further supports its arguments on the allegedly faulty assumptions in the Pilgrim SAMA analysis, including the sensitivity analysis, by referring to the significant underestimations of evacuation times with regard to Hurricane Katrina (also alluded to in its Petition[405]), suggesting that the Pilgrim assumptions "could be wrong by orders of magnitude."[406] "If the bounding assumption used by the Applicant in its sensitivity analysis underestimates the upper limits of the emergency response data," PW argues, "it is no wonder negligible differences were seen," and it is with regard to the sensitivity analyses that its argument regarding "worst case scenario" is made — not, PW argues, to flout NEPA's rule of reason or to "[distort] the decision making process by overemphasizing highly speculative harms," but "in order to get meaningful results [from] the modeling software and SAMA analysis."[407]

With regard to the MACCS2 Code and its limitations, PW argues to the effect that this does not excuse ignoring real issues:

> Even though *the software* cannot include the impact of terrain effects, long range dispersion or economic costs beyond mitigative actions, this does not mean that the NRC Regulations allow a proper SAMA analysis to ignore these. If adding in the true economic costs of a severe accident, for example (as discussed in [PW Petition at 43-45] . . .), would result in a consequence cost several orders of magnitude greater than that from simply the costs of mitigative actions, these costs should be estimated and taken into account.[408]

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[404] *Id.* at 18 (citing *McGuire*, CLI-02-17, 56 NRC at 10).

[405] *See* PW Petition at 39 n.16.

[406] PW Reply to Entergy at 19; *see also* PW Petition at 39 n.16.

[407] PW Reply to Entergy at 20 (internal quotations omitted).

[408] *Id.* at 21.

Pilgrim Watch argues that it has supported its contention with a demonstration that significant input data (meteorological, economic, evacuation-related) that were used for the code may be materially in error, and with reports and other documents that back up the contention.[409]

With respect to Applicant's argument that data from the Pilgrim emergency plan should not be subject to challenge in this proceeding, PW argues that, without challenging the plan itself, "Petitioners can and do challenge the evacuation data used by Applicant in its SAMA analysis," noting a report cited in its original Petition, on the TMI accident, that found that the average distance traveled in evacuation was 85 miles, significantly more than the 10 miles utilized by Entergy in the Pilgrim SAMA analysis.[410] "While the emergency plan may not extend beyond 10 miles," PW suggests, "a realistic input for a SAMA analysis should."[411]

In response to Entergy's argument that PW has not provided any basis to show that the lack of certain economic data in the SAMA analysis would alter the outcome of the analysis, Petitioner notes that it provided a study showing "that tourism accounts for $11.2 billion in revenues for Massachusetts and the region within 50 miles of Pilgrim is highly dependent on tourism," which is asserted to demonstrate "that just the tourist sector alone would account for costs that dwarf those cited in Applicant's SAMA analysis and would very likely alter the determination of potentially cost beneficial SAMAs."[412]

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[409] *See id.* at 21-23. Noting that both a report offered by PW in the original contention and recent information on the Katrina evacuation suggest high rates of voluntary ("shadow") evacuation and greater distance evacuation than predicted, and noting further that "evacuation from a nuclear plant accident would likely be even more chaotic than evacuation from the path of a hurricane," PW again suggests that "[i]t is therefore very likely that the upper bounds of Applicant's evacuation data are optimistic," and "[t]he fact that a negligible effect was seen in the sensitivity analyses would seem to bear this out rather than confirm Applicant's assumptions." *Id.* at 23.

[410] *See id.* at 23-24.

[411] *Id.* at 24.

[412] *Id.*

Pilgrim Watch replies to the Staff's assertion that the contention is not material to these proceedings by insisting, again, that they "have highlighted a deficiency in the application that could have independent health and safety significance" in that "an insufficient SAMA analysis 'could have enormous implications for public heath and safety because a potentially cost effective mitigation alternative might not be considered that could prevent or reduce the impacts of that accident."[413] Arguing that the Staff has inappropriately focused its attention on PW's lack of an expert to support the admission of its contention, PW notes that it has supported the contention with "facts, sources, and documents," including "experts and reports in the fields of accident modeling, accident modeling software, meteorology, evacuations, and economics."[414] Emphasizing that "whether or not the contention is true is left to be decided at the hearing," PW argues that it has met the requirements of the contention admissibility rule.[415]

On the code, PW quotes the following language from NUREG/BR-0184, the NRC Regulatory Analysis Technical Evaluation Handbook:

> Formal methods cannot completely remove subjectivity, guarantee that all factors affecting an issue are considered, produce unambiguous results in the face of closely valued alternatives and/or large uncertainties, or be used without critical appraisal or results. *To use a decision analysis method as a black box decision-maker is both wrong and dangerous.*[416]

Noting that the handbook goes on to observe that the TMI core-damage scenario had not been specifically identified in the PRAs until it had actually occurred, and describes seven categories

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[413]PW Reply to NRC Staff at 11-12 (quoting PW Petition at 28).

[414]*Id.* at 12-13. We note Petitioner's statement at oral argument that it intends to have an expert at a hearing on this contention, if admitted. *See* Tr. at 424.

[415]*Id*. at 13; *see id*. at 12-13.

[416]*Id.* at 13 (citing NUREG/BR-0184 at 5.1) (emphasis added by PW).

and levels of uncertainty, PW argues that it has raised areas of uncertainty in data input and modeling, and supported its arguments with expert reports and papers.[417]

PW further argues that Staff has misinterpreted Contention 3 in several respects, including characterizing PW's reference to not having all the Pilgrim SAMA input data as seeking discovery improperly, when PW was merely explaining "why a thorough evaluation by Petitioners of the MACCS2 conclusions is not possible" at this point.[418] Pointing out that it cannot be more specific in alleging "an error in the SAMA analysis without having all of the parameters that were used,"[419] and noting with regard to both Entergy's and the Staff's responses to Contention 3 that it is not required to prove its contention at this point in the proceeding, PW argues that it has shown that the Applicant used incorrect meteorological, evacuation and economic input data to analyze severe accident consequences in a way that caused it to ignore the true radiological and economic consequences of severe accidents and may have caused it to dismiss cost effective mitigation alternatives."[420]

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[417] *See id.* at 13-14.

[418] *Id.* at 14. PW quotes from its Petition as follows:

> Without knowing what parameters were chosen by the Applicant, it is not possible to fully evaluate the correctness of the conclusion about [SAMAs]. However, from what is included in the ER, Petitioners have been able to piece together some possible reasons that Entergy's described consequences of a severe accident at Pilgrim look so small.

PW Petition at 34.

[419] *Id.* at 16.

[420] PW Reply to Entergy at 25; PW Reply to NRC Staff at 17.

Licensing Board Ruling on Pilgrim Watch Contention 3

We find this contention, as limited below, to be admissible, based upon the following analysis:

First, SAMAs are clearly within the scope of a license renewal proceeding. Next, to the extent we describe below regarding those portions of the contention we find admissible, PW has provided the required specific statement of the issue raised, along with a sufficient explanation of the basis for the contention, statement of alleged facts that support it, references to specific and relevant sources and documents, and information to show a genuine dispute with the Applicant on a material issue of combined law and fact. While it has not had the benefit of a detailed accounting of the input data used by Applicant in its SAMA analysis, PW has raised questions about certain specific input data to the analysis that are material in three areas, in that they raise significant health and safety issues that affect the outcome of this proceeding. PW seeks further analysis on these points, and if it is determined on the merits that such additional analysis is needed on these points, the renewed license would not be granted until and unless this were provided.

PW has supported its call for further analysis by raising relevant and significant questions about the input data that appears (from the Application) to have been used in the Pilgrim SAMA analysis regarding (1) the evacuation time estimates, (2) the meteorological data that govern the movement of the plume, and (3) the economic impact data; and it has supported arguments to the effect that including more realistic input data might change the SAMA analysis, with information indicating, to the level necessary for contention admissibility, that these particular data may be materially incorrect. Given the limited amount of detail presented in the Application regarding the actual input and assumptions for this analysis, PW cannot reasonably

be expected to present specific error margins in computational results.[421] Instead, we find their contention, that use of more accurate input data in these three areas could materially impact the computed outcome, to be reasonable and the possibility intuitively obvious in the absence of actual computations definitively demonstrating otherwise.[422] That is not to say that we find PW has raised admissible challenges as to *all* input data. We do, however, find that the contention, insofar as it challenges the data on these three points and proposes the use of more accurate data relating to evacuation times, economic impacts, and meteorologic plume behavior, has been sufficiently raised and supported for the purposes of contention admissibility. Whether or not Pilgrim Watch could ultimately prevail on the issues it raises, we find it has sufficiently supported them to admit this contention.

In particular, the evacuation and economic information provided by Pilgrim Watch would seem reasonably to indicate that different results might have been reached in the SAMA

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[421] *See* Application, ER, Attachment E, § E.1.5.2. We disagree with the Staff that PW in noting the absence of all the input data is improperly seeking discovery, and do not permit, by this ruling, anything of the sort at this point. *See* Staff Response to PW Petition at 30. In noting this absence, PW is merely pointing out a relevant circumstance that explains its inability to describe to any significant extent the impacts of utilizing different input data.

[422] We note the Applicant's references to the "large conservatisms" in the SAMA analyses and to the results of sensitivity analyses. *See supra*, text accompanying note 354. With regard to the former, we note further that the magnitude and effects of these conservatisms are not set out in other than summary fashion. *See*, *e.g.*, Pilgrim Application, ER at 4-33 – 4-49. The Applicant has described certain conservative assumptions with regard to the amount of core damage and concomitant release levels; however, the actual impacts of an accident would also be influenced by evacuation information, weather conditions, and the actual localized economic impacts, each of which we find has been appropriately challenged by Pilgrim Watch to a level and with support sufficient to admit this contention with regard to these three areas.

With regard to the sensitivity analyses, Entergy would have us believe that these demonstrate that variation in the input data would have no significant impact on the outcome of the alternatives evaluation. *See*, *e.g.*, Application, ER, Appendix E at E.1-66 – 1-68, E.2-11 – 2.12; Tr. at 378-79, 383-384, 428-29. Those sensitivity analyses, however, were performed only with respect to a few parameters, and the results thereof are only summarized in the Application, so as to make challenge or confirmation impossible in the absence of more detailed information. Moreover, these provide insufficient information or grounds to warrant a finding of no genuine dispute on a material fact, as Applicant urges. Finally, Applicant's assertion brings into play questions of how and to what extent the input used in various computations drive the results, in the context of a fairly complex analysis. These are factual matters inappropriate for determination in the contention admissibility stage of the proceeding.

analysis, and the same applies, to an extent, to the meteorological data. The merits of these arguments will be tested at future points in the adjudication process; but the merits cannot be considered at this point. The support offered by PW, however, appears to raise reasonable factual questions.

That some of the information provided by PW with regard to evacuation times and related issues of new population numbers and traffic patterns, and the phenomena of "shadow evacuation" and "sheltering in place," is apparently in conflict with some of the data taken by Applicant from the Pilgrim emergency plan does not, we find, mean that it cannot be considered in the NEPA context in which it is raised in this proceeding. While "emergency planning . . . is one of the *safety issues* that need not be re-examined within the context of license renewal,"[423] what is challenged here is whether particular bits of information taken from such a plan are sufficiently accurate for use in computing the health and safety consequences of an accident, as an *environmental issue*. Such a challenge is not a challenge to existing emergency planning for this plant or to the plan itself, but is instead focused upon the accuracy of certain assumptions and input data used in the SAMA computations and how they affect the validity of the SAMA analysis under NEPA — and as such, we find PW's challenge to the accuracy of the input data to be appropriate, in the three areas we have noted.

With respect to Entergy's characterization of PW's contention as being that "risk is to be ignored [in a SAMA analysis]," to the extent that any part of the contention or basis may be construed as challenging on a generic basis the use of probabilistic techniques that evaluate risk, we find any such portion(s) to be inadmissible. The use of probabilistic risk assessment and modeling is obviously accepted and standard practice in SAMA analyses.[424] In any event,

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[423]Turkey Point, CLI-01-17, 54 NRC at 9.

[424]*See* Entergy Answer to PW Petition at 25-26 (citing *Limerick*, 869 F.2d at 738; *McGuire*, (continued...)

as PW points out in its Reply to Entergy,[425] the focus of the contention, and that part that we admit, is on what input data should be utilized in the SAMA analysis with regard to evacuation times, economic realities, and meteorological patterns, and whether the input data used by the Applicant accurately reflect the respective conditions at issue.

We find that Pilgrim Watch has provided sufficient alleged facts, supported by several expert studies and reports, to demonstrate a genuine dispute with the Applicant on the material factual issues of whether in its SAMA analysis the Applicant has adequately taken into account relevant and realistic data with respect to evacuation times in the area surrounding the Pilgrim plant, economic consequences of a severe accident in the area, and meteorological patterns that would carry the plume in the event of such an accident; and whether as a result the Applicant has drawn "incorrect conclusions about the costs versus benefits of possible mitigation alternatives,"[426] such that further analysis is called for. These are factual questions appropriate for resolution in litigation of this contention.

Based upon the preceding, we admit that part of Contention 3 having to do with the input data for evacuation, economic and meteorological information. As so limited, the admitted contention reads as follows:

> Applicant's SAMA analysis for the Pilgrim plant is deficient in that the input data concerning (1) evacuation times, (2) economic consequences, and (3) meteorological patterns are incorrect, resulting in incorrect conclusions about the costs versus benefits of possible mitigation alternatives, such that further analysis is called for.

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[424](...continued)
CLI-02-17, 56 NRC at 7-8).

[425]See PW Reply to Entergy at 14.

[426]*See* PW Petition at 26.

E. Contention 5: New Information shows that another twenty years of operations at Pilgrim may result in greater off-site radiological impacts on human health than was previously known.

Pilgrim Watch in their final contention states as follows:

> New and significant information about cancer rates in the communities around Pilgrim and the demographics of these communities has become available. In addition, new studies show that even low doses of ionizing radiation can be harmful to human health. Epidemiological studies of cancer rates in the communities around Pilgrim show an increase of radiation-linked disease that can be attributed to past operations of the plant. The demographics of the population immediately surrounding the plant, including its age and geographical distribution, make this population more susceptible to radiation linked damage than was contemplated when the plant was licensed. Pilgrim does not currently have off-site monitoring capabilities that can properly track releases of radiation into the community.[427]

As with its Contention 4, Pilgrim Watch asserts that the Commission's regulations implementing NEPA, at 10 C.F.R. Part 51, require Entergy "to provide an analysis of the impacts on the environment that will result if it is allowed to continue beyond the initial license,"[428] thus bringing a contention challenging the applicant's Environmental Report within the scope of a license renewal proceeding.[429] PW argues that "[t]he deficiency highlighted in this contention has enormous independent heath and safety significance," thus establishing the materiality of the contention.[430]

As bases for its contention PW insists that the contention presents new and significant information that additional years of operations will be harmful to public health.[431] PW refers to various alleged facts and sources, including an NAS report on low-dose radiation risk, *Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII Phase 2* (June 2005) [BEIR

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[427] *Id.* at 79.

[428] *Id.*

[429] *Id.* at 79-80.

[430] *Id.* at 80.

[431] *Id.* at 81.

VII]; information regarding radiation-linked diseases in communities around Pilgrim; projected demographic data suggesting that the population is at a greater risk; information suggesting that "the documented radionuclide releases from Pilgrim in the past have long half-lives and bioaccumulate in the environment;" and that "the current systems in place to monitor releases are inadequate and should be improved."[432]

Addressing changing demographics surrounding the Pilgrim Plant, PW argues that the population "abutting Pilgrim is increasing substantially and the population is older and thus more susceptible to radiation damage," and contends that it will demonstrate "that the dose effect on the population will be far greater than originally anticipated when the plant was licensed."[433] To support its allegation regarding a projected increase in total population and the population of the aging, PW cites "The Boston Metropolitan Area Planning Council Report on Population and Employment Projections 2010-2030."[434] An increase in the proportion of the population that is over 55 is relevant, according to PW, because "studies have shown an increased sensitivity to low levels of ionizing radiation in older populations," and PW has included citations to multiple scholarly works on the topic including a publication titled "Leukemia near nuclear power plant in Massachusetts."[435] Listed as a coauthor on that publication is Richard Clapp, who PW states could provide expert testimony to support its contention.[436]

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[432] *Id.*

[433] *Id.* at 82.

[434] *Id.* at 83.

[435] *Id.*

[436] *See id.* at 81.

PW points to the 1972 FEIS and the current application's environmental report (stating that radiological releases from PNPS are monitored and comply with NRC regulations), and challenges the proposition that releases do not pose a threat to the public health by insisting that it has "[brought] forward new and significant information that demonstrates that there has *already* been documented radiation linked disease in communities near PNPS."[437] PW argues that "new information since Pilgrim began operations in 1972 [] shows increases in radiation-linked diseases in the communities around Pilgrim," and states that the increases "were in part attributed to operating with defective fuel; operating without off-gas treatment system in the first years; poor management and practices . . . ."[438] To support its assertion, PW cites studies performed by the Massachusetts Department of Health, an epidemiological study published in the scholarly journal Lancet in 1987, and additional analyses performed by Dr. Clapp, founder and former director of the Massachusetts Cancer Registry.[439] These studies, according to PW, demonstrate elevated rates of Myelogenous Leukemia, thyroid cancer, prostate cancer and multiple myeloma.[440] Again, PW references the NAS BEIR VII study to insist that no amount of radiation is safe and thus "it is not surprising that radiation-linked disease rates are higher than expected in communities exposed to Pilgrim's past [radiation] releases."[441] Building on its claims that the BEIR VII study represents new information regarding the dangers of ionizing

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[437] *Id.* at 84 (emphasis in original).

[438] Id. at 85.

[439] *See id.* at 85-86.

[440] *See id.*

[441] *Id.* at 87.

radiation at any exposure level, PW claims that the previous standards set by the NRC for off-site radiation do not protect the community surrounding Pilgrim.[442]

Petitioner insists that because the effects of radiation exposure are cumulative, because some radionuclides have extremely long half-lives, and because releases can enter biological food chains and accumulate in the environment, radioactive substances can "remain active in the local environment for the foreseeable future and should be taken into account when actual ongoing doses to the public are evaluated."[443] PW also argues that the use of allegedly "defective fuel" further exacerbates radiation exposure rates.[444] To support its position PW cites a 1990 report by the Massachusetts Department of Health, concerning the period 1978-1986, as well as statements made in 2005 by NRC Commissioner Merrifield and an NRC Information Notice regarding "Control of Hot Particle Contamination at Nuclear Plants."[445]

Concluding, PW states that "if Applicant disputes a causal link between the radiation released by Pilgrim and the cancers seen in its neighboring towns, the current systems in place to monitor release are inadequate and should be improved."[446] In an attached exhibit PW documents some of the perceived deficiencies in the monitoring system currently used by Pilgrim, and states that increased monitoring would allow "state and federal authorities to confidently measure radiation releases."[447]

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[442] *See id.* at 88.

[443] *Id.* at 89.

[444] *Id.*

[445] *See id.* at 89-90.

[446] *Id.* at 90.

[447] *Id.* at 91.

Entergy's Answer to Pilgrim Watch Contention 5

Entergy challenges the admission of Pilgrim Watch's Contention #5 by asserting that it is beyond the scope of the license renewal proceeding and challenges the license renewal rules. Further, Entergy insists that the contention fails to provide any "basis demonstrating the existence of a genuine dispute."[448]

At the outset, Entergy insists that the contention "represents a challenge to the scope of the environmental review in 10 C.F.R. § 51.53(c), and to the NRC's generic environmental findings in the GEIS and Appendix B to 10 C.F.R. Part 51," because it is attempting to litigate Category 1 issues for which the Commission has generically addressed in the GEIS.[449] Entergy points to the Commission's generic findings regarding "offsite radiological impacts" incorporated in the regulations at 10 C.F.R. Part 51, App. B, Table B-1, and argues that, absent a waiver, the Petitioner may not challenge these generic findings, regardless of the allegation of "new and significant information." As with PW's Contention 4 and the contention proffered by the Massachusetts Attorney General, Entergy directs the board to the Commission's decision in *Turkey Point*, CLI-01-17, 54 NRC at 17, to support its position that the contention is "excluded from consideration in this proceeding."[450]

Notwithstanding its argument that the contention is an impermissible challenge of Commission regulations, Entergy proceeds to dispute Pilgrim Watch's claims that new and significant information exists regarding the issue of offsite radiological impacts "that would alter the Commission's generic, Category 1 finding."[451] Addressing the BIER VII report, cited by

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[448] *See* Entergy Answer to PW Petition at 56.

[449] *Id.*

[450] *Id.*

[451] *Id.* at 57.

Pilgrim Watch, Entergy claims that because the report "concludes that radiation protection decisions should be based on linear-no threshold hypothesis of dose relationship" and the NRC regulations addressing the issue are also based on the same linear-no threshold hypothesis, the report "provides no basis to alter the generic findings."[452] Turning to Pilgrim Watch's claims regarding a change in the demographics surrounding the plant since the original licensing, Entergy asserts that the argument is irrelevant because the radiological impacts for the period of extended operation are assessed in the GEIS, and thus, the EIS prepared when the plant was originally licensed is not at issue.[453] Next, Entergy asserts that because the 1990 Southeastern Massachusetts Health Study and the Meteorological Analysis of Radiation Releases for the Coastal Areas of the State of Massachusetts for June 3rd to June 20th, 1982, both "predate the GEIS, they are obviously not new information."[454] Further, Entergy argues, "Pilgrim Watch provides no information suggesting that the studies support a risk estimates that are greater than those used by the NRC in the GEIS."[455] Continuing, Entergy insists that Pilgrim Watch has provided nothing more than speculation regarding its concerns about the bioaccumulation of radiation at Pilgrim or alleged failures in the Pilgrim radiation monitoring program.[456]

NRC Staff Response to Contention 5

The Staff contests the admission of Pilgrim Watch's Contention 5 on the same basic grounds as Entergy; specifically, the Staff argues that the contention is outside the scope of a

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[452] *Id.*

[453] *Id.*

[454] *Id.* at 58.

[455] *Id.*

[456] *See id.*

license renewal proceeding and that the contention represents an impermissible challenge of the Commission's generic Category 1 findings with respect to public radiation exposure during the license renewal term.[457] As was the case in Entergy's Response, the Staff also argues that each alleged example "new and significant information" listed as bases by Pilgrim Watch fails to satisfy the contention admissibility requirements of 10 C.F.R. § 2.309(f)(1).[458]

Although the Staff argues that the "overarching difficulty" with Contention 5 is that it presents a challenge that is outside the scope of the license renewal proceeding, the bulk of its response is focused on refuting each individually-listed basis on other grounds.[459] The Staff argues that the PW's bases and their reliance on the NAS BEIR VII study to argue that "no amount of radiation is safe" represent challenges to the NRC regulations establishing radiation limits in violation of 10 C.F.R. § 2.335.[460] With respect to PW's arguments that the environmental report is inadequate in that it does not account for changing demographics in the surrounding population, the Staff claims that PW has failed to demonstrate that a genuine dispute exists, as required by 10 C.F.R. § 2.309(f)(1)(vi).[461] This is so, according to the Staff, because Pilgrim Watch's only direct reference to the environmental report is a statement that the ER fails to "highlight" the population and demographic data.[462] What is lacking, according to the Staff, is any direct reference or challenge to a specific aspect of the ER.[463] A similar

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[457] *See* NRC Staff Response to Pilgrim Watch at 40.

[458] *See id.* at 40-41.

[459] *Id.* at 40-49.

[460] *Id.* at 42, 44-45.

[461] *See id.* at 41.

[462] *Id.*

[463] *Id.*

argument is made in regard to PW's discussion of radiation-linked diseases in communities near Pilgrim and allegations regarding defective fuel.[464]

Pilgrim Watch's Replies to Entergy the NRC Staff

Pilgrim Watch reiterates its position that although the contention challenges findings that were part of a generic Category 1 issue, its challenge is not outside the scope of the license renewal proceeding or a challenge to Commission regulations because it has "submitted new information that casts doubt on the generic conclusions regarding off-site radiological exposure as they apply to Pilgrim."[465] Thus, according to Pilgrim Watch, the new information submitted — including the National Academies Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII Phase II, 2005 study, demographic changes in the Pilgrim area, and case-controlled and statistical studies of radiation linked disease in communities around Pilgrim — obviates its obligation to petition for a waiver under 10 C.F.R. 2.335(b) before it may challenge generic findings in the GEIS under NEPA.[466]

Next, Pilgrim Watch defends its asserted new and significant information bases.[467] Pilgrim Watch argues that its arguments are supported by "numerous scientific sources" including the NAS, Massachusetts Department of Public Heath Commission, epidemiologists from multiple universities, and even the NRC, and thus, the Staff's claims that it lacks a basis in fact or expert opinion are "groundless."[468] Pilgrim Watch argues that the BEIR VII report presents new information about cancer incidence risk figures and that the studies related to changing

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[464] *See id.* 43-44, 47.

[465] PW Reply to Entergy at 30.

[466] *See* PW Reply to Entergy at 30-31; *see also* PW Reply to NRC Staff at 23.

[467] *See* PW Reply to NRC Staff at 22-26; PW Reply to Entergy at 31-34.

[468] PW Reply to NRC Staff at 22.

demographics and radiation risks demonstrate that the changing population around Pilgrim will have an increased sensitivity to low levels of ionizing radiation.[469] Further, Pilgrim Watch insists that the SMHS presents new information because it was published after the FEIS for Pilgrim, and that the methodology for the study — which Pilgrim Watch argues demonstrates an increased leukemia risk for those individuals with the highest potential for exposure to Pilgrim emissions — has been peer reviewed and approved.[470] Continuing, Pilgrim Watch argues that Entergy has failed to address all the data it has proffered regarding increased cancer incidences near Pilgrim, nor has Entergy satisfactorily disputed its assertions regarding bioaccumulation of radionuclides.[471] Addressing its claims regarding deficiencies in Pilgrim's radiation monitoring program, Pilgrim Watch states that it has provided "sufficient detail about deficiencies in Pilgrim's monitoring program and reports to demonstrate that Pilgrim cannot provide the necessary data to assure that public health and safety have been, or will be, protected."[472]

Turning to the BEIR VII report, and the Staff's assertion that PW's argument that the report demonstrates there is no safe level of radiation exposure is tantamount to a challenge of Commission regulations, Pilgrim Watch argues that the report was cited as a means to demonstrate "that the radiation that is released on a regular basis from Pilgrim Nuclear Power Plant, cannot be assumed to be safe," not as a challenge of Commission regulations.[473] According to Pilgrim Watch, each of its asserted bases are relevant to whether there are

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[469] *See* PW Reply to Entergy at 32.

[470] *See id.* at 32-33.

[471] *See id.*

[472] *Id.*

[473] Pilgrim Watch Reply to NRC Staff at 23.

greater off-site radiological impacts than previously assumed and whether the Applicant has adequately addressed the issues raised.[474] Thus, it argues, it has demonstrated that a genuine dispute exists and presented new and significant information that warrant NEPA review.

Licensing Board Ruling on Pilgrim Watch Contention 5

We find that this contention incorporates two related but distinct arguments, neither of which we find to be admissible.

First, Contention 5 reflects the same legal logic as its Contention 4 and the Massachusetts Attorney General's contention, in that it attempts to challenge generic findings made in the GEIS without a waiver by asserting that it has provided "new and significant information" on the issue. As we rule on Contention 4, such a contention is inadmissible without a waiver of the relevant rule. Here, PW admits that the contention's challenge regarding the off-site radiological consequences "presents a Category 1 issue,"[475] and we see no need to repeat our analysis regarding the scope of license renewal proceedings and challenges to generic findings for Category 1 issues here. Nor is there any need to reach the question whether PW has proffered "new and significant information" on the issue. For the same reasons as stated with regard to Contention 4 with regard to Category 1 issues, we find Pilgrim Watch Contention 5 to be inadmissible.

In addition to the NEPA-related issues, Contention 5 appears to challenge the NRC's dose limit rules found in 10 C.F.R. Part 20 as they apply to Pilgrim. PW's reliance on the BEIR VII conclusion that the all levels of ionizing radiation are harmful, along with its references to the increased vulnerability of the population surrounding Pilgrim, implicates an entirely different regulatory challenge than that found in Contention 4. This argument suggests that, as a matter

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[474]PW Reply to Entergy at 34.

[475]*See id.* at 21.

of safety, the levels of radiation released by PNPS are inappropriate when considered in light of the findings in the BEIR VII report, the studies regarding cancer rates surrounding PNPS, and the increased susceptibility of a growing aged population surrounding PNPS. When pressed at the oral argument, PW conceded that it was not suggesting that radiological releases from Pilgrim are greater than are currently allowed by the NRC regulations.[476] In such circumstances, its contention regarding the radiological releases must necessarily be construed as a challenge to the current NRC dose limit regulations found at 10 C.F.R. Part 20. Again, without a waiver under 10 C.F.R. § 2.335, no request for which has been submitted, such a challenge is impermissible in an adjudication such as this one.

VI. CONCLUSION

In conclusion, although both Petitioners have established standing to participate in this proceeding, the Licensing Board finds that under current controlling law and regulation the Massachusetts Attorney General has not filed an admissible contention and therefore is not admitted as a party in this proceeding. The Licensing Board does, however, find that Pilgrim Watch has filed two admissible contentions and therefore admits it as a party to this proceeding. Should any further developments occur with respect to the pending rulemaking or any other matters that might lead to any different conclusion in this proceeding on the Attorney General's Petition, such that another petition may be timely filed regarding any such matters, any such petition will be considered as may be appropriate at such time.

[476]Tr. at 452.

VII. ORDER

Based, therefore, upon the preceding rulings, findings, and conclusion, it is, this 16th day of October, 2006, ORDERED as follows:

A. Pilgrim Watch is admitted as a party and its Request for Hearing and Petition to Intervene is granted in part and denied in part. A hearing is granted with respect to Pilgrim Watch Contentions 1 and 3, as limited and modified in the following form:

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

2. Applicant's SAMA analysis for the Pilgrim plant is deficient in that the input data concerning (1) evacuation times, (2) economic consequences, and (3) meteorological patterns are incorrect, resulting in incorrect conclusions about the costs versus benefits of possible mitigation alternatives, such that further analysis is called for.

B. The hearing will be conducted in accordance with the informal adjudicatory procedures prescribed in Subpart L of 10 C.F.R. Part 2. Our ruling in this regard is based on the absence of any request or demonstration, pursuant to 10 C.F.R. § 2.309(g) and in reliance on the provisions of 10 C.F.R. § 2.310(d), that resolution of any admitted contention necessitates the utilization of the procedures set forth in Subpart G of 10 C.F.R. Part 2. Upon an appropriate request, pursuant to 10 C.F.R. § 2.1204(b) and in accordance with the schedule to be set as indicated below, the Licensing Board will allow cross-examination as necessary to ensure the development of an adequate record for decision.[477]

[477] *See CAN v. NRC*, 391 F.3d at 351, wherein the First Circuit upheld the validity of the Subpart L regulations on the basis of NRC's representation that the opportunity for cross-examination under 10 C.F.R. § 2.1204(b)(3) of Subpart L is equivalent to the opportunity for cross-examination under the Administrative Procedure Act (APA), 5 U.S.C. §556(d), *i.e.*, that cross-examination is available whenever it is "required for a full and fair adjudication of the facts."

C. The Massachusetts Attorney General's Request for Hearing and Petition to Intervene is denied.

D. The Town of Plymouth may participate in the hearing pursuant to 10 C.F.R. § 2.315(c), through its designated representative, Sheila S. Hollis. The Town shall identify the contention or contentions on which it will participate within twenty (20) days of this Memorandum and Order, or by November 6, 2006.

E. Any other interested State, local governmental body, and affected, Federally-recognized Indian Tribe that wishes to participate in the hearing pursuant to 10 C.F.R. § 2.315(c) shall file a Request and Notice of such intent within twenty (20) days, or by November 6, 2006. Any such notice shall, as required at § 2.315(c), contain a designation of a single representative for the hearing, and an identification of the contention or contentions on which it will participate.

F. In the near future the Licensing Board will issue a Memorandum setting forth a schedule of deadlines and events for this proceeding.

G. This Order is subject to appeal to the Commission in accordance with the provisions of 10 C.F.R. § 2.311. Any petitions for review meeting applicable requirements set forth in that section must be filed within ten (10) days of service of this Memorandum and Order.

THE ATOMIC SAFETY
AND LICENSING BOARD

/RA/

Ann Marshall Young, Chair
ADMINISTRATIVE JUDGE

/RA/

Dr. Paul B. Abramson
ADMINISTRATIVE JUDGE

/RA/

Dr. Richard F. Cole
ADMINISTRATIVE JUDGE

Rockville, Maryland
October 16, 2006[478]

[478]Copies of this Order were sent this date by Internet e-mail transmission to all participants or counsel for participants.

*** APPENDIX to OCTOBER 16, 2006, MEMORANDUM AND ORDER ***

Summary of Governing Case Law on Contention Admissibility Standards

We address herein how the contention admissibility standards now found at 10 C.F.R. § 2.309(f)(1)[1] have been interpreted by a number of licensing boards and by the Commission, in various NRC adjudicatory proceedings. As indicated in the body of our Memorandum and Order, because a petitioner-intervenor must submit at least one contention meeting these requirements in order to be admitted as a party in an NRC proceeding, how the standards have been interpreted in various NRC case law can be of central, and often determinative, importance in deciding whether petitioners are granted evidentiary hearings in NRC adjudicatory proceedings. Failure of a contention to meet any of the requirements of § 2.309(f)(1) is grounds for its dismissal, and failure of a petitioner — even one found to have standing to proceed under the criteria discussed above — to submit an admissible contention will result in dismissal of its petition and request for hearing.[2] Thus a full understanding of the standards and how they have been applied in prior cases can be critical in any NRC proceeding.

Although we do not represent the following to be an exhaustive consideration of all relevant case law addressing the contention admissibility standards, it does provide a summary of some

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[1] 10 C.F.R. § 2.309(f)(1) states that:

> (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;
>
> (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; and
>
> (vi) 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 the 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.

[2] *See Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-99-10, 49 NRC 318, 325 (1999); *Arizona Pub. Serv. Co.* (Palo Verde Nuclear Generating Station, Units 1, 2, and 3), CLI-91-12, 34 NRC 149, 155-56 (1991).

of the more significant principles that licensing boards are to apply in making determinations on the admission of contentions.

As indicated above, the origin of the current contention admissibility standards was the Commission's determination in 1989 that licensing boards prior to that time had "admitted and litigated numerous contentions that appeared to be based on little more than speculation.'"[3] On this basis the Commission amended its rules to "raise the threshold for the admission of contentions."[4] More recently the Commission again revised the rules, with a version that became effective in February 2004. These rules contain essentially the same substantive admissibility standards for contentions, but no longer incorporate provisions, formerly found at 10 C.F.R. § 2.714(a)(3), (b)(1), that permitted the amendment and supplementation of petitions and the filing of contentions after the original filing of petitions.[5] The new 10 C.F.R. Part 2 NRC Rules of Practice also contain various changes to provisions relating to the hearing process.[6]

The underlying purposes of the contention admissibility requirements include, as we note above, focusing the adjudication process on disputes "susceptible of resolution" in such context, providing notice of the "specific grievances" of petitioners, and "ensur[ing] that full adjudicatory hearings are triggered only by those able to proffer at least some minimal factual and legal foundation in support of their contentions.[7] In its Statement of Considerations adopting the latest revision of the rules, the Commission reiterated that the standards are "necessary to ensure that hearings cover only genuine and pertinent issues of concern and that the issues are framed and supported concisely enough at the outset to ensure that the proceedings are effective and focused on real, concrete issues."[8]

Considering the various standards individually, along with a section at the end relating to limitations on the content of petitioners' replies to applicant and NRC Staff responses to their contentions, we provide the following summary of some of the case law interpreting subsections (i) through (vi) of 10 C.F.R. § 2.309(f)(1):

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[3]*Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-01-24, 54 NRC 349, 358 (2001) (citing *Oconee*, CLI-99-11, 49 NRC at 334).

[4]Rules of Practice for Domestic Licensing Proceedings – Procedural Changes in the Hearing Process, 54 Fed. Reg. 33,168, 33,168 (Aug. 11, 1989); *see also Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2, and 3), CLI-99-11, 49 NRC 328, 334 (1999).

[5]Under the current rules contentions must be filed with the original petition, within 60 days of notice of the proceeding in the *Federal Register* (unless another period is specified). *See* 10 C.F.R. § 2.309(b)(3)(iii).

[6]As noted above, the First Circuit denied a challenge to the new rules by several public interest groups (supported by several states including Massachusetts) in *CAN v. NRC*, 391 F.3d 338 (1st Cir. 2004), finding that the new procedures "comply with the relevant provisions of the APA and that the Commission has furnished an adequate explanation for the changes." *Id.* at 343.

[7]*Oconee*, CLI-99-11, 49 NRC at 334.

[8]69 Fed. Reg. 2182, 2189-90 (Jan. 14, 2004).

10 C.F.R. § 2.309(f)(1)(i), (ii)

Sections 2.309(f)(1)(i) and (ii) require that a petitioner must, for each contention, "[p]rovide a specific statement of the issue of law or fact to be raised or controverted," and "[p]rovide a brief explanation of the basis for the contention." The Commission has stated that an "admissible contention must explain, with specificity, particular safety or legal reasons requiring rejection of the contested [application]."[9] It has also been observed that a contention must demonstrate "that there has been sufficient foundation assigned for it to warrant further exploration."[10] The contention rules "bar contentions where petitioners have only 'what amounts to generalized suspicions, hoping to substantiate them later.'"[11]

In other words, a petitioner must "provide some sort of minimal basis indicating the potential validity of the contention."[12] This "brief explanation" of the logical underpinnings of a contention does not, however, require a petitioner "to provide an exhaustive list of possible bases, but simply to provide sufficient alleged factual or legal bases to support the contention."[13] The brief explanation helps define the scope of a contention — "[t]he reach of a contention necessarily hinges upon its terms coupled with its stated bases."[14] However, it is the contention, not "bases," whose admissibility must be determined.[15]

10 C.F.R. § 2.309(f)(1)(iii)

Petitioners must also, as required at section 2.309(f)(1)(iii), "[d]emonstrate that the issue raised in the contention is within the scope of the proceeding." A contention must allege facts "sufficient to establish that it falls directly within the scope" of a proceeding.[16] Contentions are necessarily limited to issues that are germane to the application pending before the Board,[17] and are not cognizable unless they are material to matters that fall within the scope of the

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[9]*Millstone*, CLI-01-24, 54 NRC at 359-60.

[10]*See Pub. Serv. Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-942, 32 NRC 395, 428 (1990) (footnote omitted).

[11]*Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-03-17, 58 NRC 419, 424 (2003) (citing *Oconee*, CLI-99-11, 49 NRC at 337-39).

[12]54 Fed. Reg. at 33,170.

[13]*Louisiana Energy Serv., L.P.* (National Enrichment Facility), CLI-04-35, 60 NRC 619, 623 (2004).

[14]*Public Serv. Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-899, 28 NRC 93, 97 (1988), *aff'd sub nom. Massachusetts v. NRC*, 924 F.2d 311 (D.C. Cir. 1991).

[15]*See* 10 C.F.R. § 2.309(a).

[16]*Arizona Pub. Serv. Co.* (Palo Verde Nuclear Generating Station, Units 1, 2, and 3), LBP-91-19, 33 NRC 397, 412 (1991), *appeal denied on other grounds*, CLI-91-12, 34 NRC 149 (1991).

[17]*See Yankee*, CLI-98-21, 48 NRC at 204 & n.7.

proceeding for which the licensing board has been delegated jurisdiction as set forth in the Commission's notice of opportunity for hearing and order referring the proceeding to the Board.[18] A discussion of relevant regulatory and case law on the scope of license renewal proceedings is found in section IV.B *infra*.

A contention that challenges a Commission rule or regulation is outside of the scope of the proceeding because, absent a waiver, "no rule or regulation of the Commission . . . is subject to attack . . . in any adjudicatory proceeding."[19] Also, any contention that amounts to an attack on applicable statutory requirements must be rejected by a licensing board as outside the scope of the proceeding.[20] A petitioner may, however, within the adjudicatory context submit a request for waiver of a rule under 10 C.F.R. § 2.335. Outside the adjudicatory context, one may also file a petition for rulemaking under 10 C.F.R. § 2.802, or a request that the NRC Staff take enforcement action under 10 C.F.R. § 2.206.

10 C.F.R. § 2.309(f)(1)(iv)

With regard to the requirement now stated at § 2.309(f)(1)(iv), that a petitioner must "[d]emonstrate 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," the Commission has defined a "material" issue as meaning one in which "resolution of the dispute would make a difference in the outcome of the licensing proceeding."[21] This means that there must be some link between the claimed error or omission regarding the proposed licensing action and the NRC's role in protecting public health and safety or the environment.[22] The standards defining the "findings the NRC must make to support" a license renewal in this proceeding are set forth at 10 C.F.R. § 54.29.[23]

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[18] *See Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-825, 22 NRC 785, 790-91 (1985); *Pub. Serv. Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-316, 3 NRC 167, 170-71 (1976); *see also Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-616, 12 NRC 419, 426-27 (1980); *Commonwealth Edison Co.* (Carroll County Site), ALAB-601, 12 NRC 18, 24 (1980).

[19] 10 C.F.R. § 2.335(a).

[20] *Philadelphia Electric Co.* (Peach Bottom Atomic Power Station, Units 2 and 3), ALAB-216, 8 AEC 13, 20 (1974).

[21] 54 Fed. Reg. at 33,172.

[22] *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), LBP-04-15, 60 NRC 81, 89 (2004), *aff'd*, CLI-04-36, 60 NRC 631 (2004).

[23] 10 C.F.R. § 54.29 provides:

> § 54.29 Standards for issuance of a renewed license.
>
> A renewed license may be issued by the Commission up to the full term authorized by § 54.31 if the Commission finds that:
>
> (a) Actions have been identified and have been or will be taken with respect to the matters identified in Paragraphs (a)(1) and (a)(2) of this section, such that there is

(continued...)

10 C.F.R. § 2.309(f)(1)(v)

Contentions must also, as now stated at § 2.309(f)(1)(v):

> [p]rovide 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[.]

The requirements of § 2.309(f)(1)(v) have been interpreted to require a petitioner "to provide the analyses and expert opinion showing why its bases support its contention,"[24] and to "provide documents or other factual information or expert opinion that set forth the necessary technical analysis to show why the proffered bases support its contention."[25] Mere "'notice pleading' is insufficient under these standards. A petitioner's issue will be ruled inadmissible if the petitioner 'has offered no tangible information, no experts, no substantive affidavits,' but instead only 'bare assertions and speculation.'"[26] Further, a licensing board "may not make factual inferences on [a] petitioner's behalf," or supply information that is lacking,[27] but must examine the information, alleged facts, and expert opinion proffered by the petitioner to confirm that it does indeed supply adequate support for the contention.[28] Any supporting material provided by

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[23](...continued)
reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the CLB, and that any changes made to the plant's CLB in order to comply with this paragraph are in accord with the Act and the Commission's regulations. These matters are:

(1) managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under § 54.21(a)(1); and

(2) time-limited aging analyses that have been identified to require review under § 54.21(c).

(b) Any applicable requirements of Subpart A of 10 CFR Part 51 have been satisfied.

(c) Any matters raised under § 2.335 have been addressed.

[24]*Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), LBP-95-6, 41 NRC 281, 305, *vacated in part and remanded on other grounds*, CLI-95-10, 42 NRC 1, *and aff'd in part*, CLI-95-12, 42 NRC 111 (1995).

[25]*Private Fuel Storage, LLC* (Independent Spent Fuel Storage Installation), LBP-98-7, 47 NRC 142, 180, *aff'd*, CLI-98-13, 48 NRC 26 (1998).

[26]*Fansteel, Inc.* (Muskogee, Oklahoma Site), CLI-03-13, 58 NRC 195, 203 (2003) (quoting *GPU Nuclear Inc.* (Oyster Creek Nuclear Generating Station), CLI-00-6, 51 NRC 193, 208 (2000)).

[27]*Georgia Tech*, LBP-95-6, 41 NRC at 305 (citing *Palo Verde*, CLI-91-12, 34 NRC 149); *Duke Cogema Stone & Webster* (Savannah River Mixed Oxide Fuel Fabrication Facility), LBP-01-35, 54 NRC 403, 422 (2001).

[28]*Vermont Yankee Nuclear Power Corp.* (Vermont Yankee Nuclear Power Station), ALAB-919, (continued...)

a petitioner, including portions of the material that are not relied upon, is subject to Board scrutiny.[29]

It is the obligation of the petitioner to present the factual information or expert opinions necessary to support its contention adequately, and failure to do so requires that the contention be rejected.[30] A contention is not to be admitted "where an intervenor has no facts to support its position and where the intervenor contemplates using discovery or cross-examination as a fishing expedition which might produce relevant supporting facts."[31] As the Commission has explained:

> It is surely legitimate for the Commission to screen out contentions of doubtful worth and to avoid starting down the path toward a hearing at the behest of Petitioners who themselves have no particular expertise — or expert assistance — and no particularized grievance, but are hoping something will turn up later as a result of NRC Staff work.[32]

The Commission has also, however, explained that the requirement at § 2.309(f)(1)(v) "does not call upon the intervenor to make its case at [the contention] stage of the proceeding, but rather to indicate what facts or expert opinions, be it one fact or opinion or many, of which it is aware at that point in time which provide the basis for its contention."[33] A petitioner does not have to provide a complete or final list of its experts or evidence or prove the merits of its contention at the admissibility stage.[34] And, as with a summary disposition motion, the support for a contention may be viewed in a light that is favorable to the petitioner — so long as the admissibility requirements are found to have been met.[35] The requirement "generally is fulfilled when the sponsor of an otherwise acceptable contention provides a brief recitation of the

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[28](...continued)
30 NRC 29, 48 (1989), *vacated in part on other grounds and remanded*, CLI-90-4, 31 NRC 333 (1990).

[29]*Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), LBP-96-2, 43 NRC 61, 90 (1996), *rev'd in part on other grounds*, CLI-96-7, 43 NRC 235 (1996).

[30]*Yankee Atomic Electric Co.* (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235, 262 (1996); *Arizona Public Serv. Co.* (Palo Verde Nuclear Generating Station, Units 1, 2, and 3), CLI-91-12, 34 NRC 149, 155 (1991).

[31]*Id*. at 33,171.

[32]*Oconee*, CLI-99-11, 49 NRC at 342.

[33]54 Fed. Reg. at 33,170.

[34]*Louisiana Energy Serv., L.P.* (National Enrichment Facility), CLI-04-35, 60 NRC 619, 623 (2004); *Private Fuel Storage L.L.C.* (Independent Spent Fuel Storage Installation), CLI-04-22, 60 NRC 125, 139 (2004).

[35]*See Palo Verde*, CLI 91-12, 34 NRC at 155; 10 C.F.R. § 2.710(c).

factors underlying the contention or references to documents and texts that provide such reasons."[36]

10 C.F.R. § 2.309(f)(1)(vi)

Finally, Petitioners must, as stated at 10 C.F.R. § 2.309(f)(1)(vi), with each contention:

> [p]rovide 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.

A petitioner must "read the pertinent portions of the license application, including the Safety Analysis Report and the Environmental Report, state the applicant's position and the petitioner's opposing view," and explain why it disagrees with the applicant.[37] If a petitioner does not

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[36] *Id.* (citing *Texas Utilities Elec. Co.* (Comanche Peak Steam Electric Station, Unit 1), ALAB-868, 25 NRC 912, 930 (1987).

[37] 54 Fed. Reg. at 33,170; *Millstone*, CLI-01-24, 54 NRC at 358. Also, under 10 C.F.R. § 2.309(f)(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."

Other portions of 10 C.F.R. § 2.309 address late-filing and other criteria for contentions and petitions to intervene. Section 2.309(c) provides as follows:

> (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

(continued...)

believe these materials address a relevant issue, the petitioner is to "explain why the application is deficient."[38]

In contrast to subparagraph (v) of § 2.309(f)(1), which focuses on the need for some factual support for the contention, subparagraph (vi) requires that there be a concrete and genuine dispute appropriate for litigation. A contention that does not directly controvert a position taken by the applicant in the application is subject to dismissal.[39] For example, an allegation that some aspect of a license application is "inadequate" or "unacceptable" does not give rise to a genuine dispute unless it is supported by facts and a reasoned statement of why the application is unacceptable in some material respect.[40] Similarly, an expert opinion that "'merely states a conclusion (e.g., the application is 'deficient,' 'inadequate,' or 'wrong') without providing a reasoned basis or explanation for that conclusion is inadequate because it deprives the Board of its ability to make the necessary, reflective assessment of the opinion.'"[41]

Although it has been stated that "technical perfection is not an essential element of contention pleading,"[42] and that the "[s]ounder practice is to decide issues on their merits, not to

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[37](...continued)
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.

[38]54 Fed. Reg. at 33,170; *Palo Verde*, CLI-91-12, 34 NRC at 156.

[39]*See Texas Utilities Elec. Co.* (Comanche Peak Steam Electric Station, Unit 2), LBP-92-37, 36 NRC 370, 384 (1992).

[40]*See Florida Power & Light Co*. (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-90-16, 31 NRC 509, 521 & n.12 (1990).

[41]*USEC, Inc.* (American Centrifuge Plant), CLI-06-10, 63 NRC 451, 472 (2006) (citation omitted) (affirming Licensing Board holding that quotations from an unintelligible correspondence with purported expert, with no explanation or analysis of how the expert's statements relate to an error or omission in the application, are insufficient to support a contention).

[42]*Private Fuel Storage, LLC* (Independent Spent Fuel Storage Installation), LBP-01-3, 53 NRC
(continued...)

avoid them on technicalities,"[43] it has also been observed that "a protestant does not become entitled to an evidentiary hearing merely on request, or on a bald or conclusory allegation that . . . a dispute exists. The protestant must make a minimal showing that material facts are in dispute, thereby demonstrating that an 'inquiry in depth' is appropriate."[44] Nonetheless, the strict contention admissibility requirements for a sufficient factual basis "do[ ] not shift the ultimate burden of proof from the applicant to the petitioner."[45] Explaining the level of support necessary for an admissible contention, the Commission observed in *Yankee*:

> Nor [do the contention admissibility rules] require a petitioner to prove its case at the contention stage. For factual disputes, a petitioner need not proffer facts in "formal affidavit or evidentiary form," sufficient "to withstand a summary disposition motion." . . . On the other hand, a petitioner "must present sufficient information to show a genuine dispute" and reasonably "indicating that a further inquiry is appropriate."[46]

Scope of Petitioner's Reply Brief

The Commission has indicated that, under the most recent revision of the contention admissibility rule, a petitioner that fails to satisfy the requirements of the admissibility standards in its initial contention submission may not use its reply to rectify the inadequacies of its petition or to raise new arguments.[47] A petitioner may, however, respond to and focus on any legal, logical, or factual arguments presented in the answers, and the "amplification" of statements provided in an initial petition is legitimate and permissible.[48]

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[42](...continued)
84, 99 (2001) (citing *Houston Lighting & Power Co.* (South Texas Project, Units 1 and 2), ALAB-549, 9 NRC 644, 649 (1979), in which it is stated that "[i]t is neither Congressional nor Commission policy to exclude parties because the niceties of pleading were imperfectly observed").

[43]*Houston Lighting*, ALAB-549, 9 NRC at 649.

[44]*Conn. Bankers Ass'n v. Bd. of Governors*, 627 F.2d 245, 251 (D.C. Cir. 1980); *see* 54 Fed. Reg. at 33,171.

[45]*Yankee Atomic Elec. Co.* (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235, 249 (1996) (citing 54 Fed. Reg. at 33,171).

[46]*Id.* (citing *Georgia Tech*, CLI-95-12, 42 NRC at 118); *see also Gulf States Utilities Co*. (River Bend Station, Unit 1), CLI-94-10, 40 NRC 43, 51 (1994).

[47]*See Louisiana Energy Serv., L.P.* (National Enrichment Facility), CLI-04-25, 60 NRC 223, 225 (2004) (quoting Final Rule, "Changes to the Adjudicatory Process," 69 Fed. Reg. 2182, 2203 (Jan. 14, 2004) (reply must be "narrowly focused on the legal or logical arguments presented in the applicant/licensee or NRC Staff answer")); *Nuclear Mgmt. Co., LLC* (Palisades Nuclear Plant), CLI-06-17, 63 NRC 727, 732 (2006). *See* text accompanying note 5 *supra.*

[48]*Louisiana Energy Serv., L.P.* (National Enrichment Facility), LBP-04-14, 60 NRC 40, 58, *aff'd*, CLI-04-25, 60 NRC 223 (2004).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing LB MEMORANDUM AND ORDER (RULING ON STANDING AND CONTENTIONS OF PETITIONERS MASSACHUSETTS ATTORNEY GENERAL AND PILGRIM WATCH) (LBP-06-23) have been served upon the following persons by U.S. mail, first class, or through NRC internal distribution.

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Docket No. 50-293-LR
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Dated at Rockville, Maryland
this 16th day of October 2006