

May 16, 2012

**UNITED STATES OF AMERICA**  
**NUCLEAR REGULATORY COMMISSION**  
Before the Atomic Safety and Licensing Board

|  |   |                        |
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| In the Matter of                       | ) |                        |
|  | ) |                        |
| Entergy Nuclear Generation Company and | ) | Docket No. 50-293-LR   |
| Entergy Nuclear Operations, Inc.       | ) | ASLBP No. 06-848-02-LR |
|  | ) |                        |
| (Pilgrim Nuclear Power Station)        | ) |                        |

**ENERGY’S ANSWER OPPOSING JONES RIVER WATERSHED  
ASSOCIATION’S AND PILGRIM WATCH’S MOTION TO REOPEN  
HEARING REQUEST ON CONTENTION RELATED TO THE ROSEATE TERN**

**I. Introduction**

Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc. (collectively “Entergy”) hereby oppose the late-filed motion to reopen the record that Jones River Watershed Association and Pilgrim Watch (collectively, “JRWA/PW” or “Petitioners”) filed on May 2, 2012<sup>1</sup> seeking to raise a new contention challenging the assessment of the roseate tern in the July 2007 final Supplemental Environmental Impact Statement (“FSEIS”)<sup>2</sup> for license renewal of the Pilgrim Nuclear Power Station (“Pilgrim” or “PNPS”). This is the seventh such motion filed by Pilgrim Watch, now joined by JRWA, and like the preceding six, it is untimely and meritless.

**II. Statement of the Case**

Entergy has previously summarized the relevant procedural history of this case in its response opposing the JRWA/PW contention concerning Endangered Species Act- (“ESA-“)

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<sup>1</sup> Jones River Watershed Association and Pilgrim Watch Motion to Reopen, Request for Hearing and Permission to File New Contention in the Above-Captioned License Renewal Proceeding on Violations of the Endangered Species Act with Regard to the Roseate Tern (May 2, 2012) (“JRWA/PW Motion”).

<sup>2</sup> NUREG-1437, Supplement 29, Generic Environmental Impact Statement for License Renewal of Nuclear Plants Regarding Pilgrim Nuclear Power Station (July 2007) (“FSEIS”).

listed aquatic species,<sup>3</sup> and that summary will not be repeated here. This proceeding, now in its seventh year, involves the application submitted by Entergy in January 2006 seeking renewal of the operating license for Pilgrim (“Application”).<sup>4</sup> Prior to submitting the Application to the NRC, Entergy contacted the U.S. Fish and Wildlife Service (“FWS”) in order to facilitate the ESA Section 7 consultation process that would later occur between FWS and NRC. By letter dated February 3, 2005, Entergy submitted a letter to FWS requesting information on threatened or endangered species in the vicinity of the Pilgrim plant in order to assess the impact of Pilgrim’s license renewal on any such species.<sup>5</sup> Entergy stated that “no Federally listed terrestrial species occur on the PNPS site proper,” but noted that “[s]everal listed terrestrial species are known to occur in the general vicinity of the PNPS site,” including the roseate tern, and that those species “cannot be ruled out as occasional visitors to the PNPS site.” Entergy Feb. 2005 Letter to FWS at 1, 2. Entergy’s letter further explained that

[t]he roseate tern nests in colonies along the Massachusetts coast in summer. The roseate tern nests in dune areas with thick vegetative cover, always in association with the common tern. Although suitable nesting habitat has not been identified at PNPS, migrating terns may move through the site in late spring (en route to nesting areas in Maine and Nova Scotia) and late summer (en route to wintering areas in the West Indies and Latin America).

Id. at 2. Entergy’s letter also explained that it “has no plans to alter current operations over the license renewal period,” “[a]ny maintenance activities necessary to support license renewal would be limited to previously disturbed areas,” and that “[n]o expansion of existing facilities is planned, and no additional land disturbance is anticipated in support of license renewal.” Id. at 3. Accordingly, Entergy requested that FWS concur with its “determination that license renewal

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<sup>3</sup> Entergy’s Answer Opposing Jones River Watershed Association’s and Pilgrim Watch’s Motion to Reopen and Hearing Request (Mar. 19, 2012) at 6-10.

<sup>4</sup> See 71 Fed. Reg. 15,222 (Mar. 27, 2006).

would have no effect on threatened or endangered species . . . and that formal consultation is not necessary.” Entergy Feb. 2005 Letter to FWS at 3.

By letter dated March 9, 2005, FWS responded to Entergy’s February 3, 2005 letter and concurred with Entergy’s determination that formal consultation was not required.<sup>6</sup> FWS stated that the “federally-endangered roseate tern . . . [is] known to occur along Plymouth Beach, just north of the PNPS,” but that “none . . . are known to frequent the immediate vicinity of PNPS and, therefore, the presence of [this] species near the power station is probably transient in nature.” FWS Mar. 2005 Letter to Entergy at 1. Thus, FWS concluded that,

[s]ince no expansion of existing facilities is planned and no additional land disturbance is anticipated, we concur with your determination that license renewal for PNPS is not likely to adversely affect federally-listed species subject to the jurisdiction of the [FWS], and that formal consultation with us is not required.

Id. at 2 (emphasis added).

In January 2006, Entergy submitted the Application. The Application included an Environmental Report (“ER”), which provided an assessment of ESA-listed species that may occur in the vicinity of the station. ER, §§ 2.5, 4.10. With respect to the roseate tern, the ER noted that the species is “known to occur in the general vicinity of the PNPS site . . . and cannot be ruled out as [an] occasional visitor[] to the PNPS site and environs.” ER at 2-9. More specifically, the ER stated:

[T]he roseate tern nests in colonies along the Massachusetts coast in summer . . . . The roseate tern nests in areas with thick vegetative cover, always in association with the common tern. Although suitable nesting habitat has not been identified at PNPS, migrating terns may move through the site in late spring (en route to nesting areas in Maine and Nova Scotia) and late summer (en route to wintering areas in the West Indies and Latin America).

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<sup>5</sup> Pilgrim Nuclear Power Station, Applicant’s Environmental Report (“ER”) Attachment B, Special Status Species Correspondence at 1 (“Entergy Feb. 2005 Letter to FWS”).

<sup>6</sup> Pilgrim Nuclear Power Station, ER Attachment B, Special Status Species Correspondence at 6 (“FWS Mar. 2005 Letter to Entergy”).

Id. at 2-10. The ER further explained that:

Entergy has no plans to conduct refurbishment or construction activities at PNPS during the license renewal term. Therefore, there will be no impact to threatened or endangered species from refurbishment activities.

Id. at 4-18. Entergy's assessment concluded:

Renewal of the operating license for PNPS is not expected to result in the taking of any threatened or endangered species. Renewal of the license is not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modifications of any critical habitat.

Id. The ER included copies of the correspondence between Entergy and FWS. See ER Attachment B.

By letter dated April 25, 2006,<sup>7</sup> the NRC notified FWS that it was reviewing the Application and preparing a supplemental environmental impact statement analyzing “pertinent environmental issues, including endangered or threatened species and impacts to fish and wildlife.” NRC April 2006 Letter to FWS at 1. The NRC letter noted that the “Pilgrim industrial facility covers approximately 140 acres” and that the “proposed action would include the use and continued maintenance of existing plant facilities and transmission lines,” id., and did not indicate that renewal of Pilgrim's operating license would result in any expansion of existing facilities, or construction of new facilities. The NRC requested “a list of species and information on protected, proposed, and candidate species and critical habitat that may be in the vicinity of Pilgrim” in order to “support the SEIS preparation process and to ensure compliance with Section 7 of the [ESA].” Id. at 2.

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<sup>7</sup> Letter from Mr. Rani Franovich, NRC, to Mr. Michael Bartlett, U.S. Fish and Wildlife Service, Subject: Request for a List of Protected Species Within the Area Under Evaluation for the Pilgrim Nuclear Power Station License Renewal Application Review (Apr. 25, 2006) (ADAMS Accession No. ML061160303) (“NRC April 2006 Letter to FWS”).

By letter dated May 23, 2006, FWS responded to the NRC's request by transmitting its March 9, 2005 response to Entergy's February 3, 2005 letter, which provided the FWS determination that "license renewal for PNPS is not likely to adversely affect federally-listed species subject to the jurisdiction of the [FWS] and that formal consultation . . . is not required."<sup>8</sup>

On May 25, 2006, Pilgrim Watch filed a petition to intervene requesting a hearing on five proposed contentions, none of which sought to raise any issue concerning impact on ESA-listed species, including the roseate tern.<sup>9</sup> JRWA did not seek to intervene in the proceeding.

In December 2006, the NRC published its draft supplemental environmental impact statement ("DSEIS").<sup>10</sup> The DSEIS identifies the roseate tern as a Federally-listed endangered species that nests in Massachusetts on coastal beaches, and is "known to occur along Plymouth Beach just north of PNPS" and "may pass through the PNPS site during northward migration in late spring or southward migration in early fall." DSEIS at 2-96; see also id. at 2-92, 4-58. Although the northeastern U.S. roseate tern population has declined by approximately 70% since 1935 "due to factors such as alteration of nesting habitats, displacement from nesting areas by gulls, erosion, flooding, and human predation on their wintering grounds," id. at 2-96, the roseate population in Massachusetts has been increasing during the period in which PNPS has been operating – from 1600 breeding pairs in 1978 to 1810 breeding pairs in 1999. Id. at 4-58. The NRC Staff found that "there is no evidence that these species have been adversely affected by previous operation of the PNPS facility" and concluded that, "[g]iven that no expansion of existing facilities or disturbance of additional land is anticipated," the roseate tern and other

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<sup>8</sup> Letter from Michael J. Amaral, Endangered Species Specialist, New England Field Office, US FWS, to Rani Franovich, NRC (May 23, 2006) (ADAMS Accession No. ML061650016) ("FWS May 2006 Letter to NRC").

<sup>9</sup> Request for Hearing and Petition to Intervene by Pilgrim Watch (May 25, 2006).

Federally- and State-listed species are “unlikely to be adversely affected during the renewal period.” Id. Because FWS had already determined that formal consultation was not required, the NRC Staff did not prepare a separate biological assessment (“BA”) on the roseate tern or any other terrestrial or freshwater aquatic species. Id. at 4-59.

With respect to cumulative impacts, the NRC Staff found that “operation of PNPS is not likely to have a detectable effect on terrestrial or freshwater aquatic species located in the vicinity of the PNPS” and that “[n]o other Federal or non Federal activities have been identified that would have an adverse effect on terrestrial and freshwater aquatic species in the area.” Id. at 4-70. The Staff concluded that the “incremental contribution to cumulative impacts on terrestrial and freshwater aquatic resources resulting from continued operation of PNPS and its associated transmission line ROW would be SMALL and that no additional mitigation would be warranted.” Id.

The Staff published the FSEIS in July 2007, and the information, data, and conclusions provided therein with respect to the roseate tern are identical to those presented in the DSEIS. See FSEIS at 2-92, 2-96, 4-64 – 4-65 (the roseate tern is “unlikely to be adversely affected during the renewal period”), 4-77 (cumulative impacts are “SMALL”). The FSEIS states that “[n]o Federally or State-listed threatened or endangered terrestrial species have been observed on the PNPS site,” and that although the roseate tern and other “Federally listed birds occur in the vicinity of” PNPS, “they are not dependent on habitats within the facility and are unlikely to be affected by facility operations.” Id. at 4-64. In response to a comment received on the DSEIS concerning the need to “resolve[]” any issues with Federally-listed species, including the roseate

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<sup>10</sup> NUREG-1437, Supplement 29, Generic Environmental Impact Statement for License Renewal of Nuclear Plants Regarding Pilgrim Nuclear Power Station – Draft Report for Comment (Dec. 2006) (ADAMS Accession No. ML063260173) (“DSEIS”).

tern, related to continued operation of Pilgrim, the Staff summarized its conclusion that impacts to Federally-listed species would be small, stated that it had consulted with FWS under ESA Section 7, and noted that FWS had concurred with the NRC's conclusion and informally concluded the consultation. Id. at A-104 – A-105. The Staff reiterated its ultimate conclusions and determination not to prepare a BA. Id. at 4-64 – 4-66 (“[g]iven that no expansion of existing facilities or disturbance of additional land is anticipated,” the roseate tern and other Federally- and State-listed species are “unlikely to be adversely affected during the renewal period”; and the impacts on ESA-listed species “of an additional 20 years of operation and maintenance of PNPS . . . would be SMALL, and no additional mitigation would be warranted”).

Although Pilgrim Watch was an admitted party to the proceeding when the DSEIS and FSEIS were published, Pilgrim Watch never sought to challenge the adequacy of the ESA Section 7 consultation between the NRC and FWS, or the information, data, and conclusions reached with respect to the roseate tern at those times. Similarly, the publication of those documents did not prompt any hearing request from JRWA. In addition, neither Pilgrim Watch nor JRWA submitted any comments relating to the Staff's consultation and assessment concerning the roseate tern.

Now, nearly five years later, after this Board has terminated the proceeding<sup>11</sup> and the NRC Staff has requested Commission authorization to issue the renewed license,<sup>12</sup> JRWA/PW have filed the seventh motion to reopen the proceeding, this time claiming that (1) the NRC Staff failed to prepare a BA on the roseate tern and should be required to do so; (2) FWS erroneously consented to the NRC Staff's decision to not prepare a BA; (3) information contained in the

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<sup>11</sup> LBP-12-01, 75 N.R.C. \_\_\_, slip op. at 2, 27 (Jan. 11, 2012)

<sup>12</sup> SECY-12-0062, Renewal of Full-Power Operating License for Pilgrim Nuclear Power Station (Apr. 20, 2012).

Application and the FSEIS concerning the roseate tern is materially incomplete and inaccurate; and (4) “there is significant potential for adverse effects on the roseate terns during the relicensing period.” JRWA/PW Motion at 5-6.

### **III. The NRC Was Not Required to Prepare a Biological Assessment for the Roseate Tern**

Because the JRWA/PW Motion focuses on the question of whether the NRC was required to prepare a BA on the roseate tern, this Answer will first provide a short overview of when a Federal agency must prepare a BA under ESA Section 7 before addressing the Motion’s multiple failures to comply with the Commission’s requirements reopening the record, late-filed contentions, and admissible contentions.

Entergy has previously summarized portions of the requirements under Section 7 of the ESA.<sup>13</sup> Relevant to the claims made in the JRWA/PW Motion on the roseate tern, under ESA Section 7, the NRC is required, in consultation with FWS,<sup>14</sup> to ensure that any NRC action is not likely to jeopardize the continued existence of any threatened or endangered terrestrial and freshwater aquatic species, or result in the destruction or adverse modification of habitat critical to such species. 16 U.S.C. § 1536(a)(2). To facilitate compliance with the consultation requirements, ESA Section 7(c) calls on Federal agencies to prepare a BA only if ESA-listed species may be present in the area of proposed projects involving construction authorized by the agency. 16 U.S.C. § 1536(c). The statute does not, however, specify how a federal agency should determine whether its actions are likely to affect ESA-listed species in other types of

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<sup>13</sup> Entergy’s Answer Opposing Jones River Watershed Association’s and Pilgrim Watch’s Motion to Reopen and Hearing Request (Mar. 19, 2012) at 3-5.

<sup>14</sup> The ESA refers to the Secretary of Commerce and the Secretary of the Interior, but these Departments have delegated their authority to the National Marine Fisheries Service (“NMFS”) and FWS. Because the roseate tern falls under the jurisdiction of FWS, this Answer will refer only to FWS.

proceedings that do not involve major construction activities (such as renewing the operating license of a nuclear plant).

The FWS regulations implementing ESA Section 7 mirror the requirements of the statute: in the case of “major construction activities,” the Federal agency authorizing the construction activity must prepare a BA. 50 C.F.R. § 402.12(b). But for Federal actions that do not involve major construction activities, no BA is required. When promulgating Part 402, FWS explicitly stated that it

will not require biological assessments for actions that do not involve construction or activities having physical impacts similar to construction, such as dredging, blasting, etc. This limitation derives support from the 1979 Conference Report reference to actions designed *primarily to result* in the building or erection of various projects.

Final Rule, Interagency Cooperation, Endangered Species Act of 1973, 51 Fed. Reg. 19,926, 19,936 (June 3, 1986) (emphasis in original). A “major construction activity” “encompasses dams, buildings, pipelines, roads, water resource developments, channel improvements, and other such undertakings which significantly modify the physical environment.” Id. The Statement of Considerations is clear that a BA is required only for major Federal actions that are also construction projects. Id.

Federal Courts have held that a BA be prepared only for major construction activities. In Water Keeper Alliance v. U.S. Dep’t of Defense, 271 F.3d 21 (1st Cir. 2001), the First Circuit ruled that “[w]hat triggers the requirement of a biological assessment is that the action is a major construction activity.” 271 F.3d at 31. At issue in that case were military exercises on the island of Vieques off Puerto Rico, specifically short term exercises using inert ordinance, and a request for a preliminary injunction to stay those exercises. Id. at 24, 33. The First Circuit noted some ambiguity in the regulations as to who decides whether an agency action is a major construction

activity, but pointed to the Statement of Considerations for the regulation, which suggests that the Federal agency authorizing the action at issue makes the determination. Id. at 33, n.8 (quoting 51 Fed. Reg. at 19,946 (“The biological assessment process begins when a Federal agency decides that its action is a major construction activity”)). The First Circuit concluded that the petitioner had failed to show the required probability of success on the merits to require a preliminary injunction in light of the Navy’s conclusion that the activities at issue did not constitute a major construction activity necessitating a BA. Id. at 33.<sup>15</sup>

Applying the requirements of ESA Section 7 and its implementing regulations, and Federal case law interpreting those provisions to the circumstances here, the NRC was not required to prepare a BA for the renewal of Pilgrim’s operating license. The record is clear that, during the license renewal term, Entergy planned “[n]o expansion of existing facilities” and anticipated “no additional land disturbance.” Entergy Feb. 2005 Letter to FWS at 3. See also FWS Mar. 2005 Letter to Entergy at 2; DSEIS at 4-58; FSEIS at 4-64. Thus, renewal of Pilgrim’s operating license does not involve “major construction activities.” Consequently, the NRC was not required to prepare a BA.

The cases on which Pilgrim Watch relies for support are inapposite because, unlike renewal of Pilgrim’s operating license, they concern activities involving the building of new facilities, the expansion or existing facilities, or land disturbances. Thomas v. Peterson, 753 F.2d 754 (9th Cir. 1985) (cited at JRWA/PW Motion at 8, 10-12, 25-27, 35, 39, 56) concerned the “construction of timber road in formal national forest roadless area.” 753 F.2d at 755. City of Sausalito v. O’Neill, 386 F.3d 1186 (9th Cir. 2004) (cited at JRWA/PW Motion at 8) concerned

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<sup>15</sup> Similarly, the Eighth Circuit has held that the requirement to prepare a BA does not apply to timber sales because such sales are not “major construction activities” under 50 C.F.R. § 402.12. Newton Cnty. Wildlife Ass’n v. Rogers, 141 F.3d 803, 811 (8th Cir. 1998).

the “development and rehabilitation of Fort Baker,” including the establishment of a 350 guest-room conference and retreat center, expansion of certain buildings, the relocation and expansion of parking facilities, and beach restoration. 386 F.3d at 1194, 1196.

In any event, the existing NRC Staff NEPA analysis satisfies the requirements established for a BA. ESA Section 7 expressly provides that a BA “may be undertaken as part of a Federal agency’s compliance with the requirements of section 102” of NEPA (42 U.S.C. § 4332), i.e., the preparation of an environmental impact statement. 16 U.S.C. 1536(c)(1). The statute does not prescribe the contents of a BA other than to say that it must be based on the “best scientific and commercial data available.” *Id.* The FWS regulations, however, make clear that “[t]he contents of a biological assessment are at the discretion of the Federal agency and will depend on the nature of the Federal action,” and “may” include (among other things) whether “listed . . . species are present or occur seasonally,” “[a] review of the literature and other information,” and “an analysis of the effects of the action on the species and habitat, including consideration of cumulative effects.” 50 C.F.R. § 402.12(f) (emphasis added).

Here, the NRC Staff found that renewal of Pilgrim’s operating license will not involve any “expansion of existing facilities or disturbance of additional land,” and that the roseate tern is “not dependent on habitats within the facility and [is] unlikely to be affected by facility operations.” FSEIS at 4-64 – 4-65. Thus, the Staff determined that the roseate tern was “unlikely to be adversely affected during the renewal period.” *Id.* at 4-66. With respect to cumulative impacts, the NRC Staff found that “operation of PNPS is not likely to have a detectable effect on terrestrial or freshwater aquatic species located in the vicinity of the PNPS” and that “[n]o other Federal or non Federal activities have been identified that would have an adverse effect on terrestrial and freshwater aquatic species in the area.” *Id.* at 4-77.

Accordingly, even if a BA were required for the roseate tern, the Board should find the NRC Staff's existing NEPA analysis on the roseate tern sufficient for that purpose. See Water Keeper Alliance, 271 F.3d at 33 (finding that, although not required to prepare a separate BA, the documents prepared by the Navy met “the functional equivalent of a [BA]”).

#### **IV. The Board Should Reject the Contention**

##### **A. Applicable Legal Standards for Reopening the Record, Late Contentions, and Admissible Contentions**

The NRC does not look with favor on amended or new contentions filed after the initial filing. Dominion Nuclear Connecticut, Inc. (Millstone Nuclear Power Station, Units 2 and 3), CLI-04-36, 60 N.R.C. 631, 638 (2004). As the Commission has repeatedly stressed,

our contention admissibility and timeliness rules require a high level of discipline and preparation by petitioners “who must examine the publicly available material and set forth their claims and the support for their claims at the outset.” There simply would be “no end to NRC licensing proceedings if petitioners could disregard our timeliness requirements” and add new contentions at their convenience during the course of a proceeding based on information that could have formed the basis for a timely contention at the outset of the proceeding. Our expanding adjudicatory docket makes it critically important that parties comply with our pleading requirements and that the Board enforce those requirements.

AmerGen Energy Co., LLC (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 N.R.C. 235, 271-72 (2009) (emphasis added) (citations omitted).

Where, as here, the adjudicatory record has been closed, the Commission's rules specify that a motion to reopen that record to consider additional evidence – including evidence on a new contention (see 10 C.F.R. § 2.326(d)) – will not be granted unless the following criteria are satisfied:

- (1) The motion must be timely. However, an exceptionally grave issue may be considered in the discretion of the presiding officer even if untimely presented;
- (2) The motion must address a significant safety or environmental issue; and

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

10 C.F.R. § 2.326(a). Further, under the NRC rules,

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

10 C.F.R. § 2.326(b) (emphasis added). “All of the factors in section 2.326 must be met in order for a motion to reopen to be granted.” Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station), CLI-12-03, 75 N.R.C. \_\_\_, slip op. at 15 (Feb. 22, 2012) (“CLI-12-03”).

Further, the Commission repeatedly has emphasized that “[t]he burden of satisfying the reopening requirements is a heavy one.” Oyster Creek, CLI-09-7, 69 N.R.C. at 287 (citing Louisiana Power & Light Co. (Waterford Steam Electric Station, Unit 3), CLI-86-1, 23 N.R.C. 1, 5 (1986)). “[P]roponents of a reopening motion bear the burden of meeting all of [these] requirements.” Id. (citing Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), CLI-90-10, 32 N.R.C. 218, 221 (1990)). “Bare assertions and speculation . . . do not supply the requisite support.” Id. (citing AmerGen Energy Co., LLC (Oyster Creek Nuclear Generating Station), CLI-08-28, 68 N.R.C. 658, 674 (2008)). Evidence contained in the Section 2.326(b) affidavits must meet the admissibility standards in 10 C.F.R. § 2.337. Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station), CLI-12-06, 75 N.R.C. \_\_\_, slip op. at 18 (Mar. 8, 2012) (“CLI-12-06”). In other words, the evidence must be relevant, material, and reliable. Id.

In addition, where a motion to reopen relates to a contention not previously in controversy, as is the case here, a motion to reopen must also satisfy the standards for non-timely contentions in 10 C.F.R. § 2.309(c). 10 C.F.R. § 2.326(d); Pilgrim, CLI-12-03 at 9.<sup>16</sup> Section 2.309(c) provides that non-timely contentions will not be entertained, absent a determination by the Board that the contentions should be admitted based upon a balancing of the following factors:

- (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.

10 C.F.R. § 2.309(c)(1).

In keeping with the Commission's disfavor of contentions after the initial filing, these factors are "stringent." Oyster Creek, CLI-09-7, 69 N.R.C. at 260, citing Florida Power & Light Co. (Calvert Cliffs Nuclear Power Plant, Units 1 and 2, et al.), CLI-06-21, 64 N.R.C. 30, 33

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<sup>16</sup> See also Dominion Nuclear Connecticut, Inc. (Millstone Nuclear Power Station, Unit 3), CLI-09-5, 69 N.R.C. 115, 125 (2009); Oyster Creek, CLI-08-28, 68 N.R.C. at 668.

(2006). “Late petitioners properly have a substantial burden in justifying their tardiness.”

Nuclear Fuel Services, Inc. (West Valley Reprocessing Plant), CLI-75-4, 1 N.R.C. 273, 275 (1975).

Commission case law places most importance on whether the petitioner has demonstrated sufficient good cause for the untimely filing. Tennessee Valley Authority (Watts Bar Nuclear Plant, Unit 2), CLI-10-12, 71 N.R.C. 319, 323 (2010); Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-00-02, 51 N.R.C. 77, 79 (2000); Millstone, CLI-09-5, 69 N.R.C. at 125. Indeed, failure to demonstrate good cause requires the petitioner to make a “compelling” showing with respect to the other factors. Texas Utilities Electric Co. (Comanche Peak Steam Electric Station, Unit 2), CLI-93-4, 37 N.R.C. 156, 165 (1993). In other words,

A petitioner’s showing must be highly persuasive; it would be a rare case where [the Commission] would excuse a non-timely petition absent good cause.

Watts Bar, CLI-10-12, 71 N.R.C. at 323 (footnote omitted).

Finally, any new contention must also satisfy the strict standards for admissibility in 10 C.F.R. § 2.309(f)(1). These standards also are enforced rigorously. “If any one . . . is not met, a contention must be rejected.” Arizona Public Service Co. (Palo Verde Nuclear Generating Station, Unit Nos. 1, 2, and 3), CLI-91-12, 34 N.R.C. 149, 155 (1991) (citation omitted); USEC, Inc. (American Centrifuge Plant), CLI-06-9, 63 N.R.C. 433, 437 (2006) (“These requirements are deliberately strict, and we will reject any contention that does not satisfy the requirements.” (footnotes omitted)). A licensing board is not to overlook a deficiency in a contention or assume the existence of missing information. Palo Verde, CLI-91-12, 34 N.R.C. at 155; Oyster Creek, CLI-09-7, 69 N.R.C. at 260 (the contention admissibility rules “require the petitioner (not the board) to supply all of the required elements for a valid intervention petition” (emphasis added) (footnote omitted)).

**B. The JRWA/PW Motion Fails to Meet the Reopening Standards**

The JRWA/PW Motion fails to satisfy all of the standards for reopening a closed record in 10 C.F.R. § 2.326. As a threshold matter, the JRWA/PW Motion should be rejected out of hand because its supporting affidavits fail to meet the Section 2.326(b) requirement that such affidavits specifically address why each one of the Section 2.326(a) reopening standards has been met. Despite Petitioners' assertion that their affiants have addressed the relevant criteria, JRWA/PW Motion at 36, the affiants fail to do so. The affidavit from E. Pine duBois nowhere addresses the Section 2.326(a) criteria. Indeed, Ms. DuBois' affidavit never mentions the roseate tern. While the affidavit from Dr. Nisbet pays lip service to two of the Section 2.326(a) criteria, he fails to separately address each criterion and provide "a specific explanation of why [each] has been met" or "specif[ies] the factual and/or technical bases" why each of the Section 2.326 criteria has been met for each of the multiple allegations raised in the JRWA/PW Motion. 10 C.F.R. § 2.326(b). Dr. Nisbet nowhere asserts that the issues raised in the Contention are timely under Section 2.326(a)(1). With respect to the other two reopening criteria, Dr. Nisbet provides a conclusory assertion that the Contention raises significant environmental issues and that a materially different result would have been likely if those issues had been considered initially. Nisbet Aff. at ¶ 21. Such bare assertions and speculation are insufficient to meet the requirements of Section 2.326. Oyster Creek, CLI-09-7, 69 N.R.C. at 287. The JRWA/PW Motion's failure to meet the requirements of Section 2.326(b) alone is sufficient grounds to reject the Motion. Texas Utilities Electric Co. (Comanche Peak Steam Electric Station, Units 1

and 2), CLI-92-12, 36 N.R.C. 62, 76 (1992), citing Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), CLI-89-1, 29 N.R.C. 89, 93-94 (1989).<sup>17</sup>

### **1. JRWA/PW's Claims Are Untimely**

Neither JRWA/PW nor their affiants demonstrate that the issues raised in the JRWA/PW Motion are timely, nor could they. The bases for JRWA/PW's challenges are not new information and could have been raised long ago.

Except in certain circumstances inapplicable here, the NRC rules allow new contentions to be filed only with the 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.

10 C.F.R. § 2.309(f)(2)(i)-(iii). In essence, a proponent of a new contention must show that it could not have raised its contention earlier. “[T]he unavailability of [a] document does not constitute a showing of good cause for admitting a late-filed contention when the factual predicate for that contention is available from other sources in a timely manner.” Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 N.R.C.1041, 1043 (1983).

Consequently, an intervenor cannot establish good cause for filing a late contention when the information on which the contention is based was publicly available “for some time” prior to the filing of the contention. Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2), ALAB-828, 23 N.R.C. 13, 21 (1986). The NRC typically applies a “30-day clock” to the filing

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<sup>17</sup> See also Pilgrim, CLI-12-03 at 16 (ruling that Pilgrim Watch failed to meet the Section 2.326 reopening standards because it did “not demonstrate, with the level of support required under section 2.326(b), that a materially different result would have been likely”) (emphasis added).

of a new contention based on new information,<sup>18</sup> and this has been the standard established in this proceeding.<sup>19</sup>

JRWA/PW's claim that the NRC Staff was required to prepare a BA on the roseate tern, e.g., JRWA/PW Motion at 5, could have been brought as early as December 2006 when the Staff issued the DSEIS. Likewise, the claim that FWS inappropriately acquiesced to the NRC's conclusions with respect to the roseate tern, e.g., id., could have been brought at that same time, if not in July 2007 with the Staff's publication of the FSEIS. The NRC Staff made public its determination that a BA was not required with the publication of the DSEIS in December 2006. DSEIS at 4-59. The FWS May 2006 Letter to NRC transmitting FWS's determination from the year prior that "license renewal for PNPS is not likely to adversely affect federally-listed species subject to the jurisdiction of the [FWS], and that formal consultation . . . is not required" was both referenced and included in the December 2006 DSEIS (at 2-92, 2-140, E-11). In addition, the FSEIS expressly states that the Staff concluded "that impacts on [ESA-listed species within the jurisdiction of FWS] during the license renewal period would be small," and that FWS concurred with that conclusion on May 23, 2006. FSEIS at A-105. Thus, any challenge to the NRC Staff's determination not to prepare a BA, or FWS's concurrence with the NRC Staff's conclusions with respect to the lack of significant impacts on the roseate tern, could have been brought years ago.

None of the claims made by JRWA/PW attempting to challenge the sufficiency of the Entergy, NRC Staff, and FWS determinations with respect to impacts on the roseate tern is timely raised. Indeed, the untimeliness of these claims is evident on the face of the JRWA/PW

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<sup>18</sup> Southern Nuclear Operating Co. (Vogtle Electric Generating Plant, Units 3 and 4), CLI-11-08, 74 N.R.C. \_\_\_, slip op. at 3 n.8 (Sept. 27, 2011).

<sup>19</sup> See Order (Establishing Schedule for Proceeding and Addressing Related Matters) (Dec. 20, 2006) at 6-7.

Motion. JRWA/PW purport to rely on information that predates or is contained in the DSEIS and FSEIS, or otherwise could have been raised many months if not years ago. For example, JRWA/PW and their witness purport to rely on (1) “widely available scientific data available in 2006 and 2007,” JRWA/PW Motion at 7; (2) a paper published in 1999 and information dating back to 1988 on the existence the roseate tern at Long Point Beach (“LPB”), id. at 16, 18, 19, 29, citing Nisbet Aff. at ¶¶ 4, 14, 16; (3) information contained in the July 2007 FSEIS concerning the location of Pilgrim, the impingement and entrainment of small fish prey for the roseate tern, and cooling water discharges, id. at 20-21; (4) a September 2010 FWS Study, id. at 21 n.15; (5) a September 2008 EPA publication on guidance for renewing nuclear power plant environmental impact statements, id. at 22 n.19; (6) Pilgrim NPDES permit limit violations occurring in 2010-2011, id. at 21-23 & n. 20; and (7) a 2007-2009 Massachusetts Audubon Society study, id. at 33, citing Nisbet Aff. at ¶ 11. Obviously none of this information is new. In some cases, the information is more than a decade old.

Further, none of Petitioners’ claims are made timely by their receipt of the year 2000 ENSR report in mid-April 2012. JRWA/PW Motion at 23, 31, 34, 45-46. As JRWA/PW acknowledge, the ENSR 2000 report was referenced in Entergy’s ER and the NRC Staff’s FSEIS. Id. at 23; see ER at 2-36, 3-20, 4-54; see, e.g., FSEIS at 2-137. Further, the NRC Staff’s Environmental Audit Summary identified ENSR 2000 as one of the documents that the NRC had obtained during the audit and provided an ADAMS accession number.<sup>20</sup> While JRWA/PW apparently had to ask the NRC’s public document room for a copy, the reality is that JRWA/PW simply made no attempt to do so until recently. Their failure to request this document does not make their present claims timely.

Moreover, JRWA/PW do not in fact rely on the ENSR 2000 document to support their claims, but instead disavow its “sweeping” “no ‘adverse impact’” and “no [adverse] effect” conclusion. JRWA/PW Motion at 23, 23 nn.21-22, 34. Thus, JRWA/PW cannot claim that this document provides timely support for their allegations. Finally, JRWA/PW fail to show that the information contained in the document is any different, let alone materially different, than information previously available under Section 2.309(f)(2)(ii). As summarized by JRWA/PW, the ENSR 2000 document discusses impingement and entrainment of aquatic species at Pilgrim, the temperature of Pilgrim’s water discharges, and the impact of Pilgrim’s cooling water system. JRWA/PW Motion at 23. All of this information is discussed in Entergy’s ER and the Staff’s DSEIS and FSEIS, see, e.g., ER §§ 4.2-4.4, FSEIS § 4.1. In fact, the ENSR 2000 report is often referenced to support the information contained in the ER and FSEIS.

Because Petitioners’ claims are untimely, in order to reopen the record Petitioners must demonstrate that their issues are “exceptionally grave.” 10 C.F.R. § 2.326(a)(1).<sup>21</sup> When promulgating the “exceptionally grave” standard to consider untimely claims, the Commission made clear that “exceptionally grave” means that an issue presents “a sufficiently grave threat to public safety.”<sup>22</sup> None of the allegations in the JRWA/PW Motion or its supporting affidavits raises any issue that could be characterized as a sufficiently grave threat to public safety. JRWA/PW present no evidence that continued operation of Pilgrim during the license renewal term will endanger any roseate tern. JRWA/PW claim that they have raised an “exceptionally grave” issue only by speculating that a “significant potential for adverse impacts” on the roseate

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<sup>20</sup> Summary of Environmental Site Audit Related to the Review of the License Renewal Application for Pilgrim Nuclear Power Station (July 25, 2006), Encl. 2 at 3 (available at ADAMS Accession No. ML062070305).

<sup>21</sup> Vogle, CLI-11-08 at 14 n.44 (“when a motion to reopen is untimely, the § 2.326(a)(1) ‘exceptionally grave’ test supplants the § 2.326(a)(2) ‘significant safety or environmental issue’ test”) (citation omitted).

tern exists, and that they have “proffered evidence of potential effects” on the roseate tern. JRWA/PW Motion at 5, 33, 34 (emphasis added), citing Nisbet Aff. at ¶ 19. These allegations simply cannot be characterized as presenting any threat, let alone a “sufficiently grave” threat, to public safety. Furthermore, such speculation is insufficient to meet the stringent Section 2.326 reopening requirements. Oyster Creek, CLI-09-7, 69 N.R.C. at 287. Consequently, JRWA/PW have failed to raise any exceptionally grave issue.

## **2. JRWA/PW’s Claims Do Not Address any Significant Environmental or Safety Issue**

In addition to being untimely, JRWA/PW’s claims fail to demonstrate the existence of a significant environmental or safety issue. The Commission has directly held that “bare assertions and speculation . . . do not supply the requisite support” to satisfy the Section 2.326 standards.<sup>23</sup> Merely asserting that something “might turn up” to support an intervenor’s concerns does not raise a significant issue sufficient to restart the hearing process.<sup>24</sup> In order to demonstrate the existence of a significant environmental issue, the information Petitioners present must paint a “seriously different picture of the environmental landscape.”<sup>25</sup>

None of JRWA/PW’s claims (or their affiants’ assertions) raises any significant environmental issue. JRWA/PW have come forward with no credible evidence that the roseate tern will be adversely affected by Pilgrim’s continued operation. Nor have they provided any

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<sup>22</sup> Final Rule, Criteria for Reopening Records in Formal Licensing Proceedings, 51 Fed. Reg. 19,535, 19,536 (May 30, 1986), quoting Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station), ALAB-124, 6 A.E.C. 358, 365 n.10 (1973).

<sup>23</sup> Oyster Creek, CLI-09-7, 69 N.R.C. at 287 (citing Oyster Creek, CLI-08-28, 68 N.R.C. at 674).

<sup>24</sup> Oyster Creek, CLI-08-23, 68 N.R.C. 461, 486 (2008) (rejecting a motion to reopen where movants provided only mere speculation that the contention might materially alter conclusions in the final safety evaluation report) (emphasis in original).

<sup>25</sup> See Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-06-03, 63 N.R.C. 19, 28-29 (2006) (“PFS”) (holding that claimed additional environmental impacts were “not so significant or central to the FEIS’s discussion of environmental impacts that an FEIS supplement (and the consequent reopening of our adjudicatory record) is reasonable or necessary”).

evidence disputing the NRC Staff's conclusion that the roseate tern is "unlikely to be adversely affected during the renewal period." FSEIS at 4-64 – 4-65. Indeed, JRWA/PW never assert that there will be any adverse impact to the roseate tern, and their expert, Dr. Nisbet, never provides any expert opinion that there will be any adverse impact.

Rather, JRWA/PW and Dr. Nisbet erroneously suggest that Entergy, the NRC Staff, and FWS have overlooked information concerning the existence of the roseate tern near Pilgrim. JRWA/PW Motion at 16-20, 35; Nisbet Aff. at ¶¶ 7-9, 14, 17, 18. As a result, JRWA/PW claim that the Entergy, Staff, and FWS environmental documents addressing impacts to the roseate tern are materially incomplete, inaccurate, or inadequate. JRWA/PW Motion at 5-6. These manufactured claims are both unseemly and baseless. For example, JRWA/PW assert that Entergy, the NRC Staff, and FWS ignored the existence of the roseate tern at specified locations within two to four miles of the Pilgrim site, and considered only that roseate tern appeared in the area "exclusively" during migration. JRWA/PW Motion at 16-18. These assertions mischaracterize information plainly stated by Entergy, the NRC Staff, and FWS. Entergy's February 2005 letter to FWS stated that "[s]everal listed terrestrial species are known to occur in the general vicinity of the PNPS site," including the roseate tern, and that those species "cannot be ruled out as occasional visitors to the PNPS site." Entergy Feb. 2005 Letter to FWS at 1, 2. The March 2005 FWS response to Entergy stated that the "federally-endangered roseate tern . . . [is] known to occur along Plymouth Beach, just north of the PNPS," but that "none . . . are known to frequent the immediate vicinity of PNPS and, therefore, the presence of [this] species near the power station is probably transient in nature." FWS Mar. 2005 Letter to Entergy at 1 (emphasis added). The NRC Staff stated that the roseate tern is "known to occur along Plymouth Beach just north of PNPS" and "may pass through the PNPS site during northward migration in

late spring or southward migration in early fall.” DSEIS at 2-96 (emphasis added). JRWA/PW’s mischaracterizations of clear statements in the record cannot raise a significant environmental issue. Pilgrim Watch nowhere explains (nor can it explain) how information concerning the existence of the roseate tern on LPB 2-4 miles away from the Pilgrim site is any different, let alone seriously different, than the information presented by Entergy, the NRC Staff, and FWS.

JRWA/PW speculate about the “significant potential for adverse effects” on the roseate tern’s food sources that might result from entrainment, impingement, and cooling water discharges. JRWA/PW Motion at 20-23, 22 n.20, 34 (emphasis added). JRWA/PW also raise potential adverse impacts from a limited number of incidents where Pilgrim has exceeded the chlorine-related discharge limits in its NPDES permit. Id. at 22 & n.20. Notably absent from Dr. Nisbet’s Affidavit is any discussion of the potential impacts on the roseate tern from operation of the Pilgrim cooling water system, including chlorination exceedance incidents. Rather, Dr. Nisbet claims only that Entergy has failed to consider the “potential for adverse effects” on roseate tern, or its fish prey, resulting from impingement, entrainment, and alleged pollutant discharges. Nisbet Aff. at ¶ 19. As previously noted, such speculation is not sufficient to meet the very high standards for reopening a closed record. Pilgrim, CLI-12-03 at 23-24.

The attached Affidavits from Drs. Scherer and Barnum of Normandeau Associates,<sup>26</sup> and Mr. Scheffer from Pilgrim<sup>27</sup> demonstrate that JRWA/PW’s claims raise no significant issue:

- 95% of the roseate tern breeding population in Massachusetts can be found on Bird Island and Ram Island in Buzzards bay, which are in a geographically

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<sup>26</sup> Affidavit of Michael D. Scherer, Ph.D. and Sarah A. Barnum, Ph.D., in Support of Entergy’s Answer Opposing Jones River Watershed Association’s and Pilgrim Watch’s Motion to Reopen, Request for Hearing and Permission to File New Contention (May 16, 2012) (“Scherer & Barnum Aff.”).

distinct subgroup with little connection to any roseate terns that might be present near PNPS. Scherer & Barnum Aff. at ¶ 8.

- The bulk of the roseate tern diet in Massachusetts is comprised of American sand lance, hake, and Atlantic herring. At times, sand lance make up 95 % of the roseate tern's fish prey. Scherer & Barnum Aff. at ¶¶ 12, 18.
- There is no indication that any lack of prey fish availability during the summer months – if any such lack of prey fish availability exists – when roseate tern are present in Massachusetts has caused or contributed to the decrease in roseate tern nesting sites or the decline in the northeastern roseate tern population. Scherer & Barnum Aff. at ¶ 14.
- Impingement and entrainment of the roseate tern's main fish prey species will have no discernible impact in on the availability of these fish species as prey for the roseate tern. Scherer & Barnum Aff. at ¶¶ 17-28.
- In an average year, approximately 1,648 pounds of age 1 equivalent sand lance are impinged and entrained at Pilgrim each year. Conservatively assuming 100 % mortality of impinged and entrained individual sand lance, this is less than the amount that two humpback whales concentrating their foraging efforts on sand lance would consume in one day. In addition, annual consumption of sand lance by North American seals, approximately 831 million pounds per year, dwarfs impingement and entrainment losses at PNPS. Thus, it is not scientifically

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<sup>27</sup> Affidavit of Jacob J. Scheffer in Support of Entergy's Answer Opposing Jones River Watershed Association's and Pilgrim Watch's Motion to Reopen and Hearing Request on Contention Related to the Roseate Tern (May 16, 2012) ("Scheffer Aff.").

credible to suggest that the annual magnitude of impingement and entrainment mortality at PNPS could potentially affect the availability of sand lance as prey for the roseate tern. Scherer & Barnum Aff. at ¶¶ 19-23.

- Atlantic herring and hake may also make up a portion of the roseate tern's diet. On average, again conservatively assuming 100 % impingement and entrainment mortality, Atlantic herring losses at PNPS average 296 pounds per year. This is a minute fraction of the estimated hundreds of millions of pounds of Atlantic herring available for predation by the roseate tern. The annual combined estimate of age 1 hake impingement and entrainment losses at PNPS, assuming 100 % mortality, is approximately 14,070 pounds, which is a minute fraction of the more than 50 million of pounds of hake estimated in the Cape Cod area. Thus, impingement and entrainment losses of Atlantic herring and hake at PNPS cannot reasonably be expected to affect the availability of such prey for the roseate tern. Scherer & Barnum Aff. at ¶¶ 24-28.
- The asserted turbulence associated with PNPS's cooling water discharge is not expected to bring an abundance of sand lance to the surface where they can be captured, and thus the area near the cooling water discharge is unlikely to provide desirable foraging conditions for the roseate tern. Moreover, to the extent any roseate terns might be attracted to the turbulence created by PNPS's cooling water discharge, if prey fish are absent from the water, any such attractiveness would likely be short lived, as the roseate tern's flexible foraging strategy would allow it to either move or concentrate its feeding efforts where prey are abundant. Scherer & Barnum Aff. at ¶¶ 29-30.

- Contrary to Petitioners’ assertion (JRWA/PW Motion at 21), the Pilgrim NPDES permit has been administratively continued during the pendency of permit renewal proceedings, and, as a result, the conditions and limitations of the most recent NPDES permit remain valid and in full force and effect. Scheffer Aff. at ¶ 7.
- As allowed under its NPDES permit, Pilgrim uses chlorine as a biocide for the Circulating Water System (“CWS”) and (Salt) Service Water System (“SWS”). Chlorination of the CWS is limited to a maximum of two hours per day, with the frequency of chlorination ranging from once a day to once a week, and to a Total Residual Oxidant (“TRO”) concentration of 0.1 mg/L, stricter than the federal effluent limitation guideline of 0.2 mg/L. The NPDES permit allows constant chlorination of the SWS system, with an average monthly limit of 0.5 mg/L and an instantaneous maximum limit of 1.0 mg/L. Scheffer Aff. at ¶¶ 8-9.
- Pilgrim samples CWS and SWS water to ensure compliance with their respective TRO concentration limits. Water discharged from the CWS is sampled in the discharge canal at least 8 times during each chlorination period, assuming a 2 hour run. Pilgrim samples SWS water (downstream of the heat exchanges and prior to entering the discharge canal) for chlorine twice daily when chlorination is in service. These sampling results are documented in Pilgrim’s Discharge Monitoring Reports (“DMRs”). Scheffer Aff. at ¶¶ 10-12.
- Chlorination permit exceedances are extraordinarily rare. Over the past ten years, PNPS has documented only two instances in which the chlorine concentration exceeded the CWS’s maximum permitted level of 0.1 mg/L, each resulting from

minor and unanticipated equipment malfunctions, and each lasting less than 20 minutes in duration. Both exceedances, while over the NPDES permit limit, were less than the 0.2 mg/L federal effluent limitation guideline, and the amount of residual chlorine discharged into Cap Cod Bay is expected to have been minimal. Scheffer Aff. at ¶¶ 12-13.

- Similarly, over the past ten years, PNPS has documented only 6 instances (out of thousands of sampling events) in which the chlorine concentration of SWS water (measured prior to entering the discharge canal) exceeded the daily maximum permitted limit of 1.0 mg/L. Because SWS water is substantially diluted when mixed with the CWS stream prior to the point of discharge into Cape Cod Bay, and “chlorine demand” further reduces TRO concentration, even where an SWS exceedance has occurred, the concentration is typically undetectable prior, and is always at or below the 0.1 mg/L limit for CWS discharges set in the station’s NPDES permit. Scheffer Aff. at ¶ 14.
- Heavy metals such as zinc, copper, and chromium are believed to be absent from the Pilgrim Station’s regularly discharged effluent. The use of the corrosion inhibitor Tolyltriazole in Pilgrim systems has been authorized by the U.S. EPA. When Tolyltriazole has been discharged, it has been in diluted concentrations well below EPA approved limits and reported in the Station’s DMRs. Scheffer Aff. at ¶¶ 18-19.
- The chlorine discharge limitations set forth in Pilgrim’s NPDES permit are considered protective of marine organisms in Cape Cod Bay. Although PNPS has, on rare occasion experienced exceedances of its chlorine discharge limits at

certain outfall locations, it is highly unlikely that those exceedances would affect the environment, or have any impact on the biota in Cape Cod Bay. Thus, there is no credible scientific evidence that discharges from PNPS have any adverse effect on roseate tern. Scherer & Barnum Aff. at ¶¶ 15, 31.

For all of the reasons set forth above, JRWA/PW's claims fail to raise a significant environmental or safety issue as required under Section 2.326(a)(2).

**3. JRWA/PW Have Failed to Demonstrate That a Materially Different Result Would Be Likely**

JRWA/PW and their affiants fail to “demonstrate” that a materially different result would have been likely had their newly proffered evidence been considered initially, as required by 10 C.F.R. § 2.326(a)(3) (emphasis added). Petitioners have a “deliberately heavy” burden to demonstrate that a materially different result would be likely. Oyster Creek, CLI-08-28, 68 N.R.C. at 674; see also Pilgrim, CLI-12-03 at 8; Oyster Creek, CLI-09-7, 69 N.R.C. at 287. At this late stage of the proceeding, is it not sufficient simply to raise an issue. “The level of support required for a motion to reopen is greater than that required for a contention under the general admissibility requirements of 10 C.F.R. § 2.309(f)(1).” Pilgrim, CLI-12-06 at 18. “[N]o reopening of the evidentiary hearing will be required if the [documents] submitted in response to the motion demonstrate that there is no genuine unresolved issue of fact.” PFS, CLI-05-12, 61 N.R.C. 345, 350 (2005), citing Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station), ALAB-138, 6 A.E.C. 520, 523-24 (1973). A petitioner will fail to demonstrate that a materially different result will be likely where the petitioner seeks to litigate issues outside the scope of a proceeding, or fails to challenge pertinent information contained in the existing licensing documents. See Pilgrim, CLI-12-06 at 26-27.

The sole claim that JRWA/PW make with respect to this criterion is that, had their information been considered initially, “a materially different result would have been likely because there would be a biological assessment as to whether PNPS relicensing would be likely to effect [sic] the roseate tern,” which would include “information cited in the Nisbet Affidavit and Petitioners’ documents and this information would be taken into account in the balance of alternatives under NEPA.” JRWA/PW Motion at 36. Dr. Nisbet merely asserts his opinion that “a materially different result would have been likely” if the information in his affidavit had been considered previously, Nisbet Aff. at ¶ 21, but nowhere explains what would be different, and why that difference would be material. JRWA/PW and Dr. Nisbet are incorrect.

As previously discussed, no BA is required where, as here, the Federal action does not involve any “major construction activities.” 16 U.S.C. § 1536; 50 C.F.R. § 402.12(b); 51 Fed. Reg. at 19,936; Water Keeper Alliance, 271 F.3d at 31. As FWS explained,

The Service will not require [BAs] for actions that do not involve construction or activities having physical impacts similar to construction, such as dredging, blasting, etc. This limitation derives support from the 1979 Conference Report reference to actions designed primarily to result in the building or erection of various projects.

51 Fed. Reg. at 19,936 (some emphasis added). Renewal of Pilgrim’s operating license involves no such “building or erection of various projects.” Entergy Feb. 2005 Letter to FWS at 3. (“[n]o expansion of existing facilities” is planned and “no additional land disturbance” is anticipated). See also FWS Mar. 2005 Letter to Entergy at 2; DSEIS at 4-58; FSEIS at 4-64.

Further, even if a BA were required, the NRC Staff’s existing NEPA analysis satisfies the requirement. 16 U.S.C. 1536(c)(1) (permitting that a BA “may be undertaken as part of” the NRC’s preparation of an environmental impact statement). In addition, as discussed supra, FWS regulations provide that the contents of a BA are discretionary, and the Staff’s analysis already

contains discussion on multiple items recommended for inclusion in a BA. 50 C.F.R. § 402.12(f); see FSEIS at 4-64, 4-66, 4-70. Petitioners' claim (JRWA/PW Motion at 18-19) that the NRC has overlooked certain studies developed since 2006/2007, i.e., after the time period when NRC and FWS made their determinations, does not violate the ESA's procedural requirements. Water Keeper Alliance, 271 F.3d at 33. Consequently, Petitioners can not demonstrate that their claims are likely to succeed on the merits.

Finally, the attached Affidavits from Drs. Scherer and Barnum and Mr. Scheffer demonstrate that JRWA/PW's claims do not demonstrate that a materially different outcome would be likely because continued operation of Pilgrim is not likely to result in any discernible impacts on the roseate tern. As previously summarized, Petitioners have failed in their obligation to raise any significant environmental issue warranting supplementation of the FSEIS, or otherwise undermining the FWS determination that no consultation was required, and the Staff determination that it would not prepare a BA. There is no evidence suggesting that PNPS will have any credible indirect impact on the roseate tern through impacts on the availability of fish prey due to impingement and entrainment mortality, or the impacts of pollution. Scherer & Barnum Aff. at ¶¶ 15, 31. Average annual estimates of the annual impact to sand lance, the roseate tern's main fish prey, from impingement and entrainment are comparable to one day's consumption by just two whales. Id. at ¶ 22. The estimates of impingement and entrainment impacts to the roseate tern's other significant prey species, Atlantic herring and hake, are miniscule when compared to the total available stocks for those fish species. Id. at ¶¶ 25-28. Over the past ten years, there are only two documented instances where chlorinated water discharges into Cape Cod Bay from the CWS exceeded the 0.1 mg/L limit prescribed in Pilgrim's (currently valid) NPDES permit. Scheffer Aff. at ¶ 13. Those exceedances will have

little, if any, potential for adverse impact on roseate tern fish prey. Scherer & Barnum Aff. at ¶¶ 15, 31.

For all of the reasons set forth above, JRWA/PW's claims fail to demonstrate that a materially different outcome would be likely under Section 2.326(a)(3).

**C. The Contention fails to meet 10 C.F.R. § 2.309(c) standards for considering a late-filed contention**

JRWA/PW's belated contention should not be admitted because Petitioners have shown no good cause for their extreme tardiness, and a balancing of the remaining factors in 10 C.F.R. § 2.309(c) does not outweigh this failure to timely file the Contention.

To demonstrate good cause, the first and most important late-filed factor, JRWA/PW must establish that the information on which their Contention is based is new information not already in the public domain that could not have been presented earlier. Comanche Peak, CLI-92-12, 36 N.R.C. at 69-73; Millstone, CLI-09-5, 69 N.R.C. at 126. Petitioners have failed to demonstrate good cause under Section 2.309(c)(1) for the same reasons that their Contention is untimely under Section 2.326(a) and 2.309(f)(2), discussed supra. All of Petitioners' claims (such as sitings and observations of the roseate tern on LPB dating back to 1988) could have been raised years ago. JRWA/PW's reliance on a document they received a few weeks ago, JRWA/PW Motion at 45-46, does not show good cause. The ENSR 2000 report was referenced numerous times in the ER, the DSEIS, and the FSEIS. Thus, JRWA/PW could have requested it years ago. Moreover, JRWA/PW do not rely on any information contained in that document, but instead disavow its contents. And they nowhere show that the ENSR 2000 report's discussion of impingement, entrainment and cooling water impacts is any different than information already available.

Having failed to show good cause, the demonstration regarding the other factors must be “compelling” in order to justify admitting the Contentions. Dominion Nuclear Connecticut, Inc. (Millstone Nuclear Power Station, Units 2 and 3), CLI-05-24, 62 N.R.C. 551, 565 (2005); Comanche Peak, CLI-92-12, 36 N.R.C. at 73. In balancing the remaining late-filed contention factors, the Commission grants considerable weight to factors seven and eight.

We regard as highly important the intervenor's ability to contribute to the development of a sound record on a particular contention. We also are giving significant weight to the potential delay, if any, which might ensue from admitting a particular contention.

Consumers Power Co. (Midland Plant, Units 1 and 2) LBP-82-63, 16 N.R.C. 571, 577 (1982) (citations omitted), citing South Carolina Electric & Gas Co. (Virgil C. Summer Nuclear Station, Unit 1), ALAB-642, 13 N.R.C. 881, 895 (1981); see also Commonwealth Edison Co. (Braidwood Nuclear Power Station, Units 1 and 2), CLI-86-8, 23 N.R.C. 241, 246-47 (1986). JRWA/PW cannot make a compelling showing on the remaining factors because factors seven and eight heavily weigh against admitting the Contention.

Factor seven, the extent to which admission of the Contention will broaden the issues or delay the proceeding, weighs heavily against admitting the Contention. All admitted contentions have been resolved, and the proposed Contention pending before the Board concerns ESA-listed aquatic species and thus has little, if any, relation to the roseate tern Contention. The Commission has made clear that “the introduction of a new contention, well after the contested proceeding closed, would broaden the issues and delay the proceeding.” Vogtle, CLI-11-08 at 18. Where, as here, the proceeding has been ongoing for over six years, the NRC’s Staff’s view has long since been complete, all admitted contentions have been resolved, and there is less than one month before the expiration of the Pilgrim license, there can be no question that admission of the Contention would broaden the issues and delay the proceeding.

Factor eight, the ability to contribute to a sound record, also weighs heavily against admitting the Contention. As explained throughout this Answer, JRWA and their affiants provide no information, let alone significant information, demonstrating the existence of any significant environmental issue calling into question the conclusions reached by Entergy, the NRC Staff, and FWS concerning impacts to the roseate tern. Further, Entergy has demonstrated that no materially different result would be likely were JRWA/PW's claims considered. Petitioners have thus failed to demonstrate any ability to contribute to a sound record.

Thus, factors one (good cause), seven (broaden and delay proceeding), and eight (contribution to a sound record) – the three most significant factors – count heavily against Petitioners. The other factors in 10 C.F.R. § 2.309(c)(1) are less important (see, e.g., Pacific Gas & Electric Co. (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-08-1, 67 N.R.C. 1, 6 (2008); Comanche Peak, CLI-93-4, 37 N.R.C. at 165), and therefore cannot outweigh Petitioners' failure to demonstrate good cause or meet the criteria in factors seven and eight.

#### **V. The Roseate Tern Contention is Inadmissible**

Even if JRWA/PW had met the standards for reopening a closed record and the standards for a late contention (which they have not), their contention would still be inadmissible because it does not satisfy the pleading requirements in 10 C.F.R. § 2.309(f)(1). Petitioners are still required to demonstrate that their contention satisfies the admissibility standards in 10 C.F.R. § 2.309(f)(1)(i)-(vi). Sacramento Municipal Utility District (Rancho Seco Nuclear Generating Station), CLI-93-12, 37 N.R.C. 355, 362-63 (1993). Petitioners' Contention does not meet these standards.

JRWA/PW's claim that the NRC failed to prepare a BA on the roseate tern is not material to the findings the NRC must make, and fails to raise a genuine dispute on any material issue. 10 C.F.R. §§ 2.309(f)(1)(iv), (vi). As previously discussed, the NRC Staff was not required to prepare a BA because renewal of Pilgrim's operating license involves no "major construction activities."

Also immaterial, as well as beyond the scope of this proceeding, is JRWA/PW's claim that FWS "unlawfully ignored the requirement for a biological assessment and without a scientific basis declared the roseate tern to be 'probably transient.'" 10 C.F.R. §§ 2.309(f)(1)(iii), (iv). The Commission has long held that the scope of a licensing proceeding does not include litigating issues that are the primary responsibility of other agencies. The Commission has made clear that licensing boards "should narrowly construe their scope to avoid where possible the litigation of issues that are the primary responsibility of other agencies and whose regulation is not necessary to meet [the Commission's] statutory responsibilities."<sup>28</sup> Congress gave the Commission "no roving mandate to determine other agencies' permit authority." *Id.* Thus, any claim that FWS failed to adequately perform its functions is beyond the purview of the Licensing Board.

The Contention is also inadmissible because it is not supported by sufficient information to show that a genuine dispute exists on a material issue of law or fact, as required by 10 C.F.R. § 2.309(f)(1)(v), (vi). Under the NRC's Rules of Practice, "a protestant does not become entitled to an evidentiary hearing merely on request, or on a bald or conclusory allegation that such 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." Rules of Practice for Domestic

Licensing Proceedings – Procedural Changes in the Hearing Process, 54 Fed. Reg. 33,168, 33,171 (Aug. 11, 1989) (quoting Conn. Bankers Ass’n v. Bd. of Governors, 627 F.2d 245, 251 (D.C. Cir. 1980)). JRWA/PW make multiple assertions that fall far short of this strict standard.

First, JRWA/PW mischaracterize the information on which Entergy, the NRC Staff, and FWS relied when concluding that continued operation of Pilgrim would likely result in no adverse impact to the roseate tern. Despite the claim to the contrary, JRWA/PW Motion at 15-17, Entergy did not describe the roseate tern as being near Pilgrim “exclusively” during its migration. Entergy stated that, although no “suitable nesting habitat” for the roseate tern had been identified at the Pilgrim site, it was “known to occur in the general vicinity of the PNPS site . . . and cannot be ruled out as [an] occasional visitor[] to the PNPS site and environs.” Entergy Feb. 2005 Letter to FWS at 1, 2; ER at 2-9. Likewise, both FWS and the NRC acknowledged the existence of the roseate tern on “Plymouth Beach, just north of the PNPS.” FWS Mar. 2005 Letter to Entergy at 1; DSEIS at 2-96. JRWA/PW nowhere show any material difference between these statements and the information they raise in the Contention, i.e., the existence of the roseate tern on LPB. Petitioners’ mischaracterizations of information plainly evident in the Entergy, Staff, and FWS documents cannot create a genuine dispute.

In addition, Petitioners provide no expert support for their claims that continued operation of Pilgrim will result in adverse impacts to the roseate tern’s food sources by impingement, entrainment, and waste water discharges. Dr. Nisbet merely suggests that such impacts ought to be further investigated, e.g., Nisbet Aff. at ¶ 19, without providing any information indicating that the roseate tern’s food sources would be adversely impacted. Neither

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<sup>28</sup> Hydro Resources, Inc. (2929 Coors Road, Suite 101, Albuquerque, NM 87120), CLI-98-16, 48 N.R.C. 119, 121-22 (1998) (footnote omitted).

Petitioners nor their expert challenge the fact that the roseate tern population near Pilgrim has been increasing during its operation, and provide no evidence disputing the NRC Staff's determination that "there is no evidence that these species have been adversely affected by previous operation of the PNPS facility" FSEIS at 4-64. Petitioners' and Dr. Nisbet's "bare assertions are insufficient to demonstrate a genuine dispute on a material issue of law or fact under . . . section 2.309(f)(1)(vi)." Pilgrim, CLI-12-03 at 23-24.

## **VI. Conclusion**

For the reasons set forth above, JRWA/PW's Motion should be denied.

Respectfully Submitted,

/signed electronically by David R. Lewis/

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Counsel for Entergy

Dated: May 16, 2012

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**Before the Atomic Safety and Licensing Board**

**In the Matter of**

**Entergy Nuclear Generation  
Company  
Entergy Nuclear Operations, Inc.**

**(Pilgrim Nuclear Power Station)**

**Docket No. 50-293-LR**

**AFFIDAVIT OF MICHAEL D. SCHERER, Ph.D. AND SARAH A. BARNUM,  
PH.D. IN SUPPORT OF ENTERGY’S ANSWER OPPOSING JONES RIVER  
WATERSHED ASSOCIATION’S AND PILGRIM WATCH’S  
MOTION TO REOPEN, REQUEST FOR HEARING AND  
PERMISSION TO FILE NEW CONTENTION**

We, Michael D. Scherer, Ph.D. and Sarah A. Barnum, Ph.D., do hereby depose and say on the basis of personal knowledge and our professional opinion, and under penalties of perjury, that:

**BACKGROUND AND QUALIFICATIONS**

1. My name is Dr. Michael D. Scherer. I am a Vice President and Senior Marine Scientist with Normandeau Associates, Inc. (“Normandeau”), a professional consulting firm that specializes in ecological, environmental and natural resources management services. I hold a Ph.D. degree with a Fisheries Biology major and Biometrics minor from the University of Massachusetts, a Master of Science degree in Fisheries Biology from the University of Massachusetts, and a Bachelor of Science degree in Fisheries Biology from Cornell University. My most recent curriculum vitae, and additional detail regarding my qualifications, are described in and attached to my March 19, 2012 Declaration, also submitted in this proceeding and hereby incorporated by reference as if set forth fully herein. *See* Affidavit of Michael D. Scherer, Ph.D.

in Support of Entergy's Answer Opposing Jones River Watershed Association's and Pilgrim Watch's Motion to Reopen and Hearing Request.

2. My name is Dr. Sarah A. Barnum. I am a Senior Wildlife Ecologist with Normandeau. I hold a Ph.D. degree from the School of Architecture and Planning with a concentration in Conservation Planning from the University of Colorado, a Master of Science degree in Wildlife Ecology from Utah State University, and a Bachelor of Science degree in Wildlife Biology from the University of Vermont. My most recent curriculum vitae is attached hereto as **Exhibit 1**. I have over 15 years experience as a wildlife ecologist, with a focus on avian ecology, and I have significant experience in assessing the potential impacts of energy facilities and technologies on birds, including the roseate tern and other seabirds that may occur in portions of Cape Cod Bay and, more generally, the Gulf of Maine. In particular, I have worked as an avian biologist and project manager assessing potential impacts of proposed wind turbine projects in Massachusetts (e.g., the Madaket Wind Turbine Project and the Saugus Community Wind Project) on avian resources, including terns and other shorebirds. In addition, from 2005-2007, I was a Conservation Program Manager for New Hampshire Audubon, where I oversaw multiple on-going research and conservation programs, including the Tern Restoration Project.

### **PURPOSE AND METHODOLOGY**

3. This Declaration is made in response to the Jones River Watershed Association's and Pilgrim Watch's Motion to Reopen, Request for Hearing and Permission to File New Contention (collectively, "the Petition"), dated May 2, 2012. The Petition alleges certain deficiencies in the NRC's evaluation of the potential impacts of continued operation of Pilgrim Nuclear Power Station ("PNPS") on the roseate tern (*Sterna dougallii*) which is listed as

endangered under the federal Endangered Species Act (“ESA”). 16 U.S.C. § 1531 *et seq.* In this Declaration, we will offer our expert opinion that the continued operation of PNPS will have no discernible effects on the northeast population of roseate tern, its habitat or recovery goals.

4. The opinions expressed in this Declaration are in part based on our review of the sources identified in **Exhibit 2**. To the best of our knowledge, the factual statements in this Declaration are true and accurate, and the opinions expressed therein are based on our best professional judgment.

## **DISCUSSION**

### ***Description of PNPS and its Environment***

5. A description of PNPS and its location and environment is provided in paragraphs 7 through 16 of Dr. Scherer’s previous Declaration submitted in this proceeding. Additional information on the operation of PNPS is provided in the Declaration of Mr. Jacob J. Scheffer, which we have reviewed and understand is being submitted contemporaneously with this Declaration.

### ***Relevant Biology and Ecology of the Roseate Tern***

6. The roseate tern, a medium sized, fish eating, shore bird, is a migratory species that spends at least half the year in tropical latitudes with a scattered distribution primarily in the tropical and sub-tropical Atlantic, Indian, and Pacific Oceans. Gochfeld et al., 1998. During the summer, a subpopulation of roseate terns breeds in the northeast region of North America, from New York to Nova Scotia. *Id.*

7. Roseate terns arrive in Massachusetts from late-April to mid-May to nest at several coastal locations, typically on islands (as discussed below). Mostello 2007. These birds then abandon their breeding locations in late-July and August, although they temporarily may

congregate in “staging areas” around Cape Cod and the Islands of Nantucket and Martha’s Vineyard, before departing by mid- to late-September for wintering grounds in the West Indies and off the northern and eastern coasts of South America, where they will remain for upwards of six months out of the year. *See* US FWS. 1998 (Hereinafter, “Recovery Plan”). Roseate terns appear to disperse throughout the breeding range in July and August, re-aggregating at staging areas primarily on outer Cape Cod in late August and early September prior to southward migration. US FWS 2010 (Hereinafter, “5-Year Review”); Trull et al., 1999; Blake 2010. Staging areas are transitory relative to breeding colonies, and individuals may remain in one place foraging for as little as a few hours or overnight (i.e., roosting) before moving on to the next spot. *See e.g.*, Trull et al. 1999. In short, because staging roseate terns are not “anchored” to a single area by the presence of a nest, they are free to move to alternative staging areas if the fishing or other ambient conditions are not advantageous in a particular area.

8. Roseate terns typically nest in colonies on sandy, gravelly, or rocky islands (which are less likely than the mainland to have mammalian and certain avian predators) and, less commonly, in small numbers at the ends of long barrier beaches. Recovery Plan; Mostello 2007. In Massachusetts, the roseate tern invariably nests in association with common terns, forming clusters or sub-colonies within larger common tern colonies. Mostello 2007. Compared to the common tern, the roseate tern selects nest sites with denser vegetation, such as seaside goldenrod and beach pea, which provide cover for eggs and chicks. *Id.* In Massachusetts, significant nesting colonies of roseate terns are found at Bird Island and Ram Island, in Buzzards Bay, with 735 and 584 breeding pairs in 2010, respectively, which accounts for 95% of the Massachusetts breeding population. MADEP 2011. Birds in these two colonies are not expected to be influenced by PNPS, as they belong to a subgroup of the northeast population that is

separate from birds near PNPS. Specifically, a long-term banding study of roseate terns indicates that the northeast population is split into two separate subgroups: a “cold water” subgroup nesting north and east of Cape Cod, which would include any birds nesting near Plymouth, Massachusetts; and a “warm water” subgroup nesting south and west of Cape Cod, which includes the major colonies in Buzzards Bay. 5-Year review. The interchange of individual birds between these two groups is thought to be limited. *Id.*

9. Long Beach, in Plymouth, Massachusetts has historically been a minor nesting site. Recovery Plan Appendix B; 5-Year Review). From 1999 through 2009, only a single nesting pair was recorded, in 2008. 5-Year Review. Dr. Nisbet states in his Affidavit that three pairs of roseate tern nested at Long Beach in 2011, though the source of this information is not stated and does not appear to have been published. Nisbet Aff. ¶ 8.

10. Roseate terns are highly mobile foragers, flying much faster than common terns (Recovery Plan), which allows them to forage over large areas. In Massachusetts, roseate terns may forage 25-30 km (about 15 to 18 miles) away from the breeding colony. Mostello 2007; Recovery Plan. Published data on the roseate tern’s foraging range from staging areas are not available, due to the difficulty in monitoring the movements of individuals that are not anchored to a single location for a significant period of time, as is the case for nesting birds. However, there is nothing that would indicate that roseate tern’s foraging range from staging areas is smaller than from breeding colonies. In fact, because they are not anchored to a nest, they may be able to forage over a larger range.

11. Roseate terns also exhibit a flexible foraging strategy, adapting to foraging conditions within their range by concentrating their feeding efforts in areas where prey are more abundant. *See* Heinemann 1992. For example, Heinemann (1992) observed over the course of a

summer the foraging behaviors of individuals nesting in the breeding colony located at Bird Island, Massachusetts. He reported significant variation in foraging intensity over the course of the summer at different locations around Buzzards Bay, separated by distances of more than 20 km (12.5 miles). *See id.* The flexible foraging strategy exhibited by this colony demonstrates the ability of roseate terns to adapt to local conditions and to concentrate their feeding efforts in areas within their relatively large foraging range where prey are more plentiful.

12. The roseate tern is a fairly specialized forager, usually feeding over shallow sandbars, shoals, inlets, tide rips, which bring prey fish close to the surface, making them easier to catch. Recovery Plan; 5-yr Review. They feed almost exclusively on small, schooling marine fish, though occasionally they include crustaceans in their diet. *See Gochfeld et al., 1998.* Although the composition of their diet varies from year to year and with location, the bulk of the roseate tern diet in Massachusetts is comprised of sand lance (*Ammodytes spp.*), hake (*Urophycis spp.*), and Atlantic herring (*Clupea harengus*). 5-Year Review. The roseate tern captures prey fish mainly by plunge-diving from heights of up to 20 m and often submerging 50 cm or more, but also by surface-dipping and contact-dipping. Mostello 2007; Recovery Plan.

13. The northeastern population of the roseate tern was listed as endangered under the federal ESA in 1987, principally due to contraction of the population into a small number of breeding sites and secondarily because of its declining numbers. Recovery Plan; *see also* DOI 1987. From the 1920s through the 1970s, roseate terns were displaced from at least 30 nesting colonies, due primarily to occupation of those sites by herring gulls and great black-backed gulls, and secondarily to animal predation (which may have intensified as terns were displaced by gulls to sites closer to the mainland), and erosion of the shoreline. Recovery Plan. By 1979, the northeast population (i.e., from New York to Nova Scotia) was estimated to be approximately

2,500 pairs. Mostello 2007. Following two decades of fairly steady increase, the northeast population peaked at 4,310 pairs in 2000 (*id.*) and is currently estimated at approximately 3,000 nesting pairs. 5-Year Review. The cause of this more recent population decline has not been identified, but data suggest that this decline is likely related to mortality at the wintering grounds in South America. Mostello 2007.

14. The primary range-wide threats to the northeastern roseate tern population include habitat displacement by gulls, predation of eggs and chicks by a number of birds and mammals, including owls, black crowned night herons, great black-backed gulls, peregrine falcons, mink, raccoon, rats and other rodents and fox, as well as physical human disturbance of, and activities in, staging areas (i.e., habitat loss). 5-Year Review. There is no indication that a lack of prey fish availability in Massachusetts during the summer months (even assuming any such lack of availability exists) has caused or contributed to the decrease in nesting sites or the decline in the northeastern roseate tern population.

***Absence of Potential Impacts of PNPS on the Roseate Tern***

***No Credible Evidence of Direct Impacts***

15. Based on available information, PNPS is not expected to have any direct impact on the roseate tern. There clearly is no risk to the roseate tern of impingement or entrainment in PNPS's cooling water intake system ("CWIS"). Furthermore, although JRWA does allege and infer that discharges of chlorine, corrosion inhibitors, and "heavy metals" from PNPS to Cape Cod Bay could directly affect the roseate tern, as explained in the Declaration of Mr. Scheffer: (i) heavy metals (such as chromium, zinc, and copper) are believed to be absent from the Station's regularly discharged effluent (Scheffer Aff. at ¶ 18); (ii) periodic discharges of corrosion inhibitors are subject to and well below EPA-authorized effluent limitations (Scheffer Aff. at ¶

19); and (iii) chlorination of PNPS's CWS and SWS is conducted subject to and with the benefit of a NPDES permit (Scheffer Aff. at ¶ 9), the federal chlorine effluent limitations for which are considered protective of marine organisms in Cape Cod Bay. While PNPS has, on rare occasion, experienced exceedances of its chlorine discharge limits at certain outfall locations, it is well-established that chlorine decays rapidly in sea water following a predictable relationship (*see e.g., Wang et al., 2008; Høstgaard-Jensen, et al., 1977*) such that, irrespective of dilution, it is highly unlikely that chlorine discharges from even occasional exceedances would affect the environment. In short, the chlorine discharges from PNPS are small, infrequent, and decay quickly and there is no expectation they will have any impact on the biota in Cape Cod Bay. Consequently, there is no credible scientific evidence that discharges from PNPS have any adverse effect on roseate terns. Indeed, because PNPS is not expected to directly (or, as discussed below, indirectly) impact the roseate tern, the PNPS property in fact may provide especially suitable nesting or staging habitat, as human entry is restricted and the birds would likely be protected from human disturbance.

#### ***No Credible Evidence of Indirect Impacts***

16. Based on available information, PNPS is not expected to have any indirect impact on the roseate tern. Although JRWA also alleges that PNPS's operation has potential indirect impacts on the roseate tern through: 1) impacts on the availability of fish prey due to impingement and entrainment ("I&E") mortality; and 2) impacts of "pollution" on their fish prey, there is no technical evidence to suggest that either alleged impact is scientifically credible (or even plausible).

### ***No Impacts on Roseate Tern Prey Species***

17. In its Petition, JRWA refers to statements in the PNPS Final Supplemental Environmental Impact Statement (“FSEIS”) regarding historical I&E of the roseate tern’s main fish prey species by PNPS’s CWIS (*see* Petition at 20-21) and, based on these statements, suggests that PNPS may adversely impact the roseate tern’s food supply. Petition at 34. While PNPS does result in some I&E of the roseate tern’s main fish prey species, as explained below, the evidence indicates that PNPS I&E will have no discernable impact on the availability of these fish species as prey for the roseate tern.

### ***Sand Lance***

18. As discussed above, roseate terns eat almost exclusively small marine fish that they capture by plunge diving, feeding primarily on sand lance, which at times represents 95% of the bird’s diet. *See* Uttley et al., 1989, Safina 1990, Heinemann 1992, Shealer and Kress 1994, Goyert 2010. Sand lance typically occur in dense schools, with individual fish reportedly numbering from 500 to tens of thousands. Meyer et al., 1979. Because they do not support a commercial or recreational fishery, estimates of sand lance populations in the Gulf of Maine, such as the spawning stock assessments conducted by the National Marine Fisheries Service (“NMFS”) for many other species, are not available. However, a thorough review of the available literature reveals no indication that the abundance of sand lance in the Gulf of Maine is low or declining, and they remain a significant proportion of the diet of a number of marine predators, including piscivorous fish, various shorebirds, and several species of seals and whales. Robards, et al., 1999. Moreover, PNPS monitoring indicates that the number of sand lance has been relatively stable over the past decade. Entergy 2012.

19. Sand lance are known to be impinged at PNPS, though in low numbers, and primarily during November and December, well after roseate terns have migrated to their southern winter habitat. Setting aside a single year reflecting an aberrational event, the annual average number of sand lance impinged is only 147 individuals. Even including the aberrational year (2003, in which a three-day impingement of 13,758 sand lance resulted an anomalous annual estimate of 30,765 fish that year), the annual average over the last decade is only 3,209 sand lance per year impinged at PNPS. Although the age of impinged sand lance is not known, the size range of those impinged corresponds to age 1 and age 2 fish. If impinged sand lance are assumed to be age 1 fish, which weigh on average 0.00384 pounds (EPA 2004), the annual average of 147 fish would weigh a total of 0.56 pounds. Indeed, even if one includes the anomalous year (2003) in these calculations, the annual average weight of 3,209 fish is only 12.3 pounds.

20. Sand lance eggs are demersal and adhere to the ocean bottom, and are therefore rarely subject to entrainment at PNPS, as evidenced by eggs being found in entrainment samples in only one year – 1979 – over the last three decades. Entergy 2012. Sand lance larvae do appear in PNPS entrainment samples during their winter spawning season. Over the last decade, the number of sand lance larvae entrained, expressed in terms of age 1 fish, averaged approximately 426,000 individuals each year, which, applying the same per fish weight of 0.00384 pounds, converts to an estimated total weight of 1,636 pounds of fish annually. Thus, absent a declining population, entrainment of sand lance at PNPS cannot reasonably be considered to have a potential impact, even indirectly, on roseate tern.

21. Moreover, the I&E losses reported above (and below) are conservative because they assume 100% mortality. In a review of entrainment mortality studies conducted at 21

power plants, the Electric Power Research Institute (“EPRI”) concluded “it is clear that for most species survival can be quite high. The available data do not support the assumption that all entrained organisms are killed.” EPRI (2000). Considering an array of species, EPRI found that entrainment survival rates ranged from approximately 25% for sensitive species to greater than 50% for hardier ones. *Id.* Likewise, impingement studies conducted at PNPS indicate that latent survival rates (56 hours after being impinged) ranged from 0 to 25% depending on species (MRI 1983). Accordingly, the I&E losses reported in this Declaration likely overstate actual losses.

22. As a reference point, humpback whales, which are known to feed on sand lance in New England waters (Weinrich et al., 1992; Overholtz and Nicolas 1979; Payne et al., 1990; Weinrich et al., 1997; Friedlaender et al., 2009), are estimated to consume food at the rate of approximately 471 kg/day (1,036 lbs/day). Roman and McCarthy 2010. In addition, humpback whales in Cape Cod Bay are known to employ specialized feeding behaviors, known as “bubble net” feeding or the similar “lobtail” feeding, that allow the whales to increase their foraging efficiency by concentrating schooling fish near the surface. Weinrich et al., 1992; Hain et al., 1982; Hazen et al., 2009. When employing these behaviors, humpbacks may target schools of sand lance. *Id.* Indeed, in some areas of the Gulf of Maine, humpback whales are known to specialize in feeding on sand lance, and their spatial distribution is highly correlated with sand lance density. Payne et al., 1986. Based on their daily consumption, when humpback whales are concentrating on sand lance, two whales would eat more sand lance in one day than would be impinged and entrained at PNPS in an average year. It is, therefore, simply not scientifically credible to suggest that the annual magnitude of I&E mortality at PNPS could potentially affect the availability of sand lance as prey for the roseate tern.

23. Another reference point for appreciating the miniscule scale of I&E losses at PNPS, as well as the general abundance of sand lance in the North Atlantic is provided by Hammill and Stenson (2000), who estimated the number of fish of various species that are consumed by the seal population in Atlantic waters of Canada. Over a seven-year period (1990-1996), an average of 5.4 million seals consumed 831 million pounds of sand lance annually, which would be equivalent to 216.5 billion age 1 sand lance. Thus, the consumption of sand lance by seals in the North Atlantic dwarfs I&E losses at PNPS. Further, where seals presumably consume only a fraction of the sand lance present in their foraging area, these data illustrate the overall abundance of sand lance.

#### ***Atlantic Herring and Hake***

24. In addition to sand lance, Atlantic herring (*Clupea harengus*) as well as three species of hake in the genus *Urophycis* may make up a portion of the roseate tern's diet. Heinemann 1992.

#### ***Atlantic Herring***

25. Young-of-the-year Atlantic herring are impinged in minimal numbers at PNPS, with an annual average (again, expressed in terms of age 1 fish) of 140 individuals per year over the last decade. Atlantic herring eggs are not entrained at PNPS because they are spawned on offshore banks and, like the sand lance, are demersal and adhesive. Larval Atlantic herring are subject to entrainment at PNPS, with annual losses (expressed in terms of age 1 fish) of 9,294 individuals per year over the last decade. Entergy 2012. Conservatively assuming 100% I&E mortality, annual mortality of Atlantic herring at PNPS averages 9,434 fish. Where an age 1 Atlantic herring weighs on average 0.0314 pounds, this represents an annual loss of 296 pounds of fish. EPA 2004.

26. By comparison, the Atlantic herring spawning stock biomass of the Gulf of Maine-Georges Bank herring complex was estimated to be 400,000 metric tons, or 900 million pounds, of adult fish in 2008. TRAC 2009. Spawning stock biomass consists of fish age 3 and older. Based on these estimates and accounting for the additional mortality experienced between age 1 and age 3 (to adult), the number of Atlantic herring entrained and impinged at PNPS is a minute fraction of the northeast population available for predation by roseate terns, and cannot reasonably be expected to impact the availability of these fish or the feeding success of the roseate tern.

### ***Hake***

27. Three species of hake – red hake (*Urophycis chuss*), white hake (*U. tenuis*), and spotted hake (*U. regia*) – are impinged and entrained at PNPS. Early life stage hake are impinged at PNPS in minimal numbers, with an annual average over the last decade for all three species combined of 150 fish (Entergy 2012), which is the equivalent of 35 pounds, per year. Eggs and larvae of the three species cannot readily be distinguished from one another, and so their entrainment numbers are combined. The average annual entrainment rate for hake over the last decade, expressed as age 1 fish, is 60,759 per year, which represents an annual total of 14,035 pounds. Thus, the annual combined estimate of hake entrainment and impingement losses at PNPS, again conservatively assuming 100% I&E mortality, is approximately 14,070 pounds.

28. Stock assessments are completed periodically by NMFS for both red and white hake. The latest stock assessment in 2010 for red hake alone provided a stock estimate of 4,706 metric tons or 10,374,000 pounds (spring and fall estimates averaged) for the northern stock defined as the Gulf of Maine to Northern Georges Bank region. NEFSC 2011. The most recent

spawning stock biomass assessment for white hake was completed in 2007, at which time the Gulf of Maine to Northern Georges Bank population was estimated to be 19,800 metric tons or 43,651,100 pounds. NEFSC 2008. Based on these data, which do not include the spotted hake, losses due to I&E at PNPS are a minute fraction of the hake population in the Cape Cod area, and the continued operation of PNPS cannot reasonably be expected to affect the availability of hake prey to roseate terns.

### *Miscellaneous Responses*

29. The Petition also asserts that “turbulent water around [PNPS’s] two breakwaters,” and “turbulence created by regular and periodic cooling water discharges” are “expected to be prime locations for foraging roseate terns” and goes so far as to state that “PNPS is thus an attractive nuisance” for the roseate tern. Petition at 20. These assertions are erroneous. First, the currents flowing past PNPS’s two intake embayment breakwaters are relatively slow, even during thermal backwashing, and do not result in any additional turbulence that is not already associated with the shoreline generally (i.e., during storms). Second, as discussed above, while roseate terns often forage over turbulent waters, such turbulence is associated with shoreline hydrodynamic features, such as tide rips, that act to bring fish in these areas to the surface, making them more easily preyed upon by diving birds. Although roseate tern prey such as sand lance do occur in the vicinity of PNPS, as evidenced by their appearing in I&E samples, the sea floor in the vicinity of Rocky Point, where PNPS is located, is rocky, and therefore is not suitable habitat for sand lance, which prefer substrates into which they can burrow such as clean sand, sand and shell, and fine gravel. Meyer 1979. Thus, the asserted turbulence associated with PNPS’s cooling water discharge is not expected to bring an abundance of sand lance to the

surface where they can be captured, and should therefore not provide desirable foraging conditions for the roseate tern.

30. Moreover, to the extent any roseate terns might be attracted to the turbulence created by PNPS's cooling water discharge, if prey fish are absent from the water, any such attractiveness would likely be short lived, as the roseate tern's flexible foraging strategy, as described above, would allow it to either move or concentrate its feeding efforts where prey are abundant. *See* Heinemann 1992. Consequently, even if PNPS did adversely affect local prey fish abundance (which there is no evidence that it does) there is no credible evidence that, were significant numbers of roseate terns to nest or stage in areas near PNPS in the future, their ability to forage adequately would be impaired by continued operation of PNPS.

31. JRWA also alleges that discharges of pollution from PNPS potentially affect the roseate tern through their fish prey. For the reasons discussed above in ¶ 15, and as explained in Mr. Scheffer's Declaration, there is no credible scientific evidence such discharges have any adverse effect on roseate tern fish prey.

32. Finally, JRWA alleges that "thermal releases" from PNPS, including "backwash operations," may adversely affect the roseate tern's prey fish. *See* Petition at 21. First, there is no evidence that the thermal plume created by PNPS's CWIS, as authorized by its NPDES permit, adversely affects roseate tern prey fish in Cape Cod Bay. Moreover, as explained in Mr. Scheffer's Declaration, backwash operations are performed infrequently – 3 to 5 times per year – and, due to the low volume of water discharged, the temporal and spatial extent of the thermal plume associated with backwashing is very limited – occurring for only a few hours in 3 to 5 feet of water at the surface of the intake embayment. Scheffer Aff. ¶ 16. Consequently, there is no

credible scientific evidence that thermal discharges from PNPS have any adverse effect on roseate tern prey fish.

I declare under penalty of perjury that the foregoing is true and correct.

Executed in Accord with 10 C.F.R. § 2.304(d)

Michael D. Scherer

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I declare under penalty of perjury that the foregoing is true and correct.

Executed in Accord with 10 C.F.R. § 2.304(d)

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# **EXHIBIT ONE**

## **SARAH A. BARNUM, Ph.D.**

### Senior Wildlife Ecologist

Dr. Barnum is a Senior Wildlife Ecologist at Normandeau with over 15 years of professional experience. Her background includes providing expertise to the transportation and energy sectors, as well as a variety of general development projects. She has hands-on experience with a wide range of species including forest birds, waterfowl, raptors, small mammals, large mammals, amphibians, and reptiles. Dr. Barnum's projects have emphasized examining habitat relationships, impact assessment for threatened and endangered species, mitigation planning, and Federal ESA compliance. Dr. Barnum also has extensive experience in project planning, project management, experimental design, and data analysis.

### **SELECTED PROJECT EXPERIENCE**

Confidential (2011- present) – Wind Development, Northern MA. Avian and acoustic bat surveys to support environmental permitting for a proposed six turbine project. Avian surveys include raptor surveys and breeding bird surveys. Project Manager and Avian Biologist.

Confidential (2011- present) – Wind Development, Down East ME. Avian and acoustic bat surveys to support environmental permitting for a proposed 20 plus turbine project. Avian surveys include raptor surveys and eagle surveys. Wildlife Task Manager and Avian Biologist.

Confidential (2011) – Wind Development, Northern ME. Avian and acoustic bat surveys to support environmental permitting for a proposed six turbine project. Avian surveys include raptor surveys, eagle surveys, and breeding bird surveys. Wildlife Task Manager and Avian Biologist.

First Wind (2010-2011) - Post-Construction Mortality Monitoring, Stetson Wind Power Facility, Washington County, Maine. Managed personnel to search all turbines on-site for bird and bat fatalities from April-October, 2010, and conduct searcher efficiency trials and scavenger trials to estimate true number of fatalities; report writing. Project Manager.

Northern Pass (2010- Present) - HVDC Power Line Upgrade. Conduct wildlife assessments in support of state and federal permitting for installation of a new, 200-mile long HVDC line in New Hampshire. Tasks include consultation with state and federal agencies (ESA, NEPA), desktop analysis, and design and coordination of field surveys. Species of interest include forest carnivores, bats, raptors, song birds, turtles, snakes, and lepidopterans. Task Manager.

Town of Nantucket (2010-2011) – Madaket Wind. Assessment of avian and T&E resources in the project area to determine potential impacts and permitting requirements. Species of interest included long-tailed duck, northern harrier, and night migrants. Work includes both desktop and field assessment. Project Manager

MA Clean Energy Center (2009-2010) – Avian Impact Assessment for Madaket Wind. Desktop analysis of biological and permitting issues associated with a proposed wind development in Nantucket, MA. Project Manager and Avian Biologist.

### **EDUCATION**

- Ph.D. 2003, Conservation Planning, University of Colorado
- M.S. 1993, Wildlife Biology, Utah State University
- B.S. 1988, (cum laude) Wildlife Biology, University of Vermont

### **PROFESSIONAL EXPERIENCE**

- 2007-Present Normandeau Associates
- 2005-2007 New Hampshire Audubon, Concord, NH
- 2004-2005 Baystate Environmental Consultants, East Longmeadow, MA
- 2001-2003 Environmental Planning and Policy Unit, Colorado DOT, Denver, CO
- 1998-2000 Office of Environmental Services, Colorado DOT, Denver, CO
- 1996-1998 Dames & Moore, Denver, CO
- 1993-1994 Bio-Resources, Inc., Logan, UT

First Wind (2009-2010) – Brimfield Wind. Avian and acoustic bat surveys to support environmental permitting for a proposed 20 MW project in southwestern MA. Avian surveys include raptor surveys and breeding bird surveys. Project Manager and Avian Biologist.

Federal Highway Administration (2009-2011) – Analysis of Methods to Identify Deer-Vehicle Collision Hotspots. Qualitative and quantitative methods to identify DVC hotspots will be compared based on data needs, ease of implementation, expertise required, and relevancy to solving safety and ecological issues. Project responsibilities include review of methods through literature review and interviews with DOT staff, creating and implementing comparison protocols, staff management and report writing. Project Manager.

Confidential (2007-Present) - Maine Wind Energy Developer. Wildlife surveys to support environmental permitting for a proposed 50 MW project in western Maine. Permit currently in preparation include a Site Location of Development Act permit, a Natural Resources Protection Act permit, and likely a Corps Section 404 individual permit. Task Manager.

Federal Highway Administration (2008-2010) – Mitigation Wetland Functional Assessment. Wetlands constructed to mitigate for highway project-related impacts were surveyed and compared, and levels of invasive cover and wildlife functions were compared to natural wetlands. Project responsibilities included identifying and selecting study sites, conducting surveys, semi-quantitative analysis, report writing, and managing staff. Project Manager.

Florida Power and Light (2008-2010) - Seabrook Nuclear Facility Relicensing. Review and summarize all terrestrial ecology issues associated with facility construction and operations with a focus on threatened and endangered species, and impact assessment; results presented in an Environmental Report to support relicensing. Task Manager.

The Mount Washington Resort (2007-2008) – Dartmouth Brook Habitat Assessment. Provided expert opinion regarding the suitability of the resort's property for Canada lynx and American marten. Tasks included field assessment of the property, review of current literature, producing a written report detailing analysis approach and findings, and ongoing consultation with regulating agencies. Senior Wildlife Ecologist.

U.S. Navy (2008) - Casco Bay Fuel Line Removal. Wildlife studies to support Corps 404 and Maine NRPA permitting in Brunswick and Harpswell, ME. Conducted habitat survey of project area, wildlife habitat mapping, field review and impact assessment, with a focus of identifying suitable habitat for and presence of species listed by the State of Maine and /or USFWS. Compiled results in a report to support all local and federal permitting efforts. Senior Wildlife Ecologist.

Mount Snow Resort (2008) – Review all threatened and endangered species issues associated with a snow making upgrade; analyze impacts and summarize results in a Forest Service Biological Assessment and a NEPA Environmental Assessment. Senior Wildlife Ecologist.

Waste Management (2008) – Crossroads Landfill Deer Wintering Habitat Assessment. Survey of deer wintering areas associated with the Crossroads landfill to determine value of habitat. Compile results in letter report suitable for reference in future expansion planning and permitting. Senior Wildlife Ecologist.

Noble (2007) – Granite Reliable Wind Breeding Bird Surveys. Oversaw design and implementation of breeding bird surveys at project area. Managed staff and conducted quality assurance tasks for field activities and report writing. Managing Principal.

New Hampshire Audubon (2005-2007) – NH Route 2 Wildlife Crossing Investigation. Designed, implement and managed a tracking study to identify the locations where wildlife crossed the highway, and to determine the characteristics of preferred crossing locations. Tasks included extensive quantitative and qualitative analysis of GIS based data sets. Principle Investigator and Project Manager.

# **EXHIBIT TWO**

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**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**Before the Atomic Safety and Licensing Board**

**In the Matter of**

**Entergy Nuclear Generation Company  
Entergy Nuclear Operations, Inc.**

**(Pilgrim Nuclear Power Station)**

**Docket No. 50-293-LR**

**ASLBP No. 06-848-02-LR**

**AFFIDAVIT OF JACOB J. SCHEFFER  
IN SUPPORT OF ENTERGY'S ANSWER OPPOSING JONES RIVER WATERSHED  
ASSOCIATION'S AND PILGRIM WATCH'S MOTION TO REOPEN  
HEARING REQUEST ON CONTENTION RELATED TO THE ROSEATE TERN**

I, Jacob J. Scheffer, do hereby depose and state, on the basis of personal knowledge, and under penalties of perjury, that:

1. I am Chemistry Supervisor for Entergy Nuclear Operations, Inc., the operating entity for the Pilgrim Nuclear Power Station ("PNPS" or "the Station"), which is located in Plymouth, Massachusetts and is owned by Entergy Nuclear Generation Company (collectively, "Entergy"). I have held this position since June 2008. Prior to that time, I served as Superintendent of Environmental Protection for PNPS (October 1999-June 2007), a position in which I held substantially the same responsibilities as my current role. From 1970 until October 1999, when Entergy acquired PNPS, I was employed by Boston Edison Company ("BECO"), where, for close to three decades, I served in a variety of environmental and engineering roles at various BECO facilities, including at PNPS.

2. As Chemistry Supervisor, I oversee PNPS's compliance with local, state and federal environmental regulations, including, without limitation, all environmental monitoring performed in accordance with the Federal Clean Water Act, 33 U.S.C. § 1251 *et seq.*, the

Massachusetts Clean Water Act, M.G.L. ch. 21, 26-53, and the Station's National Pollution Discharge Elimination System permit (the "NPDES Permit" or the "Permit"), as well as all reporting provided to the United States Environmental Protection Agency ("USEPA"), the Massachusetts Department of Environmental Protection ("MADEP"), and any other local, state and federal regulators in connection with same. As such, I have personal knowledge regarding the Station's operations, its NPDES Permit, the effluent limitations, monitoring requirements, and other conditions authorized or required under that Permit, and any relevant discharge monitoring reports that may be submitted in connection with same.

3. I have reviewed the Motion to Reopen, Request for Hearing and Permission to File New Contention in Above-Captioned License Renewal Proceeding on Violations of the Endangered Species Act with Regard to the Roseate Tern (the "Motion"), which was filed by Jones River Watershed Association and Pilgrim Watch (collectively, "JRWA") on May 2, 2012, and which alleges certain deficiencies in the Nuclear Regulatory Commission's ("NRC") evaluation of the potential impact (assuming any) of continued PNPS operations on the roseate tern, an ESA-listed species, during the relicensing period. In support of this Motion, JRWA makes certain incomplete and/or erroneous statements concerning the Station's operations, its NPDES-regulated discharges, and the NPDES Permit itself. I am providing this Affidavit to correct and clarify those statements, including those concerning the incidence and perceived magnitude of any chlorine discharges by PNPS into Cape Cod Bay (alternatively, the "Bay").

**Description of PNPS and Its Cooling Water Intake System**

4. PNPS is a nuclear power generating facility consisting of a single boiling water reactor and associated steam-electric and auxiliary systems. PNPS continuously generates power at a rated capacity of approximately 680 net MWe (711 gross MWe), which is enough electricity for approximately 550,000 homes in Massachusetts.

5. PNPS was designed for and actually utilizes once-through cooling. This means that sea water is drawn from an intake embayment created by two large breakwaters, the walls of which effectively separate the embayment from the open waters of Cape Cod Bay at all points except an approximate 800 foot opening to the inlet. Once water is drawn into the Station through an intake structure, a series of pumps direct the water to either the Station's Circulating Water System ("CWS") or its (Salt) Service Water System ("SWS").<sup>1</sup> As its name suggests, the purpose of the CWS is to remove heat from the Station's condenser; the primary purpose of the SWS, on the other hand, is to provide cooling water for the Station's heat exchangers, which act as the Station's safety-related ultimate heat sink (though the SWS is also one of the two water sources for PNPS's marine screen wash system). Once it has passed through the SWS or CWS, effluent from both systems flows to a 900-foot long discharge canal located northwest of the intake structure. Like the intake embayment, the discharge canal is created by two man-made breakwaters (one of which is shared with the intake embayment). Upon entry into the discharge canal, effluent from the CWS and SWS systems merge and become fully mixed prior to discharge into the Bay, though the CWS is the larger of the two systems, and therefore typically discharges approximately thirty (30) to sixty (60) times the water volume discharged by the much smaller SWS, depending on the number of circulating and service water pumps in service at any given time.<sup>2</sup> The temperature of the effluent upon discharge to Cape Cod Bay is typically between 85-95 degrees Fahrenheit in the summer, but in any event below the 102 degrees Fahrenheit limit authorized by the Station's NPDES Permit. NPDES Permit at Part A.2.a (NRC ADAMS Accession No. ML061420166).

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<sup>1</sup> The intake structure houses two circulating water pumps and five service water pumps, though the number of service water pumps in operation at any given time is dictated by operational needs and ambient environmental conditions.

<sup>2</sup> Indeed, even under those infrequent circumstances when CWS flow is at its lowest (*e.g.*, during an outage, when only one circulating water pump and five service water pumps might be in service), the discharge volume from the CWS still outpaces SWS discharge volume by a full 12.5 to 1.

**The NPDES Permit and Relevant NPDES-Regulated Discharges**

6. Since at least 1975, PNPS continuously has conducted its operations subject to an NPDES Permit jointly issued (and repeatedly renewed) by USEPA and MADEP. The current NPDES Permit (Permit No. MA0003557), like its predecessors, sets out a variety of operational, monitoring, and reporting requirements that, consistent with the federal Clean Water Act (33 U.S.C. § 1251 *et seq.*) and applicable Massachusetts law, regulate the Station's discharge of effluent into Cape Cod Bay, satisfy Massachusetts water quality standards, and safeguard the aquatic ecosystem and biota of the Bay. *See* NPDES Permit at 1. In furtherance of those goals, PNPS's NPDES Permit sets forth, among other things, maximum daily and average monthly concentration limits for any residual chlorine which may be discharged from the CWS (referenced in the NPDES Permit as Outfall # 001) and/or the SWS (referenced in same as Outfall # 010). NPDES Permit at Parts A.2.a and A.5.a. The Permit further regulates the Station's thermal backwashes (as discussed more fully below). *Id.* at Part A.3.

7. JRWA alleges in its Motion that the Station's "Clean Water Act NPDES permit expired 16 years ago." Motion at 21. This statement – which implies, either purposefully or inadvertently, that PNPS has been operating in violation of the Clean Water Act – is incomplete and misleading. To the contrary, and as confirmed by USEPA via written correspondence on multiple occasions, the Station's NPDES Permit has been administratively continued during the pendency of permit renewal proceedings, which USEPA acknowledges have been delayed through no fault of the Station's despite having filed a timely renewal application. *See* Correspondence from Jane Downing, USEPA to E.T. Boulette, Boston Edison (Mar. 1, 1996) (attached hereto as Exhibit 1); Correspondence from Olga Vergara, USEPA to Jacob Scheffer, Entergy (Dec. 2 1999) (attached hereto as Exhibit 2); Correspondence from David M. Webster, USEPA to Jacob Scheffer, Entergy (Oct. 25, 2004) (attached hereto as Exhibit 3); *see also* 5

U.S.C. § 558(c) (“When the licensee has made timely and sufficient application for a renewal or a new license in accordance with agency rules, a license with reference to an activity of a continuing nature does not expire until the application has been finally determined by the agency.”). As such, the conditions and limitations of the most recent NPDES Permit remain valid and in full force and effect.

**a. NPDES-Regulated Chlorination of the CWS and SWS**

8. In order to control biofouling, PNPS utilizes chlorine (sodium hypochlorite) as a biocide for its CWS and SWS. No other biocide is used in the operating systems at PNPS. Sodium hypochlorite is intended to and actually rapidly dissipates during its use, with dissipation accelerated through heat and sunlight. Nonetheless, the use, and subsequent discharge, of any *residual* chlorine concentration in PNPS’s effluent is conducted subject to and with the benefit of its NPDES Permit.

9. Specifically, pursuant to the Station’s NPDES Permit, chlorination of the CWS is limited to a maximum of two hours per day (although the chlorination schedule is variable and dependent on environmental and operational conditions, ranging from once a day to once a week). Chlorination is further limited to a Total Residual Oxidant (“TRO”) concentration of 0.10 mg/L in the Station discharge prior to release into Cape Cod Bay, and is stricter than the federal effluent limitation guideline of 0.20 mg/L set by USEPA. *See* 40 C.F.R. § 423.13(b)(1). While continuous chlorination of the SWS is permitted in accordance with the NPDES Permit, the Station is limited to a monthly average TRO of 0.50 mg/L, as well as a maximum daily concentration of 1.0 mg/L.

10. In compliance with its NPDES monitoring and reporting requirements, PNPS carefully monitors TRO concentrations in the CWS and SWS. For example, during CWS chlorination, personnel at the Station take baseline measurements both before and after

chlorination in order to ensure the TRO concentration is undetectable (*i.e.*, <0.02 mg/L) except during the period of chlorine injection. They also take grab samples at the discharge canal every ten (10) to fifteen (15) minutes during chlorination, to monitor compliance with NPDES Permit limits. As such, the Station takes no less than eight (8) analytical chlorine readings during a typical CWS chlorination period (assuming a maximum two-hour run).

11. Similarly, Station personnel monitor chlorine levels in the SWS closely. In fact, the water used in that system is tested no less than twice daily when chlorination is in service, with sampling performed downstream of the heat exchangers (*i.e.*, before the service cooling water has left the auxiliary building or mixed with cooling water from the CWS in the discharge canal) in compliance with the NPDES Permit. *See* Correspondence from Jane Downing, USEPA to E.T. Boulette, Boston Edison re: Pilgrim Nuclear Power Station, NPDES Permit No. MA0003557, Sampling of Service Salt Water System (Aug. 26, 1998) (attached hereto as Exhibit 4) (authorizing twice daily sampling during chlorination at the SWS).

12. Pursuant to its NPDES Permit, Entergy documents the results of all chlorine discharge monitoring performed at PNPS in its Discharge Monitoring Reports (“DMRs”), which are submitted to USEPA and MADEP on a monthly basis.<sup>3</sup> These DMRs are organized by discharge/outfall point, and also contain a written summary of the Station’s discharge data. As such, these reports provide a reliable snapshot of the sampling performed at PNPS on a daily and monthly basis. A review of those reports confirms, contrary to JRWA’s assertions (Motion at 22 & n. 20), that NPDES Permit exceedances of chlorine concentrations discharged from the CWS and SWS are exceedingly rare.

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<sup>3</sup> For ease of reference, a representative example of a DMR for PNPS is attached hereto as Exhibit 5. Copies of additional DMRs, as discussed in this Affidavit, will be provided upon request.

13. Indeed, in the last ten years (2002-2011),<sup>4</sup> and as summarized in the attached Exhibit 6, PNPS has documented only two (2) instances in which the chlorine concentration in the CWS exceeded the instantaneous maximum permitted level of 0.1 mg/L. Those two exceedances, which occurred on February 3, 2005 (peak TRO of 0.14 mg/L) and December 14, 2011 (peak TRO of 0.18 mg/L), were each the result of minor and unanticipated equipment malfunctions, and each was less than twenty (20) minutes in duration. *See* Exhibit 6. Furthermore, it is worth noting that both exceedances, while over the NPDES Permit limit, were well under the 0.2 mg/L federal effluent limitation guidelines set by USEPA. *See* 40 C.F.R. § 423.13(b)(1) (providing the federal standard for total residual chlorine). Given the brief duration and low concentrations involved with these two exceedances, the amount of residual chlorine discharged into the Bay is expected to have been minimal.

14. In that same ten year period, and as summarized in Exhibit 6, PNPS has documented only six (6) individual instances (out of literally thousands of sampling events) in which the chlorine concentration, as measured at the SWS, exceeded the daily maximum authorized limit of 1.0 mg/L. However, while those measurements reflect the chlorine concentration at the time of testing inside the SWS (*i.e.*, an internal stream), they do not correlate to actual discharge levels into the Bay, which were in compliance with end point TRO limits during each of these occurrences. First, as mentioned above, prior to emptying into the Bay, water from the SWS (outfall # 010) must first travel to and through the main discharge canal, where it mixes with – and is substantially diluted by – the much more voluminous flow from the CWS (outfall # 001). As such, even assuming the Station were operating under maximum SWS and minimum CWS flow conditions, any residual chlorine concentration in the SWS would be

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<sup>4</sup> As evidenced by the Station's DMRs, there have been no chlorine concentration exceedances from the SWS or CWS outfalls in 2012.

reduced by a minimum factor of 12.5 to 1 prior to the point of discharge into Cape Cod Bay. In actual operations, and as a function of the variability of the Station's service pump needs (which can further reduce the volume of water circulating through the SWS), however, the dilution factor is typically much greater, ranging from 30:1 to 60:1. Furthermore, upon mixing with water from the CWS, any residual chlorine concentration in the service water is subject to "chlorine decay" or "chlorine demand," whereby chlorinated water reacts with substances in unchlorinated water and spontaneously accelerates the TRO concentration reductions. As a result of these two factors, any residual chlorine in the SWS water stream is effectively reduced or eliminated before the point of discharge into Cape Cod Bay, such that the concentration prior to entering the Bay is typically undetectable, and is always at or below the stricter 0.1 mg/L ceiling set for circulating water in the Station's NPDES Permit. This is equally true for each of the six (6) chlorination Permit exceedances reported from the SWS outfall in the past decade.<sup>5</sup> See e.g., Exhibit 5; *supra* Footnote 3.

**b. Thermal Backwashes**

15. JRWA also implies in its Motion, without precise citation, that the Station's backwash operations may pose a "significant threat to roseate terns." Motion at 21. But, in fact, this is incorrect. As an initial matter, thermal backwashes are performed as a further prophylactic measure to control biofouling in the intake structure, and thereby reduce the Station's chlorination needs. During a thermal backwash, the flow of water through the CWS is re-routed such that water is taken in on one side and discharged through the other side of the intake structure. All thermal backwashes are conducted in accordance with PNPS's NPDES

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<sup>5</sup> It is worth noting that the Station has also occasionally experienced non-conformances with the NPDES requirement to dechlorinate the fish sluice water (outfall #003) as discussed in its DMRs and the Supplemental Final Environmental Impact Statement ("FSEIS"). NRC, Generic Environmental Impact Statement for License Renewal of Nuclear Power Plants, Supplement 29 Regarding Pilgrim Nuclear Power Station, Final Report, Docket 5-293, at p. 4-5 (2007); see Exhibit 6.

Permit, which provides limitations on frequency, effluent temperature and flow (NPDES Permit MA 0003557 at Part A.3).

16. Furthermore, the conditions created by a thermal backwash are not only environmentally limited, but actually represent a net reduction in thermal discharges. Thermal backwashes are a relatively infrequent occurrence at PNPS, conducted only three to five times per year. They are also relatively short in duration, typically lasting only two hours each from start to finish. Importantly, while effluent temperatures are elevated to approximately 110 degrees (and always less than 120 degrees) Fahrenheit during a thermal backwash, the flow is reduced by half, such that it results in an overall reduction in the total thermal effluent load released from the Station. Studies further indicate that the thermal plume created by the Station's backwashing operations is highly localized and surface-oriented in nature. Specifically, a thermal survey performed in 1977 to determine the effects of thermal backwashes at PNPS found that the procedure produced a relatively thin thermal plume at the surface, averaging three (3) to five (5) feet in depth, that spread from the intake structure across the western end of the intake embayment and along the breakwater, and completely dissipated within a few hours. Normandeau Associates, Inc. (1977) Thermal Surveys of Backwashing Operations at Pilgrim Station During July 1977.

**c. Allegations Concerning "Other Pollutants"**

17. JRWA also raises allegations in its Motion concerning the discharge of metals and corrosion inhibitor by PNPS. Motion at 21. More specifically, JRWA asserts, without citation to a source document, that "[s]ince PNPS uses a corrosion inhibitor, and had to almost entirely replace corroded pipes in about 1984, corrosion of metal piping is obviously an issue at the facility." *Id.* at 21-22. The metals about which JRWA purports to raise concern are copper, zinc and chromium. *Id.*

18. As an initial matter, the tubing in PNPS's cooling water condenser system is comprised entirely of elemental titanium, and has been since 1977, when the entire tubing configuration in the condenser was replaced. Titanium is highly resistant to sea water corrosion, and in any event, does not contain copper, zinc, or chromium. Furthermore, JRWA's reference to the replacement of certain other metal piping in 1984 is wholly inapposite, as the piping in question was used for internal water recirculation only, and as such did not make contact with or discharge into Cape Cod Bay or any other surface water in or around PNPS. Entergy also is not aware of any corrosion issues relative to its SWS system. Indeed, as stated in the Station's NPDES Permit Renewal Application, zinc, copper, and chromium are all believed to be absent from the Station's regularly discharged effluent. *See* Correspondence from J.F. Alexander, Entergy to Kevin McSweeney, USEPA, re: NPDES Permit Renewal Application – Pilgrim (Dec. 1, 1999) (NRC ADAMS Accession No. ML993430072); Correspondence from E.T. Boulette, Boston Edison to Kevin McSweeney, USEPA re: NPDES Permit Renewal Application (Oct. 25, 1995) (cover letter for which is attached hereto as Exhibit 7). There have been no substantive changes or modifications to PNPS operations that would alter this conclusion since the time of that submission.

19. Pursuant to and as authorized by the USEPA, *see* Correspondence from Edward K. McSweeney, USEPA to E.T. Boulette, Boston Edison re: Pilgrim Nuclear Power Station, NPDES Permit No. MA0003557, Use of Tolytriazole [sic] as a Corrosion Inhibitor (June 30, 1995) (attached hereto as Exhibit 8), the Station does utilize Tolytriazole (a corrosion inhibitor) in the facility's heating system, however that is largely an internal, processed water system which does not circulate to the discharge canal, save for once annually during planned, routine maintenance. In the past, and as reported in the DMRs, Tolytriazole was occasionally discharged in diluted concentrations well below USEPA approved limits through either outfall

011 (the neutralizing sump) or outfall 010 (the SWS) as a result of minor, erosion-related leaks from the Station's Turbine Building Closed Cooling Water ("TBCCW") and Reactor Building Closed Cooling Water ("RBCCW") systems, each of which has been corrected.

I declare under penalty of perjury that the foregoing is true and correct.

Executed in Accord with 10 C.F.R. § 2.304(d)

Jacob J. Scheffer  
Chemistry Supervisor  
Pilgrim Nuclear Power Station  
600 Rocky Hill Road  
Plymouth, MA 02360  
Phone: 508-830-8323  
E-mail: jscheff@entergy.com

# **EXHIBIT ONE**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

MAR - 1 1996

E. T. Boulette, PhD  
Senior Vice President - Nuclear  
Boston Edison  
Pilgrim Nuclear Power Station  
Rocky Hill Road  
Plymouth, Massachusetts 02360

Re: Pilgrim Nuclear Power Station,  
NPDES Permit No. MA0003557 - Reissuance

Dear Dr. Boulette:

This letter confirms a telephone conversation between Robert Anderson of your staff and Nick Prodany of EPA-New England on February 12, 1996.

As explained to Bob Anderson, the NPDES permit for Pilgrim Nuclear Power Station, which expires April 29, 1996, will remain in effect (see 40 CFR §122.6, concerning the continuation of expiring permits), since you have filed a timely and complete application. Furthermore, Boston Edison is hereby notified that the application is considered to be administratively and technically complete.

Permit conditions and effluent limitations of the soon-to-expire permit will remain unchanged. This also includes the process of submitting monthly Discharge Monitoring Reports (DMRs).

The reissuance of the NPDES permit, however, will be delayed due to no fault of Boston Edison. Under the direction of the Secretary of Environmental Affairs, Massachusetts has adopted a watershed approach to managing water resources. The State and EPA-New England have made a joint decision to adhere to the watershed initiative. Under this initiative, the strategy is "resource-based" using the watershed as the management unit rather than singling out a specific portion of the receiving waterbody (or a facility discharging into it). The program schedule of the Office of Watershed Management, specifies the reissuance of South Coastal-Basin NPDES permits, which includes Pilgrim Nuclear Power Station, for the year 1998.



At the present time, EPA-New England will reissue NPDES permits which are out-of-phase with the watershed cycle, only if it can be demonstrated that the issued permit significantly benefits the environment. Should Boston Edison have overriding reasons for permit reissuance, such as significant changes to their operations, EPA and the State should be apprised, such that an environmental impact evaluation can be constituted.

Should you have any questions, please contact N. W. Prodany of my staff at 617-565-3513.

Sincerely,



Jane Downing, Director  
Massachusetts State Program Unit  
Office of Ecosystem Protection

cc: BECO, Attn: R. Anderson  
MA DWPC, Attn: Paul Hogan  
EPA, Attn: C. Chow

LMA3557.L02

# **EXHIBIT TWO**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 1

1 CONGRESS STREET, SUITE 1100  
BOSTON, MASSACHUSETTS 02114-2023

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

December 2, 1999

Mr. Jay Schaeffer  
Entergy Nuclear Generation Company  
Rocky Hill Road  
Plymouth, MA 02630

Re: Transfer of Ownership

Dear Mr. Schaeffer:

This letter is a follow-up to the information you provided following your receipt of correspondence from us dated October 12 relative to the transfer of ownership of the Boston Edison (Pilgrim Nuclear Power Station) facility. I apologize for our shortsightedness in sending the transfer of ownership based on the 1991 permit as opposed to, the more recent 1994 modification. Enclosed please find the correct cover page delineating the transfer to Entergy Nuclear Generation Company (Entergy Nuclear), please disregard the previous and erroneous first version.

As was stated in the October 12 letter the current permit has expired, however, the conditions of this permit will continue in force until a new permit is issued and becomes effective since Boston Edison filed a timely and complete application. Prior to drafting a new permit for your facility you will be contacted for any information needed to clarify or supplement previously submitted data.

Again, I apologize for any inconvenience this error caused. Please do not hesitate to contact me should you have any questions or concerns regarding this permit transfer. I can be reached at (617) 918-1519.

Sincerely,

A handwritten signature in cursive script that reads "Olga Vergara".

Olga Vergara

Environmental Protection Specialist  
Municipal Assistance Unit  
Office of Ecosystem Protection

Enclosure

cc: Sandra Little, Boston Edison  
MA Department of Environmental Protection (MA DEP)

Toll Free • 1-888-372-7341

Internet Address (URL) • <http://www.epa.gov/region1>

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# **EXHIBIT THREE**

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 1

1 CONGRESS STREET, SUITE 1100  
BOSTON, MASSACHUSETTS 02114-2023

October 25, 2004

Mr. Jacob Scheffer, Superintendent Environmental Protection  
Entergy Nuclear Generation Company  
Pilgrim Nuclear Power Station  
600 Rocky Hill Road  
Plymouth, MA 02360

RE: Pilgrim Station's National Pollutant Discharge Elimination System (NPDES) Permit  
(# MA0003557)

Dear Mr. Sheffer,

On July 21, 2004, EPA received a letter from Goodwin Proctor LLP on behalf of Entergy Nuclear Generation Company (Entergy). Entergy requests to be placed on a schedule for submitting the information required for Entergy's Pilgrim Nuclear Power Station (Pilgrim or the Station) to apply for an NPDES permit under new regulations under Section 316(b) of the Clean Water Act. EPA agrees to do so and in the text below both details a specific schedule and addresses several important related issues.

**Background**

Pilgrim's current NPDES permit expired on April 4, 1996. The permit was administratively continued, however, because the Station submitted its permit application package in a timely manner. As a result, Pilgrim remains subject to the existing permit until EPA issues it a new one.

In the meantime, EPA has promulgated new regulations applicable to large existing power plants that govern the development of permit requirements under Section 316(b) of the Clean Water Act (CWA § 316(b)), which requires that the location, construction, capacity and design of cooling water intake structures reflect the best technology available (BTA) for minimizing adverse environmental impacts. These new CWA § 316(b) regulations addressing large existing power plants are referred to as the "Phase II Regulations," were published in the Federal Register on July 9, 2004, and became effective on September 7, 2004. *See* 40 C.F.R. Part 125, Subpart J. (The "Phase I Regulations" apply to new facilities and were promulgated in December 2001.) Pilgrim is subject to the Phase II Regulations based on the applicability provisions of 40 C.F.R. § 125.91.

The Phase II Regulations identify five different options from which a regulated facility may choose an approach for achieving compliance with the regulations. Permit application requirements vary based on the compliance alternative(s) selected and, for some facilities, include development of a Comprehensive Demonstration Study. *See* 40 C.F.R. § 125.95. The

Phase II Regulations establish performance standards for the reduction of impingement mortality and, under certain circumstances, for the reduction of entrainment (e.g., reduce impingement mortality by 80 to 95 percent, and reduce entrainment by 60 to 90 percent). The applicability of the performance standards is determined by several factors, including the type of water body on which the facility is located and the facility's capacity utilization rate. Under the rule, the performance standards can be met by design and construction technologies, operational measures, restoration measures, or some combination thereof. *See* 40 C.F.R. § 125.94 (discussion of compliance alternatives).

**Information Submission Requirements, and the Determination of Permit Limits, Under the Phase II Regulations**

As stated above, Pilgrim asks EPA to set a timetable for the Station's submission of the information required to apply for a permit that will include cooling water intake limits under the new Phase II Regulations. The new regulations authorize EPA to prescribe such a schedule, with certain restrictions. Setting timetables for information submissions under the Phase II Regulations is governed by 40 C.F.R. § 125.95(a)(2)(ii), which states the following:

(ii) If your existing permit expires before July 9, 2008, you may request that the Director establish a schedule for you to submit the information required by this section as expeditiously as practicable, but not later than January 7, 2008. Between the time your existing permit expires and the time an NPDES permit containing requirements consistent with this subpart is issued to your facility, the best technology available to minimize adverse environmental impact will continue to be determined based on the Director's best professional judgment.

In this case, the Station's permit expired in 1996 and, as the Station acknowledges in its letter, it has not to date submitted all of the information required by the Phase II Regulations. Thus, under the terms of the above-quoted regulation, EPA can establish a schedule for the submission of the required information as soon as practicable, but no later than January 7, 2008.

This conclusion is further supported by the analysis provided by EPA in the "316(b) Phase II Implementation Question and Answer Document" (August 19, 2004), which is posted on the Agency's website ([www.epa.gov/waterscience/316b](http://www.epa.gov/waterscience/316b)). In Section 2 of that document, Question & Answer No. 3 explains how to address permitting circumstances like those of Pilgrim:

Q3: The draft permit is proposed after the 316(b) Phase II rule takes effect. At the time of permit issuance, the facility has not submitted the comprehensive demonstration study and other information needed to determine limitations under the 316(b) Phase II rule. What is the basis for the 316(b) limitations in the permit?

A3: The 316(b) limitations in the proposed and final permit would be based on BPJ under authority of 40 C.F.R. § 125.95(a)(2)(ii). The permit would also need to include a schedule requiring the facility to submit the comprehensive demonstration study and other information required by 40 C.F.R. § 125.95 as expeditiously as practicable but not later than January 7, 2008.

This discussion confirms what the language of the regulation quoted above clearly states: that EPA may set a schedule requiring the Station to submit the information required by the Phase II Regulations as expeditiously as practicable but by no later than January 7, 2008.

Below EPA details a schedule with specific milestones for Pilgrim, but before presenting that schedule it is important to address whether a new NPDES may be issued to the Station in the interim period before the required information submissions and their review are completed. As per the Phase II Regulations, EPA may issue Pilgrim a new NPDES permit during this time period with § 316(b) permit limits based on best professional judgment (BPJ). As quoted above, 40 C.F.R. § 125.95(a)(2)(ii) provides, in pertinent part, that:

Between the time your existing permit expires and the time an NPDES permit containing requirements consistent with this subpart is issued to your facility, the best technology available to minimize adverse environmental impact will continue to be determined based on the Director's best professional judgment.

The EPA Question & Answer Document quoted above also confirms that under these circumstances a permit's § 316(b) limits would be "based on BPJ under authority of 40 C.F.R. § 125.95(a)(2)(ii)." Furthermore, contrary to the apparent implication of Entergy's letter, there is nothing in the provisions of Pilgrim's current permit that would preclude development of a new permit with BPJ-based cooling water intake limits under CWA § 316(b), consistent with applicable law and regulation.

If EPA were to issue the Station a permit with BPJ-based § 316(b) limits, the Agency anticipates that the permit would also include an appropriate schedule by which the Station would be required to complete and submit the information required by the Phase II Regulations. The propriety of including such a schedule in the permit is also suggested by the Question & Answer quoted above.

EPA has not, however, presently determined whether it is likely to develop a new NPDES permit for Pilgrim soon enough that § 316(b) limits would be based on BPJ, or whether, instead, a new permit is likely to be delayed long enough that it will make more sense to await the information submissions required under the Phase II Regulations and to develop the permit's new § 316(b) limits on that information and the substantive requirements of the new regulations. Although the Station's permit expired in 1996 (i.e., approximately 8 years ago) and, ideally, EPA would like to issue a new permit expeditiously, the reality is that the Agency is faced with a significant backlog of expired NPDES permits requiring reissuance. These include many complex permits such as

the Station's. EPA recognizes that it will be unable to issue all of these new permits in the near future and that it will have to choose which ones to address first. Whether or not EPA decides to issue Pilgrim's new permit in the relatively near-term based on a BPJ determination of § 316(b) limits will depend on a number of factors, including but not limited to:

- the existing permit's expiration date;
- the expected environmental benefits of a renewed permit;
- the amount and adequacy of the information available to serve as the basis for the renewed permit;
- the potential environmental impacts from the existing cooling water intake and associated pollutant discharges;
- economic and energy considerations;
- operational changes at your plant;
- technological considerations;
- the level of government resources needed to reissue your permit and competing work priorities for those resources; and
- an overall assessment of public interest.

EPA is currently assessing these factors in the context of your facility and will remain open to reconsidering these issues as time goes by and circumstances evolve. Further, EPA will communicate the results of this assessment to the Station when the Agency has determined how to proceed with respect to Pilgrim's new permit.

### **Schedule for Information Collection**

Consistent with your request, this letter establishes a schedule by which Pilgrim can proceed to comply with the information collection and submission requirements of the CWA § 316(b) Phase II Regulations.

1. Pilgrim shall submit the Proposal for Information Collection (PIC) required by 40 C.F.R. §125.95(b)(1) as expeditiously as practicable and prior to the start of biological monitoring and/or information collection activities, but not later than October 7, 2006. *See* 69 Fed. Reg. 41631 (discussion of sequencing of submission of the PIC relative to submission of the Comprehensive Demonstration Study (CDS)). The PIC includes a description of the information that will be used to support the CDS. The Station shall submit its PIC to EPA prior to starting information collection activities, but it may initiate such activities prior to receiving comments on the PIC from EPA. *See* 40 C.F.R. §§ 125.95(a)(1) and (b)(1).
2. The Station shall submit a CDS pursuant to 40 C.F.R. § 125.95 as expeditiously as practicable, but not later than January 7, 2008. The purpose of the CDS is to characterize impingement mortality and entrainment by Pilgrim's cooling water intake structures, to describe the operation of the facility's cooling water intake structures, and to confirm that

the technologies, operational measures, and/or restoration measures already installed, or that the Station proposes to install, at the facility meet the applicable compliance requirements of 40 C.F.R. § 125.94.

3. Consistent with 40 C.F.R. § 125.95(a)(2), the Station shall also submit to EPA by January 7, 2008, the information required by 40 C.F.R. §§ 122.21(r)(2), (3) and (5), which includes:
  - a) Source Water Physical Data
  - b) Cooling Water Intake Structure Data
  - c) Cooling Water System Data
  
4. In accordance with 40 C.F.R. § 125.94, Pilgrim must select and implement, or have already implemented, one of the five compliance alternatives for providing the best technology available for minimizing adverse environmental impact at the Station. Beyond the PIC and the CDS, the particular studies and information that are required depend on which of the five compliance alternatives will be the basis of Pilgrim's permit. EPA requests that the Station submit a preliminary compliance alternative selection with its PIC (to be submitted no later than October 7, 2006) and a final compliance alternative selection with the CDS (to be submitted no later than January 7, 2008).

### **Additional Issues**

Although EPA has agreed to Entergy's request to provide a schedule by which the information submissions required by the Phase II Regulations must be submitted for Pilgrim, certain of Entergy's arguments in favor of such a schedule bear a response by EPA.

One of the justifications provided by Pilgrim for its requested schedule for information submissions under the Phase II Regulations is that Entergy has not decided whether or not it will seek an extension of its current license from the Nuclear Regulatory Commission (NRC) authorizing Pilgrim's operations. Indeed, Entergy points out that it has asked the NRC to "defer" consideration of a license-extension request for Pilgrim. EPA asks that Entergy inform the Agency as to when Entergy expects that it will determine whether or not it plans to seek to extend the current NRC license for Pilgrim. Once Entergy makes that decision, EPA asks that Entergy also inform EPA regarding the nature of the decision.

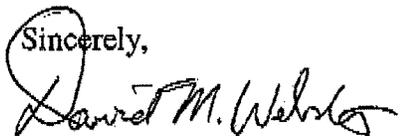
Another justification offered by the Station for the requested schedule is that, according to Pilgrim, scientific evidence developed by its consultants indicate that the current cooling water intake structure as currently operated "is not likely to create an 'adverse environmental impact' to the representative fish populations." While EPA is reserving judgment on this claim by the Station, the Agency notes that it has interpreted the entrainment and impingement of fish and other marine organisms to constitute "adverse environmental impacts" under CWA § 316(b) regardless of the particular effect on "representative fish populations." See *Riverkeeper v. U.S.*

*Environmental Protection Agency*, 358 F.3d 174, 196-97 (2d Cir. 2004). Of course, the adverse impact would be more severe to the extent that measurable percentages of fish populations are being taken by an intake structure.

Finally, EPA is presently reserving comment and judgment on the several other issues that the Station touches on in its letter (e.g., the Station's winter flounder hatchery, questions concerning past correspondence related to Pilgrim's NPDES permit, and Entergy's possible challenge to the Phase II Regulations).

EPA looks forward to working with you on the development of a new NPDES permit for Pilgrim under the new CWA § 316(b) Phase II Regulations. If you have questions, please contact Sharon Zaya at 617-918-1995. (In addition, as always, you may have your attorneys contact Mark Stein of EPA Region 1's Office of Regional Counsel at 617-918-1077.)

Sincerely,



David M. Webster

Manager, Massachusetts State Program Office  
Office of Ecosystem Protection

cc. Glen Haas, MA DEP

# **EXHIBIT FOUR**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 1

JOHN F. KENNEDY FEDERAL BUILDING  
BOSTON, MASSACHUSETTS 02203-0001

RECEIVED

AUG 28 1998

August 26, 1998

E.T. Boulette, PhD  
Senior Vice President-Nuclear  
Boston Edison  
Pilgrim Nuclear Power Station  
Rocky Hill Road  
Plymouth, MA 02360-5599

Re: Pilgrim Nuclear Power Station, NPDES Permit No. MA0003557,  
Sampling of Service Salt Water System

Dear Dr. Boulette:

This letter is in response to your letter of October 3, 1997, relating to Boston Edison Company's (BECO) request to permanently substitute a daily-grab sampling procedure in place of the existing continuous chlorination sampling procedure for Pilgrim Nuclear Power Station's (PNPS) service salt water system (SSWS).

According to your letter, PNPS is requesting this change in sampling procedure for the following reasons:

- The use of continuous flow from the SSWS piping which supplies the continuous chlorination monitoring system has been noted to be a seismic integrity concern in accordance with the guidelines of the USNRC Generic Letter #89-13. This concern has been addressed by cutting and capping the pipes which constitute the SSWS/continuous chlorine monitor interface.
- Samples for permit compliance are taken in the SSWS prior to commingling the service water with the non-contact cooling water (NCCW). The system is not chlorinated unless, at a minimum, one (1) circulating water system (CWS) pump [which supplies approximately a 15:1 dilution ratio] is running; more often, however, two (2) CWS pumps (which supply approximately a 30:1 dilution ratio) are operating. Upon commingling with the NCCW, the chlorine (or TRO) concentration in the service water is reduced substantially below the permit effluent discharge limit of 0.1 ppm.

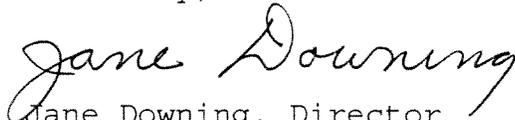
Based on the information you have provided and the existing NPDES permit limits and conditions, the requested change in sampling procedure will not cause any changes in the environmental impact of Discharge 010 or of Discharge 001. Therefore, EPA approves the change in sampling procedure on the condition that a minimum of two (2) grab samples are taken daily, when the service water system/discharge is in use.

EPA does not have the resources to immediately initiate the administrative procedures for this minor modification to the permit at this time; however, you may implement this change in operations at your convenience.

This approved change will be included in the next reissuance of the NPDES permit for PNPS.

Should you have any questions concerning this letter, please call Nick Prodany of my staff at 617-565-3513.

~~S~~incerely,



Jane Downing, Director  
Massachusetts Office of Ecosystem Protection

cc: C. Chow, EPA  
Roger Janson, EPA  
Leigh Bridges, MA DMF  
Robert Lawton, MA DMF  
B. Firmin, MA DEP  
Robert Anderson, BECo

# **EXHIBIT FIVE**



Entergy Nuclear Operations, Inc.  
Pilgrim Nuclear Power Station  
600 Rocky Hill Road  
Plymouth, MA 02360

**Stephen J. Bethay**  
Director, Nuclear Assessment

ENV 1.10-005

April 20, 2010

U.S. Environmental Protection Agency  
Water Enforcement, OES4-SMR  
5 Post Office Square, Suite 100  
Boston, MA 02109-3912

Massachusetts Department of Environmental Protection  
Southeast Regional Office  
20 Riverside Drive  
Lakeville, MA 02347

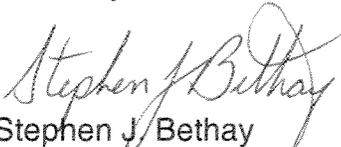
Subject: Discharge Monitoring Report — March 2010  
NPDES Permit Number MA0003557

Dear Sir or Madam:

Enclosed is the March 2010 Discharge Monitoring Report (DMR) for Pilgrim Nuclear Power Station, NPDES Permit Number MA0003557 (Federal) and Number 359 (State). Also included is a summary of the discharge data for the month with any notes or additional information (Attachment 1). During the time period March 1 through 31, 2010, there was one exceedance related to service water chlorination that is described in Attachment 1.

Should you have any questions about this report, please direct them to Mr. Joseph Egan, Chemistry Department (Environmental), Pilgrim Nuclear Power Station, (508) 830-8915.

Sincerely,

  
Stephen J. Bethay

JWE/

Attachments: 1. Summary – Additional Information for March 2010 DMR  
2. Discharge Monitoring Report (completed DMR forms)

## ATTACHMENT 1 to Letter ENV 1.10-005

## Summary — Additional Information for March 2010 D.M.R.

Pilgrim Nuclear Power Station – Discharge Monitoring Report

In accordance with the Federal Clean Water Act, as amended (33 USC 1251 et seq.), and the Massachusetts Clean Water Act, as amended (M.G.L.; Chap. 21, 26-53), regarding effluent limitations, monitoring requirements and other conditions set forth in the Pilgrim NPDES permit (Federal Permit Number MA0003557 and State Permit Number 359), Parts I and II, the following information is submitted.

I. Discharge Points Covered in this Report

| <u>Outfall No.</u>     | <u>Discharge Identification</u>  |
|------------------------|--|
| 001-1                  | Condenser Cooling Water (or Circ. Water System)                              |
| 002-1                  | Thermal Backwash for Biofouling Control                                      |
| 003-A                  | Intake Screen Wash   |
| 004, 005, 006, and 007 | Yard (Storm) Drains – Spring and Fall only                                   |
| 008-A                  | Sea Foam Suppression   |
| 010-A                  | Service Cooling Water (or Salt Service Water System)                         |
| 011-A                  | Makeup Water and Demineralizer Waste Discharge (Neutralizing Sump or others) |

II. Summary and Notes of Discharge Report

- A. The flows from discharge points 001, 002, 003, 008 and 010 are calculated from estimated pump capacity and cumulative hours of pump operation. The flow from point 001 is estimated assuming a Circulating Water pump capacity of 155,000 GPM (as described in Pilgrim's "§308 Response" letter dated July 1, 2008 from Goodwin Procter to U.S. EPA). The flow from point 011 is estimated from the volume discharged.
- B. The temperatures at points 001 and 002 are measured by resistance temperature detectors (RTDs) and compiled as one minute values.
- C. Grab samples for the four storm water outfalls are to be collected and analyzed twice per year in accordance with 40 CFR 136. Semi-annual NPDES storm drain sampling was not scheduled to occur during this period.
- D. During occasional periods of increased debris-loading in the intake cooling water, the sluice water from the traveling screens (point #003) is diverted to the discharge canal.
- E. Chlorination of the condenser cooling water (discharge point #001) occurred on 8 days this month, for no more than 2 hours per day.

II. Summary and Notes of Discharge Report (continued)

- F. The concentration of chlorine (or total residual oxidants, TRO) in the service water system exceeded the daily maximum limit on March 31, 2010. At 11:46 pm, the effluent concentration from outfall point 010 was determined to be 1.03 mg/L TRO, just over the limit of 1 mg/L. The chlorine (sodium hypochlorite) injection rate was immediately reduced when this result was obtained. Samples analyzed one hour later confirmed the chlorine level was back to normal (0.50 mg/L TRO at 12:55 am on April 1).

The elevated concentration is believed to have resulted from an unintentional change in one of the two chemical feed pumps' actual injection rate caused by a mechanical problem with the injection pump's control knob not being fully tight. While being manipulated, the frequency knob slipped on its shaft, which inadvertently allowed injection of too much hypochlorite, given what appeared to be the same pump setting that had previously yielded acceptable chlorine concentrations. Actions have been taken to preclude recurrence.

Because the service water system (outfall 010) empties into the main discharge canal, which had full flow from outfall 001, the dilution factor of 58:1 and subsequent chlorine decay effectively reduced or eliminated the residual chlorine concentration before the point of discharge into Cape Cod Bay. Therefore, no detrimental effects were expected due to this condition, and none were observed.

- G. Follow up investigation of operation of the screenwash dechlorination system (discharge point #003), has concluded that the positive result for chlorine recorded on February 10, 2010 was an isolated incident. In addition to the routine sampling and analyses reported previously, testing conducted to examine initial component response showed that full and complete dechlorination of the screenwash water occurs immediately upon system start up.

ATTACHMENT 2  
to Letter ENV1.10-005

COMPLETED  
DISCHARGE MONITORING REPORT  
FORMS

(6 pages of DMR Forms enclosed)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ENG - PILGRIM NUCLEAR POWER  
ADDRESS: 600 ROCKY HILL ROAD  
PLYMOUTH, MA 02360

FACILITY: PILGRIM NUCLEAR POWER STATION  
LOCATION: 600 ROCKY HILL ROAD  
PLYMOUTH, MA 02360

ATTN: David Noyes, Operations Mang.

MA0003557  
PERMIT NUMBER

001-1  
DISCHARGE NUMBER

DMR Mailing ZIP CODE: 02360

MAJOR

(SUBR S)

CONDENSER COOLING WATER

External Outfall

No Discharge

FROM 03/01/2010 TO 03/31/2010  
MONITORING PERIOD  
MM/DD/YYYY

| PARAMETER                                | QUANTITY OR LOADING |        | QUALITY OR CONCENTRATION |       |              |       | NO. EX | FREQUENCY OF ANALYSIS | SAMPLE TYPE |
|--|---------------------|--------|--------------------------|-------|--------------|-------|--------|-----------------------|-------------|
|  | VALUE               | UNITS  | VALUE                    | UNITS | VALUE        | UNITS |        |                       |             |
| Temperature, water deg. fahrenheit       | *****               | *****  | *****                    | ***** | 76.3         | °F    | 0      | 99/99                 | RC          |
| 00011 10 Effluent Gross                  | *****               | *****  | *****                    | ***** | 102 DAILY MX | deg F | 0      | Continuous            | RCORDR      |
| Oxidants, total residual                 | *****               | *****  | *****                    | ***** | 0.05         | mg/L  | 0      | Wh/Ds                 | GR          |
| 34044 10 Effluent Gross                  | *****               | *****  | *****                    | ***** | 1 MO AVG     | mg/L  | 0      | When Discharging      | GRAB        |
| Flow, in conduit or thru treatment plant | 445.8               | MGD    | *****                    | ***** | *****        | ***** | 0      | 99/99                 | ES          |
| 50050 10 Effluent Gross                  | 447 MO AVG          | Mgal/d | *****                    | ***** | *****        | ***** | 0      | Continuous            | ESTIMA      |
| Temp. diff. between intake and discharge | *****               | *****  | *****                    | ***** | 28.3         | °F    | 0      | 99/99                 | CA          |
| 61576 10 Effluent Gross                  | *****               | *****  | *****                    | ***** | 32 DAILY MX  | deg F | 0      | Continuous            | CALCTD      |

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violators.

|  |   |                           |                    |
|--|---|---------------------------|--------------------|
| NAME/TITLE PRINCIPAL EXECUTIVE OFFICER<br><i>David Noyes Operations Mgr.</i> | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT<br><i>D. Noyes</i> | TELEPHONE<br>508 830 8117 | DATE<br>04/19/2010 |
| TYPED OR PRINTED   |   | AREA Code                 | NUMBER             |

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)  
PH SHALL NOT VARY MORE THAN 0.5 PHSTANDARD UNITS FROM INTAKE WATER SEE PERMIT PAGE 5 PARAGRAPHS M&N FOR BORON AND SODIUM NITRATE REPORTING REQUIREMENTS. ATTACH ALL RELATED REPORTS TO THIS FORM. A BARRIER NET SHALL BE MAINTAINED AT THE THERMAL END OF DISCHARGE CANAL AT ALL TIMES.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ENG - PILGRIM NUCLEAR POWER  
ADDRESS: 600 ROCKY HILL ROAD  
PLYMOUTH, MA 02360

FACILITY: PILGRIM NUCLEAR POWER STATION  
LOCATION: 600 ROCKY HILL ROAD  
PLYMOUTH, MA 02360

ATTN: David Noyes, Operations Mang.

MA0003557  
PERMIT NUMBER

002-1  
DISCHARGE NUMBER

DMR Mailing ZIP CODE: 02360  
MAJOR (SUBR S)  
THERMAL BACKWASH  
External Outfall

MONITORING PERIOD  
MM/DD/YYYY TO MM/DD/YYYY  
03/01/2010 TO 03/31/2010

No Discharge **C**

| PARAMETER                                | QUANTITY OR LOADING |        |       | QUALITY OR CONCENTRATION |       |       | NO. EX | FREQUENCY OF ANALYSIS | SAMPLE TYPE |
|--|---------------------|--------|-------|--------------------------|-------|-------|--------|-----------------------|-------------|
|  | VALUE               | UNITS  | VALUE | VALUE                    | UNITS | VALUE |        |                       |             |
| Temperature, water deg. fahrenheit       | *****               | *****  | ***** | *****                    | ***** | ***** | 0      | 99/99                 | RC          |
| 00011 1 0 Effluent Gross                 | *****               | *****  | ***** | *****                    | ***** | ***** | 0      | Continuous            | RCORDR      |
| Flow, in conduit or thru treatment plant | *****               | MGD    | ***** | *****                    | ***** | ***** | 0      | Wh/Ds                 | ES          |
| 50050 1 0 Effluent Gross                 | *****               | Mgal/d | ***** | *****                    | ***** | ***** |        | When Discharging      | ESTIMA      |

|  |  |                           |                    |
|--|--|---------------------------|--------------------|
| NAME/TITLE PRINCIPAL EXECUTIVE OFFICER<br><i>David Noyes Operations Mgr.</i> | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT<br><i>[Signature]</i> | TELEPHONE<br>508 830-8117 | DATE<br>04/19/2010 |
| TYPED OR PRINTED   |  | AREA Code<br>NUMBER       | MM/DD/YYYY         |

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

THE PH SHALL NOT VARY MORE THAN 0.5 STANDARD UNITS FROM THAT OF THE INTAKE WATER. FLOW RATE IS TO BE ESTIMATED AS IF BACKFLUSHING TOOK PLACE FOR 24 CONTINUOUS HOURS. SEE PERMIT PAGE 8 FOR CONDITIONS REGARDING THE FREQUENCY OF DISCHARGE.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ENG - PILGRIM NUCLEAR POWER  
ADDRESS: 600 ROCKY HILL ROAD  
PLYMOUTH, MA 02360  
FACILITY: PILGRIM NUCLEAR POWER STATION  
LOCATION: 600 ROCKY HILL ROAD  
PLYMOUTH, MA 02360  
ATTN: David Noyes, Operations Mang.

MA0003557  
PERMIT NUMBER

003-A  
DISCHARGE NUMBER

DMR Mailing ZIP CODE: 02360  
MAJOR (SUBR S)  
INTAKE SCREEN WASH  
External Outfall

MONITORING PERIOD  
MM/DD/YYYY TO MM/DD/YYYY  
03/01/2010 TO 03/31/2010

No Discharge

| PARAMETER                                | QUANTITY OR LOADING |        |       | QUALITY OR CONCENTRATION |       |       | NO. EX | FREQUENCY OF ANALYSIS | SAMPLE TYPE |
|--|---------------------|--------|-------|--------------------------|-------|-------|--------|-----------------------|-------------|
|  | VALUE               | UNITS  | VALUE | UNITS                    | VALUE | UNITS |        |                       |             |
| Flow, in conduit or thru treatment plant | 2.0                 | MGD    | ***** | *****                    | ***** | ***** | 0      | 01/01                 | ES          |
| 50050 10 Effluent Gross                  | 4.1 MO AVG          | Mgal/d | ***** | *****                    | ***** | ***** |        | Daily                 | ESTIMA      |

|  |  |                           |                    |
|--|--|---------------------------|--------------------|
| NAME/TITLE PRINCIPAL EXECUTIVE OFFICER<br><i>David Noyes Operations Mgr.</i> | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT<br><i>[Signature]</i> | TELEPHONE<br>508 830-8117 | DATE<br>04/19/2010 |
| TYPED OR PRINTED   | AREA Code  | NUMBER                    | MM/DD/YYYY         |
| COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)  |  |                           |                    |

THE TEMPERATURE OF THIS DISCHARGE SHALL AT NO TIME EXCEED THE TEMPERATURE OF THE INTAKE WATER/ALL FISH SHELLFISH AND OTHER ORGANISMS COLLECTED OR TRAPPED ON INTAKESCREEN SHOULD BE RETURNED TO WATEROF AMBIENT TEMP. SUFFICIENTLY DISTAN FROM INTAKE STRUCTURES TO PREVENT REIMPEINGEMENT.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ENG C - PILGRIM NUCLEAR POWER  
ADDRESS: 600 ROCKY HILL ROAD  
PLYMOUTH, MA 02360  
FACILITY: PILGRIM NUCLEAR POWER STATION  
LOCATION: 600 ROCKY HILL ROAD  
PLYMOUTH, MA 02360  
ATTN: David Noyes, Operations Mang.

MA0003557  
PERMIT NUMBER

008-A  
DISCHARGE NUMBER

DMR Mailing ZIP CODE: 02360  
MAJOR (SUBR S)  
SEA FOAM SUPPRESSION DISCHARGE  
External Outfall

FROM 03/01/2010 TO 03/31/2010  
MONITORING PERIOD  
MM/DD/YYYY

No Discharge  C

| PARAMETER                                | QUANTITY OR LOADING |           | QUALITY OR CONCENTRATION |       |        |       | NO. EX | FREQUENCY OF ANALYSIS | SAMPLE TYPE |
|--|---------------------|-----------|--------------------------|-------|--------|-------|--------|-----------------------|-------------|
|  | VALUE               | UNITS     | VALUE                    | VALUE | VALUE  | UNITS |        |                       |             |
| Flow, in conduit or thru treatment plant |                     |           |                          |       |        |       |        |                       |             |
| 50050 1 0 Effluent Gross                 | 73 MO AVG           | DAILY MIX | 73                       | MGD   | MGAL/d | 0     | 01/01  | Daily                 | ES ESTIMA   |

|   |  |                           |                    |
|---|--|---------------------------|--------------------|
| NAME/TITLE<br>David Noyes Operations Mgr.                                   | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT<br><i>David Noyes</i> | TELEPHONE<br>508 830-8117 | DATE<br>04/19/2010 |
| TYPED OR PRINTED  |  | AREA Code                 | NUMBER             |
| COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here) |  |                           |                    |

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ENG - PILGRIM NUCLEAR POWER  
ADDRESS: 600 ROCKY HILL ROAD  
PLYMOUTH, MA 02360

FACILITY: PILGRIM NUCLEAR POWER STATION  
LOCATION: 600 ROCKY HILL ROAD  
PLYMOUTH, MA 02360

ATTN: David Noyes, Operations Mang.

MA0003557  
PERMIT NUMBER

010-A  
DISCHARGE NUMBER

DMR Mailing ZIP CODE: 02360  
MAJOR (SUBR S)  
PLANT SERVICE COOLING WATER  
External Outfall

MONITORING PERIOD  
MM/DD/YYYY TO MM/DD/YYYY  
03/01/2010 TO 03/31/2010

No Discharge

| PARAMETER                                | QUANTITY OR LOADING |        |        | QUALITY OR CONCENTRATION |            |       | NO. EX | FREQUENCY OF ANALYSIS | SAMPLE TYPE |
|--|---------------------|--------|--------|--------------------------|------------|-------|--------|-----------------------|-------------|
|  | VALUE               | UNITS  | UNITS  | VALUE                    | VALUE      | UNITS |        |                       |             |
| Oxidants, total residual                 | *****               | *****  | *****  | *****                    | 1.03       | mg/L  | 1      | 02/01                 | GR          |
| 34044 10 Effluent Gross                  | *****               | *****  | *****  | *****                    | 1 DAILY MX | mg/L  |        | Continuous            | RCORDR      |
| Flow, in conduit or thru treatment plant | 9.3                 | MGD    | MGD    | *****                    | *****      | ***** | 0      | 99/99                 | ES          |
| 50050 10 Effluent Gross                  | 19.4 MO AVG         | Mgal/d | Mgal/d | *****                    | *****      | ***** |        | Continuous            | ESTIMA      |

|  |  |                           |                    |
|--|--|---------------------------|--------------------|
| NAME/TITLE PRINCIPAL EXECUTIVE OFFICER<br><i>David Noyes Operations Mgr.</i> | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT<br><i>David Noyes</i> | TELEPHONE<br>508 830-8117 | DATE<br>04/19/2010 |
| TYPED OR PRINTED   |  | AREA Code                 | NUMBER             |
| COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)  |  | MM/DD/YYYY                |                    |

CONTINUOUS CHLORINATION OF SERVICE WATER SYSTEM MAY BE USED FOR MACROINVERTEBRATE CONTROL. FLOW RATE SHALL BE ESTIMATED FROM PUMP CAPACITY CURVES AND OPERATIONAL HOURS.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: ENG - PILGRIM NUCLEAR POWER  
ADDRESS: 600 ROCKY HILL ROAD  
PLYMOUTH, MA 02360  
FACILITY: PILGRIM NUCLEAR POWER STATION  
LOCATION: 600 ROCKY HILL ROAD  
PLYMOUTH, MA 02360  
ATTN: David Noyes, Operations Mang.

MA0003557  
PERMIT NUMBER

011-A  
DISCHARGE NUMBER

DMR Mailing ZIP CODE: 02360  
MAJOR (SUBR S)  
MAKE UP WATER AND DEMINERALIZE  
External Outfall

MONITORING PERIOD  
MM/DD/YYYY TO MM/DD/YYYY  
03/01/2010 TO 03/31/2010

No Discharge  C

| PARAMETER                                | QUANTITY OR LOADING |        |              | QUALITY OR CONCENTRATION |              |       | NO. EX | FREQUENCY OF ANALYSIS | SAMPLE TYPE |
|--|---------------------|--------|--------------|--------------------------|--------------|-------|--------|-----------------------|-------------|
|  | VALUE               | UNITS  | VALUE        | VALUE                    | UNITS        | VALUE |        |                       |             |
| Solids, total suspended                  | *****               | *****  | *****        | *****                    | *****        | ***** | 0      | 01/Ba                 | GR          |
| 00530 1 0 Effluent Gross                 | *****               | *****  | *****        | 30 MO AVG                | 100 DAILY MX | mg/L  | 0      | Once Per Batch        | GRAB        |
| Flow, in conduit or thru treatment plant | *****               | MGD    | *****        | *****                    | *****        | ***** | 0      | W/Ds                  | ES          |
| 50050 1 0 Effluent Gross                 | .015 MO AVG         | Mgal/d | .06 DAILY MX | *****                    | *****        | ***** |        | When Discharging      | ESTIMA      |

|  |  |                                  |                    |
|--|--|----------------------------------|--------------------|
| NAME/TITLE PRINCIPAL EXECUTIVE OFFICER<br><i>David Noyes Operations Mgr.</i> | SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT<br><i>David Noyes</i> | TELEPHONE NUMBER<br>508 830-8117 | DATE<br>04/19/2010 |
| TYPED OR PRINTED   |  | AREA Code                        | MM/DD/YYYY         |

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)  
SEE PAGE 5 OF PERMIT PARAGRAPH N FOR SODIUM NITRATE REPORTING REQUIREMENTS. ATTACH ALL RELATED REPORTS TO THIS FORM

# **EXHIBIT SIX**

**Pilgrim Nuclear Power Station:**

**Circulating Water System (“CWS”) and (Salt) Service Water System (“SWS”), and Fish Sluice Water (“FSW”) Chlorination Exceedances for 2002-2011<sup>1</sup>**

| <b>Date</b> | <b>System</b> | <b>Maximum Concentration</b> |
|-------------|---------------|------------------------------|
| 05/25/2002  | FSW           | <0.1 mg/l*                   |
| 11/11/2002  | FSW           | 0.12 mg/l                    |
| 2/3/2005    | CWS           | 0.18 mg/l                    |
| 1/5/2006    | FSW           | 0.08 mg/l                    |
| 2/2/2006    | FSW           | 1.1 mg/l                     |
| 7/19/2006   | FSW           | <0.5 mg/l*                   |
| 8/16/2006   | FSW           | <0.5 mg/l*                   |
| 8/16/2006   | SWS           | 1.05 mg/l                    |
| 9/20/2006   | FSW           | <0.4 mg/l*                   |
| 10/15/2006  | FSW           | <0.5 mg/l*                   |
| 2/19/2008   | SWS           | 1.25 mg/l                    |
| 1/27/2009   | FSW           | 0.38 mg/l                    |
| 2/10/2010   | FSW           | 0.74 mg/l                    |

<sup>1</sup> Exceedances are based on a review of Discharge Monitoring Reports (“DMRs”) submitted monthly to the United States Environmental Protection Agency (“USEPA”) and Massachusetts Department of Environmental Protection (“MADEP”) between 2002-2011.

|            |     |           |
|------------|-----|-----------|
| 3/31/2010  | SWS | 1.03 mg/l |
| 10/29/2010 | FSW | 0.22 mg/l |
| 11/27/2010 | SWS | 2.4 mg/l  |
| 4/5/2011   | SWS | 1.3 mg/l  |
| 7/20/2011  | SWS | 1.15 mg/l |
| 12/14/2011 | CWS | 0.14 mg/l |

\* Estimated concentrations.

# **EXHIBIT SEVEN**



**Boston Edison**

Pilgrim Nuclear Power Station  
Rocky Hill Road  
Plymouth, Massachusetts 02360

**E. T. Boulette, PhD**  
Senior Vice President — Nuclear

October 25, 1995  
5.95.088

Mr. Kevin McSweeney, Chief  
Compliance Branch  
U. S. Environmental Protection Agency  
J.F.K. Federal Building  
Boston, MA 02203

Attn: Ms. Olga Vergara

Re: NPDES Permit Renewal Application  
Pilgrim Station

Dear Mr. McSweeney:

In accordance with the Consolidated Permits Regulations under Title 40, Code of Federal Regulations, Parts 122, 123, 124 and 125 (Revised July 1, 1994), Boston Edison is applying for renewal of our National Pollutant Discharge Elimination System (NPDES) Permit under the Clean Water Act using Forms 1 and 2C of the consolidated permits application forms at Pilgrim Nuclear Power Station (NPDES #MA0003557). Comments are noted below:

- 1) Similar to Boston Edison Company's previous permit application in 1990 for our current Pilgrim Station NPDES Permit, the following requests and information are provided regarding this renewal application:
  - A. Outfalls 001 (Condenser Cooling Water), 002 (Thermal Backwash), and 010 (Plant Service Cooling Water) are once-through discharge points whose sole source of water is the Cape Cod Bay. Therefore, we believe that they should be classified as identical outfalls. Outfalls 003 (Intake Screen Wash) and 008 (Sea Foam Suppression) utilize Cape Cod Bay water and/or Plymouth town water stored as Pilgrim Fire Water. For the pollutants listed in Parts B and C of Item V, we believe that, except for ambient levels, they are generally not present for these discharge points. Therefore, we would like the sampling requirements for these pollutants, at these outfalls, generally suspended. It is also requested that sampling/analysis be waived for BOD, COD, TOC, TSS and ammonia at 001, 002, 003, 008 and 010 outfalls because they are non-process industrial discharge whose water source is classified as SA quality or potable water and are, therefore, not expected to influence these parameters.

Mr. Kevin McSweeney  
U.S. Environmental Protection Agency  
October 25, 1995  
Page Two

- B. For outfall numbers 001, 002, 003, 008 and 010, limited analyses were performed. For outfall number 001, the discharge is only treated with chlorine which is required to be monitored and not exceed 0.1 ppm TRC. Similarly, nothing is chemically added to 002 or 008, only sodium thiosulfate is added to 003 as a dechlorination agent, and only chlorine is added to 010 with chlorination monitoring required to maintain permit limits of 0.5 ppm daily average and 1.0 ppm daily maximum TRC, prior to mixing with condenser cooling waters. Analyses for cobalt, iron and titanium were performed for outfall numbers 001, 002 and 010 because there was a possibility of these constituents being present. An analysis for sulfate was performed for outfall number 003 because of the sodium thiosulfate addition. Protocol references and sampling strategies are noted in Attachment A.
  - C. For all outfalls in Item V Parts B and C, we have marked an "X" in the "believed present" or "believed absent" column for pollutant.
  - D. All temperature and pH data were taken from actual operating data rather than from grab samples.
- 2) The following changes have been adopted in the permit since the last application:
- A. A modification of the Pilgrim Station NPDES permit was approved and issued effective August 30, 1994, containing various discharge changes.
  - B. A letter from EPA to Boston Edison dated June 30, 1995, approved the use of Tolytriazole, a corrosion inhibitor, in various Pilgrim Station systems.
  - C. Via telecon between the EPA and Boston Edison on December 16, 1994, (BECO Telecon #4.94.038), approval was granted to use Pilgrim Station storm drain #007 for the intermittent discharge of untreated seawater from the condenser scavenger tank.
- 3) Boston Edison requests that the five storm drains, Outfalls 004, 005, 006, 007, and a miscellaneous storm drain, be covered under the NPDES General Permit for Storm Water Discharges Associated with Industrial Activity (Permit No. MAR000000) upon expiration of the current NPDES permit. The Massachusetts Department of Environmental Protection has formally determined that the storm water discharges at the facility can be covered under the General Permit per the September 11, 1995, letter from Paul Hogan (Attachment B). Two days prior to expiration of the current NPDES permit, a Notice of Intent (NOI) will be submitted to EPA per Part II of the Preface of the General Permit.

Mr. Kevin McSweeney  
U.S. Environmental Protection Agency  
October 25, 1995  
Page Three

- A. The miscellaneous storm drain located at the boat launch between Outfalls 006 and 007 was noted during a recent site visit. It drains a small portion of the facility which is similar to the drainage areas for Outfalls 004, 005, 006 and 007. Stormwater runoff from the miscellaneous outfall is expected, therefore, to be similar to runoff from the other four outfalls.
- 4) The impacts associated with the Pilgrim Station 316(a) and 316(b) demonstration document (July 1975) and supplement (September 1977), submitted in conformance with Federal Water Pollution Control Act (The Clean Water Act), have not changed significantly.
- 5) Pilgrim Station discharges in the coastal zone comply with the policies of the Massachusetts approved coastal management program and will be conducted in a manner consistent with such policies.

I trust that these additional comments will meet your requirements and that our application is complete.

If you have any questions, please contact Mr. Robert D. Anderson of my staff at (508) 830-7935.



E. T. Boulette, PhD  
Senior Vice President - Nuclear

cc: Mr. Paul Hogan  
Massachusetts Department of Environmental Protection  
Regulatory Branch - 7th Floor  
One Winter Street  
Boston, MA 02108

Mr. Rick Zeroka  
Massachusetts Coastal Zone Management  
100 Cambridge Street, Floor 20  
Boston, MA 02202

U.S. Nuclear Regulatory Commission  
Region I  
475 Allendale Road  
King of Prussia, PA 19406

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

Senior Resident Inspector, Pilgrim Station

# **EXHIBIT EIGHT**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

June 30, 1995

E.T. Boulette, PhD  
Senior Vice President - Nuclear  
Boston Edison  
Pilgrim Nuclear Power Station  
Rocky Point Road  
Plymouth, Massachusetts 02360

Re: Pilgrim Nuclear Power Station (PNPS),  
NPDES Permit No. MA0003557  
Use of Tolytriazole as a Corrosion Inhibitor

Dear Dr. Boulette:

In your letter of May 22, 1995, you have requested approval to add Tolytriazole, a corrosion inhibitor, to the reactor building and turbine building closed cooling-water systems; station-heating and the emergency diesel generator cooling-water systems. This material has been recommended for use by the Institute of Nuclear Power Operations (INPO) for corrosion control of copper alloys.

Initial conditioning of the cooling systems would require a Tolytriazole maximum concentration 20 mg/l, after which concentrations would be maintained at 2 mg/l. The maximum concentration would be in the neutralizer sump.

At the facility, Tolytriazole would be discharged from PNPS' Outfall 011 only during scheduled plant outages, and during any unplanned system maintenance evolutions. In a "worst-case scenario", 200 GPM (maximum flow) of the Tolytriazole effluent would be diluted with 1500 GPM (minimum flow) of service water, prior to discharge to Cape Cod Bay. The Tolytriazole concentration of the effluent would be approximately 2.35 mg/l. If one of the circulating water pumps is operational during an outage, the Tolytriazole discharge would further be diluted with 155,000 GPM of Bay water, yielding an effective Tolytriazole discharge concentration of 0.03 mg/l.

Acute and chronic toxicity testing results in the vendor's Material Safety Data Sheets (MSDS) on Tolytriazole [or COBRATEC, TT-50-S], indicate that the Tolytriazole concentration in a "worst-case scenario" discharge is below both the acute and chronic toxicity levels.



Based on actual acute and chronic toxicity testing results, the "worst-case scenario" discharge concentrations, additional dilution from the circulating water pump, the use of Tolytriazole is approved at the requested dosage rate. Any change in the dosage rate or active ingredient concentration must be approved by EPA and the State prior to usage.

Should you have any questions, please contact Nick Prodany of my staff at 617-565-3587.

Sincerely,

  
Edward K. McSweeney, Chief  
Wastewater Management Branch

cc: R. Anderson, PNPS  
Paul Hogan, MA DEP  
S. Silva, EPA  
Region I, NRC  
Document Control Desk, NRC

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

Before the Atomic Safety and Licensing Board

|  |   |                        |
|--|---|------------------------|
| In the Matter of                       | ) |                        |
|  | ) |                        |
| Entergy Nuclear Generation Company and | ) | Docket No. 50-293-LR   |
| Entergy Nuclear Operations, Inc.       | ) | ASLBP No. 06-848-02-LR |
|  | ) |                        |
| (Pilgrim Nuclear Power Station)        | ) |                        |

CERTIFICATE OF SERVICE

I hereby certify that copies of Entergy's Answer Opposing Jones River Watershed Association's and Pilgrim Watch's Motion to Reopen and Hearing Request on Contention Related to the Roseate Tern, dated May 16, 2012, was provided to the Electronic Information Exchange for service on the individuals below, this 16th day of May, 2012.

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/signed electronically by Timothy J. V. Walsh/  
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