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# UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

OFFICE OF SECRETARY RULEMAKINGS AND ADJUDICATIONS STAFF

### Before the Commission

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)	)	•

# ENTERGY'S REPLY TO PILGRIM WATCH'S BRIEF IN RESPONSE TO CLI-09-11

David R. Lewis
Paul A. Gaukler
PILLSBURY WINTHROP SHAW PITTMAN LLP
2300 N Street, NW
Washington, DC 20037
Tel. (202) 663-8000

Counsel for Entergy

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# ENTERGY'S REPLY TO PILGRIM WATCH'S BRIEF IN RESPONSE TO CLI-09-11

Pursuant to the Commission's June 4, 2009 Memorandum and Order ("CLI-09-11"), Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc. (collectively "Entergy") submit this reply brief in response to Pilgrim Watch's ("PW") June 25, 2009 Brief<sup>1</sup> on the issues identified by the Commission. CLI-09-11, slip op. at 7.

PW has ignored the Commission's admonition to limit its submission to "affidavits and exhibits already in the record," and to present its "arguments clearly." <u>Id.</u>, slip op. at 7-8. Rather than limiting itself to the affidavits and exhibits that it provided in opposition to summary disposition, PW cites to, and makes assertions and arguments based on, numerous documents that are not part of the evidentiary record – <u>e.g.</u>, other pleadings (such as its initial petition), articles, and other documents – as if they were fact. Further, even in those instances where PW cites the affidavits provided with its summary disposition opposition, PW frequently embellishes its affiants' statements or takes them out of context. As a result, it is not possible to rely on any of PW's assertions without carefully checking the record. Moreover, PW does not even limit its arguments

Pilgrim Watch's Brief in Response to CLI-09-11 (Requesting Additional Briefing) (June 25, 2009) ("PW Br.").

<sup>&</sup>lt;sup>2</sup> Entergy endorses the NRC Staff's position – that LBP-07-13 should be affirmed because Contention 3 was limited to challenges to input data and PW otherwise failed to raise any genuine issue on a material fact that would affect the conclusions of the SAMA analysis. NRC Staff's Initial Brief in Response to CLI-09-11 (Memorandum and Order (Request for Additional Briefing)) (June 25, 2009) at 1.

to Contention 3 as admitted, but instead raises a host of issues outside the scope of the admitted Contention, including multiple issues specifically rejected at the outset of the proceeding.

At bottom, PW offers no basis (1) to counter the Board majority's exclusion of challenges to the use of the Gaussian Plume Model and MACCS2 Code,<sup>3</sup> or (2) to show that it presented a genuine dispute that could materially affect the ultimate conclusions of the SAMA cost-benefit analysis. Thus, the Commission should affirm the summary disposition of Contention 3.

## I. PW Raises Multiple Issues Outside the Scope of the Admitted Contention

PW's Brief makes multiple claims outside the scope of the admitted Contention. Such claims should not be considered by the Commission in resolving PW's appeal of LBP-07-13.

A. Spent Fuel Fires/Inventory. PW's claims that Entergy's SAMA analyses failed to consider the consequences of spent fuel fires and assumed an incorrect source inventory (PW Br. at 10, 11, 13, 17, 20, 21) are not within the scope of Contention 3 as pled by PW or as admitted by the full Board. See LBP-06-23, 64 N.R.C. 257, 341 (2006). In fact, the Board specifically rejected PW's separate contention seeking to raise spent fuel pool fires as a SAMA issue (id. at 281, 288-92). Further, Commission precedent precludes consideration of spent fuel pool fires in SAMA analyses.<sup>4</sup> Therefore, these arguments are irrelevant.

**B.** Health Effects. PW's repeated claims that Entergy's SAMA analyses "ignored many costs of health consequences" (PW Br. at 10, 12, 16, 17, 19, 20) are not part of Contention 3, either as pled by PW or as admitted by the Board. See LBP-06-23, 64 N.R.C. at 323-41; see also

PW provides no basis to ignore the clear limitation of PW Contention 3, as admitted by the Board, to "input data." See Entergy's Brief in Response to CLI-09-11 (June 25, 2009) at 14-17. PW's claim that its newly found challenge to the MACCS2 Code "is site-specific" and not "generic" (PW Br. at 2-3) ignores the wording of the admitted Contention. In sum, PW's attempt to challenge any use of the MACCS2 Code, which it acknowledged in its Petition as the "currently the state-of-the-art consequence code," was and is simply beyond the scope of the contention as pleaded and as admitted.

<sup>&</sup>lt;sup>4</sup> Florida Power & Light Co. (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 N.R.C. 3, 21 (2001) ("Part 51's reference to [SAMA] applies to nuclear *reactor* accidents, not spent fuel storage accidents") (emphasis in original).

LBP-07-13, 66 N.R.C. 131,148 (2007) ("[t]he scope of the admitted contention does not include errors in estimating the dollar-equivalent of cancers caused by a severe accident – such costs are simply not reasonably inferable as part of either 'loss of economic activity' or for 'loss of economic infrastructure and tourism'" to which Contention 3 as admitted is limited) (Board majority). Thus, the consideration of health effects is outside the scope of Contention 3.

C. Minimization of Cleanup Costs. PW claims that Entergy's MACCS2 Code inputs "underestimated the costs of cleaning-up after an accident" (PW Br. at 10) because they were based on a radiological weapons event, failed to consider coastal community characteristics, and ignored lessons learned from Chernobyl (id. at 12, 13, 17, 21, 22) were all not raised in the PW's Petition. The Contention as pled and admitted was limited to the "loss of economic activity" (LBP-07-13, 66 N.R.C. at 145) and the only specific economic cost alleged was loss of tourism (LBP-06-23, 64 N.R.C. at 336-37 (citing PW Reply to Entergy at 24)). Clean up costs, like health effect costs, "are simply not reasonably inferable as part of either 'loss of economic activity' or for 'loss of economic infrastructure and tourism." LBP-07-13, 66 N.R.C. at 148. Hence, such arguments are outside the scope of Contention 3 and irrelevant here.

D. Other Costs. PW's claims that Entergy failed to consider a "myriad" of costs, including costs for job retraining, unemployment payments, accident-related litigation, and the valuation of farm property (PW Br. at 10, 17, 22) are all outside the scope of Contention 3 as pled and admitted by the Board, which focused on costs related to loss of economic activity, economic infrastructure, and tourism. See LBP-07-13, 66 N.R.C. at 145, 148 (Board majority), 166 (Dissent). Aside from being unresponsive to the questions asked in CLI-09-11, these alleged omissions are not relevant to the resolution of Contention 3.

See also id. at 166 ("[w]ith respect to Intervenors' newly submitted health and other non-tourism-related economic cost factors, it is true that Intervenors provided no notice that these types of costs were challenged ....")

E. Re-suspension of Radionuclides. PW's argument that Entergy's analysis ignored the possibility that radionuclides deposited close to the source could be re-suspended by clean up activities and deposited elsewhere (PW Br. at 8, 12, 13, 17, 22) is unrelated to any of the input data issues raised in the original Contention. PW never mentioned this issue as a basis for Contention 3 as pled. That alone renders this issue irrelevant to the Contention. Further, though the Beyea Report (at 24) mentions radionuclide re-suspension, it concerns spent fuel pool accident consequences, which was a separate contention rejected by the Board as outside the scope of the proceeding. LBP-06-23, 64 N.R.C. at 280-300, citing Turkey Point, CLI-01-17, 54 N.R.C. at 21. For all of these reasons, radionuclide re-suspension is outside the scope of Contention 3.

F. Emergency Response Implications. PW also claims that "[r]ealistic modeling assumptions and predictions" are required; otherwise, "emergency planning and protective action calls will not be based upon sound meteorological data and modeling." PW Br. at 19. The unanimous Board, however, excluded emergency planning from the scope of Contention 3 because it "is one of the *safety issues* that need not be re-examined within the context of license renewal." LBP-06-23, 64 N.R.C. at 340 (quoting Turkey Point, CLI-01-17, 54 N.R.C. at 9) (emphasis in original). Thus, PW's demand for more realistic modeling (and the related demand for the installation of multiple data collection sources it claims are necessary) for emergency planning purposes is irrelevant here.

## II. PW Relies on Materials and Makes Assertions Unsupported by the Record

Contradicting the Commission's express limitation on submissions, CLI-09-11, slip op. at 8, PW makes numerous assertions and relies on materials that are not supported by its experts, or by record evidence, rendering such claims and information inappropriate for consideration here.

A. <u>PW's Attack on Lewellen and Mollenkemp Studies</u>. PW asserts that it "established a material dispute" on the conservatism of the Gaussian Plume model, compared to other atmospheric dispersion models, because the Lewellen and Mollenkemp comparison studies, referred to by Entergy, were not performed in a location similar to Pilgrim. PW Br. at 15-16. This claim (only briefly mentioned by PW in its responses to Entergy's Motion for Summary Disposition and to the NRC Staff's Answer to Entergy's Motion for Summary Disposition and to the NRC Staff's Answer to Entergy's Motion for Summary Disposition of lacks any expert or evidentiary support. None of PW's experts challenged the conservatism of the Gaussian Plume model. <u>See</u> LBP-07-13, 66 N.R.C. at 151 & n.21. Rather, this claim is simply an argument by PW's unqualified representative, which is insufficient to withstand summary disposition. Thus, the conservatism of the Gaussian Plume model was uncontested at summary disposition and no genuine dispute of material fact exists here.

B. Need for More than One Year of Meteorological Data. Contrary to its assertion,

PW did not "show[] that one year of [meteorological] data would have been insufficient." PW

Br. at 8. See also id. at 3-4, 9. Neither the Spengler and Keeler Report, nor NRC Regulatory

Guide 1.1948 relied upon by PW was submitted as an exhibit supported by the declaration of any

Pilgrim Watch's Answer Opposing Entergy's Motion for Summary Disposition of Pilgrim Watch Contention 3 (June 29, 2007) at 12-13 ("PW SD Answer"); Pilgrim Watch's Answer to NRC Staff Response to Entergy's Motion for Summary Disposition of Pilgrim Watch Contention 3 (July 9, 2007) at 14.

The Commission applies the same standards that the Federal courts apply to motions for summary judgment under Rule 56 of the Federal Rules for Civil Procedure. Advanced Medical Systems, Inc. (One Factory Row, Geneva, Ohio 44041), CLI-93-22, 38 N.R.C. 98, 102 (1993). In accordance with Rule 56, when the movant has satisfied its initial burden by affidavit, "the opposing party must either proffer rebutting evidence or submit an affidavit explaining why it is impractical to do so." Id. at 103 (emphasis added), citing Fed. R. Civ. P. 56(e) and Adickes v. S. H. Kress & Co., 398 U.S. 144, 160-61 (1970). Such evidence relied upon to oppose summary disposition "must be competent evidence of a type otherwise admissible at trial." Bombard v. Fort Wayne Newspapers, Inc., 92 F.3d 560, 562 (7th Cir. 1996). As such, PW's unsworn statements by its unqualified representative provide no basis for opposing summary disposition. Likewise, bare references to an article absent any supporting affidavit provides no basis for defeating summary disposition. See, e.g., Cleveland Electric Illuminating Co. (Perry Nuclear Power Plant, Units 1 and 2), LBP-83-46, 18 N.R.C. 218, 222 (1983).

PW's reliance on Regulatory Guide 1.194 is misplaced because that document, by its own terms, does not apply for modeling offsite accident radiological consequences for which the applicable NRC guidance is found in Regulatory Guide 1.145, "Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants". Regulatory Guide 1.194 at 1.194-3.

of PW's experts. They are therefore not part of the evidentiary record considered in the summary disposition of Contention 3. Further, Entergy submitted evidence that the SAMA analysis used representative meteorological data for the Pilgrim site, 9 and that one year's worth of meteorological data is typical for SAMA analyses and consistent with guidance. PW did not challenge this evidence. These claims thus fail to raise a genuine dispute on any material issue.

C. <u>Underestimation of Economic Consequences</u>. Contrary to its assertions, PW's "evidence" did not show that Entergy's "choices of inputs consistently and significantly underestimated the economic consequences of a radioactive release from PNPS." PW Br. at 10. PW points to no portion of the record for this assertion, nor can any statement made by any PW expert be read to support such an assertion.

The same is true for PW's related claims that Entergy "drastically reduced, to a wedge, the size of an area that might potentially be impacted by a release" (PW Br. at 10) and considered the evacuation of only a limited area around the plant (PW Br. at 11, 19). These claims are unsupported by any PW expert or exhibit and furthermore misstate the summary disposition record. Entergy showed that the "SAMA analysis was based on an assumed directed evacuation of the entire 10 mile EPZ in accordance with the Emergency Plan." Sowdon Decl. ¶ 20 (emphasis in original). While the Pilgrim emergency plan itself may provide for evacuation of certain portions of the EPZ in response to certain releases, this in no way changes the fact that that "the SAMA analysis assumed that everyone within the 10 mile EPZ would evacuate as directed." Id. (emphasis in original). Moreover, none of PW's experts challenged Entergy's sensitivity analysis that assumed that no evacuation or sheltering occurred, resulting in a cost increase far less

Declaration of Fred J. Mogolesko in Support of Entergy's Motion for Summary Disposition of Pilgrim Watch Contention 3 (May 16, 2007).

<sup>&</sup>lt;sup>10</sup> Declaration of Kevin R. O'Kula (May 16, 2007) ¶ 21 ("O'Kula Decl.").

than what would be required to identify any additional potentially cost-effective SAMAs.

O'Kula Decl. ¶ 29. Thus, PW failed to raise any genuine dispute on a material issue.

Likewise, PW provides no record support for its assertion that Entergy assumed a "small" accident that had "no real impact beyond 10 miles" (PW Br. at 10), which claim again grossly misstates the summary disposition record. Entergy analyzed a range of severe accidents and submitted uncontested evidence that MACCS2 does model consequences beyond the 10-mile EPZ boundary. Indeed, Entergy's analyses show that the 20 to 50 mile spatial region surrounding the plant accounts for most of the population dose and off-site economic costs. Id.

Finally, PW also asserts, without any record support, that the use of a variable trajectory model rather than a Gaussian Plume model would have significantly increased the area potentially affected. PW Br. at 11. It is not reasonable to assume (as PW's unsupported arguments essentially ask the Commission to do) that a plume trajectory that meanders with wind direction and speed, perhaps even reversing direction, would affect a greater area than a plume that moves without interruption out to 50 miles. Rather, the undisputed evidence provided by Entergy and the Staff shows that the Gaussian Plume model and Entergy's specific computations are conservative – "i.e., they predict worse consequences, and, therefore, higher costs of any particular event." LBP-07-13, 66 N.R.C. at 151.

**D.** Alleged Accident Costs. PW's claims of accident costs (from approximately \$30 billion to more than \$1 trillion) that allegedly show additional SAMAs to be cost beneficial (PW Br. at 2, 22-24 & Appendix A; PW SD Answer at 41-44, 89) are neither addressed nor supported by any of its experts or other record evidence. This information is based solely on the assertions

Declaration of Thomas L. Sowdon in Support of Entergy's Motion for Summary Disposition of Pilgrim Watch Contention 3 (May 15, 2007).

of PW's representative, who is not qualified to present such analysis, is irrational, and misrepresents the record.<sup>13</sup> PW's estimates assume, without any expert support, that all property value, county and regional income within 50 miles of the plant is lost (damages purportedly exceeding \$1 trillion), and does not, contrary to the Board's ruling admitting Contention 3, weigh such an outcome by the probability of its occurrence, i.e., probabilistic risk. Such unsupported, irrational assertions are insufficient to withstand summary disposition. See note 7, supra.

E. Effects of Storms, Precipitation, Moisture, and Fog. PW claims that Entergy inappropriately failed to consider the meteorological phenomena of precipitation, moisture, and fog, PW Br. at 18, or the potential for storms ("northeasters") to carry plumes considerable distances. These claims have no expert support and amount to mere argument by PW's unqualified representative, which is insufficient to oppose summary disposition here. See note 7, supra.

F. Extra-Record Evidence. PW inappropriately relies on numerous documents that were not part of the record on summary disposition – i.e., not offered as exhibits or supported by affidavit – and should therefore not be considered by the Commission. See note 7, supra. Those documents are: (1) Spengler and Keeler Report (see, e.g., PW Br. at 8); (2) "Zager et al; Angevine et al, 2006" (id. at 6); (3) 1997 MACCS2 User's Guide (see, e.g., id. at 6); (4) PW's Intervention Petition (id. at 6); (5) Lyman's Chernobyl on the Hudson (id.); (6) EPA Guidelines on Air Quality Models (id.); (7) the entire first full paragraph of PW Br. page 7; (8) Regulatory Guide 1.194 (see, e.g., id. at 8); and (9) NUREG/CR-6853 (see, e.g., id. at 15-16).

O'Kula Decl. ¶¶ 11, 27; "Radiological Dispersion and Consequence Analysis Supporting Pilgrim Nuclear Power Station [SAMA] Analysis," Washington Safety Management Solutions LLC, Report No. WSMS-TR-07-0005 Rev. 1 (May 2007) ("WSMS Report") at 7-11.

Contrary to PW's unsupported assertion that "the *highest* cost estimated by Entergy using its straight-line Gaussian plume model was a little over <u>\$4 billion</u>" PW Br. at 23 (emphasis in original), Entergy in fact calculated off-site economic costs on the order of \$20 billion for various severe accidents, which it appropriately weighted by their probability of occurrence, i.e., probabilistic risk. <u>See</u> WSMS Report at Table G.2. Furthermore, PW's entire comparison is based on its unsupported and mistaken claim, discussed above, that Entergy limited its SAMA analysis to small accidents with no impacts beyond 10 miles of the plant.

### III. PW Makes Assertions that Mischaracterize the Record or Take it Out of Context

Many of PW's assertions mischaracterize statements made by its own experts, or attempt to use those statements for support outside of the context in which the statements were made.

These mischaracterizations or out-of-context assertions do not demonstrate that PW has raised any genuine dispute on a material issue and, in fact, belie any claim that PW has done so.

Foremost, PW takes out of context its experts' statements on the appropriateness of a variable plume trajectory model. PW cites Mr. Egan's Declaration and Mr. Rothstein's materials to claim that the Gaussian Plume model is inappropriate for Pilgrim. See, e.g., PW Br. at 3 (citing Egan Decl. ¶ 9; Rothstein at 2). However, these assertions relate to the Gaussian Plume model's use for "realistic" emergency planning decisions, and do not dispute the conservatism of the model for SAMA analyses. Egan Decl. at 14 ("models used for emergency planning or evacuation purposes must be based upon good science and provide realistic assessments of where and for how long exposures to the public might take place") (emphasis added); "R. Rothstein Discussion (prepared for 5/9/06 BOS meeting)" at 1 ("with respect to evacuation, our committee had recommended that as soon as practicable, Entergy should design, develop, and deploy . . . improved air quality dispersion models") (emphasis added). Aside from the fact that emergency planning is outside the scope of license renewal, Turkey Point, CLI-01-17, 54 N.R.C. at 9, none of PW's experts dispute the use of the Gaussian Plume model for SAMA analysis.

PW also mischaracterizes the record on sea breeze. PW asserts that Entergy fails to consider any plume that initially goes out to sea but is blown back ashore, "lead[ing] to hot spots of radioactivity in places along the coast, <u>certainly to Boston</u>." PW Br. at 6 (<u>citing Beyea Report at 11</u>) (emphasis added). But, nowhere does Dr. Beyea (or any PW expert) state that the sea breeze phenomena could lead to hot spots in Boston. Dr. Beyea's Report merely states that "[r]eduction of turbulence on transport from Pilgrim across the water to Boston should also be studied."

Beyea Report at 11 (emphasis added). A mere call for further study is insufficient to demonstrate the existence of a genuine material dispute.<sup>14</sup> And none of PW's experts challenged Entergy's evidence that the sea breeze phenomenon would <u>not</u> transport a plume to significantly affect populations within the 20 to 50 mile areas around the plant – the areas which essentially drive the cost calculations in the SAMA analysis.<sup>15</sup> <u>See</u> WSMS Report at 11, 20. Therefore, PW's claims regarding sea breeze do not raise a genuine dispute that could materially affect the ultimate conclusions of the SAMA cost-benefit analysis.

#### IV. Conclusion

The Board majority correctly excluded challenges to the MACCS2 Code because PW limited Contention 3 to the appropriateness of the "input data," and PW made no showing that any of its concerns could make any SAMA potentially cost beneficial. Accordingly, the Commission should affirm the summary disposition of PW Contention 3.

Respectfully Submitted,

David R. Lewis
Paul A. Gaukler

PILLSBURY WINTHROP SHAW PITTMAN LLP

2300 N Street, NW

Washington, DC 20037-1128

Tel. (202) 663-8000

Dated: July 6, 2009

Counsel for Entergy

Whether or not such study is warranted, PW's apparent hope that "something may turn up" in an area they recommend for study is insufficient grounds for litigating an issue at trial and is therefore insufficient grounds on which to rest it opposition to summary disposition. <u>Texas Utilities Generating Co.</u> (Comanche Peak Steam Electric Station, Units 1 and 2), LBP-82-17, 15 N.R.C. 593, 596 (1982).

Also, PW's argument ignores the fact that the SAMA analysis rests on a statistically significant number of plume releases based on weather conditions randomly chosen from the site's hourly meteorological file. WSMS Report at 6, 13. As such, the analysis statistically accounts for different wind patterns. PW appears to argue that plumes initially blowing out to see could have a greater than predicted effect because the sea breeze might turn them around back to shore. Pet Br. at 18. This argument, made without expert support, ignores that plumes projected to blow inland by the Gaussian plume modeling could also reverse and blow out to sea with diminished consequences. Further, Sensitivity Case 2 ascertained whether accounting for changes in wind pattern during the analyzed plume releases would affect the SAMA analysis and showed negligible impact. Id. at 15-16.

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#### **CERTIFICATE OF SERVICE**

I hereby certify that copies of "Entergy's Reply to Pilgrim Watch's Brief in Response to CLI-09-11" were served on the persons listed below by deposit in the U.S. Mail, first class, postage prepaid, and where indicated by an asterisk, by electronic mail, this 6th day of July, 2009.

\*Secretary

Att'n: Rulemakings and Adjudications Staff Mail Stop O-16 C1
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
secy@nrc.gov; hearingdocket@nrc.gov

\*Office of Commission Appellate Adjudication Mail Stop O-16 C1 U.S. Nuclear Regulatory Commission Washington, DC 20555-0001 ocaamail@nrc.gov

\*Hon. Gregory B. Jaczko Chairman U.S. Nuclear Regulatory Commission Washington, DC 20555-0001 chairman@nrc.gov

\*Hon. Dale E. Kline Commissioner U.S. Nuclear Regulatory Commission Washington, DC 20555-0001 cmrklein@nrc.gov \*Hon. Kristine L. Svinicki
Commissioner
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
cmrsvinicki@nrc.gov

\*Administrative Judge

Dr. Richard F. Cole
Atomic Safety and Licensing Board
Mail Stop T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
rfc1@nrc.gov

\*Administrative Judge Ann Marshall Young, Esq., Chair Atomic Safety and Licensing Board Mail Stop T-3 F23 U.S. Nuclear Regulatory Commission Washington, DC 20555-0001 amy@nrc.gov \*Administrative Judge
Paul B. Abramson
Atomic Safety and Licensing Board
Mail Stop T-3 F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
pba@nrc.gov

Commonwealth of Massachusetts Office of the Attorney General One Ashburton Place Boston, MA 02108 Martha.Coakley@state.ma.us Matthew.Brock@state.ma.us

\*Matthew Brock, Assistant Attorney General Atomic Safety and Licensing Board Mail Stop T-3 F23 U.S. Nuclear Regulatory Commission Washington, DC 20555-0001

\*Ms. Mary Lampert 148 Washington Street Duxbury, MA 02332 mary.lampert@comcast.net \*Susan L. Uttal, Esq. \*Andrea Z. Jones, Esq. \*Brian Harris, Esq. Office of the General Counsel Mail Stop O-15 D21 U.S. Nuclear Regulatory Commission Washington, DC 20555-0001 Susan.Uttal@nrc.gov; andrea.jones@nrc.gov; brian.harris@nrc.gov

\*Sheila Slocum Hollis, Esq. Duane Morris LLP 505 9th Street, NW **Suite 1000** Washington, DC 20006 sshollis@duanemorris.com

\*Mr. Mark D. Sylvia Town Manager Town of Plymouth 11 Lincoln St. Plymouth, MA 02360 msylvia@townhall.plymouth.ma.us

\*Richard R. MacDonald Town Manager 878 Tremont Street Duxbury, MA 02332 macdonald@town.duxbury.ma.us \*Chief Kevin M. Nord Fire Chief and Director, Duxbury Emergency Management Agency 688 Tremont Street P.O. Box 2824 Duxbury, MA 02331 nord@town.duxbury.ma.us

David R. Lewis