

May 6-9, 2011

UNITED STATES OF AMERICA
U.S. NUCLEAR REGULATORY COMMISSION
BEFORE THE COMMISSION

In the Matter of

Amerenue (Callaway Plant Unit 2)	)	Docket No. 52-037-COL
AP1000 Design Certification Amendment 10 CFR Part 52	)	NRC-2010-0131 RIN 3150-A18
Calvert Cliffs 3 Nuclear Project, L.L.C. (Calvert Cliffs Nuclear Power Plant, Unit 3)	)	Docket No. 52-016-COL
Detroit Edison Co. (Fermi Nuclear Power Plant, Unit 3)	)	Docket No. 52-033-COL
Duke Energy Carolinas, L.L.C. (William States Lee III Nuclear Station, Units 1 and 2)	)	Docket Nos. 52-018 and 52-019
Energy Northwest (Columbia Generating Station)	)	Docket No. 50-397-LR
Entergy Nuclear Generation Co. And Entergy Nuclear Operations, Inc. (Pilgrim Nuclear Power Station)	)	Docket No. 50-293-LR
Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Station, Units 2 and 3)	)	Docket Nos. 50-247-LR and 50-286-LR
ESBWR Design Certification Amendment 10 CFR Part 52	)	NRC-2010-0135 RIN-3150-AI85
FirstEnergy Nuclear Operating Co. (Davis-Besse Nuclear Power Station, Unit 1)	)	Docket No. 50-346-LR
Florida Power & Light Co. (Turkey Point Units 6 and 7)	)	Docket Nos. 52-040-COL and 52-041-COL

Luminant Generation, Co., L.L.C. (Comanche Peak Nuclear Power Plant, Units 3 and 4)	) ) ) )	Docket Nos. 52-034-COL and 52-035-COL
Nextera Energy Seabrook, L.L.C. (Seabrook Station, Unit 1)	) ) )	Docket No. 50-443-LR
Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2)	) ) ) )	Docket Nos. 50-275-LR and 50-323-LR
PPL Bell Bend, L.L.C. (Bell Bend Nuclear Power Plant)	) ) )	Docket No. 52-039-COL
Progress Energy Carolinas, Inc. (Shearon Harris Nuclear Power Plant, Units 2 and 3)	) ) ) )	Docket Nos. 52-022-COL and 52-023-COL
Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2)	) ) ) )	Docket Nos. 52-029-COL and 52-030-COL
South Carolina Electric and Gas Co. And South Carolina Public Service Authority (Also Referred to as Santee Cooper) (Virgil C. Summer Nuclear Station, Units 1 and 2)	) ) ) ) ) )	Docket Nos. 52-027-COL and 52-028-COL
Southern Nuclear Operating Co. (Vogtle Electric Generating Plant, Units 3 and 4)	) ) ) )	Docket Nos. 52-025-COL and 52-026-COL
South Texas Project Nuclear Operating Co. (South Texas Project, Units 3 and 4)	) ) ) )	Docket Nos. 52-012-COL and 52-013-COL
Tennessee Valley Authority (Bellefonte Nuclear Power Plant, Units 1 and 2)	) ) ) )	Docket Nos. 50-438-CP and 50-439-CP
Tennessee Valley Authority (Bellefonte Nuclear Power Plant, Units 3 and 4)	) ) ) )	Docket Nos. 52-014-COL and 52-015-COL
Tennessee Valley Authority (Watts Bar Unit 2)	) ) )	Docket No. 50-0391-OL

Virginia Electric and Power Co.)
d/b/a/ Dominion Virginia Power and) Docket No. 52-017-COL
Old Dominion Electric Cooperative)
(North Anna Unit 3))

**PETITIONERS' REPLY TO RESPONSES TO
EMERGENCY PETITION TO SUSPEND ALL PENDING REACTOR
LICENSING DECISIONS AND RELATED RULEMAKING DECISIONS
PENDING INVESTIGATION OF LESSONS LEARNED FROM FUKUSHIMA
DAIICHI NUCLEAR POWER STATION ACCIDENT**

I. INTRODUCTION

Petitioners hereby reply to the responses filed in the above-captioned proceedings (collectively, the “Responses”) by the U.S. Nuclear Regulatory Commission (“NRC”) Staff, the license applicants and the Nuclear Energy Institute (“NEI”), to Petitioners’ Emergency Petition to Suspend All Pending Reactor Licensing Decisions and Related Rulemaking Decisions Pending Investigation of Lessons Learned from Fukushima Daiichi Nuclear Power Station Accident (April 14-18, 2011, corrected April 18, 2011) (“Emergency Petition”).¹ The Responses are based on mischaracterizations of the

¹ In addition to the NRC Staff and NEI, the following new reactor license applicants and license renewal applicants submitted Responses in opposition to the Emergency Petition: Calvert Cliffs 2 Nuclear Project, L.L.C. and Unistar Nuclear Operating Services, L.L.C. (Docket No. 52-016); the Detroit Edison Co. (Docket No. 52-033); Duke Energy Carolinas, L.L.C. (Docket Nos. 52-018 and 52-019); Energy Northwest (Docket No. 50-397); Entergy Nuclear Generation co. and Entergy Nuclear Operations, Inc. (Docket No. 50-203); Entergy Nuclear Operations, Inc. (Docket Nos. 50-247 and 50-286); FirstEnergy Nuclear Operating Co. (Docket No. 50-346); Florida Power & Light Co. (Docket Nos. 52-040 and 52-041); Luminant Generation Co. (Docket Nos. 52-034 and 52-035); NextEra Energy Seabrook, L.L.C. (Docket No. 50-443); Nuclear Innovation North America L.L.C. (Docket Nos. 52-012 and 52-013); Pacific Gas & Electric Co. (Docket Nos. 50-275 and 50-323); PPL Bell Bend, L.L.C. (Docket No. 52-039); Progress Energy Carolinas, Inc. (Docket Nos. 52-022 and 52-023); Progress Energy Florida, Inc. (Docket Nos. 52-029 and 52-030); South Carolina Electric and Gas Co. and South Carolina Public Service Authority (a.k.a. Santee Cooper) (Docket Nos. 52-027 and 52-028); Southern Nuclear Operating Co. (Docket Nos. 52-025 and 52-026); Tennessee Valley Authority

Petition, incorrect representations regarding the NRC's response to the Three Mile Island accident, and incorrect interpretations of the law. Therefore they should be rejected and the Petition should be granted.

II. DISCUSSION

A. The Petition is Not a Motion to Suspend all Licensing Proceedings.

The Responses raise a host of procedural criticisms that are based on a concerted mischaracterization of the Petition: almost without exception, they characterize the Petition as a "motion" to suspend "licensing proceedings." *See, e.g.*, NRC Staff Response at 9. Thus, the Responses argue, Petitioners have violated several of the NRC's regulations in Subpart C of 10 C.F.R. Part 2, which govern motions in NRC adjudications. These regulations include the requirement to consult opposing parties before filing a motion (10 C.F.R. § 2.323(b)), the requirement to file a motion within ten days of the precipitating event (10 C.F.R. § 2.323(a)), requirements for motions by parties to stay adjudicatory proceedings (10 C.F.R. § 2.342), and requirements for motions to re-open closed records of adjudicatory proceedings (10 C.F.R. § 2.326).

Contrary to the mischaracterizations by the Responses, however, the Emergency Petition does not constitute a motion that can be brought in an adjudication; nor does it seek suspension of licensing proceedings.

(Docket Nos. 50-391, 52-014 and 52-015); and Dominion Virginia Power, et al. (Docket No. 52-017).

The Commonwealth of Massachusetts (Docket No. 50-293) also filed a Response in support of Petitioners.

1. The Emergency Petition is not a motion.

First, Petitioners' Emergency Petition cannot be characterized as a motion or the equivalent of a motion that is subject to the regulations in Subpart C of 10 C.F.R. Part 2, because the relief it seeks could not be granted in an adjudication. Petitioners seek to suspend all licensing *decisions*, which are relegated by the Commission to the NRC Staff pursuant to 10 C.F.R. § 2.340. As further explained below, the regulations in Subpart C of 10 C.F.R. Part 2 regarding adjudications are simply not applicable to these licensing decisions. *See Cincinnati Gas and Electric Co. (William H. Zimmer Nuclear Station)*, LBP-79-24, 10 NRC 226, 232 (1979) (noting that duty of licensing boards in adjudications is to “resolve discrete contentions or issues” and that “[g]eneral responsibility for operating licenses rests with the Staff. . .”)²

2. The Emergency Petition seeks blanket suspension of licensing decisions, not licensing proceedings.

Second, despite the Responses' persistent mischaracterization of the Emergency Petition, Petitioners do not seek a blanket suspension of all licensing *proceedings*. Instead, they seek suspension of all licensing *decisions*. As discussed above, only the Commission has the authority to issue a blanket suspension of all licensing decisions in order to ensure the lawful and orderly consideration of the lessons learned from the Fukushima accident. While Petitioners also seek suspension of those aspects of contested

² In order to give notice to interested parties, including applicants and the NRC Staff, the Petition was submitted in pending licensing proceedings, including adjudications; however, it was not described as or intended to be a motion in any adjudication. In fact, the Petition was submitted in several proceedings in which no adjudication is pending, including the design certification rulemakings for the AP1000 and Economic Simplified Boiling Water Reactor (“ESBWR”), the Callaway combined construction permit/operating license (“COL”) proceeding, the Bell Bend COL proceeding, and the Columbia license renewal proceeding.

proceedings which concern Fukushima-related issues, this relief is incidental to the primary action requested of the Commission, which is to hold in abeyance the NRC's ultimate decisions to license or re-license reactors or certify designs.

Petitioners essentially seek the same measures that the Commission imposed in the aftermath of the Three Mile Island Accident: suspension of all licensing decisions and establishment of procedures for the meaningful and orderly consideration of the lessons learned from the accident, including provision of public participation. *See Statement of Policy: Further Commission Guidance for Power Reactor Operating Licenses*, CLI-80-42, 12 NRC 654 (1980) ("TMI Policy Statement"). Just as the Commission did not broadly suspend its licensing proceedings after the Three Mile Island accident, Petitioners do not seek a blanket suspension of licensing proceedings, but rather the establishment of procedures to ensure that contested proceedings will include the consideration of lessons learned from the accident.

Thus, as explained above, the general procedural requirements for motions made in the course of adjudications do not apply,³ nor is the Petition subject to the regulations governing motions for stays or re-opening of closed records. The cases cited in the Responses do not hold otherwise, because they all concern petitions or motions to suspend licensing *proceedings*. *See, e.g., Duke Energy Corp.* (McGuire Nuclear Station Units 1 & 2); *Catawba Nuclear Station, Units 1 & 2*, CLI-01-27, 54 NRC 385, 389-90

³ Before filing this Reply, Petitioners consulted opposing counsel to ask if they would object to a motion to modify the Commission's April 19, 2011 Order to permit such a reply. Petitioners did so because they believed that once the Commission had issued an order in this matter, it was appropriate to consult opposing counsel before seeking to modify the order. By consulting opposing counsel in this limited instance, however, Petitioners do not concede that they were required to do so in filing their Petition in the first instance.

(2001); *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-01-26, 54 NRC 376, 380 (2001); *AmerGen Energy Co., L.L.C.* (Oyster Creek Nuclear Generating Station), CLI-08-23, 68 NRC 461, 484 (2008)); *Pacific Gas & Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-02-23, 56 NRC 230 (2002); *Amergen Energy Co., et al.* (Oyster Creek Nuclear Generating Station) CLI-08-23, 68 NRC 461 (2008). In all of those decisions, the Commission was responding to requests for suspension of licensing proceedings, which is not the case here.

The one NRC case that is clearly applicable here is the 1980 TMI Policy Statement, where the Commission records its determination, in the aftermath of the Three Mile Island accident, that all licensing decisions should be suspended while the Commission studied the lessons to be learned from the accident. As the Commission summarized in that Policy Statement:

After the March 1979 accident at Three Mile Island, Unit 2, the Commission directed its technical review resources to assuring the safety of operating power reactors rather than to the issuance of new licenses. Furthermore, the Commission decided that power reactor licensing should not continue until the assessment of the TMI accident had been substantially completed and comprehensive improvements in both the operation and regulation of nuclear power plants had been set in motion.

12 NRC at 656. While NEI cites numerous licensing-related “decisions” that were made while the Commission studied the lessons of the Three Mile Island accident, NEI nevertheless admits that no decision authorizing the operation of a new reactor was made until August of 1980, 17 months after the accident. NEI Response at 7, n.15. Similarly, while the Staff cites the TMI Policy Statement for the proposition that the Commission “issued several licenses while it continued to study that accident” (NRC Staff Response

at 11), the Policy Statement states that the Commission waited to issue two full power licenses until *after* initial drafts of the Three Mile Island Action Plan had been prepared. 12 NRC 658.⁴

B. Suspension of Licensing Decisions is Necessary to Ensure Compliance With the National Environmental Policy Act.

1. No showing of immediate or irreparable harm is required.

Most of the Responses argue that the Emergency Petition should be rejected because it does not show immediate or irreparable harm to public health and safety or the environment. In making these arguments, however, they miss the central point of the Petition, which is to invoke the Commission's responsibility to comply with the National Environmental Policy Act ("NEPA") by considering new and significant information relating to the Fukushima accident. 10 C.F.R. § 51.92; *Marsh v. Oregon Natural Res. Council*, 490 U.S. 360, 373-74 (1989). The NRC's duty to consider new and significant information before making licensing decisions is nondiscretionary. *Calvert Cliff's Coordinating Commission v. AEC*, 449 F.2d 1109, 1112 (D.C. Cir. 1971) (federal agencies are held to a "strict standard of compliance" with NEPA's requirements). *See also Silva v. Romney*, 473 F.2d 287, 292 (1st Cir. 1973). Therefore it is inappropriate to apply a discretionary stay standard to answer the basic question of whether NEPA must be complied with in a timely fashion.⁵

⁴ The NRC Staff and some of the applicants also argue that the Commission did not suspend licensing proceedings while it studied the Three Mile Island accident. Petitioners do not seek that relief, however. The only relief sought by Petitioners with respect to ongoing licensing proceedings is to request the Commission to establish procedures for the consideration of Fukushima-related issues in adjudications and design certification rulemakings.

⁵ "NEPA's instruction that all federal agencies comply with its requirements – 'to the fullest extent possible,' ... is neither accidental nor hyperbolic. Rather the phrase is a

2. The NRC's existing EISs are inadequate because they do not address new and significant information arising from the Fukushima accident.

A number of Responses argue that because the NRC has already prepared final environmental impact statements in some of the proceedings, and these documents already analyze the environmental impacts of the respective licensing decisions, nothing more is required. *See, e.g.*, Southern Nuclear Operating Company's Response at 17-18. This argument, however, ignores the continuing obligation agencies have to consider new information that comes to light throughout the NEPA process, even after a final EIS has been issued. 10 C.F.R. § 51.92(a); *Marsh v. Oregon Natural Res. Council*, 490 U.S. at 373-74.

3. The existing process is not adequate to ensure prior consideration of new and significant information arising from the Fukushima accident.

Other Responses argue that the existing NRC process for consideration of new and significant information is sufficient to ensure that any new and significant information emerging from the Fukushima accident will be considered. *See, e.g.*, Energy Northwest Response at 21. But this argument ignores the real potential that the NRC may not complete its investigation before it issues or renews licenses for reactors. For instance, during the Fukushima accident, the NRC re-licensed the Vermont Yankee and Palo Verde reactors, completely failing to consider the implications of the accident for those re-licensing decisions in violation of NEPA. In order to comply with NEPA, the Commission must establish measures to ensure that it will not take licensing actions

deliberate command that the duty NEPA imposes upon the agencies to consider environmental factors not be shunted aside in the bureaucratic shuffle.” *Flint Ridge Development Co. v. Scenic Rivers Association of Oklahoma*, 426 U.S. 776 (1976).

without first taking a “hard look” at the environmental implications of the Fukushima accident. *Friends of the Clearwater v. Dombeck*, 222 F.3d 552, 557-58 (9th Cir. 2000) (quoting *Marsh v. Oregon Natural Res. Council*, 490 U.S. at 373-74.

The argument that existing procedures are sufficient also ignores NEPA’s directive that federal agencies must “integrate the NEPA process with other planning at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays..., and to head off potential conflicts.” 40 C.F.R. §1501.2. *See also* 40 C.F.R. § 1500.2 (“Federal agencies shall to the fullest extent possible: Integrate the requirements of NEPA with other planning and environmental review procedures required by law or by agency practice so that all such procedures run concurrently rather than consecutively”). Given that the NRC has decided to evaluate whether the Fukushima accident conveys lessons that must be accounted for in its safety regulations, it now has an obligation to explain how the lessons will be integrated into its environmental decision-making process.

Finally, the argument that existing procedures are sufficient fails to recognize the fact that the NRC and license applicants, in the first instance, bear the burden of analyzing environmental issues, not the public. Just as environmental reports by applicants and draft EISs by the NRC Staff must address known environmental issues before they are presented to the public, so they should be required to address the environmental significance of the events in Japan before the public is required to challenge them in comments or hearing requests.

4. Petitioners are not required to prove that new and significant information from the Fukushima accident is certain to affect the outcome of EISs.

Still other Responses argue that Petitioners have not established that an analysis of the Fukushima accident will, in fact, affect the outcome of EISs for U.S. reactors. *See, e.g.,* Energy Northwest Response at 22-23. But that is not the standard for consideration of new and significant information. “NEPA requires that the agency take a ‘hard look’ at the new information to determine *whether* a [Supplemental] EIS is necessary.” *Blue Mountains Biodiversity Project v. United States Forest Service*, 229 F.Supp.2d 1140, 1148 (D. Or. 2002) (emphasis added). *See also Warm Springs Dam Task Force v. Gribble*, 621 F.2d 1017, 1025 (9th Cir. 1980). By undertaking an investigation of the regulatory implications of the Fukushima accident from a safety standpoint, the Commission has effectively conceded that it has potential significance from an environmental standpoint. *See* discussion in Section C below.

Entergy argues that Petitioners err in claiming that the NRC must at least prepare an environmental assessment to determine the significance of the Fukushima Daiichi information. Entergy Response at 27 (citing *N. Idaho Cmty. Action Network v. DOT*, 545 F.3d 1147, 1154 (9th Cir. 2008), *price Rd. Neighborhood Ass’n v. DOT*, 113 F.2d 1505, 1509-10 (9th Cir. 1997) (holding that NEPA permits agencies to establish their own methods for evaluating new and significant information.) Petitioners respectfully submit, however, that the cases cited by Entergy do not involve the NRC, a unique agency whose organic statute requires it to offer an opportunity for public participation in its licensing decisions. *See* Section 189a of the Atomic Energy Act (“AEA”), 42 U.S.C. § 2239(a). To the extent that the NRC considers whether to incorporate lessons from the Fukushima

accident into its environmental licensing decisions, Section 189a of the AEA requires it to include the interested public in that decision-making process by offering an opportunity for a hearing. In any event, regardless of whether public participation is required in the NRC's analysis of the environmental significance of the Fukushima accident, to date the NRC has not even attempted the requisite "hard look" at the issue. *Friends of the Clearwater*, 222 F.3d at 557-58. Petitioners are not obligated to carry out that task for the NRC.

5. NEPA is not retroactive.

A number of the Responses suggest that the Commission may address the lessons of the Fukushima accident by applying them retrospectively after licenses have been issued or renewed. To do so, however, would violate NEPA's signal requirement that environmental impacts must be considered *before* licensing actions are taken and the "die is cast." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989). *See also Protect Key West v. Cheney*, 795 F. Supp. 1552, 1562 (S.D. Fla. 1992) (citing *Sierra Club v. Lujan*, 716 F. Supp. 1289 (D. Ariz. 1989); *Cady v. Morton*, 527 F.2d 786, 795 (9th Cir. 1975)) (rejecting the federal government's argument that studies, surveys, and investigations conducted after the decision was made to proceed with a project could "cure" any defects in the original EA).

Moreover, once a license is issued, environmental considerations that were non-discretionary prior to licensing also become matters of pure discretion, in which the public has no right of participation. *See, e.g., Safe Energy Coalition of Michigan v. NRC*, 866 F.2d 1473 (D.C. Cir. 1989). Thus, in an enforcement context, the public will be deprived of any right to challenge the adequacy of post-Fukushima measures to protect

the human environment, thereby undermining NEPA's purpose of encouraging public participation in environmental decisions. *See Robertson*, 490 U.S. at 348-49 (a key purpose of an EIS is to make environmental information "available to the larger audience that may also play a role in the decisionmaking process and implementation of that decision.")⁶

6. NEPA applies to the Japan events because the Commission has conceded that they have potential regulatory significance in the U.S.

Finally, several Responses maintain that NEPA does not apply to the Fukushima accident because the NRC is not undertaking a major federal licensing action for reactors in Japan and that the events in Japan do not constitute information that should be incorporated into any future draft or final EIS. *See, e.g.*, NRC Staff Response at 25, 30. The argument is frivolous. Petitioners do not contend that the NRC is undertaking a major federal licensing action for reactors in Japan, any more than the NRC has done so by creating the Task Force. Just as the Task Force is considering the implications of the Fukushima accident with respect to NRC safety regulations for U.S. reactors and spent fuel pools, so Petitioners are rightfully insisting that the NRC must consider the environmental implications of the Fukushima accident for U.S. reactors and spent fuel pools.

⁶ For this reason, NEI's suggestion that Petitioners' concerns are satisfied by the right to file post-licensing enforcement petitions under 10 C.F.R. § 2.206 is utterly devoid of merit. *See* NEI Response at 14.

C. The Occurrence of the Fukushima Accident and the Commission's Acknowledgement of its Potential Regulatory Significance Demonstrate the Existence of New and Significant Information That Must be Considered in Licensing Decisions.

In their Emergency Petition, the Petitioners contend that in forming the Task Force and identifying issues whose significance for the NRC regulatory process must be studied, the NRC effectively acknowledged that it has new information that could have a significant effect on its environmental decisions for licensing and re-licensing of reactors. Emergency Petition at 3. Petitioners assert that by establishing the Task Force and charging it with the task of investigating the implications of the Fukushima Daiichi accident with respect to its regulatory program, the Commission has, as a matter of law, bound itself to evaluate the significance of the information yielded by its investigation under NEPA and to analyze any information that is new and significant in supplemental environmental impact statements for all pending licensing decisions. *Id.* at 4 n.2. Even if the NRC ultimately concludes that the information does not have a significant effect on its licensing decisions, it must nevertheless follow NEPA's procedures for considering the information, including preparation of an environmental assessment. *Id.* at 27 (citing *Marsh*, 490 U.S. at 385 ("NEPA's mandate applies "regardless of [the agency's] eventual assessment of the significance of [the] information."))

This argument is effectively ignored in the Responses to the Petition. Instead, the Responses attack Dr. Makhijani's supporting declaration as if the Petitioners were required to *prove* the existence of significant new information that affects the outcome of the NRC's environmental analyses. Dr. Makhijani's declaration, however, is more than adequate to serve its purpose of demonstrating that the new and significant information revealed by the Fukushima accident has the *potential* to affect the outcome of NRC

licensing decisions with respect to consideration of environmental impacts. *See* Makhijani Declaration, par. 5.⁷

The Responses also contain technical arguments that are not supported by any expert declarations or affidavits. For instance, Entergy Nuclear Generating Co. et al. challenge Dr. Makhijani's analysis of severe accident probabilities, without providing any countervailing expert analysis.⁸ Entergy Response at 22-23. *See also* NEI Response at 17-18. Those arguments must be rejected out of hand for lack of technical support.

In any event, the Responses' challenges to the technical merit of Dr. Makhijani's declaration are without merit. The Staff claims, for instance, that Dr. Makhijani contradicts himself by arguing that the Fukushima accident presents new and significant information, even at the same time that he concedes that the causes, evolution and consequences of the accident are "not yet fully clear." NRC Staff Response at 27. Dr.

⁷ The NRC Staff makes the irrelevant argument that Dr. Makhijani's declaration is insufficient to support the Petition because it does not show the "immediate threat to public safety" that is necessary for a suspension of a licensing proceeding. NRC Staff Response at 28. As discussed above, however, Petitioners do not seek the suspension of all licensing proceedings. Instead, they ask the Commission to delay issuance of all licensing *decisions* until it has completed its study of the lessons of the Fukushima accident and applied those lessons to those licensing decisions, as required by NEPA and the AEA. Thus, it is not necessary for Petitioners to show an immediate threat to public safety, only that the NRC would not be in compliance with NEPA and the AEA if it were to issue licenses without considering the environmental and safety implications of the Fukushima accident for those licensing decisions.

⁸ Some Responses cite NUREG-1437, the NRC's 1996 Generic Environmental Impact Statement for License Renewal of Nuclear Plants, for the proposition that the environmental impacts of severe accidents are small because the risk of a severe accident has been determined to be small. *See, e.g.*, NRC Staff Answer at 26. However, as Dr. Makhijani's Declaration demonstrates, the Fukushima accident calls into question the NRC's previous assumptions about the risks of severe accidents. The very occurrence of a severe accident at Fukushima presents "readily available" information that calls into question the validity of the fifteen-year-old GEIS for license renewal. *See Blue Mountains Biodiversity Project*, 229 F.Supp.2d at 1148 (ordering supplementation of an EIS on summary judgment, where a fourteen-year-old EIS failed to address new and significant information developed over the intervening years).

Makhijani does not contradict himself. He relies on factual statements made to the public by the NRC and the French Government. Makhijani Declaration, pars. 6-10. In Dr. Makhijani's expert opinion, that factual information is sufficient for purposes of concluding that it is both new and significant to the regulatory process. He is not alone in that assessment; merely by assigning the Task Force to study the regulatory implications of the Fukushima accident, the Commission has effectively conceded that the information has regulatory significance. As Commissioner Svinicki stated during a recent Commission briefing on station blackout issues, "although . . . we're still working to gain knowledge of the events in Japan, station blackout certainly identifies itself as an important issue that we need to be looking at . . ." Transcript of Commission briefing on NRC Response to Events in Japan and Briefing on Station Blackout at 5 (April 28, 2011) (<http://www.nrc.gov/reading-rm/doc-collections/commission/tr/2011/20110428a.pdf>).⁹

As Dr. Makhijani attests, station blackout is one of a number of major topics on which the Fukushima accident has revealed new and significant information, including the following:

- Unanticipated compounding effects of simultaneous accidents at multiple co-located reactor units, including spent fuel pools.
- Unanticipated risks of spent fuel pool accidents, including explosions.
- Frequency of severe accidents and explosions.
- Inadequacy of safety systems to respond to long-duration accidents.
- Nuclear crisis management with contaminated control and turbine buildings that have lost power.
- Unanticipated aggravating effects of some emergency measures.

⁹ The profound gap between conditions covered by the NRC's regulations and actual potential accidents was highlighted during the discussion. As Commissioner Apostolakis observed during the April 28, 2011 briefing, the four-hour period that is required for recovery from a station blackout is conservative only for "routine failures of the grid" and does not cover "major external events." Commission briefing on Transcript of Briefing on NRC Response to Events in Japan and Briefing on Station Blackout at 48. *See also id.* at 19.

- Health effects and costs of severe accidents.
- The hydrogen explosions at Fukushima and their implications for aircraft crash evaluations.

In addition, the Staff accuses Dr. Makhijani of “prejudging the results of the Task Force’s review” by concluding that the issues identified above should be studied before the NRC makes any further licensing decisions. NRC Staff Response at 28. But Dr. Makhijani has not prejudged the results of the Task Force study any more than has Commissioner Svinicki by acknowledging that station blackout is an “important issue” that deserves further study. Tr. of April 28 Briefing at 5.¹⁰

Florida Power and Light (“FP&L”), several other applicants, and the NEI also attack Dr. Makhijani’s declaration. FP&L argues that Dr. Makhijani’s concern regarding the risk of hydrogen explosions in spent fuel pools is unfounded because “the Commission’s studies bound and do not ignore hydrogen explosions as a potential mechanism.” FP&L Response at 22. *See also* Entergy’s Response at 24, which makes a similar argument. But FP&L and Entergy provide no actual support for this novel argument. Their Responses contains no citation to any discussion of hydrogen explosions in an NRC spent fuel pool study (or any other study for that matter), and the Federal Register notice on which FP&L relies does not even mention the word “hydrogen.” *See* FP&L Response at 22 n.17 (citing 73 Fed. Reg. 46,204 (August 8, 2007)). Nor do FP&L and Entergy supply an expert declaration in support of their argument. Because the NRC’s risk analyses for spent fuel pool accidents do not include

¹⁰ Bizarrely, the Staff accuses Dr. Makhijani of advocating the “bypassing of the near-term review by the Task Force based on the information currently available.” In no respect has Dr. Makhijani advocated the abandonment of any study of the Fukushima accident that is now being conducted by the NRC. What he disagrees with is the hasty issuance of licensing decisions before those studies are complete.

hydrogen explosions, there is no way to compare the NRC's scenarios with hydrogen explosion scenarios in U.S. spent fuel pools until the studies of the Fukushima accident are complete. Thus, FP&L's and Entergy's argument is unfounded and must be rejected.

FP&L also disputes Dr. Makhijani's assertion that the uncovering of spent fuel at Fukushima, which was accompanied by boiling of the water in the pools and a destructive hydrogen explosion, demonstrates that the NRC's probability estimates for spent fuel pool fires are far too low. FP&L Response at 23 (citing Makhijani Declaration, par. 22). According to FP&L, "there have been no reports of fire at any of the Fukushima spent fuel pools, and the loss of cooling events at all three units were precipitated by the same event – station blackout." *Id.* In making this argument, FP&L ignores the fact that loss of cooling to a spent fuel pool and boiling off of the water is a recognized precursor to a pool fire. *See* 73 Fed. Reg. at 46,210. The fact that fuel was uncovered at three of the Fukushima pools thus demonstrates that the precursors to a pool fire are more likely than previously envisioned by the NRC.

FP&L, Dominion Virginia Power, et al, ("DVP"), and Duke Energy Carolinas, L.L.C. ("Duke") also claim that Dr. Makhijani has failed to show the relevance of the Fukushima accident to spent fuel pool storage at the proposed Turkey Point, North Anna and W.S. Lee new reactors because they are not BWR plants like Fukushima. FP&L Response at 21-22, VPC Response at 11-12, Duke Response at 11. But these applicants do not deny that AP1000 design on which their proposed reactors rely calls for storage of spent fuel in high-density pools. As pointed out in a recent legal petition to suspend the AP1000 design certification rulemaking, between Revision 15 and Revision 18 of the Design Control Document for the AP1000 design, Westinghouse increased the fuel

density in storage pools from 619 fuel assemblies to 884 assemblies, an increase of 42.8%. *See* Petition to Suspend AP1000 Design Certification Rulemaking Pending Evaluation of Fukushima Accident Implications on Design and Operational Procedures and Request for Expedited Consideration at 17 (April 6, 2011) (citing AP1000 DCD, Section 9.1.2.1). As Dr. Makhijani states in his declaration, the Japanese store spent fuel at lower density than in the U.S., and therefore the use of high-density pool storage for spent fuel must be re-examined.

Finally, FP&L states that “The only specific claim regarding severe reactor accidents is Dr. Makhijani’s assertion that the occurrence of accidents at three reactors should change the underlying frequency data that go into computing the probability of a severe accident at a given reactor.” FP&L cites Dr. Makhijani’s Declaration at pars. 16-19 and asserts that this statement is “erroneous.” FP&L Response at 21 n.16. However, the cited paragraphs do not discuss the issue of the frequency of the accidents at all. Paragraph 16 is a listing of the issues analyzed in Dr. Makhijani’s expert declaration, while paragraphs 17-19 only point to the fact that the NRC allows collocation of new reactors at existing sites without analyzing the problem of multi-reactor accidents. The question of the frequency of accidents and related probabilistic analysis is addressed elsewhere, in paragraphs 22 to 24 of the Makhijani Declaration. Specifically, his statement that three of the Fukushima reactors “appear to have had core damage” is simply a reiteration of the facts as they are best known at the present time. Makhijani Declaration at 22. His inference regarding the need to revisit reactor accident probabilities derives directly from this. FP&L’s statement is a misreading of Dr.

Makhijani's Declaration, refers to the wrong paragraphs, and is without factual foundation.

D. The Opponents of the Petition Would Put an Unfair Burden on Interested Members of the Public and Invite Chaos into NRC Adjudications.

Numerous Responses argue that the NRC's existing procedures for the raising of contentions in licensing cases is sufficient for the raising of Fukushima-related issues. *See, e.g.*, NRC Staff Response at 18, NEI Response at 15, FirstEnergy Response at 18. But a "business-as-usual" approach is entirely inadequate for these circumstances, where the Fukushima accident has raised so many questions about the adequacy of the NRC's regulatory program and prior environmental analyses and where the Commission itself has undertaken a systematic investigation of the accident's regulatory significance. If the Commission does not yet have enough information to judge the adequacy of its regulatory program in light of the Fukushima accident, then it would be unreasonable to require members of the public to perform that task. Yet, given that intervenors in NRC licensing cases must raise new information within 30 days of obtaining it, and given that some licensing proceedings may be finished before the NRC issues any lessons learned report, that is exactly what members of the public would be forced to do if they wished to have their concerns addressed before a licensing decision was made.

Furthermore, none of the Responses addresses the logistical difficulty of applying standard NRC procedures to the raising of new Fukushima-related contentions without some guidance from the Commission. How will an interested member of the public know when there is enough information from the Fukushima accident to justify the raising of a contention? The Response filed by Energy Northwest in the Columbia

Generating Station license renewal proceeding illustrates the potentially absurd result of failing to establish a schedule for submitting contentions on new Fukushima-related information. The Energy Northwest Response suggests no less than four “potential trigger events” that “could have prompted the Petition: the earthquake on March 11, the March 18 issuance of NRC Information Notice 2011-05, the Commission’s March 23 approval of an action plan to review the implications of the Fukushima accident, and the April 1 release of the Task Force Charter.” Energy Northwest Response at 9. If the Commission fails to provide any guidance regarding when enough information has been generated as a result of the Fukushima accident to support timely contentions, members of the public will have no choice but to submit new or amended contentions every time that some marginal new piece of information becomes available, in order to comply with the 30-day deadline for raising new information in contentions. The result would not only be chaotic and wasteful of the parties’ resources, but would divert NRC resources away from investigation of the Fukushima accident, where they should be focused. The Commission should avoid such an unproductive and wasteful outcome by providing clear procedures for the raising of issues related to the Fukushima accident after the NRC’s long-term investigation has been completed.

III. CONCLUSION

For the foregoing reasons, the Emergency Petition should be granted.

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