

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE COMMISSION

In the Matter of)
Exelon Generation Company, LLC) Docket Nos. 50-277/278 SLR
Peach Bottom Atomic Power Station,)
Units 2 & 3)
_____)

BEYOND NUCLEAR'S BRIEF ON APPEAL OF LBP-19-05

Diane Curran
Harmon, Curran, Spielberg, & Eisenberg, L.L.P.
1725 DeSales Street N.W., Suite 500
Washington, D.C. 20036
240-393-9285
dcurran@harmoncurran.com

July 15, 2019

TABLE OF CONTENTS

TABLE OF CONTENT.....i

TABLE OF AUTHORITIES.....ii

I. INTRODUCTION.....1

II. FACTUAL AND PROCEDURAL BACKGROUND.....2

A. Peach Bottom Subsequent License Renewal Application.....2

B. Beyond Nuclear’s Hearing Request.....2

C. LBP-19-05, Memorandum and Order Denying Hearing Request.....4

III. ARGUMENT.....5

A. The ASLB Erred in Finding That the Environmental Report Incorporated the 2013 License Renewal GEIS by Reference.....6

B. The ASLB Erred in Finding That Beyond Nuclear Failed to Support its Position That the 2013 License Renewal GEIS is Insufficient to Satisfy NEPA or NRC Implementing Regulations.....11

III. CONCLUSION.....16

TABLE OF AUTHORITIES

Judicial Opinions

Perez v. Mortg. Bankers Ass’n, 135 S. Ct. 1199 (2015).....15

NRC Decisions

Florida Power & Light Co. (Turkey Point Nuclear Generating, Units 3 and 4), LBP-16-08, 83 NRC 417 (2016), *aff’d on other grounds*, CLI-16-18, 84 N.R.C. 167 (2016).....6, 7, 9, 10

Florida Power & Light Co. (Turkey Point Nuclear Generating, Units 3 and 4), CLI-16-18, 84 N.R.C. 167 (2016).....6

Hydro Resources, Inc. (P.O. Box 777, Crownpoint, NM 87313), CLI-06-29, 64 N.R.C. 417 (2006).....10

Pacific Gas & Electric Co. (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-11-11, 74 NRC 427 (2011).....14, 15, 16

Pa’ina Hawaii, LLC, CLI-10-18, 72 N.R.C. 56 (2010).....10

Statutes

National Environmental Policy Act.....passim

Regulations

10 C.F.R. § 2.309(f)(1)1, 5, 10

10 C.F.R. § 2.311.....1

10 C.F.R. § 51.53(a).....2, 4, 5, 7, 9

10 C.F.R. § 51.53(c)(2).....2

10 C.F.R. § 51.53(c)(3).....2, 7, 9, 10, 16

10 C.F.R. Part 51, Appendix A, Table B-1.....7

10 C.F.R. Part 51, Subpart A, App. A § 1(b)).....5, 6

40 C.F.R. § 1502.21.....6

40 C.F.R. § 1502.22.....4, 16

Miscellaneous

NUREG-1555, Standard Review Plans for Environmental Reviews for Nuclear
Power Plants (Oct. 1999) (“NUREG-1555”).....7

July 15, 2019

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE COMMISSION

In the Matter of)
Exelon Generation Company, LLC) Docket Nos. 50-277/278 SLR
Peach Bottom Atomic Power Station,)
Units 2 & 3)

BEYOND NUCLEAR’S BRIEF ON APPEAL OF LBP-19-05

I. INTRODUCTION

Pursuant to 10 C.F.R. § 2.311, Beyond Nuclear, Inc. (“Beyond Nuclear”) hereby submits its brief on appeal of LBP-19-05, the Atomic Safety and Licensing Board’s (“ASLB’s”) Memorandum and Order (Denying Beyond Nuclear’s Petition to Intervene) (June 20, 2019) (“LBP-19-05”). Beyond Nuclear seeks reversal of the ASLB’s ruling on Contention 2, which challenges the adequacy of Exelon Generation Co.’s (“Exelon’s”) Environmental Report to address environmental risks posed by operation of Peach Bottom Units 2 and 3 with aging equipment. The ASLB’s decision should be reversed because it violates the requirements of the National Environmental Policy Act (“NEPA”) and U.S. Nuclear Regulatory Commission (“NRC”) implementing regulations, and incorrectly applies NRC standards for the admissibility of contentions in 10 C.F.R. § 2.309(f)(1).¹

¹ Without conceding the lawfulness of the ASLB’s ruling on Contention 1, Beyond Nuclear does not challenge that ruling.

II. FACTUAL AND PROCEDURAL BACKGROUND

A. Peach Bottom Subsequent License Renewal Application

This proceeding concerns Exelon Generation Co., L.L.C.'s ("Exelon's") application for subsequent license renewal ("SLR") of its operating license for the Peach Bottom Units 2 and 3 nuclear power plant. The NRC licensed the Peach Bottom reactors in 1973 (Unit 2) and 1974 (Unit 3). If Exelon's SLR application is granted, Peach Bottom may be operated for an additional twenty years beyond its current renewed operating license term, or until 2053 (Unit 2) and 2054 (Unit 3). The total term of Peach Bottom's initially-permitted operating life would thereby be doubled from 40 years to 80 years.

B. Beyond Nuclear's Hearing Request

On November 19, 2018, Beyond Nuclear submitted a timely hearing request setting forth two contentions relating to the safety and environmental risks posed by aging equipment at the Peach Bottom reactors during the SLR term. Beyond Nuclear's Hearing Request and Petition to Intervene ("Hearing Request"). Contention 2, on appeal here, charged that Exelon's Environmental Report failed to satisfy NEPA or its implementing regulations because it erroneously relied on the analysis of design basis accidents in NUREG-1437, Rev. 1, the License Renewal Generic Environmental Impact Statement (2013) ("2013 License Renewal GEIS") for its analysis of the environmental impacts of design basis accidents. Beyond Nuclear asserted that Exelon incorrectly interpreted 10 C.F.R. § 51.53(c)(3) to allow it to designate design basis accidents as a "Category 1" issue, exempt from consideration under Table B-1 of 10 C.F.R. Part 51, Appendix A. Hearing Request at 11 (citing Environmental Report at 4-12). By its plain language, 10 C.F.R. § 51.53(c)(3) applies only to "initial" license renewal, not to

subsequent license renewal. Therefore, Exelon's application is governed by 10 C.F.R. § 51.53(c)(2), which contains no such exemption. *Id.*

In addition, Contention 2 asserted that Exelon violates NEPA by failing to review and evaluate the existing body of literature regarding reactor aging phenomena and their effects beyond 60 years. Hearing Request at 7. The Environmental Report was deficient, according to Beyond Nuclear, because it did not address the significant body of studies raising concerns about how much is still unknown about the effects of aging on reactor safety equipment. Relevant studies include, for instance, the Expanded Materials Degradation Assessment (EMDA), a five-volume report prepared by the NRC and the U.S. Department of Energy ("DOE"), NUREG/CR-7153, ORNL/TM-2013/532, Oct. 2014) ("EMDA Report"). Beyond Nuclear also pointed to other examples of relevant studies of aging reactor equipment are listed in Section 4 of the contention's supporting expert report by David Lochbaum. Hearing Request at 7 (citing David A. Lochbaum, Proposed Subsequent License Renewal of Peach Bottom Units 2 and 3: Exelon's Aging Management Programs Fail to Provide Adequate Measures for Consideration of Operating Experience Throughout the Period of Extended Operation (Nov. 16, 2018) ("Lochbaum Expert Report")).

In addition, Beyond Nuclear contended that Exelon's Environmental Report should also address the environmental implications of unresolved reactor aging issues identified by the NRC Staff as "the most significant technical issues challenging [reactor] operation beyond 60 years." Hearing Request at 7-8 (citing SECY-14-0016, Memorandum from Mark A. Satorius, NRC Executive Director of Operations, to NRC Commissioners, re: Ongoing Staff Activities to Assess Regulatory Considerations for

Power Reactor Subsequent License Renewal (Jan. 31, 2014) (NRC ADAMS Accession No. ML14050A306) (“SECY-14-0016”). These issues include reactor pressure vessel embrittlement; irradiation-assisted stress corrosion cracking of reactor internals, concrete structures and containment degradation; and electrical cable qualification and condition assessment. *Id.* (citing SECY-14-0016, Enclosure 1 at 2-3). As stated by senior NRC management, “it is the industry’s responsibility to resolve these and other issues to provide the technical bases to ensure safe operation beyond 60 years.” *Id.* Beyond Nuclear asserted that the Environmental Report should address the degree to which a lack of information regarding the effects of aging on reactor systems and components affects the environmental risk posed by extended operation. Hearing Request at 8 (citing 40 C.F.R. § 1502.22).

Exelon and the NRC Staff opposed the admission of Contention 1. Exelon’s Answer Opposing Beyond Nuclear Inc.’s Hearing Request and Petition to Intervene (Dec. 14, 2018); NRC Staff Answer to Beyond Nuclear, Inc.’s Hearing Request and Petition to Intervene (Dec. 14, 2018). Beyond Nuclear replied in Beyond Nuclear’s Reply to Exelon’s and NRC Staff’s Oppositions to Hearing Request and Petition to Intervene (December 21, 2018) (“Reply”). The ASLB held an oral argument on March 27, 2019.

C. LBP-19-05, Memorandum and Order Denying Hearing Request

On June 20, 2019, the ASLB issued a decision granting Beyond Nuclear standing and approving the amendment of its contention to acknowledge the revision of a relevant document (*see* note 5, *infra*) but denying admission of both contentions. With respect to Contention 2, the ASLB declined to address the question of whether 10 C.F.R. § 51.53(c)(3) applied to Exelon’s Environmental Report, but found instead that Exelon was

permitted to incorporate the 2013 License Renewal GEIS by reference under 10 C.F.R. § 51.53(a). LBP-19-05, slip op. at 19. The ASLB also found that Beyond Nuclear had failed to explain why Exelon could not incorporate the 2013 GEIS' analysis, other than to criticize Exelon's failure to "expand the temporal scope of the environmental analysis" to the SLR term. *Id.*, slip op. at 20 (quoting Hearing Request at 12). With respect to the Environmental Report's failure to consider existing body of literature regarding aging equipment or the issues raised in SECY-14-0016, the ASLB found that Beyond Nuclear had "not specified any legal basis" for requiring Exelon's Environmental Report to consider those documents. *Id.*, slip op. at 22. Finally, the ASLB found no support for Beyond Nuclear's assertion that the Environmental Report should address the declining amount of external operating experience that would be available during the SLR term. *Id.*, slip op. at 23.

III. ARGUMENT

As demonstrated below, LBP-19-05 is inconsistent with NEPA and its implementing regulations, as well as the NRC's standards for admissibility of contentions. First, the ASLB disregarded NRC regulations for the incorporation of documents by reference in 10 C.F.R. Part 51, Subpart A, App. A § 1(b) in concluding that Exelon had properly incorporated the 2013 License Renewal GEIS by reference into the Environmental Report. Had the ASLB applied the appropriate standard, it would have had to conclude that Exelon's Environmental Report failed the test.

Second, the ASLB misapplied the NRC's standard for admissibility of contentions in 10 C.F.R. § 2.309(f)(1) by concluding that: (a) that Beyond Nuclear had failed to support its assertion that the Environmental Report should have considered relevant technical

literature and an important NRC memorandum about unresolved aging issues, and (b) that Beyond Nuclear had not supported its assertion that the Environmental Report should address the environmental significance of the declining body of external operating experience due to the retirement or early shutdown of a significant portion of the fleet of currently operating reactors. In fact, Beyond Nuclear provided more-than-adequate support for the demonstration of a genuine dispute about a material issue of law and fact regarding both of those issues.

A. The ASLB Erred in Finding That the Environmental Report Incorporated the 2013 License Renewal GEIS by Reference.

To incorporate another environmental study by reference, an environmental document must (1) make specific reference to the material incorporated, (2) consider environmental changes that occurred after the incorporated study was prepared, and (3) consider the environmental effects of the specific license at issue. *Florida Power & Light Co.* (Turkey Point Nuclear Generating, Units 3 and 4), LBP-16-08, 83 N.R.C. 417, 422 (2016) (“LBP-16-08”), *aff’d on other grounds*, CLI-16-18, 84 N.R.C. 167 (2016) (“CLI-16-18”) (citing 10 C.F.R. Part 51, Subpart A, App. A § 1(b)) (adopting “[t]he techniques of tiering and incorporation by reference described respectively in 40 CFR 1502.21 of [the Council on Environmental Quality’s (“CEQ’s) NEPA regulations.”]).² CEQ regulation 40 C.F.R. § 1502.21 provides, in turn, that:

Agencies shall incorporate material into an environmental impact statement by reference when the effect will be to cut down on bulk without impeding agency and public review of the action. The incorporated material shall be cited in the

² In CLI-16-18, the Commission affirmed the ASLB’s use of the hearing process to resolve the deficiencies of the Environmental Assessment, including the NRC Staff’s failure to fulfill the agency’s requirements for incorporation by reference of NEPA documents. Commissioner Baran dissented, on the ground that the hearing process could not lawfully be used to cure “such an inadequate EA.” 84 N.R.C. at 178.

statement and its content briefly described. No material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment. Material based on proprietary data which is itself not available for review and comment shall not be incorporated by reference.

In addition, as noted by the ASLB in LBP-16-08, the NRC’s own guidance “instructs those drafting NEPA documents to “summarize the discussion in the referenced document and *provide specific section references to ensure that the public has easy access to the relevant information.*” LBP-16-08, 83 N.R.C. at 432 and n. 98 (emphasis in original) (citing NUREG-1555, Standard Review Plans for Environmental Reviews for Nuclear Power Plants (Oct. 1999) (“NUREG-1555”). While NUREG-1555 applies to Environmental Impact Statements (“EISs”) prepared by the NRC, the ASLB applied it to an environmental report in LBP-16-08, and the governing principles are equally applicable to an environmental report.

The Environmental Report does not fulfill any of these requirements. Instead, the few sentences addressing the environmental impacts of design basis accidents convey only that design basis accidents constitute a “Category 1” issue under Table B-1 of 10 C.F.R. Part 51, Appendix A and 10 C.F.R. § 51.53(c)(3) (*i.e.*, an issue for which the NRC has made a generic determination that environmental impacts are “SMALL” and is therefore exempt from discussion) and that Exelon did not find any “new and significant information” to call that determination into question.³ The Environmental Report fails to

³ The Environmental Report refers to the environmental impacts of design basis accidents as follows:

At page 4-4, the Environmental Report makes the following general statement about Category 1 issues (including Issue 65, design basis accidents):

Exelon Generation adopts by reference the NRC findings of SMALL for the 55 applicable Category 1 issues because no new and significant information was

provide the reader with any citation to a chapter, section number, or page number in the 2013 License Renewal GEIS where a discussion of design basis accidents can be found; and it contains no summary of the 2013 analysis. “Without any guidance on what to look for in [the 2013 License Renewal GEIS], or where no reasonable person would be able to find the precise provisions” relied on by Exelon in the Environmental Report. LBP-16-08, 83 N.R.C. at 434.

Nor does the Environmental Report provide any information about environmental changes during the SLR period. For instance, there is no discussion of the likely changes to the condition of equipment during the last twenty years of an 80-year operating license period, or how those changes could affect environmental risk. While Exelon claims in the

found for any of them, and no further assessments of impacts associated with these Category 1 issues have been performed. Table 4.0-1 lists each applicable Category 1 issue, the corresponding NRC findings from the 2013 GEIS, and other sections in this environmental report that contain PBAPS information relevant to the issue.

At page 4-12, Table 4.0-1 (a list “Category 1 Issues Applicable to PBAPS [Peach Bottom Atomic Power Station]”), the Environmental Report describes the environmental impacts of design basis accidents (Issue Number 65) as:

SMALL. The NRC staff has concluded that the environmental impacts of design-basis accidents are of small significance for all plants.

At page 4-69, the Environmental Report states:

The 2013 GEIS defines postulated accidents to include the following Category 1 issue:

- Issue 65 - Design-basis accidents

No new and significant information was identified regarding impacts from design-basis accidents. Therefore, the conclusions in the 2013 GEIS are considered appropriate for the PBAPS SLR, are incorporated herein by reference, and do not need further analysis.

Environmental Report to have determined that there is no “new and significant information” that would change the finding of insignificant environmental impacts (*see* note 4 and Environmental Report at 4-69), the Environmental Report contains no hint of how Exelon reached that conclusion. Did Exelon review the current body of literature about the risks of operating nuclear reactors beyond 60 years? Did Exelon evaluate the unresolved safety issues identified in SECY-14-0016 and decide they did not affect environmental risk? The Environmental Report gives no indication.

Finally, the Environmental Report does not contain *any* analysis of design basis accident impacts at Peach Bottom Units 2 and 3, or how the 2013 License Renewal GEIS applies to Peach Bottom. “[W]ithin the four corners” of the Environmental Report, “there is no evaluation” of design basis accident impacts. LBP-16-08, 83 N.R.C. at 441 (rejecting incorporation by reference of other NEPA analyses of groundwater issues when the environmental assessment at issue contained no such analysis). The Environmental Report does not contain even one sentence attempting to justify the relevance of the 2013 License Renewal GEIS to Exelon’s SLR application for Peach Bottom.

This is hardly surprising, because Exelon quite clearly did not rely on 10 C.F.R. § 51.53(a) to incorporate the 2013 License Renewal GEIS into its Environmental Report for Peach Bottom Units 2 and 3. The Environmental Report contains no references at all to Section 51.53(a), and instead refers to Category 1 and 10 C.F.R. § 51.53(c)(3) throughout the document. The only references to 10 C.F.R. § 51.53(a) in this proceeding are in Exelon’s attorneys’ response to Beyond Nuclear’s Hearing Request and LBP-19-05 (*see slip op.* at 20 and n. 98): a post-hoc rationalization that falls flat in light of Exelon’s

complete failure to fulfill the NRC’s requirements for incorporation by reference under that standard.

Because the Environmental Report provides no indication that Exelon performed any review of the environmental impacts of design basis accidents at Peach Bottom Units 2 and 3, evaluated whether the 2013 License Renewal GEIS would provide an adequate analysis of those impacts, or justified its reliance on the 2013 License Renewal GEIS, Exelon violates the NRC’s standards for incorporation of external documents by reference into an environmental analysis. Furthermore, and by the same token, Exelon violates NEPA’s overarching requirement for a “hard look” at the environmental impacts of its proposed action. LBP-16-08, slip op. at 431 and n. 94 (citing *Pa’ina Hawaii, LLC*, CLI-10-18, 72 N.R.C. 56, 69, 85 (2010) (affirming licensing board’s conclusion that the NRC Staff had to consider alternative sites to satisfy the ‘hard look’ standard required by NEPA); *Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, NM 87313), CLI-06-29, 64 N.R.C. 417, 426 (2006) (concluding that EIS had discussed mitigation measures in sufficient detail to satisfy “hard look” standard). Accordingly, LBP-19-05 should be reversed and remanded for consideration of Beyond Nuclear’s claim that 10 C.F.R. § 51.53(c)(3) does not apply to Exelon’s Environmental Report.⁴

⁴ Beyond Nuclear continues to assert that 10 C.F.R. § 51.53(c)(3) does not apply to Exelon’s Environmental Report. The parties fully briefed and argued that issue before the ASLB, but the ASLB declined to address it. LBP-19-05, slip op. at 19. Therefore, Beyond Nuclear seeks a remand to the ASLB for a ruling. If the Commission decides to address the applicability of 10 C.F.R. § 51.53(c)(3) without first remanding it to the ASLB, Beyond Nuclear requests the Commission to provide a separate opportunity for briefing of the issue; or, in the alternative, to consider the arguments made in Beyond Nuclear’s Hearing Request and Reply.

B. The ASLB Erred in Finding That Beyond Nuclear Failed to Support its Assertion That the 2013 License Renewal GEIS is Insufficient to Satisfy NEPA or NRC Implementing Regulations.

As set forth in LBP-19-05, NRC regulations for the admissibility of contentions require that hearing requests must:

- (i) Provide a specific statement of the issue of law or fact to be raised or controverted . . . ;
- (ii) Provide a brief explanation of the basis for the contention;
- (iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding;
- (iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding;
- (v) Provide a concise statement of the alleged facts or expert opinions which support the . . . petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the . . . petitioner intends to rely to support its position on the issue; [and]
- (vi) . . . [P]rovide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact. This information must include references to specific portions of the application (including the applicant's environmental report and safety report) that the petitioner disputes and the supporting reasons for each dispute, or, if the petitioner believes that the application fails to contain information on a relevant matter as required by law, the identification of each failure and the supporting reasons for the petitioner's belief.

LBP-19-05, slip op. at 6-7 (citing 10 C.F.R. § 2.309(f)(1)). Beyond Nuclear's Contention 2 asserts that the Environmental Report is deficient for failing to address "a body of literature concerning aging reactor phenomena that might occur beyond the first sixty years of operation." LBP-19-05, slip op. at 21. *See also* Hearing Request at 6-7. In particular, Beyond Nuclear seeks consideration of five technical studies cited in Section 4 of Mr. Lochbaum's Expert Report, including a subsequently-published revision of one of

those documents; and SECY-14-0016.⁵ It bears noting, in this context, that Exelon’s Environmental Report says *absolutely nothing* about the environmental impacts of

⁵ The cited documents are:

Glass, S. W., Fifield, L. S., Dib, G., Tedeschi, J. R., Jones A. M., and Hartman, T.S., Pacific Northwest National Laboratory. 2015. PNNL-24649: “State-of-the-Art Assessment of NDE Techniques for Aging Cable Management in Nuclear Power Plants.” September 2015. Online at https://www.pnnl.gov/main/publications/external/technical_reports/PNNL-24649.pdf

NUREG/CR-7153, Vol. 1, “Expanded Materials Degradation Assessment (EMDA) Volume 1: Executive Summary of EMDA Process and Results.” October 2014. (ML14279A321) Online at <https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML14279A321>

NUREG/CR-7153, Vol. 2, “Expanded Materials Degradation Assessment (EMDA) Volume 2: Aging of Core Internals and Piping Systems.” October 2014. (ML14279A331) Online at <https://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber=ML14279A331>

Lucius Pitkin, Inc (LPI). 2013. “Expected Condition of Concrete Exposed to Radiation at Age 80 Years of Reactor Operation.” December 2013. Include in ORNL/TM-2018-769 online at <https://info.ornl.gov/sites/publications/Files/Pub107682.pdf>

Ramuhali, P., Glass S.W., Devanathan, R., Knobbs, K., and Meyer, R. M., Pacific Northwest National Laboratory. 2017. PNNL-27120: “Criteria and Planning Guidance for Ex-Plant Harvesting to Support Subsequent License Renewal.” December 2017

Ramuhali, P., Glass S.W., Devanathan, R., Knobbs, K., and Meyer, R. M., Pacific Northwest National Laboratory. 2019. PNNL-27120, Rev. 1, Criteria and Planning Guidance to Ex-Plant Harvesting to Support Subsequent License Renewal (March 31, 2019) (ADAMS Accession No. ML19081A006). (*This document is a revised version of the Ramuhali 2017 report cited directly above. The ASLB approved the amendment of Contention 2 to include the 2019 document in LBP-19-05, although it did not admit the contention. See slip op. at 12-13.*)

SECY-14-0016: “Ongoing Staff Activities to Assess Regulatory Considerations for Power Reactor Subsequent License Renewal.” January 31, 2014. (ML14050A306). Online at <https://www.nrc.gov/docs/ML1405/ML14050A306.pdf>

operating Peach Bottom Units 2 and 3 for an additional twenty years past the current 60-year limit. Nor does Exelon identify a single document to support its conclusion that there is no “new and significant information” about aging effects that should be addressed in its environmental analysis. The Environmental Report simply assumes that Exelon is exempted by Table B-1 from considering those environmental impacts. Contention 2 demonstrates the existence of relevant information that *must* be evaluated in order to satisfy NEPA’s “hard look” requirement. *See* discussion above at page 10.

As discussed in Contention 2 and the Lochbaum report, these documents – which were issued after the 2013 License Renewal GEIS -- identify new information about aging processes “significant knowledge” gaps regarding those processes. For instance, the 2014 EMDA Report, prepared by the NRC and the DOE, raised concerns regarding “increased susceptibility to known degradation modes” and “new mechanisms” of degradation during reactor operation after 60 years, as follows:

Extending reactor operation to beyond 60 years will increase the demands on materials and components. While operation beyond 60 will add additional time and neutron fluence, the primary impact will be increased susceptibility to known degradation modes, although new mechanisms are possible.

For the reactor core and primary systems, several key issues have been identified. Thermomechanical considerations such as aging and fatigue must be examined. Irradiation-induced processes must also be considered for higher fluences, particularly the influence of radiation induced segregation (RIS), swelling, and/or precipitation on embrittlement. Corrosion takes many forms within the reactor core and piping systems, although irradiation assisted stress corrosion cracking (IASCC) and PWSCC [primary water stress corrosion cracking] are of high interest in extended life scenarios.

Research in these areas can build upon other ongoing programs in the light water reactor (LWR) industry as well as other reactor materials programs (such as fusion and fast reactors) to help resolve these issues for extended LWR [light

water reactor] life. *In the secondary systems, corrosion is extremely complex. Understanding the various modes of corrosion and identifying mitigation strategies is an important step for long-term service.*

For reactor pressure vessels, *a number of significant issues have been identified* for future research. Relatively sparse or nonexistent data at high fluences, for long radiation exposure (duration), and resulting high embrittlement create large uncertainties for embrittlement predictions. The use of test reactors at high fluxes to obtain high fluence data is not the most direct representation of the low flux conditions in RPVs. Late-blooming phases (LBPs), especially for high nickel welds, have been observed and additional experimental data are needed in the high fluence regime where they are expected. Other discussed issues include specific needs regarding application of the fracture toughness master curve, data on long term thermal aging, attenuation of embrittlement through the RPV wall, and the development of an embrittlement trend curve based on fracture toughness measurements.

Concrete structures can also suffer undesirable changes in properties with time, including adverse performance of its cement paste matrix or aggregate constituents under environmental influences (e.g., physical or chemical attack). Changes to embedded steel reinforcement as well as its interaction with concrete can also be detrimental to concrete's service life. Aging effects can be exacerbated if improper concrete specifications were used at the time of construction. A number of areas of research would help assess the long-term integrity of the reactor concrete structures.

Cable and cable insulation systems play an important role in the safety and operation of a nuclear power plant. Degradation of polymer insulation due to the combined effects of mechanical stress, elevated temperature, irradiation and high humidity environments (or complete submergence) has been observed, although there may be knowledge gaps for reactor long term operation.

Hearing Request at 12-13 (citing EMDA Report, Vol. 1 at 3-4) (emphasis added). This catalogue of poorly understood aging remains unresolved, and EMDA recommended further research on these issues. *Id.* Regardless of whether further research is required, NEPA requires that the lack of information must be addressed. *Pacific Gas & Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-11-11, 74 N.R.C. 427, 443 (2011) (“CLI-11-11”).

New information about unresolved issues is also identified in SECY-14-0016. As stated in Contention 2:

The NRC Staff has also instructed licensees that in order to they must “resolve” issues related to reactor pressure vessel embrittlement; irradiation-assisted stress corrosion cracking of reactor internals, concrete structures and containment degradation; and electrical cable qualification and condition assessment, in order to “provide the technical bases to ensure safe operation beyond 60 years.” SECY-14-016, Enclosure 1 at 2-3. At the very least, the Environmental Report must address the environmental implications of the lack of information.

Hearing Request at 13-14 (citing CLI-11-11).⁶

Despite Beyond Nuclear’s clear identification of relevant documents and explanation of the relevance of their content, the ASLB refused to admit Beyond Nuclear’s contention that they should be considered in the Environmental Report. The Board’s reasoning, that Beyond Nuclear had “not specified any legal basis” to require Exelon to address those documents (*id.*, slip op. at 22) disregards Beyond Nuclear’s citations to the relevant law. Beyond Nuclear explicitly relied on CLI-11-11, 74 N.R.C. at 443, in which the Commission held admissible a contention asserting that an

⁶ As noted in Beyond Nuclear’s Hearing Request at 12 n.1, SECY-14-0016 expresses the NRC Staff’s opinion that the 2013 Revised License Renewal GEIS is adequate to support subsequent license renewal. *Id.* at 3. But the Staff does not explain how it is possible to reconcile its opinion that the 2013 Revised License Renewal GEIS is adequate to support subsequent license renewal with its opinion – stated in the same memorandum – that subsequent license renewal raises technical issues that must be resolved in order to ensure safe operation. *See* Enclosure 1 at 2-3.

In addition, SECY-14-0016 does not state, nor does any evidence exist, that the 2013 Revised License Renewal GEIS specifically examined the environmental impacts of operating reactors for an additional twenty years beyond the initial renewed license term. The opinion of the NRC Staff is just an opinion. Unless it is published and offered for public comment, it cannot be relied upon to expand the scope of the 1996 GEIS or the 2013 Revised GEIS. *Perez v. Mortg. Bankers Ass’n*, 135 S. Ct. 1199, 1206 (2015) (“agencies [must] use the same procedures when they amend or repeal a rule as they used to issue the rule in the first instance.”).

Environmental Report should consider a seismic study where the licensee had conceded the relevance of seismic risk. Beyond Nuclear also relied on a citation to CEQ regulation 40 C.F.R. § 1502.22, cited as “guidance” in CLI-11-11 (74 N.R.C. at 444), which provides that “when an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.” Beyond Nuclear raised a genuine and material dispute with Exelon by asserting that the Environmental Report should address the degree to which a lack of information regarding the effects of aging on reactor systems and components affects the environmental risk posed by extended operation.

Thus, contrary to the holding of the ASLB in LBP-19-05, Contention 2 provides both a detailed factual basis and legal support that are sufficient to raise a genuine and material dispute with Exelon regarding the adequacy of Exelon’s Environmental Report to consider the environmental impacts of aging reactor equipment beyond 60 years.

III. CONCLUSION

For the foregoing reasons, the Commission should reverse LBP-19-05 and remand it to the ASLB to address the applicability of 10 C.F.R. § 51.53(c)(3) to Exelon’s Environmental Report.

Respectfully submitted,

 /signed electronically by/

Diane Curran
Harmon, Curran, Spielberg, & Eisenberg, L.L.P.
1725 DeSales Street N.W., Suite 500
Washington, D.C. 20036
240-393-9285
dcurran@harmoncurran.com
July 15, 2019

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE COMMISSION

_____)
In the Matter of)
Exelon Generation Company, LLC) Docket Nos. 50-277/278 SLR
Peach Bottom Atomic Power Station,)
Units 2 & 3)
_____)

CERTIFICATE OF SERVICE

I certify that on July 15, 2019, I posted copies of the foregoing Beyond Nuclear, Inc.'s Brief on Appeal of LBP-19-05 on the NRC's Electronic Information Exchange System.

/signed electronically by/
Diane Curran