

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ronald M. Spritzer, Chairman  
Dr. Richard F. Cole  
Dr. Alice C. Mignerey

In the Matter of

VIRGINIA ELECTRIC and POWER COMPANY  
d/b/a DOMINION VIRGINIA POWER and OLD  
DOMINION ELECTRIC COOPERATIVE

(Combined License Application  
for North Anna Unit 3)

Docket No. 52-017-COL

ASLBP No. 08-863-01-COL

April 6, 2011

MEMORANDUM AND ORDER

(Declining to Admit New Contentions 12 and 13)

On October 2, 2010, the Blue Ridge Environmental Defense League (BREDL) filed two new contentions presently before the Board, which BREDL maintains are based on new information in the June 29, 2010 revision to the Combined License Application (COLA) of Applicant, Virginia Electric and Power Company d/b/a Dominion Virginia Power and Old Dominion Electric Cooperative (Dominion or Applicant).<sup>1</sup> Both Dominion and the NRC Staff oppose admission of the two new contentions. Although BREDL numbered the new contentions as "Contention One" and "Contention Two," we will refer to them as Contentions 12 and 13 to avoid confusion with BREDL's Contentions 1 and 2 that were filed with its original hearing request.

For the reasons explained below, we do not admit either of BREDL's new contentions.

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<sup>1</sup> Intervenor's New Contentions (Oct. 2, 2010) [hereinafter New Contentions].

## BACKGROUND

The Board, in its August 15, 2008 Ruling on Petitioner's Standing and Contention Admissibility, described the relevant background of this Combined License (COL) proceeding and the prior Early Site Permit (ESP) proceeding for proposed new units at the North Anna site.<sup>2</sup> To summarize, on September 25, 2003, Dominion filed an Application with the NRC for an ESP pursuant to 10 C.F.R. § 52.24. In its ESP Application, Dominion sought the NRC's approval to locate additional nuclear power reactors, which would generate up to a total of 9000 megawatts thermal (MWT), at a site within the North Anna Power Station near the shore of Lake Anna in Louisa County, Virginia.<sup>3</sup> We provide a detailed review of relevant parts of the ESP proceeding in connection with our analysis of Contention 12 infra. On November 27, 2007, the NRC approved Dominion's ESP Application pursuant to 10 C.F.R. § 2.340(f).<sup>4</sup>

On November 26, 2007, Dominion filed its COLA for North Anna Unit 3 pursuant to Subpart C of 10 C.F.R. Part 52.<sup>5</sup> Dominion's COLA for Unit 3 incorporated the Economic Simplified Boiling Water Reactor (ESBWR) design, as permitted by NRC regulations.<sup>6</sup> On March 10, 2008, the NRC published a Notice of Hearing and Opportunity to Petition for Leave to Intervene on the COLA.<sup>7</sup> On May 9, 2008, BREDL submitted a Petition to Intervene and Request for Hearing, which included eight contentions.<sup>8</sup> Dominion and the NRC Staff each filed Answers

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<sup>2</sup> See LBP-08-15, 68 NRC 294, 299-302 (2008).

<sup>3</sup> Id. at 299-300.

<sup>4</sup> Notice of Issuance of Early Site Permit for Dominion Nuclear North Anna, LLC Located 40 Miles North-Northwest of the City of Richmond, VA, 72 Fed. Reg. 68,202 (Dec. 4, 2007).

<sup>5</sup> LBP-08-15, 68 NRC at 302.

<sup>6</sup> Id.; see 10 C.F.R. § 52.73.

<sup>7</sup> Dominion Virginia Power; Notice of Hearing and Opportunity To Petition for Leave To Intervene on a Combined License for North Anna Unit 3, 73 Fed. Reg. 12,760 (Mar. 10, 2008).

<sup>8</sup> Petition for Intervention and Request for Hearing by the Blue Ridge Environmental Defense League (May 9, 2008) at 5-30.

opposing the Petition,<sup>9</sup> and BREDL replied.<sup>10</sup> The Board issued a Memorandum and Order on August 15, 2008, in which it found that BREDL had standing, admitted BREDL's Contention 1 in part, determined that BREDL's remaining contentions were inadmissible, admitted BREDL as a party, and granted BREDL's request for a hearing.<sup>11</sup>

On June 1, 2010, the NRC Staff informed the parties that Dominion intended to revise its COLA to incorporate a different nuclear reactor design, the U.S. Advanced Pressurized Water Reactor (US-APWR), instead of the ESBWR.<sup>12</sup> On June 29, 2010, Dominion confirmed the NRC Staff's letter by filing a notice of its revision to its COLA to incorporate the US-APWR design.<sup>13</sup>

BREDL filed a new contention, Contention 11, which challenged the legality of Dominion's June 2010 COLA Revision.<sup>14</sup> Dominion and the NRC Staff each filed responses opposing admission of Contention 11.<sup>15</sup> In addition to opposing the new contention, both the Applicant and the NRC Staff suggested that the Board issue an order establishing a schedule for the filing of any

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<sup>9</sup> Dominion's Answer Opposing Petition for Intervention and Request for Hearing by the Blue Ridge Environmental Defense League (June 3, 2008); NRC Staff Answer to "Petition for Intervention and Request for Hearing by the Blue Ridge Environmental Defense League" (June 3, 2008).

<sup>10</sup> Reply of the Blue Ridge Environmental Defense League to Dominion Virginia Power and NRC Staff Answers to Our Petition for Intervention and Request for Hearing (June 11, 2008).

<sup>11</sup> LBP-08-15, 68 NRC at 338.

<sup>12</sup> Letter from Robert M. Weisman, Counsel for the NRC Staff, to Atomic Safety and Licensing Board (June 1, 2010) at 1.

<sup>13</sup> Letter from David R. Lewis, Counsel for Dominion, to Atomic Safety and Licensing Board (June 29, 2010) at 1.

<sup>14</sup> Intervenor's New Contention Eleven (June 17, 2010).

<sup>15</sup> Dominion's Opposition to BREDL's New Contention 11 (July 12, 2010) [hereinafter Dominion Answer to New Contention Eleven]; NRC Staff Answer to the Blue Ridge Environmental Defense League's New Contention Eleven (July 2, 2010) [hereinafter NRC Staff Answer to New Contention Eleven].

new contentions based on the Revised COLA.<sup>16</sup> The Board issued such an order on August 11, 2010, directing “that BREDL shall file any new contentions based on new information in Dominion’s June 29, 2010 revision to its COLA on or before October 4, 2010.”<sup>17</sup>

In a subsequent Memorandum and Order, the Board declined to admit Contention 11, finding nothing in the NRC regulations that would prohibit an applicant from amending its COLA to incorporate a different reactor design.<sup>18</sup>

BREDL’s two new proposed Contentions 12 and 13 were timely filed on October 2, 2010.<sup>19</sup> Dominion and the NRC Staff filed Answers opposing the new contentions on October 28, 2010.<sup>20</sup> BREDL replied to those Answers on November 4, 2010.<sup>21</sup>

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<sup>16</sup> The NRC Staff pointed out that “[n]either the Board’s Scheduling Order dated September 10, 2008, nor the model milestones referenced therein, provide a time for filing late-filed or new or amended contentions with respect to a revision to the Application,” and thus recommended we fix a timetable for filing proposed contentions arising out of Dominion’s COLA Revision. NRC Staff Answer to New Contention Eleven at 5. Dominion agreed with the NRC Staff’s suggestion. Dominion Answer to New Contention Eleven at 4 n.4.

<sup>17</sup> Licensing Board Order (Setting Deadline for Filing New Contentions Based on New Information in the Applicant’s June 29, 2010 Revision to the License Application) (Aug. 11, 2010) at 7 (unpublished) [hereinafter Scheduling Order].

<sup>18</sup> LBP-10-17, 72 NRC \_\_\_, \_\_\_ (slip op. at 7) (Sept. 2, 2010).

<sup>19</sup> See New Contentions at 1.

<sup>20</sup> Dominion’s Opposition to BREDL’s New Contentions (Oct. 28, 2010) [hereinafter Dominion Ans.]; NRC Staff Answer to “Intervenor’s New Contentions” Filed by the Blue Ridge Environmental Defense League (Oct. 28, 2010) [hereinafter NRC Staff Ans.].

<sup>21</sup> Intervenor’s Reply to Dominion and NRC Staff Answers (Nov. 4, 2010) [hereinafter BREDL Reply].

ANALYSIS

I. CONTENTION 12

A. Summary of the Contention and Responses

Contention 12 is captioned, “The Environmental Review is Insufficient.”<sup>22</sup> BREDL then defines the “Specific statement of law or fact to be raised or controverted” as follows:

Consumptive water use intended by the North Anna Unit 3 project requires significant additional environmental review. The National Environmental Policy Act requires NRC to evaluate a range of reasonable alternatives and their impacts. 10 CFR § 51.45.<sup>23</sup>

In further explaining the contention, BREDL states that, because the US-APWR has a lower thermodynamic efficiency than the ESBWR, it “will require an inordinately large draw of water from Lake Anna in order to cool the reactor.”<sup>24</sup> BREDL states that “Unit 3 will withdraw up to 22,000 gallons of water per minute from Lake Anna to replace water lost from the operation of the cooling tower” and that therefore the new reactor “would withdraw over 11 billion gallons of water from Lake Anna annually.”<sup>25</sup> Additionally, BREDL represents that “during each minute of operation the proposed Unit 3 power plant will release 5,500 gallons of cooling tower blowdown water into Lake Anna.”<sup>26</sup> This means that “3 billion gallons of heated and chemically contaminated water . . . will be dumped into Lake Anna each year.”<sup>27</sup> “Water returned to the lake as blowdown would have approximately four times higher concentrations of pollutants and minerals than the water which was withdrawn,” BREDL avers, “including biocides and algaecides

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<sup>22</sup> New Contentions at 2.

<sup>23</sup> Id. at 2-3.

<sup>24</sup> Id. at 4.

<sup>25</sup> Id. (citing North Anna Unit 3 Combined License Application, Part 3: Applicant’s Environmental Report-Combined License Stage, Rev. 3 (June 2010) at tbl. 3.0-2 [hereinafter ER Rev. 3]).

<sup>26</sup> Id. (citing ER Rev. 3 at tbl. 3.0-2).

<sup>27</sup> Id. at 4-5.

used within the cooling towers to prevent them from becoming clogged with mold and mildew.”<sup>28</sup> According to BREDL, “blowdown water would be approximately 20 degrees hotter than” the water in Lake Anna.<sup>29</sup> Moreover, because 11 billion gallons of lake water will be withdrawn but only 3 billion gallons will be returned, the lake will suffer a net loss of 8 billion gallons of water each year.<sup>30</sup> BREDL claims these negative impacts to the lake will exacerbate those of the two nuclear reactors already operating on Lake Anna (North Anna Units 1 and 2), which also use Lake Anna as a heat sink and cooling facility and have already extensively warmed the lake.<sup>31</sup>

BREDL argues that substituting the US-APWR for the ESBWR will increase harmful impacts to Lake Anna. Therefore, the NRC must conduct further environmental analysis to comply with the National Environmental Policy Act (NEPA). BREDL maintains that the NRC should evaluate the alternative of using “an air condenser rather than the typical water tube condenser design.”<sup>32</sup> In an air-cooled condenser, BREDL emphasizes, steam from “the turbine passes directly to a dry cooling tower.”<sup>33</sup> The dry cooling tower would not consume lake water and no blowdown would be discharged to the lake. BREDL reasons that using an air condenser would therefore diminish contamination and enhance water quality.<sup>34</sup> According to BREDL, “air-cooled condensers offer significant environmental benefits with inconsequential costs associated

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<sup>28</sup> Id. at 5.

<sup>29</sup> Id. at 5.

<sup>30</sup> Id. at 4. Most of the water loss will be from evaporation in the closed-cycle cooling towers.

<sup>31</sup> Id. at 4.

<sup>32</sup> Id. at 3.

<sup>33</sup> Id. at 5.

<sup>34</sup> Id. at 5-6.

with such a modification. A further environmental review is necessary to meet the requirements of NEPA and to protect public health and environmental quality.”<sup>35</sup>

The NRC Staff and Dominion disagree. The NRC Staff argues that “insofar as proposed New Contention [12] requests consideration of a dry cooling design alternative for cooling North Anna Unit 3, that matter must be considered resolved [in the ESP proceeding] pursuant to 10 C.F.R. § 52.39.”<sup>36</sup> The NRC Staff recognizes that a matter resolved in an ESP proceeding may be revisited when new and significant information is presented, but it maintains that

the Intervenor does not attempt to compare the environmental impacts of its suggested alternative to those of the dry cooling tower alternative evaluated in the ESP FEIS to show that new and significant information supports admission of proposed New Contention [12] . . . , as required by 10 C.F.R. §§ 52.39(c)(v) and 51.107(b)(3).<sup>37</sup>

Finally, according to the NRC Staff, “the Intervenor’s complaint about the composition and temperature of the blowdown is impermissibly late, as these matters were described in the original version of the Application and do not arise from the revision to the Application, as required by the Board’s August 2010 Scheduling Order.”<sup>38</sup>

Similarly, Dominion argues that the issues Intervenor raises in Contention 12, including consumptive water use and cooling tower alternatives, were resolved in the ESP proceeding, and BREDL has not identified any new information concerning those issues in Dominion’s Revised COLA. According to Dominion, those issues are therefore outside the permissible scope of this proceeding.<sup>39</sup>

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<sup>35</sup> Id. at 6.

<sup>36</sup> NRC Staff Ans. at 11-12.

<sup>37</sup> Id. at 12, 14.

<sup>38</sup> Id. at 12.

<sup>39</sup> Dominion Ans. at 9.

B. Board Ruling

Contention 12 alleges that Dominion's switch to the US-APWR design will harm Lake Anna in three ways -- thermal discharges, consumptive water use, and the discharge of pollutants in the blowdown -- and that these impacts justify reconsidering the dry cooling tower alternative for Unit 3.<sup>40</sup> In the ESP proceeding, however, the ESP Board and the NRC Staff evaluated and resolved the impact of thermal discharges and consumptive water use on Lake Anna and the question whether Unit 3 should use the dry cooling tower alternative to mitigate any such impacts.<sup>41</sup> BREDL has not identified anything in Dominion's switch to a different reactor design that would justify revisiting the issue now.

We further conclude that BREDL fails to justify reopening the dry cooling tower alternative issue based on the discharge of chemicals such as copper and tributyltin (TBT) in the blowdown from Unit 3. Although the question of the impact of those chemicals upon water quality was not resolved in the ESP proceeding, information concerning this matter was disclosed in Dominion's original COLA, filed in 2007,<sup>42</sup> and later evaluated by the NRC Staff in its February 2010 Supplemental Environmental Impact Statement for the COLA.<sup>43</sup> The relevant information did not

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<sup>40</sup> See New Contentions at 3-6.

<sup>41</sup> See Dominion Nuclear North Anna, LLC (Early Site Permit for North Anna ESP Site), LBP-07-09, 65 NRC 539, 565-67, 605, 612-13, permit issuance authorized, CLI-07-27, 66 NRC 215 (2007).

<sup>42</sup> See North Anna 3 Combined License Application, Part 3: Applicants' Environmental Report – Combined License Stage, Rev. 0 (Nov. 2007) at 3-55 to 3-57 [hereinafter ER Rev. 0].

<sup>43</sup> See U.S. Nuclear Regulatory Commission, Office of New Reactors, Supplemental Environmental Impact Statement for the Combined License (COL) for North Anna Power Station Unit 3, NUREG-1917 (Feb. 2010) at 5-6 [hereinafter COL EIS]. We observe that the NRC Staff has issued a notice in the Federal Register announcing its intent to issue another Supplemental Environmental Impact Statement for Dominion's North Anna Unit 3 COLA. See Virginia Electric and Power Company D/B/A/ Dominion Virginia Power and Old Dominion Electric Cooperative, North Anna Power Station Combined License Application; Notice of Intent To Prepare a Supplemental Environmental Impact Statement and Conduct Scoping Process, 76 Fed. Reg. 6638, 6638 (Feb. 7, 2011).

change materially as a result of the switch from ESBWR to US-APWR,<sup>44</sup> and BREDL has not provided any other justification for its delay in raising this issue. BREDL's attempt to raise the blowdown chemicals issue for the first time in October 2010 thus comes too late and without adequate justification under 10 C.F.R. § 2.309(c)(1) or (f)(2). We therefore will not admit any aspect of Contention 12.

1. The Test for Determining Whether an Issue Was Resolved in the ESP Proceeding

In our ruling on BREDL's hearing request, we interpreted the limitation in 10 C.F.R. § 52.39(a)(2) that prohibits a board from revisiting issues "resolved" in an ESP proceeding. As we explained,<sup>45</sup> if a matter is resolved in a proceeding on an ESP application, then it is considered resolved in a subsequent COL proceeding when the COLA references the ESP, subject to certain exceptions.<sup>46</sup> We noted that the regulation does not expressly define the conditions under which an issue is "resolved" during an ESP proceeding. We determined, after considering the background of the regulation and its purpose, that a contention should be deemed resolved during the ESP proceeding:

if (1) the subject of the contention was actually litigated and decided during the ESP proceeding; or (2) the subject of the contention, although not actually litigated, was decided by the Staff, was necessary for the Staff to resolve in the ESP proceeding, and was within the scope of that proceeding as defined in the Federal Register notice of opportunity for a hearing. We must treat any contention resolved during the ESP proceeding as resolved in this COL proceeding unless one of the exceptions listed in Section 52.39 applies.<sup>47</sup>

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<sup>44</sup> Compare ER Rev. 0 at 3-56 to 3-57 with ER Rev. 3 at 3-67 to 3-68.

<sup>45</sup> LBP-08-15, 68 NRC at 304-05 & n.45.

<sup>46</sup> See 10 C.F.R. § 52.39(a)(2). The exceptions are in Section 52.39(b), (c), and (d).

<sup>47</sup> LBP-08-15, 68 NRC at 311. Relitigation of an issue previously decided by a licensing board or the Commission may also be barred by the doctrine of collateral estoppel. See Toledo Edison Co. (Davis-Besse Nuclear Power Station, Units 1, 2, and 3), ALAB-378, 5 NRC 557 (1977) (noting that "collateral estoppel . . . doctrine precludes the relitigation of issues of law or fact which have been finally adjudicated by a tribunal of competent jurisdiction in a proceeding involving the same parties or their privies" and that "a judicial decision is entitled to precisely the same collateral estoppel effect in a later administrative proceeding as it would be accorded in a subsequent judicial proceeding"). We need not address the application of that doctrine to

As noted, Contention 12 asks that the NRC evaluate whether Unit 3 should use a dry cooling system to reduce thermal discharges, consumptive water use, and the release of blowdown pollutants. We must decide whether those issues were resolved in the ESP proceeding, either through litigation or by the NRC Staff, and, if they were, whether any exception applies that would allow us to revisit any of those issues at the COL stage. This requires that we review the relevant history of the ESP proceeding in some detail.

## 2. The ESP Proceeding

Dominion filed its ESP Application on September 25, 2003.<sup>48</sup> Dominion did not select a specific plant design for the proposed new reactors at the North Anna site, Units 3 and 4. Therefore, the Final Environmental Impact Statement (FEIS) for the ESP was based upon “a plant parameter envelope (PPE), which is a set of values of plant design parameters that an ESP applicant expects will bound the design characteristics of the reactor or reactors that might be built at a selected site.”<sup>49</sup> The FEIS used the PPE to evaluate the environmental impacts of both reactor construction and reactor operation.<sup>50</sup>

In the ESP Application, Dominion proposed to use a once-through cooling system for Unit 3. In such a system, which is the type currently used for North Anna Power Station (NAPS) Units 1 and 2, water is withdrawn from Lake Anna, circulated through the condensers, and returned to the lake after cooling in the Waste Heat Treatment Facility. Because water taken from the lake is used once for cooling and then discharged, rather than recirculated as in a closed-cycle system, a

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Contention 12, however, because we are able to decide the issue on the basis of Section 52.39(a)(2).

<sup>48</sup> Dominion Nuclear North Anna, LLC; Notice of Receipt and Availability of Application for Early Site Permit for the North Anna ESP Site, 68 Fed. Reg. 59,643, 59,643-44 (Oct. 16, 2003).

<sup>49</sup> U.S. Nuclear Regulatory Commission, Office of New Reactors, Environmental Impact Statement for an Early Site Permit (ESP) at the North Anna ESP Site: Final Report, Main Report (Dec. 2006) at xxiii-xxiv, 1-8 to 1-9 [hereinafter ESP FEIS].

<sup>50</sup> See id. at 4-1 to 4-51, 5-1 to 5-70. The ESP FEIS, Appendix I, Table I-2 lists the PPE values used by the Staff in its evaluation.

larger volume of water is discharged than with a closed-cycle cooling system.<sup>51</sup> On the other hand, Unit 4, as described in the ESP Application, would use a closed-cycle system with cooling towers for plant cooling and heat dissipation.<sup>52</sup> The ESP Application included an Environmental Report (ER) that addressed, among other things, the impact of the operation of proposed Units 3 and 4 on Lake Anna.<sup>53</sup>

On November 25, 2003, the NRC published a Notice of Hearing and Opportunity to Petition for Leave to Intervene for the Applicant's ESP Application.<sup>54</sup> BREDL, the Nuclear Information and Resource Service, and Public Citizen (collectively, ESP Intervenors) filed a request for hearing and petition to intervene.<sup>55</sup> The ESP Board concluded that the ESP Intervenors had standing and admitted in part two of their proposed contentions.<sup>56</sup> The first of the partially admitted contentions, identified as EC 3.3.2, alleged that

[t]he ER does not adequately address the adverse impact of operating one or two additional reactors on fish and other aquatic life health in Lake Anna and the North Anna River. In particular, the ER does not adequately consider the four primary impacts of the proposed reactors to the fish and other aquatic life at Lake Anna and downstream: increased water temperature, impingement, entrainment, and downstream flow rates. In addition, the ER does not address conflicts between Dominion's proposals for water use and the requirements of the Clean Water Act ("CWA") and its implementing regulations. Finally, the ER does not address the cumulative impacts of proposed Units 3 and 4 on the already-stressed aquatic systems in Lake Anna and the North Anna River.<sup>57</sup>

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<sup>51</sup> See id. at 3-9 to 3-10, 5-9, 5-19, 8-2 to 8-5.

<sup>52</sup> See id. at 3-9 to 3-10, 8-2.

<sup>53</sup> See id. at 1-1, 5-1.

<sup>54</sup> Dominion Nuclear North Anna, LLC; Notice of Hearing and Opportunity To Petition for Leave To Intervene; Early Site Permit for the North Anna ESP Site, 68 Fed. Reg. 67,489, 67,489 (Dec. 2, 2003).

<sup>55</sup> See Dominion Nuclear North Anna, LLC (Early Site Permit for North Anna ESP Site), LBP-04-18, 60 NRC 253, 258 (2004).

<sup>56</sup> Id. at 267-72, 276.

<sup>57</sup> Id. at 270-71 (footnotes omitted).

The ESP Board admitted the contention, but limited to the claim that

[t]he ER does not adequately address the adverse impact of operating one or two additional reactors on the striped bass in Lake Anna and the North Anna River. In particular, the ER does not adequately consider the impacts of the proposed reactors on the striped bass at Lake Anna and downstream arising from increased water temperature.<sup>58</sup>

The second of the admitted contentions, EC 3.3.4, alleged that “[t]he ER fails to satisfy 10 C.F.R. § 51.45(b)(3) because it fails to consider alternatives to the use of Lake Anna water for cooling Units 3 and 4, as well as the no-action alternative.”<sup>59</sup> According to the ESP Petition,

Alternate technologies to avoid in-stream treatment have not been adequately described in the ER. For example, the ER does not evaluate any alternatives for Unit 3 other than a once-through cooling system. Additionally, in accordance with NEPA, the no-action alternative of no additional in-stream treatment and no expansion of NAPS must be considered.<sup>60</sup>

The ESP Board admitted this contention, but limited it to the “allegation that the ER fails to examine the no-action alternative with respect to the effects of proposed unit 3 on Lake Anna.”<sup>61</sup>

Contention EC 3.3.4 was subsequently settled.<sup>62</sup> This left only Contention EC 3.3.2 for the ESP Board to decide. On April 22, 2005, the Applicant moved for summary disposition of Contention EC 3.3.2, and on June 16, 2005, the ESP Board granted the motion for summary disposition in part, and denied it in part.<sup>63</sup> On January 13, 2006, Dominion submitted a

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<sup>58</sup> Id. at 276.

<sup>59</sup> Id. at 272.

<sup>60</sup> Contentions of Blue Ridge Environmental Defense League, Nuclear Information and Resource Service, and Public Citizen Regarding Early Site Permit Application for Site of North Anna Nuclear Power Plant (May 3, 2004) at 44 (ADAMS Accession No. ML041320393).

<sup>61</sup> North Anna ESP, LBP-04-18, 60 NRC at 272.

<sup>62</sup> The ESP Board issued an order approving the settlement and dismissing Contention EC 3.3.4 on January 6, 2005. See North Anna ESP Licensing Board Order (Approving Settlement and Dismissal of EC 3.3.4) (Jan. 6, 2005) (unpublished) (ADAMS Accession No. ML0501040358).

<sup>63</sup> See North Anna ESP Licensing Board Memorandum and Order (Granting in Part and Denying in Part Summary Disposition on Contention EC 3.3.2 – Impacts on Striped Bass in Lake

supplement to its ESP Application, proposing to change the Unit 3 cooling system from a once-through system to a closed-cycle system using a combined wet/dry cooling tower.<sup>64</sup> The Applicant subsequently revised its ESP Application and ER and filed a second motion for summary disposition, arguing that EC 3.3.2 should be dismissed because, given its switch to a closed-cycle cooling system for Unit 3 (the wet/dry cooling tower), there would be only a negligible thermal discharge to Lake Anna.<sup>65</sup> The ESP Board granted the Applicant's second motion for summary disposition, concluding that

given the unanimous agreement that Dominion's amended license application eliminates virtually all of the discharge of warmed water into Lake Anna and the North [Anna] River, there remains no genuine dispute on any issue of material fact in this case, and Dominion is entitled to summary disposition as a matter of law.<sup>66</sup>

Thereafter, "the ESP adjudication became an uncontested proceeding subject to the mandatory hearing requirements of Atomic Energy Act (AEA) § 189a(1)(A) and 10 C.F.R. § 52.21."<sup>67</sup>

In December 2006, the NRC Staff published the FEIS for the North Anna ESP site.<sup>68</sup> The ESP FEIS evaluated, among other things, "the water-related impacts on Lake Anna and the Waste Heat Treatment Facility (WHTF) from the closed-cycle, combination wet and dry cooling system proposed for Unit 3."<sup>69</sup> This evaluation included impacts on hydrology, water use, and

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Anna) (June 16, 2005) (unpublished) (ADAMS Accession No. ML051670565).

<sup>64</sup> See North Anna ESP, LBP-07-09, 65 NRC at 552 n.9.

<sup>65</sup> Dominion Nuclear North Anna, LLC (Early Site Permit for North Anna ESP Site), LBP-06-24, 64 NRC 360, 362 (2006).

<sup>66</sup> Id. at 364 (citations omitted).

<sup>67</sup> North Anna ESP, LBP-07-09, 65 NRC at 552.

<sup>68</sup> See ESP FEIS at iii.

<sup>69</sup> Id. at 5-4.

water quality.<sup>70</sup> In Section 8.2 of the ESP FEIS, the Staff evaluated cooling system design alternatives, including once-through cooling, wet towers, and dry cooling, and compared the effects of those alternatives to the impacts of the combination wet and dry cooling system proposed for Unit 3.<sup>71</sup>

The Staff acknowledged that

[t]he use of a dry cooling design versus the proposed combination wet and dry cooling system design for Unit 3 would largely eliminate the impacts on aquatic biota in Lake Anna and the North Anna River downstream. The lake would not be heated by rejected heat from Unit 3, and there would be no additional consumptive water use.<sup>72</sup>

The Staff also found, however, that a dry cooling system would have some disadvantages.<sup>73</sup> Because of these concerns and its finding that “Lake Anna could support Unit 3 using a combination wet and dry cooling system,” the Staff concluded that “a combination wet and dry cooling system would be preferable to a dry cooling system for Unit 3.”<sup>74</sup>

At the mandatory hearing, the ESP Board was charged with reviewing, among other things, the agency’s compliance with NEPA.<sup>75</sup> To that end, the ESP Board reviewed the NRC Staff’s analysis of surface water impacts from the operation of two new reactors at the ESP site, including effects upon the water level in Lake Anna, and potential mitigation measures for those

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<sup>70</sup> Id. at 5-4 to 5-13.

<sup>71</sup> Id. at 8-2 to 8-5.

<sup>72</sup> Id. at 8-4.

<sup>73</sup> Id. at 8-4 to 8-5 (“[D]ry cooling systems are more expensive to build and are not as efficient as wet cooling systems. To achieve the necessary cooling, dry systems move a large amount of air through a heat exchanger, and the fans that force the air through the heat exchanger use a significant amount of power. . . . The power needed to operate a dry tower for Unit 3 would be about 150 MW(e). This power demand reduces the net power output of the plant. . . . This, in turn, would increase the environmental impacts of fuel use and spent fuel transport and storage. The fans and the large volume of air required for cooling also result in elevated noise levels. The dry cooling tower would also occupy more land than a once-through or wet tower cooling system.”).

<sup>74</sup> Id. at 8-5.

<sup>75</sup> See North Anna ESP, LBP-07-09, 65 NRC at 555.

impacts.<sup>76</sup> The ESP Board explained that “[t]his topic is primarily environmental, focusing on the proposed project’s environmental impacts and the consideration of reasonable alternatives and mitigation measures as required by NEPA.”<sup>77</sup> It noted that a closed-cycle combination wet and dry cooling tower system would be used for Unit 3, and that during periods when Lake Anna is below 250 feet mean sea level (MSL) for a period of seven or more days, “Unit 3 would be cooled with a closed-cycle, combination wet and dry cooling tower system to limit the consumptive water use.”<sup>78</sup> Evidence before the ESP Board detailed the effect upon Lake Anna and downstream rivers of the consumptive water use caused by the existing NAPS Units 1 and 2 and proposed Unit 3.<sup>79</sup>

The ESP Board also reviewed the NRC Staff’s analysis of “system design alternatives, alternative sites, and other alternatives and possible mitigation measures.”<sup>80</sup> The Board stated that “[t]his is an issue under NEPA and relevant to several of the six fundamental issues that the Board must decide in an uncontested ESP proceeding.”<sup>81</sup> The ESP Board noted that “[w]ith

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<sup>76</sup> Id. at 564-69.

<sup>77</sup> Id. at 564.

<sup>78</sup> Id. at 565 (quoting ESP FEIS at 3-9).

<sup>79</sup> Id. at 566-68. For example,

Mr. Jeffrey Ward of the Staff testified that, during nondrought years, the addition of Unit 3 would essentially (a) double the amount of time that the water level in Lake Anna would drop to 248 feet MSL or below, and (b) double the amount of time discharges from the North Anna Dam would be at the low, 20-cfs [cubic feet/second] level. . . . With Units 1 and 2 as a baseline, the Staff estimates that the lake level for nondrought years would be at 248 feet MSL or lower for 6% of the year. . . . But the addition of Unit 3 would essentially double this figure to 11% of the year. . . . During drought years, the impacts on the lake level and downstream flow would be greater.

Id. at 566-67 (citations omitted).

<sup>80</sup> Id. at 587.

<sup>81</sup> Id.

regard to system design alternatives, section 8 [of the FEIS] discusses three options for Unit 3 – once-through cooling, wet cooling, and dry cooling.”<sup>82</sup> In addition to reviewing the FEIS, the Board heard testimony concerning system design alternatives, which included testimony concerning the benefit of the dry cooling alternative. For example, “Mr. Vail, testifying for the Staff, stated that the increase of the low water levels in Lake Anna and low discharges from the North Anna Dam would be eliminated entirely if the NRC were to require dry cooling for Unit 3, as it proposes to do for Unit 4.”<sup>83</sup>

After summarizing the evidence, the ESP Board concluded that the FEIS adequately evaluated the water-related impacts of the construction and operation of Units 3 and 4.<sup>84</sup> A majority of the ESP Board also concluded that the ESP FEIS was sufficient to satisfy the requirements of NEPA Sections 102(2)(A), (C), and (E),<sup>85</sup> and the agency’s NEPA regulations in 10 C.F.R. Part 51.<sup>86</sup> Among the issues the ESP Board considered was whether the FEIS adequately evaluated system design alternatives through its review of the “three main system design alternatives for the cooling water system for Unit 3: once-through cooling system, wet cooling, and dry cooling.”<sup>87</sup> The majority concluded that “[a]ll reasonable alternatives, [including] system design alternatives, have been identified, considered, and evaluated,” and that the agency had fulfilled its obligation under NEPA Section 102(2)(C)(iii) to provide a “detailed statement” of “the alternatives to the proposed action.”<sup>88</sup>

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<sup>82</sup> Id.

<sup>83</sup> Id. at 567.

<sup>84</sup> Id. at 605.

<sup>85</sup> These sections are codified at 42 U.S.C. § 4332(2)(A), (C), and (E).

<sup>86</sup> North Anna ESP, LBP-07-09, 65 NRC at 602-14.

<sup>87</sup> Id. at 612-13.

<sup>88</sup> Id. at 613. Judge Karlin dissented on two NEPA alternatives issues, opining that the

On November 20, 2007, after reviewing the ESP Board's Initial Decision, the Commission approved the issuance of an ESP for the North Anna site.<sup>89</sup>

3. Issues resolved in the ESP Proceeding

Having reviewed the ESP proceeding, we conclude that it resolved two of BREDL's three arguments for preferring that Unit 3 have a dry cooling tower: to reduce or eliminate thermal discharges and consumptive water use.

The thermal discharge issue was resolved through litigation. At the conclusion of the contested proceeding, the ESP Board granted summary disposition as to Contention EC 3.3.2 because all parties – including BREDL – acknowledged that Dominion's decision to use a wet/dry cooling tower eliminated virtually all discharges of heated water to Lake Anna and the North Anna River.<sup>90</sup> Given this conclusion, there remained no basis to prefer a dry cooling tower to eliminate thermal discharges.

In the ESP FEIS, the NRC Staff comprehensively evaluated the question whether the dry cooling tower alternative should be required for Unit 3 to reduce water-related impacts to Lake Anna and the North Anna River. After evaluating the merits of several cooling system alternatives, including dry cooling, the Staff found the wet/dry cooling tower alternative preferable.<sup>91</sup> Thus, the Staff evaluated the alternative of using a dry cooling tower to reduce

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ESP FEIS failed to comply with NEPA in its treatment of alternative sites and its refusal to consider alternatives imposing water conservation measures on Units 1 and 2. He did not dissent, however, on the question whether the ESP FEIS adequately evaluated system design alternatives for the cooling water system for Unit 3. See id. at 631-39 (Karin, J., dissenting).

<sup>89</sup> North Anna ESP, CLI-07-27, 66 NRC at 219-20. As to the disagreement between the majority and the dissent described supra at note 88, the Commission concluded that "[t]he Staff in its FEIS failed to include a sufficiently detailed description of the Staff's alternative site review at the candidate site level," but that "the Staff's underlying review was sufficiently detailed to qualify as 'reasonable' and a 'hard look' under NEPA." Id. at 233.

<sup>90</sup> North Anna ESP, 64 NRC at 364-65.

<sup>91</sup> ESP FEIS at 8-2 to 8-5.

consumptive water use and any remaining thermal discharge to the lake, and reached a conclusion on that issue.

Because this issue was resolved by the NRC Staff in the ESP FEIS rather than through litigation, the test we adopted in our ruling on BREDL's hearing request requires that we decide whether the Staff was required to resolve the issue in the ESP proceeding, and whether the issue was within the scope of that proceeding as defined in the Federal Register Notice of Hearing on the ESP.<sup>92</sup>

To issue the ESP, the NRC must comply with NEPA.<sup>93</sup> That statute requires that an EIS include a detailed statement by the responsible agency official on, among other things, (i) "the environmental impact of the proposed action," (ii) "any unavoidable adverse environmental effects which cannot be avoided should the proposal be implemented," and (iii) "alternatives to the proposed action."<sup>94</sup> The agency responsible for preparing the EIS must define the scope of the issues it will address.<sup>95</sup> When the ESP FEIS was published in December 2006, the NRC regulation governing the scope of the EIS stated that the provisions of 40 C.F.R. § 1502.4, a

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<sup>92</sup> See LBP-08-15, 68 NRC at 311.

<sup>93</sup> See, e.g., 10 C.F.R. § 52.18 ("[T]he Commission shall prepare an environmental impact statement during review of the [ESP] application, in accordance with the applicable provisions of 10 CFR part 51."); id. § 51.10(a) ("The regulations in this subpart implement section 102(2) of NEPA in a manner which is consistent with the NRC's domestic licensing and related regulatory authority under the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and the Uranium Mill Tailings Radiation Control Act of 1978, and which reflects the Commission's announced policy to take account of the regulations of the Council on Environmental Quality published November 29, 1978 (43 FR 55978-56007) voluntarily, subject to certain conditions."); id. § 51.20(b)(1) ("The following types of actions require an environmental impact statement or a supplement to an environmental impact statement: (1) Issuance of a limited work authorization or a permit to construct a nuclear power reactor, testing facility, or fuel reprocessing plant under part 50 of this chapter, or issuance of an early site permit under part 52 of this chapter.").

<sup>94</sup> 42 U.S.C. § 4332(2)(C)(i)-(iii).

<sup>95</sup> See 40 C.F.R. § 1501.7.

regulation issued by the Council on Environmental Quality (CEQ), should be used for that purpose.<sup>96</sup> Section 1502.4 in turn directs that

Agencies shall use the criteria for scope (§ 1508.25) to determine which proposal(s) shall be the subject of a particular statement. Proposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement.<sup>97</sup>

Section 1508.25 directs that, in defining the scope of the EIS, all “connected actions” must be analyzed in one statement.<sup>98</sup> Separate actions may be considered “connected” if, among other things, they “[a]re interdependent parts of a larger action and depend on the larger action for their justification.”<sup>99</sup> An ESP authorizes the use of a specific site for the construction and operation of a new nuclear power plant, with the actual construction and operation authorized by a subsequently issued COL.<sup>100</sup> Although a licensee that has obtained an ESP is not required to apply for a COL or to actually construct and operate a nuclear power plant at the authorized site, it is difficult to see any reason to obtain an ESP other than as an initial step toward those actions. The ESP and the COL are therefore “in effect, a single course of action” and “interdependent parts of a larger action [that] depend on the larger action for their justification.” Thus, the issuance of an ESP and the subsequent authorization of construction and operation of a new nuclear power plant qualify as “connected actions” under Section 1508.25, and should be evaluated in one EIS. Therefore, in order to comply with NRC and CEQ regulations governing the preparation of the FEIS for the ESP, the Staff was required to evaluate the environmental consequences of constructing and operating Units 3 and 4 at the North Anna site and alternatives for mitigating those consequences.

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<sup>96</sup> 10 C.F.R. § 51.29(a)(1).

<sup>97</sup> 40 C.F.R. § 1502.4(a).

<sup>98</sup> Id. § 1508.25(a)(1).

<sup>99</sup> Id. § 1508.25(a)(1)(iii). See, e.g., South Carolina v. O’Leary, 64 F.3d 892, 899 (4th Cir. 1995); Town of Huntington v. Marsh, 859 F.2d 1134, 1142 (2d Cir. 1988).

<sup>100</sup> See 10 C.F.R. §§ 52.1(a), 52.12.

Finally, as we explained in our ruling on BREDL's hearing request, "[t]he 'Notice of Hearing and Opportunity to Petition for Leave to Intervene' for the ESP proceeding made clear that petitioners could challenge the adequacy of the NRC's NEPA compliance."<sup>101</sup> Thus, although BREDL did not challenge the Staff's resolution of the cooling system alternatives issue in the ESP FEIS, it could have done so because the issue was within the scope of the ESP proceeding as defined in the Federal Register Notice of Hearing and Opportunity to Petition for Leave to Intervene.

We conclude, therefore, that the Staff's resolution of the cooling system alternatives issue in the FEIS was sufficient to resolve the issue within the meaning of 10 C.F.R. § 52.39(a)(2). As the Commission stated in approving the ESP, "in the environmental context, the contents of the FEIS bounds the reach of both issue preclusion and Staff inquiry into new and significant information in a future . . . COL proceeding referencing an ESP granted for the North Anna ESP site."<sup>102</sup>

The resolution of the thermal discharge and consumptive water use issues in the ESP proceeding is confirmed by the ESP Board's Initial Decision in the mandatory hearing portion of the ESP proceeding. The ESP Board evaluated the effect upon Lake Anna and downstream rivers of the consumptive water use and other water-related impacts caused by the existing NAPS Units 1 and 2 and proposed Unit 3.<sup>103</sup> That Board also reviewed the Staff's consideration of alternatives to reduce those impacts to Lake Anna and downstream rivers, including the dry cooling tower alternative that BREDL advocates.<sup>104</sup> The ESP Board concluded that the Staff's

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<sup>101</sup> LBP-08-15, 68 NRC at 324 & n.152 (referencing 68 Fed. Reg. at 67,489).

<sup>102</sup> North Anna ESP, CLI-07-27, 66 NRC at 259.

<sup>103</sup> North Anna ESP, LBP-07-09, 65 NRC at 566.

<sup>104</sup> See id. at 566-69, 612-13.

evaluation of environmental consequences and alternatives complied with NEPA,<sup>105</sup> and the Commission in substance affirmed that determination when it issued the ESP.<sup>106</sup>

4. Exceptions to the Rule Against Reopening Issues Resolved in the ESP Proceeding

Having concluded that the ESP proceeding resolved two of BREDL's three justifications for reexamining the dry cooling tower alternative, we must decide whether any exception would allow either of those issues to be raised anew in this proceeding. Given BREDL's arguments in support of Contention 12, which focus on the change in reactor design, the exceptions potentially relevant here provide:

In any proceeding for the issuance of a . . . combined license referencing an early site permit, contentions on the following matters may be litigated in the same manner as other issues material to the proceeding:

(i) The nuclear power reactor proposed to be built does not fit within one or more of the site characteristics or design parameters included in the early site permit;

. . . .

(v) Any significant environmental issue that was not resolved in the early site permit proceeding, or any issue involving the impacts of construction and operation of the facility that was resolved in the early site permit proceeding for which significant new information has been identified.<sup>107</sup>

BREDL argues that Dominion's substitution of the US-APWR reactor design for the ESBWR justifies reopening the dry cooling tower issue. BREDL's expert, Mr. Gundersen, describes various characteristics of Unit 3 after the change in reactor design. For example, Mr. Gundersen states that, as a result of the change in reactor design, "the electrical output and waste heat were increased."<sup>108</sup> He further notes that, "Unit 3 will withdraw up to 22,000 gallons of

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<sup>105</sup> Id. at 605-06, 613, 616, 629.

<sup>106</sup> See North Anna ESP, CLI-07-27, 66 NRC at 219-220.

<sup>107</sup> 10 C.F.R. § 52.39(c)(1).

<sup>108</sup> New Contentions, Exh. 1, Declaration of Arnold Gundersen Supporting Blue Ridge Environmental Defense League's Contention Regarding Consumptive Water Use at Dominion

water per minute from Lake Anna ‘to replace water lost from the operation of the tower.’”<sup>109</sup> He also states that “each minute the proposed Unit 3 power plant will release 5,500 gallons of water into Lake Anna as . . . cooling tower blowdown.”<sup>110</sup> But neither BREDL nor Mr. Gundersen compares these or other Unit 3 design values to the corresponding PPE values that served as the basis of the ESP FEIS and were included in the ESP. As long as the design values for Unit 3 continue to fall within the PPE, the exception in Section 52.39(c)(1)(i) fails to provide a basis for reopening issues resolved in the ESP proceeding even though the reactor design has changed.

We have not identified any Unit 3 design value noted by Mr. Gundersen that falls outside the corresponding PPE value.<sup>111</sup> For example, Mr. Gundersen states that Unit 3 will generate more waste heat as a result of the change in reactor design.<sup>112</sup> However, the Unit 3 design characteristic value for the condenser/heat exchanger duty, defined as “the waste heat rejected from the main condenser and the auxiliary heat exchangers during normal plant operation at full station load,”<sup>113</sup> is identical to the corresponding ESP plant parameter (maximum heat load of 1.03

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Power’s Newly Proposed North Anna Unit 3 Pressurized Water Reactor at para. 16.2 (July 23, 2010) [hereinafter Gundersen Decl.].

<sup>109</sup> Id. at para. 19.4 (quoting ER Rev. 3 at tbl. 3.0-2).

<sup>110</sup> Id. at para. 20 (quoting ER Rev. 3 at tbl. 3.0-2).

<sup>111</sup> Arguably, we were not obligated to undertake this analysis on our own given BREDL’s failure to directly address the issue, but we have done so to ensure the correctness of our ruling. We based our analysis on Table 3.0-2 of Dominion’s ER for its Revised COLA (ER Rev. 3), which includes a side-by-side comparison of the ESP Plant Parameters, as set forth in ESP Table D-1, and the design characteristic values of Unit 3 after Dominion adopted the US-APWR reactor design. See ER Rev. 3 at tbl. 3.0-2. The ESP Plant Parameters in ESP Table D-1 are the same as those in the ESP FEIS. Compare ESP FEIS, app. I, tbl. I-2 with Dominion Nuclear North Anna, LLC, North Anna ESP Site, Docket No. 52-008, Early Site Permit, app. D, tbl. D-1 (Nov. 27, 2007) (ADAMS Accession No. ML073180440).

<sup>112</sup> See Gundersen Decl. at para. 16.2.

<sup>113</sup> ER Rev. 3 at 3-20, tbl. 3.0-2.

x 10<sup>10</sup> Btu/hr).<sup>114</sup> Thus, even if Unit 3 would generate more waste heat as a result of the change in reactor design, the waste heat that would be generated after the change falls within the PPE that served as the basis of the environmental analysis in the ESP FEIS. The ESP FEIS therefore evaluates the environmental impact of a reactor that will generate the same amount of waste heat as Unit 3 using the US-APWR design, even though Dominion had not yet selected that design when the ESP FEIS was prepared.<sup>115</sup>

Mr. Gundersen also refers to the Make-Up Flow Rate for Unit 3 (22,268 gallons per minute (gpm) maximum when the wet/dry cooling tower system is operated in the Energy Conservation mode).<sup>116</sup> This is defined as “[t]he expected rate of removal of water from Lake Anna to replace water losses from the closed-cycle cooling system.”<sup>117</sup> Again, the ESP Plant Parameter is

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<sup>114</sup> Compare id. with ESP FEIS at I-5, tbl. I-2.

<sup>115</sup> On March 25, 2011, BREDL filed a document entitled “Intervenor’s Response to Board Questions.” See Intervenor’s Response to Board Questions (Mar. 25, 2011) [hereinafter Intervenor’s Response to Board Questions]. Dominion filed a Motion to Strike this filing on April 1. Dominion’s Motion to Strike Unauthorized Filing (Apr. 1, 2011). We agree with Dominion that BREDL’s filing is unauthorized and accordingly is not properly before the Board. Although the Board did propound questions to the parties before the March 3, 2011 oral argument on BREDL’s proposed new contentions, it should have been clear from the Board’s Order that we intended the questions to be addressed during the argument, not in a written filing submitted more than three weeks later. See Licensing Board Order (Providing Instructions and Questions for March 3, 2011 Oral Argument) (Feb. 23, 2011) (unpublished).

In any event, even if we were to consider BREDL’s unauthorized filing as it relates to Contention 12, it would not change our ruling. BREDL claims that “[t]he ESP plant parameter envelope does not encompass the COL design for the PWR proposed by [Dominion].” Intervenor’s Response to Board Questions at 1. BREDL refers to the rating of Unit 3 in megawatts thermal (MWt) and megawatts electric (MWe), implying that the change in reactor design resulted in an increase in these ratings. Id. at 1-2. However, the relevant PPE value for determining the waste heat discharged to the receiving waters is that discussed in the text above, which bounds the current reactor design. In addition, the 4500 MWt thermal power rating assumed in the ESP PPE bounds the 4451 MWt thermal rating of the US-APWR. See ER Rev. 3 at 3-37, tbl. 3.0-2; ESP FEIS at I-10, tbl. I-2. The rating of the US-APWR in MWe is immaterial because the electrical rating of a unit was not specified as a PPE value. See ER Rev. 3 at tbl. 3.0-2.

<sup>116</sup> Gundersen Decl. at para. 19.4.

<sup>117</sup> ER Rev. 3 at 3-21, tbl. 3.0-2.

identical to the design characteristic value for Unit 3.<sup>118</sup> Likewise, the Blowdown Flow Rate for Unit 3 (5,565 gpm maximum when operating in the Energy Conservation mode), also cited by Mr. Gundersen, is identical to the ESP Plant Parameter.<sup>119</sup>

The exception in Section 52.39(c)(1)(v) also does not apply here. The ESP FEIS examined the impact of Unit 3 upon Lake Anna and downstream rivers based on design parameters that bracket North Anna Unit 3's current design and concluded that the dry cooling tower alternative should not be required to reduce or to eliminate thermal discharges or consumptive water use.<sup>120</sup> The change in reactor design is not significant new information because the ESP FEIS was based on the PPE rather than any specific reactor design. And neither BREDL nor Mr. Gundersen points to any other new information that has come to light since the ESP FEIS was issued that calls into question its conclusions concerning thermal discharges, consumptive water use, or the use of the dry cooling tower alternative to reduce those effects.

We therefore conclude that neither of the relevant exceptions in Section 52.39(c)(1) applies here. Accordingly, Section 52.39(a)(2) precludes us from considering Contention 12 insofar as it asks that a dry cooling system be reconsidered for Unit 3 to reduce thermal discharges and consumptive water use.

##### 5. The Blowdown Pollutants Issue

The final aspect of Contention 12 focuses upon the water quality effects of pollutants in the blowdown from Unit 3, primarily copper and TBT. BREDL argues that the dry cooling tower alternative should be adopted to eliminate discharges of those pollutants.<sup>121</sup> BREDL's allegations

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<sup>118</sup> Compare id. with ESP FEIS at I-5, tbl. I-2.

<sup>119</sup> Compare id. at 3-23, tbl. 3.0-2 with ESP FEIS at I-6, tbl. I-2 and Gundersen Decl. at para. 20.

<sup>120</sup> See ESP FEIS at 8-5.

<sup>121</sup> See New Contentions at 3-6.

concerning blowdown pollutants, however, are not based on new information in the June 2010 COLA Revision, as required by our August 2010 Order. We must therefore reject that issue as an underlying argument for Contention 12.

Unlike the other issues raised by Contention 12, the issue of the impact of blowdown pollutants from Unit 3 upon water quality was not resolved in the ESP proceeding. The ESP FEIS states that, although Dominion provided the chemical composition of Unit 3 blowdown in its PPE, the future COL applicant would need to provide additional information on chemical effluents in its COL Application, and that the issue of the impact of those effluents upon water quality remains unresolved.<sup>122</sup>

As we have mentioned before, new and amended contentions submitted after an intervenor's initial hearing request are evaluated under 10 C.F.R. § 2.309(f)(2) for timeliness and, if found timely, their general admissibility is analyzed pursuant to 10 C.F.R. § 2.309(f)(1).<sup>123</sup> A new or amended contention may be filed after initial docketing "with leave of the presiding officer upon a showing that--

- (i) The information upon which the amended or new contention is based was not previously available;
- (ii) The information upon which the amended or new contention is based is materially different than information previously available; and
- (iii) The amended or new contention has been submitted in a timely fashion based on the availability of the subsequent information.<sup>124</sup>

In our August 2010 Scheduling Order, we stated that, for timeliness purposes, we would consider Dominion's Revised COLA to have become publicly available on August 3, 2010, and instructed that "any new contention based on new information in the revised COLA be filed" on or before

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<sup>122</sup> ESP FEIS at 5-13.

<sup>123</sup> See LBP-09-27, 70 NRC 992, 998-99 (2009).

<sup>124</sup> 10 C.F.R. § 2.309(f)(2)(i)-(iii).

October 4, 2010.<sup>125</sup> Thus, the filing of a new contention based on new information in the June 2010 COLA Revision would be “submitted in a timely fashion” under Section 2.309(f)(2)(iii) if filed by October 4, 2010.

If a contention is not timely filed, it must meet the eight-factor test under Section 2.309(c)(1) to be deemed admissible as a nontimely contention.<sup>126</sup> The Commission has considered the “good cause” factor to be the most important of those eight.<sup>127</sup>

Dominion and the NRC Staff argue that BREDL’s allegations concerning blowdown pollutants are neither timely nor admissible.<sup>128</sup> Concerning timeliness, the Staff correctly points out that the ER originally submitted with Dominion’s COLA in November 2007 (ER Rev. 0) disclosed projected maximum and average concentrations of copper and TBT in the WHTF, to which blowdown from the Unit 3 wet/dry cooling tower would be discharged.<sup>129</sup> The November 2007 ER also disclosed reported concentrations of copper and TBT in Lake Anna, which receives

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<sup>125</sup> Scheduling Order at 3, 6-7 (emphasis added).

<sup>126</sup> 10 C.F.R. § 2.309(c)(1). Those factors are:

- (i) Good cause, if any, for the failure to file on time;
- (ii) The nature of the requestor’s/petitioner’s right under the Act to be made a party to the proceeding;
- (iii) The nature and extent of the requestor’s/petitioner’s property, financial or other interest in the proceeding;
- (iv) The possible effect of any order that may be entered in the proceeding on the requestor’s/petitioner’s interest;
- (v) The availability of other means whereby the requestor’s/petitioner’s interest will be protected;
- (vi) The extent to which the requestor’s/petitioner’s interests will be represented by existing parties;
- (vii) The extent to which the requestor’s/petitioner’s participation will broaden the issues or delay the proceeding; and
- (viii) The extent to which the requestor’s/petitioner’s participation may reasonably be expected to assist in developing a sound record.

<sup>127</sup> See Amergen Energy Co., LLC (Oyster Creek Nuclear Generating Station), CLI-09-07, 69 NRC 235, 261 (2009).

<sup>128</sup> Dominion Ans. at 21-22, 24-25; NRC Staff Ans. at 16-17.

<sup>129</sup> See NRC Staff Ans. at 16; ER Rev. 0 at 3-56, 3-57, tbl. 3.6-1.

water discharged from the WHTF.<sup>130</sup> The ER for the June 2010 COLA Revision (ER Rev. 3) contained the same information, including projected concentrations for copper and TBT in the WHTF and reported concentrations of those chemicals in the lake, which does not differ materially from that information appearing in ER Rev. 0.<sup>131</sup> In addition, the Staff evaluated the same chemicals and their environmental impacts in its “Supplemental Environmental Impact Statement for the Combined License (COL) for North Anna Power Station Unit 3,” issued in February 2010.<sup>132</sup>

BREDL’s expert, Mr. Gundersen, also mentions “biocides and algaecides,” as well as concentration of “contaminants and minerals that already exist[] in the lake.”<sup>133</sup> These blowdown constituents are also discussed in the ER filed with the original version of Dominion’s COL Application.<sup>134</sup> There is no material change in the discussion of the same subjects in the ER for the June 2010 COLA Revision.<sup>135</sup> Moreover, the Staff evaluated blowdown constituents in the February 2010 COL Supplemental EIS.<sup>136</sup>

Our Scheduling Order did not authorize the filing of any contention merely related to the June 2010 COLA Revision; rather, it only permitted new contentions based on new information in the Revision. The information upon which Contention 12 is based was not new when it appeared in the June 2010 Revised COLA. We conclude, therefore, that the time to file a contention concerning copper, TBT, or other blowdown pollutants mentioned in Contention 12 was in

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<sup>130</sup> See ER Rev. 0 at 3-56 to 3-57.

<sup>131</sup> Compare id. with ER Rev. 3 at 3-68, tbl. 3.6-1.

<sup>132</sup> COL EIS at 5-6.

<sup>133</sup> Gundersen Decl. at paras. 39, 40.

<sup>134</sup> ER Rev. 0 at 3-55 to 3-57.

<sup>135</sup> See ER Rev. 3 at 3-66 to 3-68.

<sup>136</sup> COL EIS at 5-6.

response to the original COLA or, at the latest, the COL EIS, not the June 2010 COLA Revision. Nevertheless, BREDL did not raise its concerns with any of the blowdown pollutants until October 2010, when it filed Contention 12. Under Section 2.309(f)(2)(iii), this was impermissibly late.<sup>137</sup> And BREDL has not attempted to argue that it has good cause under 10 C.F.R. § 2.309(c)(1) for its nontimely raised contention.

We therefore conclude that the allegations concerning blowdown pollutants are untimely raised pursuant to 10 C.F.R. § 2.309(f)(2) and 2.309(c)(1), and are therefore inadmissible. This makes it unnecessary to consider the arguments concerning the admissibility of those allegations under Section 2.309(f)(1).

#### 6. Conclusion

We do not admit Contention 12 because two of its three asserted grounds for revisiting the dry cooling tower alternative were resolved in the ESP proceeding, and the third is untimely.

#### II. CONTENTION 13

Contention 13, labeled “Unit 3 Seismic Spectra Exceedance,” argues that in contravention of 10 C.F.R. §§ 52.7, 52.93, and 100.23, “Dominion has improperly requested a site-specific exemption from the Design Control Document Tier 1 for proposed North Anna Unit 3.”<sup>138</sup> We conclude that Contention 13 is timely pursuant to 10 C.F.R. § 2.309(f)(2) but inadmissible pursuant to 10 C.F.R. § 2.309(f)(1).

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<sup>137</sup> See Scheduling Order at 7.

<sup>138</sup> New Contentions at 6-7.

A. Timeliness

Our timeliness inquiry for Contention 13 turns on whether the information upon which Contention 13 is based is indeed new information.

BREDL combines its explanation of the timeliness for Contention 13 with its general timeliness arguments for Contention 12. BREDL first claims that Contention 13 is based on Dominion's substitution of the US-APWR for the ESBWR.<sup>139</sup> BREDL then states that "the information upon which the new contention is based is materially different than information previously available" and that "this contention has been submitted in a timely fashion; i.e., on or before October 4, 2010."<sup>140</sup>

BREDL specifically states that Contention 13 arises out of an "improperly requested . . . site-specific exemption from the Design Control Document Tier 1 for proposed North Anna Unit 3" in Revision 3 to Dominion's COLA.<sup>141</sup> We regard this exemption request at the center of the contention as previously unavailable because it appeared for the first time in Revision 3 of Dominion's COLA.<sup>142</sup> Moreover, we view the exemption request to be "materially different" from prior versions of Dominion's COLA, given that this exemption request departs from the DCD of the pending US-APWR design certification application, which Dominion has not relied on before Revision 3 of its COLA.<sup>143</sup> Finally, we find that because Contention 13 was filed prior to the deadline of October 4, 2010 that we imposed for filing new contentions based on the June 2010 COLA Revision,<sup>144</sup> it is timely filed pursuant to 10 C.F.R. § 2.309(f)(2).

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<sup>139</sup> New Contentions at 11.

<sup>140</sup> Id.

<sup>141</sup> Id. at 6.

<sup>142</sup> See 10 C.F.R. § 2.309(f)(2)(i).

<sup>143</sup> See id. § 2.309(f)(2)(ii).

<sup>144</sup> See id. § 2.309(f)(2)(iii).

B. Admissibility of Contention 13 under Section 2.309(f)(1)

We next review the admissibility of proposed Contention 13 under 10 C.F.R. § 2.309(f)(1). In our ruling on BREDL's Petition to Intervene, we outlined the factors governing contention admissibility, and need not repeat them in full here.<sup>145</sup>

BREDL insists in Contention 13 that "Dominion has improperly requested a site-specific exemption from the Design Control Document [DCD] Tier 1 for proposed North Anna Unit 3," ostensibly in violation of Sections 52.7, 52.93, and 100.23.<sup>146</sup> Specifically, BREDL posits that Dominion has acknowledged "that the proposed Unit 3 cannot not [sic] meet the standards for safe shutdown during an earthquake," thereby "reduc[ing] safety and increas[ing] risk to public health."<sup>147</sup> According to BREDL, that acknowledgement was made when Dominion, in its Departures Report to Revision 3 of its COLA, stated "[t]he site-specific SSE [safe shutdown earthquake] peak ground acceleration (PGA) is greater than the value of 0.3g, as defined in DCD Tier 1, Table 2.1-1."<sup>148</sup> Moreover, BREDL posits that the geology of the North Anna site renders it "unsuitable" for construction of nuclear power reactors because of false statements made to the NRC in the 1970s by Virginia Electric and Power Company (VEPCO), Dominion's corporate parent, regarding the North Anna site's seismic characteristics and because of a variance from the ESP Dominion requested in the first version of its COLA that referenced the earlier ESBWR design.<sup>149</sup>

Dominion opposes admission of Contention 13, portraying it as an attack on NRC regulations that permit Dominion to seek the exemption, outside the scope of this proceeding,

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<sup>145</sup> See LBP-08-15, 68 NRC at 311-12.

<sup>146</sup> New Contentions at 6-7.

<sup>147</sup> Id. at 7-9.

<sup>148</sup> Id. at 7 (quoting North Anna 3 Combined License Application, Part 7: Departures Report, Rev. 3 (June 2010) at 2-1 [hereinafter Departures Report]).

<sup>149</sup> Id. at 9-10.

unsupported, vague, and lacking a genuine dispute of material fact or law.<sup>150</sup> The NRC Staff also opposes admission of Contention 13 on the grounds that it is immaterial to the NRC's licensing decision in this proceeding, lacks adequate support, and does not raise a genuine dispute of material fact or law with the COLA.<sup>151</sup>

This is not the first instance in this proceeding in which BREDL has raised a contention related to the seismic fault in proximity to the North Anna site. In analyzing proposed Contention 2 in our Memorandum and Order granting BREDL's hearing request, we held that Section 52.39(a)(2) barred BREDL's contention regarding the seismicity of the North Anna site, which had been extensively evaluated in the ESP proceeding. Likewise, we deemed irrelevant to this proceeding BREDL's reference to the misconduct of VEPCO regarding disclosure of seismic faults at the North Anna site in the 1970s, especially given the attention devoted to seismicity in the NRC Staff's review of Dominion's ESP Application. Therefore, we concluded that the issue of seismic site suitability had been resolved in the ESP proceeding and that Contention 2 did not raise any admissible challenge to that aspect of Dominion's COLA.<sup>152</sup> To the extent these previously resolved matters comprise BREDL's argument in Contention 13, we decline to revisit them.<sup>153</sup> However, given that we deem Contention 13's challenge to the Tier 1 exemption sought

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<sup>150</sup> Dominion Ans. at 27-42.

<sup>151</sup> NRC Staff Ans. at 18-23.

<sup>152</sup> LBP-08-15, 68 NRC at 326-28.

<sup>153</sup> At oral argument, counsel for BREDL argued that the existence of a dissenting opinion in the ESP Board's Initial Decision indicates an absence of resolution of an item in the ESP proceeding. See Tr. at 130-31; see also BREDL Reply at 6. However, the fact that there was a dissenting opinion in an ESP proceeding does not render the disposition of that licensing board's decision "unresolved." Moreover, the dissenting opinion to which BREDL refers did not even mention the suitability of the North Anna site for seismic reasons and thus could not have given rise to BREDL's perceived lack of a resolution on this seismic matter among the ESP Board, especially given that the ESP Board majority was affirmed by the Commission. See North Anna ESP, CLI-07-27, 66 NRC at 219-20; North Anna ESP, LBP-07-09, 65 NRC at 631-639 (Karlin, J., dissenting).

by Dominion to be based on “new information,” its admissibility must be addressed for the first time.

The US-APWR design certification application referenced by Dominion’s Revised COLA is docketed but not yet certified, and NRC regulations permit a COL applicant, such as Dominion, to make this reference to a docketed-but-not-yet-certified design “at its own risk.”<sup>154</sup> As the Summer licensing board noted:

along the way, and certainly once a final design is certified, each COLA applicant will have to determine whether it will adopt in toto the certified design, or whether it will take exemptions thereto and/or departures therefrom. An applicant will also have to demonstrate that the site-specific parameters are bounded by the parameters developed for the certified design.<sup>155</sup>

Under NRC regulations, a COL applicant incorporating a certified design may include in its COLA a “request . . . for an exemption from any part of a referenced design certification rule,” which may be granted as long as the NRC “determines that the exemption complies with any exemption provisions of the referenced design certification rule, or with [10 C.F.R.] § 52.63 if there are no applicable exemption provisions in the referenced design certification rule.”<sup>156</sup> In turn, Section 52.63(b)(1) conditions grants of exemptions from referenced design certification rules on the Commission’s finding that the request complies with Section 52.7 and that the “special circumstances” provided for in Section 52.7 “outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption.”<sup>157</sup> For COL applicants, Section 52.7

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<sup>154</sup> 10 C.F.R. § 52.55(c).

<sup>155</sup> South Carolina Elec. & Gas Co. & South Carolina Pub. Serv. Auth. (Also Referred to as Santee Cooper) (Virgil C. Summer Nuclear Station, Units 2 and 3), LBP-09-02, 69 NRC 87, 100 (2009), aff’d in part and rev’d and remanded on other grounds, CLI-10-01, 71 NRC \_\_\_, \_\_\_ (slip op.) (Jan. 7, 2010) (footnotes and internal citations omitted).

<sup>156</sup> 10 C.F.R. § 52.93(a)(1).

<sup>157</sup> Id. § 52.63(b)(1). Section 52.63(b)(1) also explicitly subjects exemption requests to the same level of litigation as other issues that could be admissibly raised in a COL proceeding. Id.

itself cross-references the standards of Section 50.12 for granting exemptions to NRC regulations.<sup>158</sup>

Dominion's exemption request from the US-APWR DCD claims that North Anna Unit 3's site-specific seismic spectra would exceed the pending certified seismic design response spectra (CSDRS) of the US-APWR DCD. Accordingly, Dominion states that "[t]he site-specific SSE peak ground acceleration (PGA) is greater than the value of 0.3g, as defined in DCD Tier 1, Table 2.1-1. As a result a request for exemption from DCD Tier 1 in the above-referenced table and figures is required."<sup>159</sup>

NRC regulations require that, for an ESP or COL site and associated design bases to be deemed geologically and seismically suitable,

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<sup>158</sup> Id. § 52.7. Section 50.12 only allows the grant of an exemption from a regulation when the request is "[a]uthorized by law, will not present an undue risk to the public health and safety, and [is] consistent with the common defense and security," and if:

- (i) Application of the regulation in the particular circumstances conflicts with other rules or requirements of the Commission; or
- (ii) Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule; or
- (iii) Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated; or
- (iv) The exemption would result in benefit to the public health and safety that compensates for any decrease in safety that may result from the grant of the exemption; or
- (v) The exemption would provide only temporary relief from the applicable regulation and the licensee or applicant has made good faith efforts to comply with the regulation; or
- (vi) There is present any other material circumstance not considered when the regulation was adopted for which it would be in the public interest to grant an exemption. If such condition is relied on exclusively for satisfying paragraph (a)(2) of this section, the exemption may not be granted until the Executive Director for Operations has consulted with the Commission.

Id. § 50.12(a)(1), (2)(i)-(vi).

<sup>159</sup> Departures Report at 2-1.

The geological, seismological, and engineering characteristics of a site and its environs must be investigated in sufficient scope and detail to permit an adequate evaluation of the proposed site, to provide sufficient information to support evaluations performed to arrive at estimates of the Safe Shutdown Earthquake Ground Motion, and to permit adequate engineering solutions to actual or potential geologic and seismic effects at the proposed site.<sup>160</sup>

Appendix S of 10 C.F.R. Part 50 defines SSE as “the vibratory ground motion for which certain structures, systems, and components must be designed to remain functional.”<sup>161</sup> Dominion’s Departures Report maintains that analyses of the requested exemption from SSE standards in the US-APWR DCD, which are cross-referenced to Revision 3 of its Final Safety Analysis Report (FSAR), will comply with 10 C.F.R. Part 50, Appendix S, and thus demonstrate that “the granting of this exemption will not result in a significant decrease in the level of safety otherwise provided by the design.”<sup>162</sup>

Whether the SSE exceedance in Dominion’s exemption request does in fact comply with 10 C.F.R. Part 50, Appendix S and 10 C.F.R. § 100.23 is a question currently before the NRC Staff and is thus material to the NRC’s licensing decision in this proceeding under 10 C.F.R. § 2.309(f)(1)(iv). Moreover, that exemption request could be subject to litigation in this COL proceeding, and thus is within the scope of the proceeding pursuant to 10 C.F.R. § 2.309(f)(1)(iii).<sup>163</sup>

However, while BREDL says that the request is “improper,” it does not say what is improper about that request or under which section of 10 C.F.R. Part 52 or Subsection of 10 C.F.R. § 50.12(a)(2) that request is inappropriate.<sup>164</sup> This vague accusation does not rise to the

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<sup>160</sup> See 10 C.F.R. § 100.23(c); see also *id.* § 100.23(d) (stating the factors used for such a geological and seismological evaluation); North Anna ESP, 65 NRC at 595-98 (summarizing the seismic site evaluation in the ESP proceeding).

<sup>161</sup> 10 C.F.R. Part 50, app. S, § III.

<sup>162</sup> Departures Report at 2-1 to 2-2.

<sup>163</sup> See 10 C.F.R. § 52.63(b)(1).

<sup>164</sup> See New Contentions at 6-10.

level of an admissible genuine dispute of material fact or law under Section 2.309(f)(1)(vi). Dominion's exemption request states that analyses in Appendix 3NN of its FSAR "demonstrate that the standard plant seismic design of structural members envelopes the site-specific seismic responses for the affected plant structures,"<sup>165</sup> and BREDL does not say what is wrong with those site-specific analyses or how "a modification of the power plant systems to accommodate site conditions" is inadequate for seeking an exemption.<sup>166</sup>

Therefore, we find Contention 13 inadmissible pursuant to 10 C.F.R. § 2.309(f)(1)(vi) for failing to raise a genuine dispute of material fact or law with Dominion's COLA. Moreover, beyond its critiques of Dominion's parent company in the 1970s and Dominion's past request for a variance from the ESP in the earlier version of Dominion's COLA, BREDL does not allege any facts or provide expert opinions to support its position on this contention.<sup>167</sup> Accordingly, we find Contention 13 inadmissible pursuant to 10 C.F.R. § 2.309(f)(1)(v) and (vi).

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<sup>165</sup> See Departures Report at 2-1 (referencing North Anna Unit 3 Combined License Application, Part 2: Final Safety Analysis Report, Rev. 3 (June 2010) at app. 3NN). Counsel for Dominion alluded to this at oral argument:

[I]t doesn't mean that we are taking exemption from any of the NRC safety standards. It just means we are taking exemption from a postulated assumption that the standardized plant was done, that was based on, and doing further analysis to show that the plant, in fact, is fully capable . . . of satisfying the actual safe shutdown earthquake. We explained this in the departures report. In the departures report we explained we did this further analysis. It is called a soil structure analysis. And it actually determines what are, you know, given the safe shutdown earthquake, what are the actual loads on the foundations in this [sic] structure members. You then compare that to what were the loads that were posited in the DCD. What we showed is when you do that analysis, the actual loads, from the actual safe shutdown earthquake, are below the loads that were posited for the structural members and foundations of the standard plant. And, as a result, that standard plant is suitable.

Tr. at 149-50.

<sup>166</sup> See New Contentions at 8-9.

<sup>167</sup> See id. at 6-10.

CONCLUSION

For the foregoing reasons, BREDL's request for admission of Contentions 12 and 13 is denied. Any new contentions based on new information, including but not limited to contentions based on new information in the Staff's Safety Evaluation Report or Supplemental EIS, neither of which has yet been issued, shall be filed within the time period specified in the Board's Scheduling Orders of September 10, 2008, and March 22, 2010. Because there are currently no pending contentions in this proceeding, the mandatory disclosure obligations under 10 C.F.R. § 2.336(a) remain suspended until further order of the Board.

It is so ORDERED.

THE ATOMIC SAFETY  
AND LICENSING BOARD

*/RA/*

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Ronald M. Spritzer, Chairman  
ADMINISTRATIVE JUDGE

*/RA/*

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Dr. Richard F. Cole  
ADMINISTRATIVE JUDGE

*/RA/*

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Dr. Alice C. Mignerey  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
April 6, 2011

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of )  
)  
Virginia Electric and Power Company d/b/a )  
Dominion Virginia Power (DVP or Dominion) ) Docket No. 52-017-COL  
and Old Dominion Electric Cooperative (ODEC) )  
)  
(North Anna Power Station, Unit 3) )

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing MEMORANDUM AND ORDER (Declining to Admit New Contentions 12 and 13) (LBP-11-10) have been served upon the following persons by Electronic Information Exchange.

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Office of the Secretary of the Commission

Dated at Rockville, Maryland  
this 6<sup>th</sup> day of April 2011