

May 8, 2009

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of)
Tennessee Valley Authority)
Bellefonte Nuclear Power Plant) Docket Nos. 50-438 and 50-439
Units 1 and 2)
Construction Permits CPPR-122 and CPPR-123)
_____)

**PETITION FOR INTERVENTION AND REQUEST FOR HEARING BY
THE BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE, ITS CHAPTER
BELLEFONTE EFFICIENCY AND SUSTAINABILITY TEAM
AND THE SOUTHERN ALLIANCE FOR CLEAN ENERGY**

Pursuant to 10 C.F.R. § 2.309, 10 C.F.R. § 50.55 and a notice published by the Nuclear Regulatory Commission (“NRC” or “Commission”) at 74 Fed. Reg. 10969 (March 13, 2009), the Blue Ridge Environmental Defense League with its chapter Bellefonte Efficiency and Sustainability Team (“BREDL”) and the Southern Alliance for Clean Energy (“SACE”) hereby petition for leave to intervene and request a hearing in the above-captioned matter. This petition sets forth with particularity the contentions we seek to raise. As demonstrated below, BREDL and SACE (“Petitioners”) have representational standing, through their members, to make this request.

Petitioners request and are entitled to a full adjudicatory hearing with all the rights of discovery and cross-examination provided by 10 C.F.R. Subpart G. At a later date, to be set by the Atomic Safety and Licensing Board (ASLB), Petitioners will demonstrate that they meet the requirements of 10 C.F.R. § 2.310(d) in making this request

I. INTRODUCTION

Background

On December 12, 1974, the Commission issued construction permits CPPR-122 and CPPR-123 (“CPs”) for Bellefonte (“BLN”) Units 1 and 2 to the Tennessee Valley Authority (“TVA”). On April 6, 2006, TVA submitted a request to withdraw the CPs for BLN Units 1 and 2 and on September 14, 2006, pursuant to the request, the NRC withdrew the CPs for BLN Units 1 and 2. On August 26, 2008, TVA submitted a request to reinstate the CPs for BLN Units 1 and 2.¹ On October 30, 2007, TVA filed an application for a combined construction and operation license (“COLA”) for Bellefonte Units 3 and 4. On June 6, 2008, Petitioners filed to intervene in TVA’s request for a construction and operation license at Bellefonte Nuclear Power Plant Units 3 and 4. On September 12, 2008 the Atomic Safety and Licensing Board (“ASLB”) allowed BREDL and SACE to intervene as parties to the contested COLA proceeding.² On March 3, 2009 the NRC issued an Environmental Assessment and Finding of No Significant Impact for Bellefonte Units 1 and 2. 74 Fed. Reg. 9308. On March 9, 2009, the NRC issued an order granting re-instatement of Construction Permits for Bellefonte Units 1

¹ Ashok S. Bhatnagar, Senior Vice President Nuclear Generation Development and Construction, TVA to Eric J. Leeds, US Nuclear Regulatory Commission, Re: Tennessee Valley Authority (TVA)—Bellefonte Nuclear Plant Units 1 and 2—Request to Reinstate Construction Permits CPPR-122 (Unit 1) and CPPR-123 (Unit 2), August 26, 2008

² The ASLB stated: “SACE and BREDL have provided four admissible issue statements, specifically contentions NEPA-B, FSAR-D, NEPA-G, and NEPA-N, so as to be admitted as parties to this contested proceeding for the purpose of litigating these issue statements.” Docket Nos. 52-014-COL and 52-015-COL, LBP-08-16, September 12, 2008

and 2.³ On March 13, 2009 the NRC published a notice to request a hearing on re-instatement of CPs for Bellefonte Units 1 and 2. 74 Fed. Reg. 10969.

Description of the Proceeding

This proceeding is concerned with the decision by the NRC to reinstate the construction permits for Bellefonte Units 1 and 2, noticed in the Federal Register at 74 Fed. Reg. 10969 (March 13, 2009).

Overview of the Contentions Raised in this Petition

A CP is an authorization from the NRC to construct a nuclear power plant at a specific site. Before issuing a CP, the NRC staff must complete safety and environmental reviews of the application. The CP must comply with provisions of the Atomic Energy Act, the National Environmental Policy Act and NRC's regulations. Petitioners wish to intervene in this proceeding because the operation of two nuclear reactors would endanger over a million people in three states living within 50 miles of the plant. Furthermore, the risk is unnecessary and wholly out of proportion to any possible benefit.

Standing

Pursuant to 10 CFR § 2.309, a request for hearing or petition for leave to intervene must address 1) the nature of the petitioner's right under the Atomic Energy Act to be made a party to the proceeding, 2) the nature and extent of the petitioner's property, financial, or other interest in the proceeding, and 3) the possible effect of any order that may be entered in the proceeding on the petitioner's interest.

³ Docket Nos. 50-438 and 50-439

Other standing requirements are found in NRC case law. As summarized by the Atomic Safety and Licensing Board (“ASLB”), these standing requirements are as follows:

In determining whether a petitioner has sufficient interest to intervene in a proceeding, the Commission has traditionally applied judicial concepts of standing. *See Metropolitan Edison Co.* (Three Mile Island Nuclear station, Unit 1), CLI-83-25, 18 NRC 327, 332 (1983) (citing *Portland General Electric Co.* (Pebble Springs Nuclear Plant, Units 1 and 2), CLI-76-27, 4 NRC 610 (1976)). Contemporaneous judicial standards for standing require a petitioner to demonstrate that (1) it has suffered or will suffer a distinct and palpable harm that constitutes injury-in-fact within the zone of interests arguably protected by the governing statutes (e.g., the Atomic Energy Act of 1954 (AEA), the National Environmental Policy Act of 1969 (NEPA)); (2) the injury can be fairly traced to the challenged action; and (3) the injury is likely to be redressed by a favorable decision. *See Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plants), LBP-99-25, 50 NRC 25, 29 (1999). An organization that wishes to intervene in a proceeding may do so either in its own right by demonstrating harm to its organizational interests, or in a representational capacity by demonstrating harm to its members. *See Hydro Resources, Inc.* (2929 Coors Road, Suite 101, Albuquerque, NM 87120), LBP-98-9, 47 NRC 261, 271 (1998). To intervene in a representational capacity, an organization must show not only that at least one of its members would fulfill the standing requirements, but also that he or she has authorized the organization to represent his or her interests. *See Private Fuel Storage, L.L.C.* (Independent Fuel Storage Installation), LBP-98-7, 47 NRC 142, 168, *aff’d on other grounds*, CLI-98-13, 48 NRC 26 (1998).

Pacific Gas & Electric Co. (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), LBP-02-23, 56 NRC 413, 426 (2002)

Standing to participate in this proceeding is demonstrated by the declarations of the following members of the Blue Ridge Environmental Defense League and the Southern Alliance for Clean Energy, all but one of whom live within 50 miles of the proposed site and who have authorized Petitioners to represent their interests in this proceeding.

For BREDL and BEST:

1. Ann Andrews, Signal Mountain, Tennessee
2. Ashley Baggett, Chattanooga, Tennessee
3. Terri J. Ballinger, Soddy Daisy, Tennessee
4. Karen A. Bianchi, Chattanooga, Tennessee

5. Finn Bille, Chattanooga, Tennessee
6. Karen J. Blackburn, Ringgold, Georgia
7. Christine Bock, Rising Fawn, Georgia
8. Nick Bowers, Chattanooga, Tennessee
9. Noah Bresler, Chattanooga, Tennessee
10. Heather R. Brown, Chattanooga, Tennessee
11. Belle Anne Butler, Chattanooga, Tennessee
12. Jeannie Hacker Cerulean, Chattanooga, Tennessee
13. Felicia Channing, Williams Island Farm, Tennessee
14. Matt Chapman, Chattanooga, Tennessee
15. June Coppinger, Chattanooga, Tennessee
16. Mary Coppinger, Sequatchie, Tennessee
17. Frank DePinto, Chattanooga, Tennessee
18. Holly A. Dieken, Chattanooga, Tennessee
19. Joe Dill, Chattanooga, Tennessee
20. Susan C. Dubose, Chattanooga, Tennessee
21. Thomas A. DuBose, Chattanooga, Tennessee
22. Olive B. Durant, Signal Mountain, Tennessee
23. Michael Easparam, Chattanooga, Tennessee
24. Amy Evans, Sewanee, Tennessee
25. Jonathan Evans, Sewanee, Tennessee
26. Gilbert Everett, Chattanooga, Tennessee
27. Andrew Fazig, Red Bank, Tennessee
28. Sara Fitzgerald, Tullahoma, Tennessee
29. Tami Kay Freedman, Rossville, Georgia
30. Dana Freeman, Soddy Daisy, Tennessee
31. Peter W. Frogner, Tullahoma, Tennessee
32. Charlene R. Goodman, Chattanooga, Tennessee
33. Merrill Goodwin, Chattanooga, Tennessee
34. Robert Gottfried, Sewanee, Tennessee
35. Yolande McCurdy Gottfried, Sewanee, Tennessee
36. Toni Gwaltney, Trenton, Georgia
37. Megan Hackman, Signal Mountain, Tennessee
38. Valerie C. Harris, Scottsboro, Alabama
39. Stewart V. Horn, New Hope, Alabama
40. Matt Horton, Chattanooga, Tennessee
41. Olin M. Ivey, Chattanooga, Tennessee
42. Dena Jackson, Chattanooga, Tennessee
43. Paul Jackson, Chattanooga, Tennessee
44. Cornelia D. Janey, Signal Mountain, Tennessee
45. Jamie Jollie, Lookout Mountain, Georgia
46. Kelsey Keener, Chattanooga, Tennessee
47. Patricia King, Chattanooga, Tennessee
48. Pam Kirk, Hixson, Tennessee

49. Jessie Knowles, Signal Mountain, Tennessee
50. Sandra Kurtz, Chattanooga, Tennessee
51. Julie Kurtz-Kunesh, Chattanooga, Tennessee
52. Laura Lomenick, Chattanooga, Tennessee
53. Billy E. Lowry, Soddy Daisy, Tennessee
54. Haskell Matheny, Cleveland, Tennessee
55. Heather McClendon, Chattanooga, Tennessee
56. Cara McGowan, Signal Mountain, Tennessee
57. Lou McKenzie, Sale Creek, Tennessee
58. Jennifer McNeely, Chattanooga, Tennessee
59. Michael Jason McNeely, Chattanooga, Tennessee
60. Jack L. Moore, Tullahoma, Tennessee
61. Rosa Lee Moore, Tullahoma, Tennessee
62. Garry L. Morgan, Scottsboro, Alabama
63. Ann C. Morrow, Signal Mountain, Tennessee
64. Charles Morse, Williams Island, Tennessee
65. Hillary Mullins, Chattanooga, Tennessee
66. Yong Oh, Chattanooga, Tennessee
67. Audrey Owens, Chattanooga, Tennessee
68. Antoinette Pereira, Chattanooga, Tennessee
69. Nancy Peschko, Hixson, Tennessee
70. Marilyn Pruitt, Red Bank, Tennessee
71. Robert B. Pyle, Chattanooga, Tennessee
72. Dionisa Ramirez, Chattanooga, Tennessee
73. Joseph M. Ramirez, Chattanooga, Tennessee
74. Wes Rehberg, Chattanooga, Tennessee
75. Sue H. Reynolds, Chattanooga, Tennessee
76. William F. Reynolds, Chattanooga, Tennessee
77. David Rivero, Chattanooga, Tennessee
78. Dana Roddy, Hixson, Tennessee
79. Aileen San Luis, Chattanooga, Tennessee
80. Melissa Scheuermann, Chattanooga, Tennessee
81. Derek Seretean, Chattanooga, Tennessee
82. Matthew Siener, Chattanooga, Tennessee
83. George M. Siener, Chattanooga, Tennessee
84. John Snodgrass Jr., Scottsboro, Alabama
85. Caara Stoney, Chattanooga, Tennessee
86. Gerry Thomas, Chattanooga, Tennessee

For SACE:

87. Jo Townsend McCluney, Chattanooga, Tennessee
88. William Ross McCluney, Chattanooga, Tennessee
89. Jackie Tipper, Town Creek, Alabama (84 Miles)

As demonstrated by the attached declarations, the Petitioners' members live near the proposed site. Thus, they have presumptive standing by virtue of their proximity to the two new nuclear plants that may be constructed on the site. *Diablo Canyon, supra*, 56 NRC at 426-427, citing *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-01-6, 53 NRC 138, 146, *aff'd*, CLI-01-17, 54 NRC 3 (2001). In *Diablo Canyon*, the Licensing Board noted that petitioners who live within 50 miles of a proposed nuclear power plant are presumed to have standing in reactor construction permit and operating license cases, because there is an "obvious potential for offsite consequences" within that distance. *Id.* Here, the granting of permits to TVA would allow the construction of two reactors on the Bellefonte site near Scottsboro, Alabama. Thus, the same standing concepts apply.

The Petitioners' members seek to protect their lives and health by opposing the re-instatement of a CP to TVA by the U.S. Nuclear Regulatory Commission.

Further, *locus standi* is based on three requirements: injury, causation and redressability. Petitioners hereby request to be made a party to the proceeding because (1) Construction and operation of nuclear reactors at Bellefonte would present a tangible and particular harm to the health and well-being of our members living near the site, (2) The NRC has indicated its willingness to re-instate the CPs, the granting of which would directly affect our members, and (3) The Commission is the sole agency with the power to approve, to modify, to suspend or to revoke a permit to construct a commercial nuclear power plant.

II. APPLICABLE LEGAL STANDARDS

Standards of Admissibility

Proffered contentions must put “other parties in the proceeding on notice of the petitioners’ specific grievances” in order to “give [] them a good idea of the claims they will be either supporting or opposing.” *Matter of Duke Energy Corp.*, 49 NRC 328,333 (NRC Apr. 15, 1999) (Oconee Nuclear Station, Units 1, 2 and 3). Accordingly, in order to ensure “a clearer and more focused record for decision,” 69 Fed. Reg. 2182, 2202 (Jan. 14, 2004), an admissible contention will provide (1) a specific statement of the legal or factual issue proposed; (2) a brief explanation of its basis; (3) a demonstration that the issue is within the scope of the proceeding; (4) a demonstration that the issue is material to the findings the NRC must make to support the action involved in the proceeding; (5) a concise statement of the alleged facts or expert opinions, including references to specific sources and documents that support the petitioners’ position and upon which the petitioner intends to rely at hearing; and (6) sufficient information to show that a genuine dispute exists with regard to a material issue of law or fact, including references to specific portions of the application that the petitioner disputes or, when the application is alleged to be deficient, the identification of such deficiencies and supporting reasons for this belief. *See* 10 C.F.R. § 2.309(f).

The contention rule has not become a “fortress to deny intervention” despite its 1989 fortification. *Matter of Duke Energy Corp.* (Oconee Nuclear Power Plant), 49 NRC at 335 (*quoting Philadelphia Elec. Co.* (Peach Bottom Atomic Power Sta., Units 2 and 3), 8 AEC 13, 20-21 (1974), *rev'd in part*, CLI-74-32, 8 AEC 217 (1974), *rev'd in part*, *York*

Committee for a Safe Environment v. N.R.C., 527 F.2d 812 (D.C. Cir. 1975)). Indeed, “[t]he Commission and its Boards regularly continue to admit for litigation and hearing contentions that are material and supported by reasonably specific factual and legal allegations.” *Duke Energy*, 49 NRC at 333. Nor have more recent revisions materially changed the admissibility standard for contentions. *Matter of PPL Susquehanna, LLC*, 65 NRC 281, 303 (March 22, 2007). Although an intervenor cannot use discovery or cross-examination as a “fishing expedition” in hopes of turning up supporting facts, there is also no requirement that the substantive case be made at the contention stage. *Matter of Entergy Nuclear Generation Co. et al.* (Pilgrim Nuclear Power Station), 50-293-LR (ASLB Oct. 16, 2006), 2006 WL 4801142 at (NRC) 85 (*quoting Oconee*, 49 NRC at 342)).

The Commission has also, however, explained that the requirement at § 2.309(f)(1)(v) “does not call upon the intervenor to make its case at [the contention] stage of the proceeding, but rather to indicate what facts or expert opinions, be it one fact or opinion or many, of which it is aware at that point in time which provide the basis for its contention. A petitioner does not have to provide a complete or final list of its experts or evidence or prove the merits of its contention at the admissibility stage. And, as with a summary disposition motion, the support for a contention may be viewed in a light that is favorable to the petitioner so long as the admissibility requirements are found to have been met. The requirement “generally is fulfilled when the sponsor of an otherwise acceptable contention provides a brief recitation of the factors underlying the contention or references to documents and texts that provide such reasons. *Pilgrim* at 84 (*quotations*

and citations omitted). “A contention may be plausible enough to meet the admission standards even if it is ultimately denied on the merits.” *Matter of Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee), 50-271-LR, 2006 NRC Lexis 201, 28 (ASLB Sept. 22, 2006).

Specific Statement of the Issue of Law or Fact to be Raised or Controverted

First, a petitioner must clearly identify the issue of law or fact that it will raise or dispute. 10 C.F.R. § 2.309(f)(1)(i).

Brief Explanation of the Basis of the Contention

Next “a petitioner must provide some sort of *minimal* basis indicating the *potential* validity of the contention.” Final Rule, *Rules of Practice for Domestic Licensing Proceedings - Procedural Changes in the Hearing Process*, 54 Fed. Reg. 33,168, 33,170 (Aug. 11, 1989) (emphasis added). This minimal basis need not be “an exhaustive list of possible bases, but simply” enough to provide the alleged factual or legal bases in support of the contention. *Vermont Yankee*, 50-271-LR, 2006 NRC Lexis 201 (quoting *Louisiana Energy Serv., LP* (National Enrichment Facility), 60 NRC 619, 623 (2004)).

Showing that the Contention is Material to Findings that the NRC Must Make in Support of the Proposed Action

A proposed contention must concern an issue that is “material” to the findings the NRC must make. 10 C.F.R. § 2.309(f)(1)(iv). A “material” issue is one that would make a difference in the outcome of the proceeding. 54 Fed. Red. at 33,172. “This means that there should be some significant link between the claimed deficiency and either the

health and safety of the public or the environment.” *Vermont Yankee*, 60 NRC 548, 557 (Nov. 22, 2004).

Concise Statement of the Alleged Facts or Expert Opinions in Support of Petitioners Position

A petitioner must also demonstrate that each proposed contention is supported by “a concise statement of the alleged facts or expert opinions which support the . . . petitioner’s position on the issue . . . together with references to the specific sources and documents on which [it] intends to rely.” 10 C.F.R. § 2.309(f)(1)(v). This does not mean, though, that a petitioner must “make its case at this stage of the proceeding.” 54 Fed. Reg. at 33,170. Rather, the petitioner must simply “indicate what facts or expert opinions, be it one fact or opinion or many, of which it is aware at that point in time which provide the basis for its contention.” *Id.* Moreover, “a ‘Board may appropriately view Petitioners’ support for its contention in a light that is favorable to the Petitioner.’” *Vermont Yankee*, 60 NRC at 555 (quoting *Matter of Arizona Public Service Co. (Palo Verde Nuclear Station)*, 34 NRC, 149, 155 (Aug. 16, 1991)).

Sufficient Information to Show that a Genuine Dispute Exists with the Applicant or Licensee on a Material Issue of Law or Fact

Customarily, a petitioner for intervention can be expected to have read the pertinent portions of the permit application, including the associated safety and environmental reports, in order that it can state the applicant's position and the petitioner's opposing view. Where the intervenor believes the application and supporting material do

not address a relevant matter, it is customarily sufficient for the intervenor to explain why the application is deficient. 54 Fed. Reg. at 33,170.

In the unique circumstances of this proceeding, of course, none of the usual applicant-generated materials are available. This makes it impossible for Petitioners to understand the basis for TVA's presumed belief that its request for reinstatement satisfies all of the pertinent statutory and regulatory requirements. Accordingly, Petitioners here cannot be expected to present any discrete disagreement with the positions taken by TVA, as those positions have not been revealed.

III. CONTENTIONS

Contention 1. The Commission was without legal authority to reinstate the Construction Permits

Nothing in the Atomic Energy Act ("AEA" or "the Act") authorizes the Commission to reinstate a CP which, as in this case, has been withdrawn by the applicant and terminated by the NRC. The two CPs at issue here were terminated and rendered legally void by the NRC on September 4, 2006. The NRC does not have legal authority to restore the legal vitality of a CP once it has been rendered legally void.

Even if the NRC had not granted TVA's request for withdrawal of the CPs and terminated them, the CPs would have expired automatically as a matter of law. Section 185(a) of the Act, provides, in pertinent part:

The construction permit shall state the earliest and latest dates for the completion of the construction or modification. Unless the construction or modification of the facility is completed by the completion date, the construction permit shall expire, and all rights thereunder be forfeited, unless upon good cause shown, the Commission extends the completion date.

While the Commission's Policy Statement on Deferred Plants, 52 Fed. Reg. 38,077 (Oct. 14, 1987) provides a means by which the two Bellefonte CPs could have had, in principle, their completion dates deferred, neither TVA nor the NRC took the steps prescribed by this policy in order to make such a deferral.

Petitioners submit that when, as here, the requirements of the Policy Statement on Deferred Plants, have not been met, the NRC is authorized only to "grant" new CPs pursuant to sec. 189(a)(1)(A) of the Act. Because the Commission did not invoke this authority when "reinstating" the CPs at issue here, its action was illegal.

Contention 2. Reinstatement of the Construction Permits was legally defective due to the NRC's failure to comply with the pertinent requirements of the Atomic Energy Act.

As explained in Contention 1, Petitioners submit that the only fair and legally accurate characterization of the Commission's action regarding the CPs in question is a "granting" pursuant to the Commission's authority under sec. 189(a)(1)(A) to "grant" CPs. However, before granting a CP, the Commission is required to do at least two things.

First, it must prepare an environmental impact statement ("EIS"), pursuant to 10 C.F.R. 50.20(b)(1). Because no EIS was prepared prior to the Commission's reinstatement decision, that decision is invalid.

Second, before the Commission grants a CP, it must afford the interested public an opportunity for a hearing. 42 U.S.C. § 2239(a)(1)(A). The holding of a hearing after the permit has been granted, as may or may not happen in this proceeding, does not

satisfy this explicit statutory requirement. For this reason the Commission reinstatement decision was illegal.

Contention 3. The Environmental Assessment Violated NEPA

Contention 3a. The Environmental Assessment Was Illegally Prepared After the Commission's Decision Was Made

In the alternative, if it was permissible for the Commission to prepare only an “environmental assessment” (“EA”), rather than an EIS, prior to making the reinstatement decision, it failed to do even that. The EA that was published in the Federal Register of March 3, 2009, 74 Fed. Reg. 9308, was dated February 24, 2009. This is weeks after the Commissioners voted to reinstate the Bellefonte CPs. The NEPA regulations promulgated by the President’s Council on Environmental Quality provide that: “NEPA procedures must ensure that environmental information is available to public officials and citizens **before** decisions are made and **before** actions are taken.” 40 CFR § 500.1(b) (emphasis added).

Numerous courts have invalidated agency attempts to rely on post-approval environmental studies to discharge their NEPA responsibilities. For example, in Protect Key West v. Cheney, 795 F. Supp. 1552 (S. D. Fl. 1992), the court held that the Navy could not satisfy its NEPA obligation by conducting a traffic impact study after its NEPA document was approved (and the project sent to bid), holding that this “commit first, act questions later” approach “would render the EA/FONSI process a mere formality. . . . This result is not what Congress intended. The Act's effectiveness depends on involving environmental considerations in the initial decision making process. . . In the NEPA context, *post hoc* compliance *by definition* does not accord with the congressional

mandate.” *Id.* at 1561-62. As another court noted, undertaking studies about a highway's environmental impacts after construction is like "locking the barn door after the horses are stolen." Lathan v. Volpe, 350 F. Supp. 263, 266 (W.D. Wa. 1972). See also LaFlamme v. FERC, 852 F.2d 389, 400 (9th Cir. 1988) (FERC's issuance of conditional license for hydroelectric plant requiring "post-licensing" study of environmental impacts "violates NEPA's very letter and purpose").

Other court decisions underscore to comply with NEPA in advance of the agency decision. *See Save the Yaak Committee v. Block*, 840 F.2d 714, 718-719 (9th Cir. 1988) (where the Forest Service awarded contracts prior to the preparation of an EA, the Court specified that such action shows that the agency "did not comply with the timing of their environmental analysis, thereby seriously impeding the degree to which their planning and decisions could reflect environmental values."). *See also Sierra Club v. Hodel*, 848 F.2d 1068, 1093 (10th Cir. 1988) (Agencies are to conduct any NEPA review before committing themselves irretrievably to a given course of action so that the action can be shaped to account for environmental values.)

Contention 3b. NRC Failed to Do an Environmental Impact Statement

Regulatory actions which require a full environmental impact statement (“EIS”), not simply an environmental assessment, include major federal actions. *See* 10 CFR § 51.20(b)(2). At present, there are licensing and permit processes underway for construction of Bellefonte Units 1 and 2 (the CPs) and a combined construction and operating license (“COL”) for Bellefonte Units 3 and 4. NEPA requires that before undertaking a major federal action, an agency must take a “hard look” at the

environmental consequences of the action.⁴ Where an agency has not yet taken the major federal action, it must consider “new and significant information” that bears on the environmental impacts of the proposed action.⁵ Also, federal regulations require supplementation where the proposed action has not been completed, if: “(1) there are substantial changes in the proposed action that are relevant to environmental concerns; or (2) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.” 10 C.F.R. § 51.92(a).

NRC’s reinstatement of the CP on the same site as the COL raises the issues of omission of cumulative impacts and segmentation of NEPA, both of which are prohibited by law. 40 CFR 1502.14 requires a rigorous exploration of alternatives and the side-by-side presentation of the options to decision makers and the public.⁶ Moreover, CEQ regulations call for an early incorporation and disposition of environmental factors relevant to the project.⁷

Federal regulations require the Commission to develop an environmental impact statement before approving a license to operate and construct a power plant. 10 CFR §

⁴ *Baltimore Gas and Elec. Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 97 (1983).

⁵ *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 371-72 (1989)

⁶ 40 CFR 1502.14 Alternatives including the proposed action.

This section is the heart of the environmental impact statement. Based on the information and analysis presented in the sections on the Affected Environment (Sec. 1502.15) and the Environmental Consequences (Sec. 1502.16), it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public. In this section agencies shall:

(a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.

⁷ 1501.2 Apply NEPA early in the process.

Agencies shall integrate the NEPA process with other planning at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts

51.20. Requirements of NEPA may not be avoided by segmentation of a project.⁸

Segmentation arises when the comprehensive environmental impact of a project is not given full consideration or that analysis of the impact is done after permitting agency decisions are made and the project is underway.⁹

Cumulative actions are those which have significantly greater impacts when viewed with other actions or which have increasing effect caused by successive additions. Council of Environmental Quality Regulations Implementing NEPA¹⁰ provide that reasonably foreseeable future actions are to be considered in a cumulative impact analysis. A survey of relevant case law indicates that many government agency decisions successfully challenged for failure to consider cumulative impacts were won because the agency either left out critically important actions which were reasonably foreseeable or included no cumulative impact analysis at all.¹¹ In a case involving an oil refinery dock, the court rejected the argument that market forces would be the proximate cause of greater impacts, rather than the adjacent dock project.¹² *Ocean Advocates v. US Army*

⁸ *River v. Richmond Metropolitan Authority*, 481 F.2d 1280 (4th Cir. 1973)

⁹ Daniel R. Mandelker, *NEPA Law and Litigation*, 9-25 (2nd ed. 2004).

¹⁰ **Sec. 1508.7 Cumulative impact.**

"Cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

¹¹ *Recent Trends in Cumulative Impact Case Law*, Michael D. Smith, PhD, paper presented to the National Association of Environmental Professionals Annual Conference, April 2005

¹² In *Ocean Advocates v. U.S. Army Corps of Engineers* (2004; 361 F.3d 1108) plaintiffs challenged the Corps' EA analyzing a permit application from British Petroleum to build an addition to an existing oil refinery dock in Cherry Point, Washington. The Court ruled that cumulative impacts analysis in the EA was inadequate because it did not properly consider other reasonably foreseeable future actions. The Corps concluded that any increase in crude oil tanker traffic would result from "market forces," not the dock addition or other projects. The Court ruled this conclusion was incorrect since it relied solely on a letter from British Petroleum "claiming that it had many options other than sea travel for transporting crude and refined oil to and from the refinery." According to the Court: "This finding fails to convince us that the Corps took a 'hard look' at the cumulative effects of the project, excludes the requisite quantified or

Corps of Engineers, 2004, 361 F3d 1108. TVA's August 26, 2008 request to re-instate the BLN CPs has several references to outstanding and pending economic decisions which depend on market forces.¹³ However, with the granting of the reinstatement by NRC, the construction of Units 1, 2, 3 and 4 at Bellefonte is now reasonably foreseeable and therefore must be included in the NRC's environmental documents.¹⁴

Contention 4. Plant Site Geologic Issues Are Not Adequately Addressed

Criteria for geologic criteria in NRC regulations must be met before a construction permit may be re-instated. These criteria are necessary to prevent the construction of nuclear reactors on unstable ground. Information provided by the license applicant must be comprehensive in order to eliminate specific hazards; these are listed in the relevant federal regulations. Failure to account for any of these factors would create potential risks to public safety and health or result in extended shut-downs with associated costs of alternative power to the electric ratepayer. These data are necessary for the Commission to make a sound decision.

detailed information necessary to support this finding, and neglects to explain why the Corps could not provide better or more specific information." *Id.*

¹³ Among the "market forces" justifications included in the TVA Request dated August 26, 2008: "One of the major factors taken into account in examining future use of the Bellefonte site was the estimated cost per kilowatt of installed capacity associated with the various advanced reactor designs when compared to the estimated costs of completing Units 1 and 2," "TVA decided that the Bellefonte Unit 1 and 2 Project could no longer be economically justified." and "TVA's Board would take into account the full range of...considerations associated with such a project, including the associated cost and need for power considerations."

¹⁴ The ASLB for Bellefonte Units 3 and 4 said: "Of course, if TVA is able to have the Units 1 and 2 construction permits reinstated and later reaches a determination to continue with the construction of those facilities, that may well present a different situation relative to the need for TVA and/or the staff to assess the impacts of that construction relative to Units 3 and 4, as well as the need to consider the impacts of the construction and operation of Units 3 and 4 in the context of any additional licensing action regarding Units 1 and 2." *Atomic Safety and Licensing Board Panel Memorandum and Order*, 10/14/08, Footnote 7

Geologic and seismic criteria are found in 10 CFR § 100.23 and detail the requirements for determining whether a proposed site is acceptable for a nuclear power plant. The regulation unequivocally states the responsibilities of the applicant:

Each applicant shall evaluate all siting factors and potential causes of failure, such as, the physical properties of the materials underlying the site, ground disruption, and the effects of vibratory ground motion that may affect the design and operation of the proposed nuclear power plant.

10 CFR § 100.23 (d)(4). The site criteria include the following assessments: earthquake ground motion, surface tectonic and non-tectonic deformations, seismically induced floods and waves, soil and rock stability, liquefaction potential, slope stability, cooling water supply, and remote safety structure siting.

In their Safety Evaluation, the Office of Nuclear Reactor Regulation states,

Although none of the B&W Model 205 pressurized-water reactors was completed in the United States, BLN Units 1 and 2 are of the same design as the Mulheim-Karlich Nuclear Power Plant A Reactor in Germany, which operated well for 3 years and proved the design. The plant was ordered shut down because of certain plant siting deficiencies. (emphasis added)

What “plant siting deficiencies” caused the closing of the German reactor? The ONR has not provided detailed information about the Bellefonte site’s seismicity, tectonics and history which could be “potential causes of failure.”

NRC’s Regulatory Guide 1.208, “A Performance-Based Approach to Define the Site-Specific Earthquake Ground Motion,” states that “while the most recent characterization of any seismic source accepted by the U.S. Nuclear Regulatory Commission (NRC) staff can be used as a starting point for analysis of a new facility, any new information related to a seismic source that impacts the hazard calculations must be

evaluated and incorporated into the probabilistic seismic hazard analysis (PSHA) as appropriate based on the technical information available."

On April 29, 2003 a magnitude 4.6 earthquake occurred near Fort Payne, Alabama, 50 miles from Scottsboro, Alabama. The Fort Payne quake was not an isolated event. It was the largest earthquake in the largest and second most active seismic zone in the eastern United States: the East Tennessee Seismic Zone. The earthquake damaged chimneys and formed cracks in some structures.

In recent years there have been numerous small earthquakes in the immediate vicinity of the 2003 quake. The area is laced with ancient faults that developed as the Appalachian Mountains formed. An earthquake with a magnitude of 5.0 could cause serious damage to the Bellefonte plant.

The reinstatement of construction permits for Units 1 and 2 at the same site as Units 3 and 4 lacks the requisite and relevant material information about geology and seismicity at the proposed Bellefonte site.

Contention 5. Lack of Good Cause for Reinstatement

The question of "good cause" has been put on the table by NRC. 74 Fed. Reg. 10969. Good cause for re-instatement relies upon sound financial predictions and estimates of capital and operating costs. However, TVA's Environmental Report for BLN Units 3 and 4 dismissed alternative energy sources such as wind and solar on the ground that they cost much more than nuclear power. According to TVA, a study of the "overall costs of generation of electricity" gave cost estimates of \$0.0266 to \$0.0328 per kWh for nuclear, in comparison to \$0.09/kWh to \$0.23/kWh for solar energy, and

\$0.03/kWh to \$0.05/kWh for wind. Environmental Report at 9.2-38. But TVA's cost comparison is inadequate to satisfy the National Environmental Policy Act or NRC regulations at 10 C.F.R. § 51.45(c) because it fails to provide reasonably up-to-date and accurate information regarding the costs of nuclear power, the costs of alternative energy sources, and the financial risks posed by the election of nuclear power as an energy source.

TVA's energy cost data are seriously obsolete. They assert that a range of \$2850 to \$3200 per kilowatt is a reasonable cost estimate for the costs of the proposed new nuclear power plant. Environmental Report at 10.4-7. But no recent reference for cost of nuclear power was cited. The main references used are the MIT study, published in 2003 and the University of Chicago study, published in 2004. Environmental Report at 10.4-12 and -13. There have been escalations in the real capital cost of nuclear power since that time. There has also been a large increase in the real spot market price of uranium, as well as considerably greater volatility in that price. These elements together make estimates of the cost of nuclear power an incorrect and misleading basis for comparison with the alternatives. For instance, a Keystone Center Joint Fact Finding on nuclear energy, in which nuclear industry representatives participated, concluded that nuclear energy would cost between \$83 and \$110 per MWh (Keystone Center, *Nuclear Power Joint Fact Finding* (Keystone, Colorado, June 2007) (available on the Web at [http://www.keystone.org/spp/documents/FinalReport_NJFF6_12_2007\(1\).pdf](http://www.keystone.org/spp/documents/FinalReport_NJFF6_12_2007(1).pdf)). By

contrast, the Environmental Report cites a levelized cost range of only \$36 to \$83 per MWh. *Id.* at 10.4-19.¹⁵

The costs of renewable energy sources were not properly evaluated by TVA. The Environmental Report states solar energy costs to be 9 to 23 cents per kWh, or \$90 to \$230 per MWh. *Id.* at page 9.2-38 and at pages 9.2-12 and 9.2-13. These costs are fairly realistic representation of large or (in the case of solar PV) intermediate- and large-scale installations at present. However, unlike nuclear, coal, natural gas, and wind turbine costs, the costs of solar-generated electricity have been declining rapidly. Given that the lead time for building solar capacity is much shorter than nuclear, a static cost comparison with solar is an incorrect basis for making a decision in favor of nuclear. .

The Environmental Report states that wind generation cost is 3 to 5 cents per kWh (p. 9.2-38) – or \$30 to \$50 per MWh. The average of this range is \$40 per MWh, which is much lower than the Environmental Report’s estimated average of \$60.50 per MWh for nuclear. Taken at face value, wind energy should be preferred to nuclear based on the costs cited in the Environmental Report.

TVA’s Environmental Report did not consider several financial risk factors. First, the long lead time of nuclear power puts a larger premium on electric power forecasts. In times of financial turbulence, with volatile fuel prices, rising capital costs, uncertainty about the direction of interest rates, and a declining value of the dollar,

¹⁵ It should be noted that the Environmental Report’s discussion of nuclear energy costs are inconsistent. The “overall costs” of nuclear energy are given as “\$0.0266 to \$0.0328” on page 9.2-38 of the ER. This range is the same as \$26.60 to \$32.80 per MWh. However, as noted above, the ER gives a completely different range of \$38 to \$83 per MWh on page 10.4-19. This indicates that the ER has not had quality assurance on even the most important points relating to making a sound comparison with alternatives.

forecasts of electricity demand 10 to 15 years in the future can be substantially wrong. This has some historical precedent. Rising fuel prices and stagflation in the mid-1970s resulted in a sudden decline in electricity growth rates. This was compounded by the high interest rates and further increases in oil prices in 1979-1980. Long lead time power plants, notably nuclear power plants, were cancelled by the dozen, resulting in costs of tens of billions of dollars to ratepayers and bondholders. Florida Power and Light estimates that for a twin reactor project, a delay of six months delay in its twin reactor project for interest charges alone would be \$400 million to \$600 million.¹⁶

The risk of power plants that have both long lead times and high capital costs are the greatest, followed by the risk of persistent high natural gas prices. If an electricity forecast is incorrect, TVA might wind up with surplus capacity, which would result in greater costs to ratepayers and considerable economic harm. Again, there is a specific parallel with respect to TVA from the 1970s, when TVA was had 14 nuclear power reactors under construction at the same time; eight were cancelled because of declining electricity growth rates.

At the present time, there are clear alternatives available in the form of power plants that have much shorter lead times and that can be built more modularly. Solar photovoltaics built on commercial rooftops and parking lots can be built in modules of one to a few MW and have construction times on the order of a year or even less. Hence, new capacity can be closely tailored to rising demand. Solar thermal power plants can be

¹⁶ FPL 2007 Testimony at 52.

built in modules of a few tens of megawatts to a few hundred megawatts. The lead time for such power plants is about three years.

The Department of Energy projects that if capacity increase goals are achieved, it would “put the U.S. industry on track to reduce the cost of electricity produced by PV from current levels of \$0.18-\$0.23 per kWh to \$0.05 - \$0.10 per kWh by 2015 – a price that is competitive in markets nationwide.”¹⁷ Even if we assume that the costs in the TVA region would be at the higher end of this cost range due to less favorable insolation conditions, the cost at the high end of the range is still much less than the costs of electricity from new nuclear power plants. Similarly, the Solar Energy Technologies Program of the DOE estimates that the cost of concentrating solar thermal power (CSP) could be brought down to well under 10 cents by 2020 if there are sufficient orders for such power plants (*Assessment of Potential Impact of Concentrating Solar Power on Electricity Generation*, DOE-GO-102007-2400, February 2007, p. iv). California’s renewable energy requirement of 20 percent of its electricity by 2020 has created a spate of orders for both solar PV (250 MW by Southern California Edison over the next five years alone) and CSP, with projects as large as 500 MW.

Finally, the transmission issues associated with large-scale wind generated electricity are also being resolved. For instance, the Electric Reliability Council of Texas (ERCOT) has conducted a transmission optimization study that aims at integrating large

¹⁷ “DOE Selects 13 Solar Energy Projects for up to \$168 Million in Funding” (March 8, 2007). On the web at <http://www.energy.gov/news/4855.htm>

amounts new wind power into the electric grid (up to about 18,000 megawatts), up to a total, including existing capacity of nearly 25,000 megawatts.¹⁸

In such an economic and technological environment, it is likely or very likely that Bellefonte 1 and 2 would become economically obsolete, again, before they come on line. All these factors weigh against good cause for reinstatement of the BLN CPs.

Contention 6. The re-instatement was improper because TVA has not and cannot meet the NRC's Quality Assurance and Quality Control requirements.

NRC withdrew the CPs for BLN Units 1 and 2 on September 14, 2006. Bellefonte Units 1 and 2 were outside of the NRC's jurisdiction from 2006 to 2009. Essentially, the plant has been cold, dark and evidently subject to TVA's "cannibalism" of its vital structures, systems and components for nearly three years. The NRC's tacit admission of this lapse is evident in a recent safety evaluation by the Office of Nuclear Reactor Regulation:¹⁹

Upon reinstatement of the CPs, TVA will resume preservation and maintenance activities consistent with the Commission's Policy Statement on Deferred Plants. (emphasis added)

Moreover, the NRC has ignored, or minimized without justification, regulations codified in 10 CFR 50.

First, TVA halted construction of its Bellefonte Units 1 and 2 and let the Bellefonte plants sit idle for 17 years before withdrawing from the confines and conditions of its NRC Construction Permit in 2005.

¹⁸ *Competitive Renewable Energy Zones (CREZ) Transmission Optimization Study: Attachment A*, ERCOT (April 2, 2008).

¹⁹ Safety Evaluation by the Office of Nuclear Reactor Regulation Relating to the Request for Reinstatement of Construction Permit Nos. CPPR-122 and CPPR-123, Bellefonte Nuclear Plant, Units 1 and 2, Docket Nos. 50-438 and 50-439 (March 9, 2009)

Second, the CP conditions and constraints with which TVA ceased to comply abrogated are codified in 10 CFR § 50.

Third, in his dissent, NRC Commissioner Jaczko²⁰ noted that TVA's Bellefonte Units have had no NRC oversight nor have they been under any NRC review, rules or regulations since they chose to cancel their construction permit. Jaczko said:

To say that a withdrawal does not matter is saying that not having a permit for over two years is the same as having had a permit for those two years ... A regulatory agency should, at a minimum, defend its regulations and the need for them.

Finally, in his review of TVA's application for reinstatement of its construction permit,²¹ Joseph Williams, NRC Senior Project Manager, said that TVA has not continued to implement Federal requirements, nor were their activities conducted in accordance with NRC-approved programs and were not subject to NRC inspection.

Williams said:

Contrary to the Policy Statement expectations, TVA has not continued to implement the various requirements described in Section III.A.3 of the Policy Statement. Instead, TVA's August 26, 2008, letter describes "investment recovery" activities, including removal of steam generator tubing and sections of reactor coolant system piping. TVA has subsequently taken action "to inspect, clean, cap off, and stabilize those systems." These activities were not conducted in accordance with NRC-approved programs, and were not subject to NRC inspection. Further, TVA states that it is in the process of performing repairs to the site to eliminate water intrusion, indicating the facility has not been maintained in a manner that would prevent serious degradation. It appears that the activities TVA describes are within the scope of the definition of construction as given in 10 CFR 50.2,' but have not been conducted in accordance with NRC-approved programs. These activities are not consistent with section III.B.2(b) of the Policy Statement, and need to be evaluated before the construction permits can be reissued.

²⁰ Commissioner Jaczko's Vote on COMSECY-08-0041, Staff Recommendation Related To Reinstatement of the Construction Permits for Bellefonte Nuclear Plant Units 1 and 2, January 27, 2009

²¹ COMSECY 08-0041, Enclosure 2: Non-concurrence by Joseph Williams Regarding Staff Approach, Tennessee Valley Authority Request to Reinstatement Construction Permits, Bellefonte Nuclear Plant, Units 1 and 2, 11/20/08

In other words, after abrogating its construction permit in 2005, TVA transferred equipment from BLN 1 and 2 valued at approximately \$49 million to other TVA plants and had contractors remove steam generators, main condensers, and steel tubes from heat exchangers to sell to scrap vendors for about \$16 million.

On Page 6 of his non-concurrence, *id*, Williams noted that a complete NRC evaluation of TVA's activities should be completed prior to re-instatement of the CP. In his analysis, Williams said:

The circumstances for Bellefonte Units 1 and 2 are unique; no other licensee has ever given up its construction permits, partially dismantled the plant and allowed the facility to degrade, then requested that the permits be reissued. The NRC must evaluate TVA's activities since the permits were terminated to determine their effect on the safety of structures, systems, and components before the permits are reissued. This evaluation must be completed so that the criteria for an effective inspection program can be determined and procedures developed so inspectors have the necessary tools in place for their work.

Nuclear Quality Assurance is codified in law in numerous places within 10 CFR 50. The single most important reference to Nuclear Quality Assurance is within the General Design Criteria (GDC) in 10 CFR 50 Appendix A. *See* Gundersen Affidavit.

In his non-concurrence,²² NRC's Senior Project Manager acknowledged that the degraded condition of the Bellefonte Units have not been categorized or fully evaluated by TVA. He said:

Given that TVA has allowed the facility to degrade, has conducted other activities affecting the condition of the facility, and is obligated to demonstrate how it will comply with regulatory requirements, TVA should fully describe the changes to the facility since the construction permits were terminated, including TVA's investment recovery actions, stabilization efforts, degradation of the facility, and any other changes to the facility. It also appears that these changes are reportable under 10 CFR 50.55(e), and that TVA is obligated to complete an evaluation of these deviations from the approved design. Therefore, TVA must fully document how it will ensure compliance with all applicable regulatory requirements, if and when the construction permits are reissued. A commitment

²² *id*, page 4

to document these issues in a corrective action program, as proposed in TVA's August 26, 2008, letter, is not sufficient, because it defers demonstration of compliance to some later date, and does not appear to be in compliance with 10 CFR 50.55(e).

The evidence shows that there are yet other portions of 10 CFR 50 to which Bellefonte is unable to show compliance. Since its construction license termination Bellefonte has not maintained the “special protective environments” required by 10 CFR 50 Appendix B Criterion 13.

The Commission’s reinstatement of the CPs was improper because TVA has not met NRC’s requirements under 10 CFR 50; the CPs for BLN Units 1 and 2 were reinstated without regard to the fact that: 1) both Units were partially dismantled and significant pieces of equipment were sold off for scrap, 2) members of the NRC staff and an NRC Commissioner disagreed with the decision and wrote dissenting opinions, 3) the NRC performed no inspections for the three years following the termination of Bellefonte’s construction permits, and 4) TVA has followed no required quality assurance procedures, federal regulations, or industry protocol for more nearly three years. Further, TVA will be unable to delineate that thousands of other critical maintenance requirements were performed in its unsupervised and unmonitored environment because no NRC approved QA program was in place and no NRC audits were performed. *See Gundersen affidavit.*

Finally, reinstatement of TVA’s Bellefonte Units 1 and 2 Construction Permits without an entirely new Construction Permit process constitutes a grave risk to public safety. TVA and the NRC must conduct an in-depth review of TVA’s original 1974 Construction Permit *prior* to any consideration of reinstatement of TVA’s construction permit. *See Gundersen affidavit.*

Contention 7. The BLN Units 1 and 2 cannot satisfy NRC safety, environmental and other requirements that have been imposed or upgraded since 1974.

The CPs for Bellefonte Units 1 and 2 were issued in 1974. The mechanical equipment, containment, piping and other physical features are more than 30-years-old and the design is 40-years old; the plants do not meet current safety criteria. For example, 10 CFR 100 contains numerous requirements for collection and analysis of demographic, seismic, hydrological, and meteorological data prior to the application for any nuclear power plant construction permit. TVA's construction permit is based upon 40-year-old analyses which do meet the standards of 10 CFR 100.20, including population density and site environs; proximity of man-related hazards; characteristics of the site including seismology, meteorology, geology, and hydrology; hydrological radionuclide transport and the potential for seismically induced floods. *See* Gundersen affidavit.

The data collected in order to receive the 1974 construction permit no longer meet geologic and seismic siting factors. For example, Bellefonte is located within the influence of the New Madrid earthquake zone. Since 1974, when the original TVA construction permit was granted, more than 6,800 earthquakes have occurred within a 300 mile (500 km) radius of Hollywood, Alabama; 20 of these earthquakes exceeded Richter 4. (Source: Center of Earthquake Research and Information, http://www.ceri.memphis.edu/seismic/catalogs/cat_nm.html).

Factors important to hydrological radionuclide transport must be obtained from on-site measurements. Additional demographic changes since 1974, which have not yet been analyzed, have also impacted the original hydrological and water-use data making

therefore negatively impacting critical safety analysis factors. See Gundersen affidavit.

In his non-concurrence, *id*, Williams specifically states that the Bellefonte site must be reanalyzed:

One of the issues addressed in the safety evaluation for a construction permit is ability of the reactor design to withstand events such as floods or earthquakes, in accordance with 10 CFR 100.20 and 10 CFR Part 50 Appendix A, General Design Criterion 2. In the course of the Bellefonte Units 3 and 4 combined license review, the NRC staff has identified errors and quality control problems with the Tennessee Valley Authority's evaluation of the Bellefonte site hydrology. The NRC staff is concerned that the site may be vulnerable to flood levels higher than calculated by TVA, so the acceptability of the site and the adequacy of design features protecting the site have not yet been determined.

There are other developments which have occurred since the BLN CPs were issued in 1974 which affect safe operation and which should apply to BLN Units 1 and 2:

1) The NRC issued Bulletin 87-01 on July 9, 1987 to licensees of operating nuclear reactors regarding a December 1986 event at the Surry nuclear plant that resulted in the deaths of four workers. Erosion/corrosion of a carbon steel pipe in the feedwater system caused it to rupture and release a two-phase mixture. This bulletin required licensees to take actions to prevent recurrence of this failure at their facilities; 2) The NRC issued Generic Letter 87-12 on July 9, 1987, to licensees of pressurized water reactors like IP2 and IP3 regarding lessons learned from a loss of residual heat removal (RHR) cooling during midloop operation at Diablo Canyon. The bulletin required licensees to describe design features and procedures at their facilities that can prevent and/or mitigate loss of cooling events during midloop operations at their facilities; 3) Since 2006, the NRC now must analyze the potential impact of terrorist attacks on the safety of nuclear power plants. *San Luis Obispo Mothers for Peace v. Nuclear Regulatory Commission*, 449 F.3d 1016, 1030 (9th Cir. 2006); 4) The Individual Plant Examinations of External Events

("IPEEE") Program required each licensee to review vulnerabilities to external events such as earthquakes, floods, and fires. This was not done at BLN.

Furthermore, in his non-concurrence, Williams said a complete environmental review should be required prior to any reinstatement of TVA's Bellefonte construction permits. *id* page 9.

Reissuance of the BLN Unit 1 and 2 construction permits will also require environmental review. NRC regulations in 10 CFR Part 51 describe requirements for such reviews. For example, 10 CFR 51.20(b)(I) states that an EIS or supplement is required for "Issuance of a limited work authorization or a permit to construct [emphasis added] 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." Presently, TVA does not hold permits for BLN Units 1 and 2. If NRC reissues the permits, an EIS appears to be required per this regulation before those permits could be issued to TVA.

The existing environmental review for BLN Units 1 and 2 does not include the possible alternative of completing advanced reactors of a different design; the AP 1000 and other designs currently being considered for deployment did not exist at the time that evaluation was completed. As stated in the August 26, 2008, letter, TVA has also conducted activities at the site, such as dismantling some components and site structures, which may not be within the scope of the environmental review NRC completed for the construction permit. The existing environmental review was completed in the early 1970s, so it does not reflect any changes to the site environment over the past 30+ years. Therefore, reinstatement of the BLN Unit 1 and 2 construction permits as they previously existed would not reflect current information pertinent to the environment on or around the site. A similar issue has arisen in combined license applications under 10 CFR Part 52, where combined license applicants must provide any "new or significant information" pertinent to the environmental review even if an early site permit has been issued. In accordance with 10 CFR 51.50(c)(I)(ill)."

Therefore, in light of the above and because of new data and past errors, a completely new environmental impact and safety review must be conducted prior to the issuance of a new or reinstated construction permit at Bellefonte.

Contention 8. Bellefonte Units 1 and 2 Do Not Meet Operating Life Requirements

TVA's Bellefonte was designed more than 40 years ago. Fuel load and initial startup is not anticipated for another 10 years. Therefore, should construction of the

existing units be completed, Systems, Structures and Components of Bellefonte Units 1 and 2 will be 80 to 90 years old at the end of a first operating license and 105 years old if TVA were to be granted a license extension.

10 CFR §50.49(e)(5) states “Aging. Equipment qualified by test must be preconditioned by natural or artificial (accelerated) aging to its end-of-installed life condition.” Since the industry, TVA, and the NRC have no available data regarding components older than 60-years, the evidence shows that the TVA Bellefonte Units 1 and 2 construction permit application is incomplete because it lacks critical research and development information on its aging equipment and no aging management plan to deal with reliability and safety issues of advanced age end-of-installed life SSCs. *See* Gundersen affidavit.

Therefore, TVA must conduct a completely new safety analysis prior to the issuance or reinstatement of construction permits for Bellefonte Units 1 and 2.

Contention 9. Impacts on Aquatic Resources including Fish and Mussels of the Tennessee River.

The NRC’s March 9, 2009 Safety Evaluation²³ contains but a single paragraph on Bellefonte Units 1 and 2 “Environmental Considerations.”

Under 10 CFR 51.21 (“Criteria for and Identification of Licensing and Regulatory Actions Requiring Environmental Assessments”), 10 CFR 51.32 (“Finding of No Significant Impact”), and 10 CFR 51.35 (“Requirement to Publish Finding of No Significant Impact; Limitation on Commission Action”), the NRC performed an environmental assessment and reached a finding of no significant impact. The agency published its assessment in the Federal Register on March 3, 2009 (74 FR 9308). Based on the environmental assessment, the

²³ Safety Evaluation by the Office of Nuclear Reactor Regulation Relating to the Request for Reinstatement of Construction Permit Nos. CPPR-122 and CPPR-123, Bellefonte Nuclear Plant, Units 1 and 2, Docket Nos. 50-438 and 50-439 (March 9, 2009)

staff determined that reinstatement of the CPs will not have a significant effect on the quality of the human environment.

Similarly, the BLN EA-FONSI gives a cursory treatment of the impacts on aquatic resources and threatened and endangered species. 74 Fed. Reg. 9312 (March 3, 2009). Before NRC reinstates the Bellefonte CPs, additional data must be collected and modeling must be performed to properly evaluate potential effects of operating units 1 & 2 and cumulative impacts of units 1 & 2 in conjunction with the proposed addition of units 3 & 4 at Bellefonte Nuclear Plant on aquatic resources of the Tennessee River. *See* Young affidavit.

Contention 9a. No data was provided as rationale for a “finding of no significant impact” nor have recent studies been conducted to evaluate the impacts of resumption of construction and operation of Units 1 & 2 on aquatic resources

Impacts on aquatic resources including fish and benthic invertebrates in the vicinity of the BLN, Gunterville Reservoir, Town Creek and the Tennessee River Basin from proposed units should be substantiated and may be large. Further, no evaluation of cumulative impacts of Units 1 & 2 combined with the proposed Units 3 & 4 has been conducted.

Four new nuclear reactor units, especially in conjunction with the current operation of the numerous thermoelectric fossil-fuel plants, nuclear reactors, and impoundments, have the potential for large cumulative impacts on the Tennessee River fish and mussel assemblage. *See* Young affidavit.

Contention 9b. Tennessee Valley Authority’s analysis for Units 3 & 4 does not adequately address potential impacts of operating two, or four, additional nuclear reactor units on fish and mussels throughout the Tennessee River basin.

TVA's BLN Unit 3 and 4 Environmental Report (ER 2.3.1.2.6 page 2.3-10) states, "If the total volume of water flowing into Chickamagua Reservoir, which is the location of measure to indicate flow for the upper half of TN River basin as stated in previous sentence, is less than what is needed to meet system-wide flow requirements, additional water is released from upstream reservoirs to augment the natural inflows (a function of rainfall and runoff), resulting in some drawdown of these projects." This statement acknowledges that there will be impacts to the upper-Tennessee River aquatic resources because those reservoirs will bear the burden of downstream water withdrawal. Elsewhere, the Environmental Report states, "Five upstream dams and/or reservoirs (storage) can affect future plant operations." This statement acknowledges upstream management may also affect BLN operations, which then may differentially affect aquatic resources. ER 2.3.1.3.6, p. 2.3-18. The Environmental Report further states, "Three, large manmade impoundments are located within 100 river mi. of the BLN site. These impoundments can significantly affect or be affected by BLN plant operations. The impoundments are: Nickajack Reservoir TRM 471 – TRM 425; Guntersville Reservoir TRM 425 – TRM 349; and Wheeler Reservoir TRM 349 – TRM 275." ER 2.3.1.3, page 2.3-14. This statement acknowledges significant effects on downstream aquatic resources.

However, TVA's overall conclusion, "Operations of these dams are not expected to have a direct effect on water quality in the vicinity of the BLN," is inconsistent with its statements *infra* and therefore **erroneous**. ER 2.3.3.4.3 p. 2.3-48. If these impoundments can affect operation of BLN, then their operation most certainly affects water quality in

the vicinity of BLN. Elaboration, investigation, analysis, and discussion of the environmental impacts on aquatic resources are warranted. *See* Young affidavit.

Contention 9c. Tennessee Valley Authority’s analysis does not adequately address potential impacts to increased water intake and increased thermal discharge on fish and mussels in the vicinity of BLN, Town Creek, nor in Gunterville Reservoir.

Pursuant to 10 CFR 51.20(b)(1), an environmental impact statement is required to be completed before “Issuance of a limited work authorization or a permit to construct a nuclear power reactor...under part 50 of this chapter, or issuance of an early site permit under part 52 of this chapter.” The reinstatement of a CP, regardless of TVA’s stated intentions, rises to at least the potential of an early site permit which also carries a margin of uncertainty as to whether the applicant will actually build a power station. In the case of a CP, the likelihood that a power plant will be built is plainly greater than that associated with an ESP or a limited work authorization. Therefore, the BLN EA-FONSI of March 3, 2009 does not meet the requirements of NEPA under 10 CFR 51.

For example, the BLN Unit 1 and 2 EA-FONSI relies in part on TVA’s Environmental Report for BLN Units 3 and 4 (“ER”). However, the ER’s conclusion regarding potential impacts of entrainment and impingement as a consequence of increasing water intake is not based on actual data, but rather improper assumptions. There is no data provided for evaluating entrainment losses by species or by life history stage to support its conclusions. TVA states the following as rationale: “Species collected are common and community structure uniform for all sampling locations. Because species composition is similar for intra-reservoir sampling and habitat near the intake and discharge structures are not rare or unique to the reservoir, additional sampling

at the intake and discharge structures was not warranted.” ER 5.3.1.2.1, page 5.3-3.

Given extinction of some fish and mussel species, and the decline of the fish and mussel species in Guntersville Reservoir and throughout the Tennessee River, these vague summations and generalities provide no basis for examination of impacts and are improper and misleading. For the above reasons and others, actual field studies for BLN Units 1 and 2 are necessary and warranted. *See Young affidavit.*

Contention 9d. TVA’s Conclusion Regarding Potential Impacts of Increased Thermal and Chemical Discharge is Not Supported by Evidence

In its ER, TVA provides no evidence in the form of scientific study or field observation as justification for the following statements, “given the plume’s small size within the reservoir, any impacts to drifting organisms is small.” ER 5.3.2.2, page 5.3-8. First, TVA provides no data on overall drift community. Second, the discharge pipes total 120 ft in length and are near mid-channel, and TVA presents no data on temporal or spatial composition of fish of any life history stage in this immediate area. *See Young affidavit.*

The ER states, “A molluskicide will be used as a water treatment chemical.” This molluskicide will be discharged into mussel habitat. TVA failed to state whether the molluskicide is harmful to freshwater mussels, which are mollusks, nor does TVA disclose what concentration will be present in the discharge plume(s). Further, (ER p. 5.3-9), TVA states the BLN’s discharged chemical effluent must remain within a lethal concentration 25 percent (LC25) limitation. If deleterious, an additional 25% mortality of already vulnerable and declining mussel species is allowed. If such a concentration

were discharged, this would effectively kill all remaining mussels in the vicinity. Further investigation is warranted. *See Young affidavit.*

Also, maximum thermal discharge temperature is stated as 95°F. This temperature kills the early life history stages of several important game fish that would be found near BLN. *See Young affidavit.*

Contention 9e. TVA uses its own biased rating systems to justify the lack of data in concluding that impacts of BLN operation will be small or non-existent. TVA's aquatic resources health and status ratings should not be used to evaluate potential impacts on aquatic resources in the Tennessee River from operating BLN.

TVA states the following, "Most of the species identified at TRM 375.2 were also identified at TRM 424. Because the fish community is substantially similar at these locations and no unique reservoir habitats exists adjacent to the BLN, it is reasonable to assume the fish community adjacent to the BLN (TRM 391) is similar to the fish community determined for river miles 375.2 and 424. Therefore, sampling fish species in Guntersville reservoir adjacent to the BLN is not warranted, and the ongoing TVA Vital Signs sampling scheme for Guntersville reservoir has, and continues to be, an adequate measure and monitor of any substantive changes which might occur to the aquatic community of the reservoir." ER page 2.4-18. TVA's aquatic resources health and status ratings are erroneous, misinterpreted, and biased in support of the unsubstantiated conclusions of impacts to aquatic resources from operation of BLN. *See Young affidavit.*

In conclusion, the entire reservoir and river continuum is unique and should be treated as so. It is obvious the compounding effects of the multitude of disruptions within the river continuum have been detrimental to the aquatic community of the Tennessee River. Sampling at BLN is absolutely warranted and would be considered standard

practice to evaluate impacts from construction and operation of additional nuclear reactors. *See* Young affidavit. An EIS for the Bellefonte Units 1 and 2 CPs is necessary to address the errors and omissions detailed *infra*.

IV. CONCLUSION

This Petition is supported by the expert testimony of Arnold Gundersen and Shawn Young who have affidavits attached hereto. We believe that the foregoing contentions should be admitted because they satisfy the Commission's requirements in 10 C.F.R. § 2.309 and 10 C.F.R. § 52.103; we request that a hearing be granted.

Respectfully submitted this 8th day of May, 2009

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May 8, 2009

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

_____)
In the Matter of)
Tennessee Valley Authority)
Bellefonte Nuclear Power Plant) Docket Nos. 50-438 and 50-439
Units 1 and 2)
Construction Permits CPPR-122 and CPPR-123)
_____)

NOTICE OF APPEARANCE FOR LOUIS A. ZELLER.

Pursuant to 10 C.F.R. § 2.314 (b), Louis A. Zeller hereby enters an appearance on behalf of the Blue Ridge Environmental Defense League, Inc. ("BREDL") and provides the following information:

1. My office is located at Blue Ridge Environmental Defense League, PO Box 88
Glendale Springs, North Carolina 28629, telephone (336) 982-2691, fax (336)
982-2954, e-mail bredl@skybest.com.
2. I have been appointed by Janet Marsh, Executive Director of the Blue Ridge
Environmental Defense League, to represent the organization in this proceeding.

Respectfully,



Louis A. Zeller

May 8, 2009
Date

May 8, 2009

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

_____)
In the Matter of)
Tennessee Valley Authority)
Bellefonte Nuclear Power Plant) Docket Nos. 50-438 and 50-439
Units 1 and 2)
Construction Permits CPPR-122 and CPPR-123)
_____)

CERTIFICATE OF SERVICE

I hereby certify that copies of the May 8, 2009 PETITION FOR INTERVENTION AND REQUEST FOR HEARING BY THE BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE, ITS CHAPTER BELLEFONTE EFFICIENCY AND SUSTAINABILITY TEAM AND THE SOUTHERN ALLIANCE FOR CLEAN ENERGY was served on the following persons via Electronic Information Exchange this 8th day of May, 2009. Further, I certify that a NOTICE OF APPEARANCE FOR LOUIS ZELLER was also filed:

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Signed this day, May 8, 2009 in Glendale Springs, NC

_____/s/_____
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