

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

_____)
In the Matter of)
Southern Nuclear Operating Company, Inc.) Docket No. 52-011
Early Site Permit for Plant Vogtle ESP Site)
_____)

PETITION FOR INTERVENTION

I. INTRODUCTION

Pursuant to 10 C.F.R. § 2.309, 10 C.F.R. § 52.21, and a notice published by the Nuclear Regulatory Commission (“NRC” or “Commission”) at 71 Fed. Reg. 60,195 (October 12, 2006), Petitioners Center for a Sustainable Coast, Savannah Riverkeeper, Southern Alliance for Clean Energy (“SACE”), Atlanta Women’s Action for New Directions (“WAND”), and Blue Ridge Environmental Defense League (“BREDL), hereby submit their contentions regarding Southern Nuclear Operating Company, Inc. (“SNC”) application for an Early Site Permit (“ESP”) that would allow it to build and operate two new nuclear reactors on the site of the Plant Vogtle nuclear power plant (“Plant Vogtle”). As demonstrated below, these contentions should be admitted because they satisfy the NRC’s admissibility requirements in 10 C.F.R. § 2.309.

Description of the Proceeding

This proceeding concerns an application by SNC for an ESP for construction of two additional nuclear reactors on the Plant Vogtle site. SNC submitted its ESP application on August 15, 2006. Notice of Receipt and Availability of the Application was published in 71 Fed. Reg. 51,222 (August 29, 2006). The application requested approval of two nuclear reactors

located at the Plant Vogtle site in Waynesboro, Georgia. The application was accepted for docketing on September 19, 2006 and Notice of Acceptance for Docketing of Application for Early Site Permit (ESP) for the Vogtle ESP Site was published in 71 Fed. Reg. 56,187 (September 26, 2006).

Description of Petitioners

Center for Sustainable Coast is a non-profit membership-supported organization defending the public interest in issues related to coastal Georgia's growth, economy, and environment. The Center combines education, advocacy, technical assistance, and legal action to implement its comprehensive mission, which is the conservation and sustainable use of the region's resources – natural, historic, and economic.

Savannah Riverkeeper is a private, non-profit, advocacy group dedicated to preserving, protecting and restoring the Savannah River. Savannah Riverkeeper's mission is to protect the water quality of the Savannah River and the integrity of its watershed. Savannah Riverkeeper has approximately 100 members, with an additional 400-500 volunteers.

SACE is a nonprofit, nonpartisan membership organization that promotes responsible energy choices that solve global warming problems and ensure clean, safe and healthy communities throughout the Southeast. SACE has staff and members throughout the Southeast, including offices in Atlanta and Savannah, Georgia.

WAND is a non-profit, membership organization incorporated in the state of Georgia. It is also a chapter of a national organization, Women's Action for New Directions. WAND's mission is to act politically to reduce violence, and to redirect excessive military resources toward unmet human and environmental needs. WAND also works on issues surrounding health and social justice.

BREDL is a regional, community-based non-profit environmental organization whose founding principles are earth stewardship, environmental democracy, social justice, and community empowerment. BREDL encourages government agencies and citizens to take responsibility for conserving and protecting our natural resources. BREDL advocates grassroots involvement to empower whole communities in environmental issues. BREDL also functions as a “watchdog” of the environment, monitoring issues and holding government officials accountable for their actions.

Standing

Pursuant to 10 CFR § 2.309, a request for hearing must:

set forth with particularity the interest of the petitioner in the proceeding, how that interest may be affected by the results of the proceeding, including the reasons why the petitioner should be permitted to intervene with particular reference to the factors set forth in 10 CFR § 2.309 (d)(1), and the specific aspect or aspects of the subject matter of the proceeding as to which the petitioner wishes to intervene.

In addition, the request for hearing 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. *Id*

The Atomic Safety and Licensing Board (“ASLB”) summarized these standing requirements 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 3 Storage, L. L. C.* (Independent Fuel Storage Installation), LBP-98-7, 47 NRC 142, 168, *a f 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 4 13,426 (2002) (hereinafter “*Diablo Canyon*”).

Petitioners’ standing to participate in this proceeding is demonstrated by the declarations of the following members of Petitioner organizations, who have authorized Petitioners to represent their interests in this proceeding.

Susan Bloomfield, SACE member
David Matos, SACE member
William J. Mareska, SACE member and Savannah Riverkeeper member
Frank Carl, Savannah Riverkeeper member, and Executive Director
Mike Stacy, Savannah Riverkeeper member
Sam Booher, Center for a Sustainable Coast member
Judy Jennings, Center for a Sustainable Coast member
Karen Grainey, Center for a Sustainable Coast member
Terence Alton Dicks, Atlanta WAND member
Judith Lorraine Stocker, Atlanta WAND member
Gwendolyn Walker, Atlanta WAND member
Carey K. Barber, BREDL member
Audra Roper, BREDL member
Kia Luke, BREDL member
Charles W. Barber, Sr., BREDL member
Mildred L. Walker, BREDL member
Cicero Luke, BREDL member
Cynthia Richardson, BREDL member
Shirley Coleman, BREDL member
Heather Oglesby, BREDL member
Clarence Guidry, BREDL member

Holice C. McClain, Sr., BREDL member
Marvin McRae, BREDL member
Cora L. Moore, BREDL member
Melvin Lee Avery, BREDL member
Bernice Bussey, BREDL member
Rosalyn Conyers, BREDL member

The attached declarations demonstrate that Petitioners' members live near the proposed site, i.e., within 50 miles. Therefore, Petitioners have presumptive standing by virtue of their proximity to the new nuclear plant 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) (hereinafter "*Florida Power & Light*").¹

Petitioners seek to protect their members' health, safety and lives, as well as the health and safety of the general public and the environment by opposing construction of any new reactors at Plant Vogtle through intervention in the Vogtle ESP proceeding. Petitioners seek to ensure that no ESP is issued by the NRC unless SNC demonstrates full compliance with the Atomic Energy Act, National Environmental Policy Act ("NEPA"), the Endangered Species Act ("ESA"), as well as with applicable Georgia state law.

Specific Aspects of the Subject Matter As To Which Petitioner Seeks to Intervene

As required by the Federal Register notice, Petitioners set forth below the specific aspects of the subject matter of this proceeding as to which they wish to intervene:

¹ 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 an Early Site Permit to Exelon would facilitate the granting of a construction permit and operating license for a new reactor on the Clinton site. Thus, the same standing concepts apply.

- 1) Whether SNC has adequately assessed the impacts of the ESP on fishery resources of the Savannah River;
- 2) Whether SNC has adequately assessed the impacts of the ESP on the minority and low-income populations of the area surrounding Plant Vogtle;
- 3) Whether SNC failed to evaluate whether and in what time frame spent fuel generated by the proposed reactors can be safely disposed of;
- 4) Whether SNC failed to address environmental impacts of intentional attacks; and
- 5) Whether SNC failed to adequately evaluate energy alternatives.

Contention 1: Impacts of the ESP on aquatic resources of the Savannah River

The ER does not adequately address the adverse impacts of the proposed cooling water intake and discharge structures on the fishery resources of the Savannah River. In particular, the ER does not assess: (1) The current species diversity, abundance, and habitat utilization in the vicinity of the proposed intake and discharge points; (2) Habitat conditions and flow/habitat relationships in the project area; (3) Cumulative impacts of the existing intake and discharge combined with the proposed new intake and discharge; and (4) Fishery impacts and benefits of alternatives to the proposed action. Thus, the ER does not “contain sufficient data to aid the Commission in its development of an independent analysis” of environmental impacts pursuant to NEPA. 10 C.F.R. § 51.45(b).

The Savannah River supports at least 98 fish species representing 24 families including anadromous, diadromous and resident fish.² Some common freshwater resident fish in the

² Marcy, B. C., D. E. Fletcher, F. D. Martin, M. H. Paller, and M. Reichert. 2005. Fishes of the Middle Savannah River Basin. The University of Georgia Press. Athens, GA, Table 3 (Exhibit 1.1)

project area include largemouth bass, bluegill, redbreast sunfish, channel catfish, golden shiner, longnose gar, chain pickerel, white bass, pickerel, northern hogsucker, spotted suckers, notched-lip sucker, brown bullhead, yellow bullhead, redeye bass, white crappie and black crappie. The Savannah River is the only area of the redeye bass' range that is below the Fall Line.³ Another freshwater resident, the robust redhorse, was recently rediscovered after being deemed extinct.⁴ The Savannah River population is only one of three small sub-populations known to exist. Anadromous and diadromous fish that migrate past the VGEP site include striped bass, American Shad, blueback herring, American eel, Atlantic sturgeon and shortnose sturgeon, a federally listed endangered species.

Contention 1.1: The ER fails to use quantitative analysis and field surveys to assess baseline habitat conditions and species diversity and abundance in the projects area.

Basis:

Every application for a NRC permit, including an ESP, must be accompanied by an ER, which shall discuss: (1) The impacts of the proposed action; (2) Adverse environmental effects that cannot be avoided; (3) Alternatives to the proposed action; (4) The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and (5) Any irreversible and irretrievable of resources associated with the proposed action. 10 C.F.R. § 51.45(b). The ER "shall include an analysis that considers and balances the environmental effects of the proposed action, the environmental impacts of alternatives to the proposed action, and alternatives available for reducing or avoiding adverse environmental

³ *Id.*

⁴ See Hendricks, A.S. 1998. The conservation and restoration of the robust redhorse, *moxostoma robustum*, Volume 1. Report to the Federal Energy Regulatory Commission prepared by Georgia Power Company, Environmental Laboratory. Atlanta, GA. at 6-8 (Exhibit 1.2)

impacts.” 10 C.F.R. § 51.45(c); 10 C.F.R. § 51.71(d). Further, the environmental analysis “*shall, to the fullest extent practicable, quantify the various factors considered.*” *Id.* (emphasis added).

The ER concludes that impacts to fishery resources are small or non-existent, and do not warrant mitigation. ER § 10.1.3; ER § 5.3.1.2; ER § 5.3.2.2. This conclusion is based on a general description of the Savannah River fishery and does not include a site-specific description of the reach of the Savannah River adjacent to Plant Vogtle where the new intake and discharge structures are proposed. ER § 2.4.2.2. Rather than conducting field studies at the proposed intake and discharge sites, the ER makes selective use of long-term studies of the Savannah River Site (“SRS”) that collected data in the vicinity of Plant Vogtle. Declaration of Shawn Young (“Young Declaration”) at ¶¶ 6, 9-11, 17, 18. (Exhibit 1.3). Thus, the ER fails to establish an environmental baseline that is the basis for evaluating impacts and alternatives. *Id.*

The ER’s analysis of the cooling system intake and discharge structures and operation is not based on field surveys or quantitative analysis. ER § 5.3; 10 C.F.R. § 51.45(c). Thus, the ER fails to identify the current aquatic species assemblage or the presence or absence of threatened, endangered, or rare species in the project area. Similarly, the ER contains no data concerning upstream and downstream migration of anadromous and diadromous species in this section of the Savannah River or their habitat utilization within the project area. Likewise, the ER does not address specific habitat types and utilization by resident and anadromous fish in the project area. Nor does the ER examine flow-habitat relationships and the potential impacts of the project on habitat availability.

The discussion of aquatic species in Chapter 2 of the ER discusses the diverse macroinvertebrate and ichthyofauna of the Middle Savannah River found in the vicinity of VEGP, including resident and diadromous fish species. ER § 2.4.2.2. In contrast, the impacts

analysis of the cooling system addresses only a handful of species that are unlikely to be impacted and ignores species with a greater likelihood of adverse impacts. Young Declaration at

¶¶ 16, 17. For example, the ER reveals:

During spring (March-April), when important anadromous species such as American shad, hickory shad, and blueback herring ascend the Savannah River to spawn, approximately 0.9 to 1.2 percent of the river's average flow and 2.7 to 2.8 percent of the river's 7Q10 flow will pass through the new units.

ER at 5.3-2. However, this discussion fails to mention other times of year when these species may also be present and fails to analyze the impacts of diverting between 0.9 and 2.8 percent of the river's flow on these species.

Analysis of entrainment at intake structures “needs to be performed for specific water bodies.”⁵ Without detailed, site specific information about species abundance and flow/habitat relationships, it is not possible to evaluate the impacts of the cooling system:

Evaluation of entrainment in absolute terms of numbers of organisms lost requires coupling the estimates of entrainment from standing crop and the rates of entrainment with data on the organisms obtained in the field. Different fish species will use a different habitat for spawning and in different seasons. The egg and larval densities will vary with habitat and location throughout the water body. Potentially high entrainment from a region determined by the hydrodynamic computations is not important if that region is not used for spawning. Additionally, organisms may not be in that region because of the entrainment. Eggs and larvae of different species will have different natural mortality rates, and mortality rates for the same species can vary with life stage.⁶

The ER fails to evaluate entrainment potential of the proposed intake. The ER's discussion of the potential impacts of the proposed discharge structure is similarly flawed. Although the ER does include a summary of computer modeling of the heat plume, the analysis is not supported by field studies or data that assesses site-specific and species-specific factors.

⁵ Edinger, J.E., *Power Plant Intake Entrainment Analysis*, Journal of Energy Engineering, Vol. 126, No. 1, April, 2000. pp. 1-2. (Exhibit 1.4).

⁶ *Id.*

Contention 1.2: The ER fails to identify and consider direct, indirect, and cumulative impacts of the proposed cooling system intake and discharge structures on aquatic resources.

Basis:

The ER must describe and analyze the environmental impacts of the proposed new ESP. 10 C.F.R. § 51.45(b). Impacts that must be discussed include direct and indirect impacts, and cumulative impacts of the proposed reactors. Cumulative impacts result 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.” 40 C.F.R. § 1508.7.

The ER does not estimate the level of mortality from impingement and entrainment in the new intake structure. As discussed above, the ER does not quantify or describe systematically the species composition and habitat in the vicinity of the intake and cooling structures. As a result, the ER fails to analyze the nature and extent of impacts on aquatic species expected from the new reactors. Instead, the ER mistakenly relies on the performance standards that will be imposed under state-issued water quality permits. Both the intake and discharge are subject to regulation under the Clean Water Act; however, the mere fact that the new structures will comply with the regulatory requirements of the Clean Water Act does not mean that they will not cause significant impacts on aquatic species. The ER must describe and analyze the impacts of the proposed action, as well as the applicable regulatory requirements.

Section 316(b) of the Clean Water Act requires that the location, design, construction and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact. 33 U.S.C. § 1326(b). In 2004, EPA promulgated rules implementing § 316(b) for large existing electric generating plants. 69 Fed. Reg. 41576; 40

C.F.R. § 125.94. Compliance with the performance standards in the regulations is deemed to meet the “best available technology” mandate of the CWA. *Id.* However, more stringent standards may be required if “compliance with the applicable requirements of this section would not meet the requirements of applicable State and Tribal law, or other Federal law.” 40 C.F.R. § 125.94(e). Thus, even if the new intake structure complies with the “best available technology” mandate of section 316(b), that does not alleviate the need to analyze the impacts of the intake on aquatic species. The ER must still comply with the Commission’s rules that require analysis of environmental impacts, as well as disclosure of regulatory requirements imposed by other state and federal laws. 10 C.F.R. §51.45.

The ER’s treatment of impacts on aquatic species resulting from effluent discharges to the Savannah River is similarly flawed. Rather than disclosing and analyzing the potential impacts from the discharge structure, the ER focuses on its design specifications and compliance with state and federal regulations of industrial effluent discharges. Proposed discharge to the river includes radiological, non-radiological and thermal pollution. ER § 5.2.3. Yet, the ER does not evaluate potential impacts on the aquatic community from this pollution source.

All cooling system discharges from the new units, including cooling tower blowdown, will be discharged to the Savannah River via a new discharge structure that will be built downstream of the existing discharge structure. ER at 2.3.3-1. The ER describes the chemical discharge associated with the proposed new units as “small” and “relatively innocuous” but fails to characterize the discharge in terms of constituents and amount. ER at 5.2-4. Operation of the cooling system requires use of anti-scaling compounds, corrosion inhibitors, and biocides, including chlorine, bromide, and chromium. ER § 3.4.2.2; ER 5.2-4; ER Table 3.6-1. The ER

does not disclose whether chemical constituents in the liquid effluent will be discharged at harmful levels. Id. The ER reveals some of the chemical constituents of the proposed discharge:

Table 3.6-1 Water Treatment Chemicals that could be used in VEGP Units 3 and 41

Zinc	Sodium bromide
Tolytriazole	Ammonium hydroxide
Dispersant	Soda ash
Antifoam	Ammonium bisulfite
Hydrazine	Sodium chloride
NCS Corrosion Inhibitor	Antiscalant
Sodium hypochlorite	Coagulant
Boric acid	Stabrex ST70
Lithium hydroxide	Calcium hypochlorite (Sanuril)
Phosphate	Isothiazoline biocide
Methoxypropylamine (MPA) 1 Based on chemicals now used in	Units 1 and 2. This list is representative, not definitive.

The ER also fails to address potential impacts of thermal pollution on aquatic species at the point of discharge and downstream. ER § 5.3.2. Instead, the ER focuses on computer modeling of the plume and the size of the mixing zone necessary to avoid violations of water quality standards. ER § 5.2.3.2; ER Table 5.2-8. However, the ER does not acknowledge the potential impacts on aquatic species from this discharge. Young Declaration, ¶¶ 17-21. High water temperature kills the early life history stages of several highly-valued fish found near VEGP. Id. As with the intake structure, the discussion of the discharge facility suffers from the failure to perform field surveys at the proposed intake site. Id.

Additionally, the ER does not adequately address the cumulative impacts on aquatic resources of the new cooling system facilities, combined with the current impacts of the existing intake and discharge. In 1985, the NRC examined impingement and entrainment associated with

the existing intake in the FES for operation of the existing units at Plant Vogtle and concluded there will be no significant impacts on the aquatic community of the Savannah River. According to the ER, “twenty years of operating experience suggest that Savannah River fish populations have not been adversely affected by operation of the existing” intake structure. ER at 5.3-3. In two decades of operation, however, SNC has not monitored impingement or entrainment associated with the existing structure. Thus, the ER fails to provide a meaningful basis to evaluate the cumulative impacts of the new and existing intake structures on aquatic species. There is no data on the rate of entrainment and impingement for any of the fish species that inhabit the Savannah River.

Similarly, the ER does not evaluate cumulative impacts from the new effluent discharge combined with the existing discharge and other sources of pollution in the area. The ER does not disclose field monitoring data from the existing discharge structure. There is no evaluation of the acute or chronic toxicity of the existing discharge. 67 Fed. Reg. 69952. There are no field surveys evaluating the existing thermal plume and its interaction with the aquatic species and habitat utilization. Young Declaration at ¶¶ 17, 18.

The ER’s reliance on compliance with current and future state-issued waste discharge permits in lieu of actual analysis of impacts is unavailing. The Commission’s rules require disclosure of both environmental impacts and compliance status. According to the ER, routine thermal monitoring is not required under the discharge permit for the existing facility and “it is unlikely that routine thermal monitoring will be a requirement of the new or amended permit.” ER at 6.1-1. In other words, although SNC must comply with the thermal pollution standards set out in Georgia law, the waste discharge permit requires no monitoring to ensure compliance.

Contention 1.3: The ER fails to satisfy 10 C.F.R. § 51.45(b)(3) because it fails to address impacts to aquatic species in its discussion of alternatives. In particular, the ER’s discussion of the no-action alternative and of alternative cooling technologies fails to consider environmental and economic benefits of avoiding construction of the proposed cooling system.

Basis:

As described above, use of Savannah River water to provide cooling water for the new units is likely to have significant impacts on fish and other aquatic life and downstream waters. Such impacts can be avoided by not constructing new reactors at Plant Vogtle (no-action alternative), or by implementing alternative cooling technology that would mitigate the impacts of the proposed operation.

The ER’s discussion of the no action alternative recognizes that “environmental impacts described and predicted in this report for the new nuclear units would not occur” if the ESP is not granted. ER at 9.1-2. However, the ER fails to estimate or quantify the economic and environmental benefits of avoiding impacts to aquatic species in the Savannah River. Likewise, the ER dismisses dry cooling as an alternative cooling technology without any discussion of aquatic impacts:

Dry cooling towers – This alternative is not suitable for the reasons discussed in EPA’s preamble to the final rule addressing cooling water intake structures for new facilities (66 FR 65256; December 18, 2001). Dry cooling carries high capital and operating and maintenance costs that are sufficient to pose a barrier to entry to the marketplace for some facilities. In addition, dry cooling has a detrimental effect on electricity production by reducing the efficiency of steam turbines. Dry cooling requires the facility to use more energy than would be required with wet cooling towers to produce the same amount of electricity. This energy penalty is most significant in the warmer southern regions during summer months when the demand for electricity is at its peak. The energy penalty would result in an increase in environmental impacts as replacement generating capacity would be needed to offset the loss in efficiency from dry cooling. EPA concluded that dry cooling is appropriate in areas with limited water available for cooling or where the source of cooling water is associated with extremely sensitive

biological resources (e.g., endangered species, specially protected areas). The conditions at the VEGP site do not warrant further consideration of dry cooling.

ER at 9.4-2.

Other than a vague reference to the preamble to an EPA rule implementing the Clean Water Act, there is no discussion or analysis of the dry cooling as an alternative to the proposed cooling system. In addition, the ER recognizes that “dry cooling is appropriate in areas with limited water available for cooling or where the source of cooling water is associated with extremely sensitive biological resources.” *Id.* However, the ER ignores the fact that *there are extremely sensitive biological resources* in the Savannah River.

The ER fails to evaluate the impacts of the proposed cooling system intake and discharge on threatened and endangered species in the project area. Shortnose sturgeon, a federally endangered species, have been collected at SRS near Plant Vogtle. ER at 2.4-10. In addition, the robust redhorse, previously thought to be extinct, was first documented in the middle Savannah River in 1997, when a single adult was collected near Plant Vogtle by SNC. ER at 2.4-11. The ER’s failure to address potential alternatives that protect the robust redhorse is particularly ironic because SNC’s parent corporation, Southern Company, is a leader in the effort to conserve this species.

Contention 2: Environmental Justice - Impact on Minority and Low-Income Populations

The ER for the proposed new reactors at Plant Vogtle is inadequate to satisfy the NEPA because it fails to provide a thorough analysis of the disparate environmental impacts of the project on the minority and low-income communities residing in close proximity to the site. The ER fails to consider factors particular to those communities which will magnify the environmental impacts of the proposed reactors in a way that is both disparate and significant. In particular, the ER fails to acknowledge the widespread practice of subsistence fishing in the

Savannah River, and the likelihood that this population's intake of radionuclides and other toxic substances generated by the proposed reactors will be significant and disproportionate to the rates of ingestion by the general population. In addition, the ER fails to address the fact that cancer rates in the minority and low-income community surrounding Plant Vogtle are already higher than for the general population, and therefore that they are more vulnerable to the adverse impacts of additional radiological and chemical pollution in the environment. Finally, the ER fails to address disparate impacts on the minority and low-income communities during a radiological emergency and evacuation.

Basis:

A. An Environmental Justice Analysis Is Required by NEPA, NRC Policy, and Executive Order 12898.

As required by NEPA, the NRC must fully assess the impacts of the proposed the Plant Vogtle ESP. 10 C.F.R. § 51.71. The NRC has delegated the first step in the NEPA evaluation process to license applicants. 10 C.F.R. § 51.45. In implementing NEPA, the NRC must take account of environmental justice, the potential for government actions to have disproportionate impacts on low income or minority communities. The EPA defines Environmental Justice as:

[T]he fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA has this goal for all communities and persons across this Nation. It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work.⁷

The NRC recognizes that for the impacts of its licensing decisions on some populations “may be different from impacts on the general population due to a community’s distinct cultural

⁷ U.S. Environmental Protection Agency, <http://www.epa.gov/compliance/environmentaljustice> (last visited December 5, 2006).

characteristics or practices.” Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions, 69 Fed. Reg. 52,040 at 52,049 (August 24, 2004). Thus, it is the Commission’s policy that, in keeping with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations:

an analysis of disproportionately high and adverse impacts needs to be done as part of the agency’s NEPA obligations to accurately identify and disclose all significant environmental impact associated with a proposed action.

59 Fed. Reg. 7629 (Feb. 16, 1994); *See also Louisiana Energy Services* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 106 (1998) (“Adverse impacts that fall heavily on minority and impoverished citizens call for particularly close scrutiny.”).

NEPA further requires that that the impacts of the proposed action on low-income and minority populations be fully addressed. Executive Order 12898 directed agencies to consider environmental justice issues, that is, the particular environmental impact on minority and low-income populations. 59 Fed. Reg. 7629.

B. Environmental Report Recognizes Existence of Environmental Justice Communities

As the ER discloses, minority and low-income populations exist within a 50-mile radius around the Vogtle site, *see*, ER § 2.5.4. Namely, of the 175 block groups identified, 171 have Black races populations of 50 percent or more. ER § 2.5.4.2. Further, of the 72 census block groups identified with respect to low-income populations, 14 have 50 percent or more low-income households. ER § 2.5.4.3. Additionally, four counties within 40 miles of Vogtle have

areas which are persistently distressed and suffer from unemployment and/or poverty. The census data for the region reveal the following:⁸

County	census tract	poverty	unemp.	distressed previous year
Jefferson, GA	13-163-9602.00	X	X	X
Jefferson, GA	13-163-9603.00	X	X	X
Jenkins, GA	13-165-9602.00	X		X
Allendale, SC	45-005-9703.00	X	X	X
Barnwell, SC	45-011-9701.00		X	X
Barnwell, SC	45-011-9703.00		X	X
Barnwell, SC	45-011-9704.00		X	X
Barnwell, SC	45-011-9705.00		X	X

C. Environmental Report Does Not Adequately Address Disparate Impacts on Low-Income and Minority Communities.

While the ER does address the instance of minority and low-income households within and around Burke County, it fails to take accurate account of the impact two new nuclear reactors will have on those populations based on factors particular to that area.

1. The Environmental Report Fails to Take Into Account Subsistence Fishing on the Savannah River.

The ER fails to adequately address the impact of two new nuclear reactors at Plant Vogtle because it neglects subsistence fishing along the Savannah River within minority and low-income populations. These populations are already subject to an unusual dose of radiation due to the current level of radioactive contamination in Savannah River fish. Two additional reactors at

⁸ <http://132.200.33.131/cra/2006distressedorunderservedtracts.htm> (last visited Dec. 6, 2006).

Plant Vogtle will increase the total radiological load of the Savannah River, which already receives radiological effluent from the existing Plant Vogtle reactors and SRS. The ER does not recognize that subsistence fishing is an exposure pathway that disproportionately impacts low-income and minority populations.

The two existing units at Plant Vogtle discharge liquid effluent, including radiological and non-radiological waste, to the Savannah at a rate of 10,000 gallons per minute (14.4 MGD). ER Table 2.9-1. The current liquid discharge includes waste from fission/activation products (0.142 curries/year), tritium (1414 curries/year), dissolved, entrained gasses (0.00172 curries/year), and gross alpha (2.98E-05 curries/year), as well as non-radiological constituents. Id. The two proposed reactors will discharge 0.52 curries per year of fission products and 2,020 curries per year of tritium. ER Table 3.0-1; ER Table 3.5-1.

SNC's radiological monitoring program reveals that Savanna River fish, particularly resident game fish species, are contaminated with cesium-137.⁹ Semi-annual testing of commercially or recreationally important fish species in the vicinity of Plant Vogtle routinely find detectible levels of cesium-137 in the edible flesh of collected samples:

Cs-137 was the only radionuclide found in the semiannual collections of a commercially or recreationally important species of fish. It has been found in all but 4 of the 125 samples collected during operation and in all but 5 of the 32 samples collected during preoperation.¹⁰

Significantly, in 1999 SNC collected a largemouth bass “with a concentration of 2500 Ci/kg-wet,” exceeding the required reporting level of 2000 pCi/kg-wet.¹¹ SNC attributes the elevated cesiums-137 level in this sample to “the fact that largemouth bass are predators that concentrate

⁹ *Vogtle Electric Generating Plant, Annual Radiological Operating Report for 2005*, Southern Company (2006) (Exhibit 2.1).

¹⁰ *Id.* at 4-28.

¹¹ *Id.*

Cs-137.”¹² Of course, humans who eat fish are also predators that concentrate cesium-137, and largemouth bass are a target species of subsistence fishermen on the Savannah River.¹³

Although individuals from all socio-economic backgrounds engage in fishing in the area, African-Americans in particular commonly engage in subsistence fishing along the Savannah River.¹⁴ As a recent report by the Institute for Energy and Environmental Research noted:

Many people use the Savannah River for subsistence fishing – that is, as a primary source for food; the practice is more common among African-Americans. Fish in the Savannah River have bioaccumulated cesium, mercury, and tritium...African-American fishermen consume considerably more fish than the maximum recommended for health reasons by the South Carolina Department of Health and Environmental Control. This is clearly an environmental injustice, because people who rely routinely on the river for a large portion of their protein are disproportionately impacted by the pollution from the site.¹⁵

The ER is inadequate because it fails to consider the unique burdens faced by minority and low-income populations who depend on the Savannah River for food. These populations are disproportionately affected, via bioaccumulation, by increases in hazardous and radioactive material from the addition of two new nuclear reactors at Plant Vogtle. Further, the ER is inadequate because it fails to consider that impacts to important fish species targeted by subsistence fishermen results in disproportionate impacts to the minority populations that they rely on this resource as a source of nutrition. Low income and minority communities will bear the burden if target species are less abundant, smaller, or less healthy because of the proposed new units.

¹² *Id.*

¹³ Burger J (1998) *Fishing and risk along the Savannah River: Possible Intervention*. *J Toxicol Environ Health* 55:405–419 (Exhibit 2.2).

¹⁴ Arjun Makhijani, Ph.D. and Michele Boyd, Institute for Energy and Environmental Research, *Nuclear Dumps by the Riverside: Threats to the Savannah River From Radioactive Contamination at the Savannah River Site* (2004)(Exhibit 2.3).

¹⁵ *Id.*

Additionally, the ER fails to take account of the disproportionate impact on minority and low-income populations based on their higher-than-average consumption of fish. One study reports that “[e]thnicity and education contribute significantly to explaining variations in [the] number of fish meals per month, serving size, and [the] total quantity of fish consumed per year.”¹⁶ Not only do African-Americans consume more fish per year than Caucasians, they often eat fish in much larger portions, frequently surpassing allowable fish-consumption levels.¹⁷ Further, low-income individuals also consume greater amounts of fish than those with higher incomes.¹⁸ The combination of these factors means that African-Americans and low-income individuals are at specific risk from hazardous materials in the Savannah River, and that any increase in such materials from the addition of two new nuclear reactors will adversely affect those populations in particular.

Likewise, the ER is inadequate because it fails to consider the disproportionate impact on low-income and minority populations based on the cumulative effects of hazardous substances in the Savannah River, as well on the increased harm posed by certain cooking methods prevalent in the area. Both Georgia and South Carolina already issue fish consumption advisories along the Savannah River based on the presence of hazardous and radioactive material in the water. While mercury is the main threat to human health by way of fish consumption, the presence of radionuclides is also a significant factor informing the presence of these consumption

¹⁶ Joanna Burger, et al., *Factors in Exposure Assessment: Ethnic and Socioeconomic Differences in Fishing and Consumption of Fish Caught along the Savannah River*, Risk Analysis, Vol. 19, No. 3, p. 427, 1999. (Exhibit 2.4).

¹⁷ *Id.* at 506.

¹⁸ *Id.* at 431.

advisories.¹⁹ Radiocesium (¹³⁷Cs) is of particular concern because levels of ¹³⁷Cs actually increase when fish is cooked.²⁰ One study found that radiocesium levels increase by 32% when fried with breading, and by 62% when fried without breading.²¹ Further, it was also noted in that same study that “over 80% of the people interviewed along the Savannah River deep-fried their fish regularly.”²²

Finally, the ER is inadequate because it fails to consider the lack of knowledge of fish consumption advisories, or awareness of associated risks, among the minority and low-income populations. Unfortunately, compliance with fish consumption advisories is quite low. This fact is based on a number of issues, including “confusion over the meaning of advisories” and lack of understanding regarding associated risks.²³ Significantly, minority and low-income populations have less awareness of the consumption advisories as compared to others groups.²⁴ This fact, in addition to their higher than average consumption of fish from the Savannah River, means that minority and low-income populations are particularly susceptible to health risks posed by contamination. The Environmental Report, however, fails to take this factor into account in its consideration of Environmental Justice issues.

¹⁹ Joanna Burger, *Science, Policy, Stakeholders, and Fish Consumption Advisories: Developing a Fish Fact Sheet for the Savannah River*, Environmental Management, Vol. 27, No. 4, p. 503, 2001. (Exhibit 2.5).

²⁰ Joanna Burger, et al., *Effects of Cooking on Radiocesium in Fish from the Savannah River: Exposure Differences for the Public*, Arch. Environ. Contam. Toxicol. 46, p. 231, 2004. (Exhibit 2.6).

²¹ *Id.* The weight loss during cooking of a breaded fish was 25% and the weight loss of an un-breaded fish was 39%.

²² *Id.* at 232.

²³ Burger, *Science, Policy, Stakeholders, and Fish Consumption Advisories*, note 19, *supra*, at 501 (Exhibit 2.5).

²⁴ *Id.* at 507.

2. The Environmental Report Fails to Consider the High Cancer Rate in Burke County.

The ER fails to adequately consider the impact two new nuclear reactors will have on the minority populations around Plant Vogtle who already suffer from higher-than-average cancer rates. One study conducted by the University of South Carolina has shown that there is a higher than average instance of cervical cancer in black women, and a higher rate of esophageal cancer in black men, within a fifty mile radius of the Savannah River Site, which lies just across the River from Plant Vogtle.²⁵ While the study noted that these types of cancers are not necessarily associated with exposure to radioactive materials, the impact of increased levels of hazardous and radioactive materials into the area, including into the Savannah River, on minority population already suffering from high rates of cancer should be assessed.²⁶

A number of studies have shown that living near a nuclear power plant can increase certain health risks, including death. Particularly, children and fetuses are highly susceptible to the impacts of radiation. The Agency for Toxic Substances and Disease Registry (ATSDR), a federal public health agency of the U.S. Department of Health and Human Services, Toxicological Profile on Cesium reports that Cesium-137 is found in the breast milk of mothers with an internal cesium-137 burden (citing Johansson et al. 1998; Thornberg and Mattsson 2000), and can be transferred to nursing infants (citing Johansson et al. 1998).²⁷ Cesium-137 has also been shown to cross the placental barrier of animals.²⁸ Studies also indicate that subsequent

²⁵ 1997 FEB 3, Cancer Weekly via NewsRx.com & NewsRx.net (Exhibit 2.7).

²⁶ *Id.*

²⁷ ATSDR Toxicological Profile on Cesium, available in its entirety at www.atsdr.cdc.gov/toxprofiles/tp157.html.

²⁸ *Id.*

the closure of 8 U.S. nuclear plants in 1987, cancer incidence in children younger than 5 years of age in proximate areas for which data were available fell significantly after the shutdowns.²⁹

Recent studies of morbidity and mortality statistics compiled by the U.S. Centers for disease Control and Prevention compare death rates before and after Plant Vogtle's existing reactors went online, and reflect that the death rate per 100,000 population from all cancers in Burke County rose 24.2 percent and that infant deaths increased by 70.1 for Burke County.³⁰ In light of these studies, the ER must consider the already existing negative health impacts in the Burke County area when assessing the impacts of the two new reactors.

3. The Environmental Report Fails to Consider the Inability of low-income and minority populations around Plant Vogtle to respond or evacuate in the case of a nuclear accident.

The ER is deficient because it fails to discuss or analyze the disparate impact a significant accident would have on minority and low-income populations. In the Environmental Impact Statement for the proposed Mixed Oxide Fuel Fabrication Facility at SRS, the NRC acknowledged that a significant accident would most likely affect minority or low-income communities due to the demographics and prevailing wind in the area.³¹ Plant Vogtle is nearly adjacent to SRS and, therefore, a significant accident at the new reactors would have a similar disparate impact on these low-income and minority populations. The ER is deficient because it does not discuss or analyze this impact such an accident would have on these populations, nor

²⁹ See Mangano, et al. 2002, *Infant Death and Childhood Cancer Reductions after Nuclear Plant Closings in the United States*, Archives of Environmental Health, Vol. 57(1), January/February 2002, pp 23-31. (Exhibit 2.7).

³⁰ U.S. Centers for Disease Control and Prevention (<http://wonder.cdc.gov>)(uses ICD-9 codes 000.1-799.9).

³¹ NUREG-1767, Vol. 1, Environmental Impact Statement on the Construction and Operation of a Proposed Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina, Final Report, January 2005, Executive Summary at p. xix. Excerpt attached as Exhibit 2.8).

does it address these communities' ability to respond or evacuate in the event of a nuclear accident.

Pursuant to 10 CFR 52.17(b)(2)(ii), SNC submitted a proposed complete and integrated emergency plan to the NRC with the ESP application. Part 5, Emergency Plan; ER § 13.3. However, neither the Emergency Plan nor the section of the ER discussing emergency planning addresses the demographics of the communities within the plume exposure pathway or ingestion exposure pathway. Id. As previously discussed, low-income and minority communities dominate the area within the proposed EPZs. Despite this, and the previous NRC finding of disproportionate impacts from an accident at SRS, the ER fails to disclose and analyze potentially disparate impacts resulting from an accident or terrorist incident.

The recent Hurricane Katrina disaster revealed that low-income and minority populations are particularly vulnerable in emergency situations. Prior to Hurricane Katrina, the City of New Orleans developed and implemented an emergency plan that was well engineered and publicized. The evacuation plan functioned adequately for the population with automobiles, but utterly failed to protect the most vulnerable populations. One evaluation of the Katrina emergency response describes this disparity:

People who had resources were served relatively because planners are familiar with their abilities and needs. People who were poor, disabled or ill were not well served, apparently because decision-makers were unfamiliar with and insensitive to their needs.³²

Obviously, the rural area surrounding Plant Vogtle presents very different emergency planning and evacuation challenges from a major city like New Orleans. However, Hurricane

³² Litman, *Lessons from Katrina and Rita: What Major Disasters Can Teach Transportation Planners*, Journal of Transportation Engineering, Vol. 132, January 2006, pp. 11-18. (Exhibit 2.9).

Katrina revealed that emergency plans can overlook the most vulnerable segments of society. In order to prevent such disparate impacts, the ER must explicitly consider environmental justice.

Contention 3 : Failure to Evaluate Whether and in What Time Frame Spent Fuel Generated by Proposed Reactors Can Be Safely Disposed Of

The ER for the Vogtle ESP is deficient because it fails to discuss the environmental implications of the substantial likelihood that spent fuel generated by the new reactors will have to be stored at the Vogtle site for more than 30 years after the reactors cease to operate, and perhaps indefinitely. The Waste Confidence Decision³³ does not support SNC's failure to address this issue in the ER, because it has been outdated by changed circumstances and new and significant information. As required NEPA, the NRC may not permit construction or operation of the new Vogtle reactors unless and until it has taken into account these changed circumstances and new and significant information. 10 C.F.R. § 51.92. *See also Marsh v. Oregon Natural Resources Council*, 490 U.S. 360 (1989).

Basis:

A. Requirements of NEPA

NEPA requires the NRC to evaluate the environmental impacts of its licensing decisions. 10 C.F.R. § 51.71. The NRC has delegated the first step in the NEPA evaluation process to license applicants. 10 C.F.R. § 51.45. The environmental impacts of nuclear power plant licensing include the impacts of the uranium fuel cycle, including disposal of spent fuel. *State of Minnesota v. NRC*, 602 F.2d 412, 418 (D.C. Cir. 1979) ("*Minnesota v. NRC*"). In *Minnesota v. NRC*, the U.S. Court of Appeals for the D.C. Circuit approved the NRC's conduct of a

³³ Waste Confidence Review, 55 Fed. Reg. 38,474, 38,504 (September 18, 1990), as amended by Waste Confidence Decision Review: Status, 64 Fed. Reg. 68,005 (December 6, 1999).

rulemaking to evaluate, in compliance with NEPA, the concerns of intervenors in individual nuclear power plant licensing cases regarding:

whether there is reasonable assurance that an off-site storage solution will be available by the years 2007-09, the expiration of the plants' operating licenses, and if not, whether there is reasonable assurance that the fuel can be stored safely at sites beyond those dates.

602 F.2d at 418. In response to the Court's decision in *State of Minnesota v. NRC*, the NRC issued its first Waste Confidence Decision in 1984. 49 Fed. Reg. 34,659 (August 31, 1984). The Waste Confidence decision was revised again in 1990 and 1999. Its findings are codified in 10 C.F.R. § 51.23.

The conclusions of the Waste Confidence Decision regarding the environmental impacts of spent fuel storage and disposal are not unassailable. They must be revisited if changed circumstances or new and significant information shows that their conclusions about environmental impacts are in error. 10 C.F.R. § 51.92, *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360 (1989).

B. Waste Confidence Proceedings

The 1990 Waste Confidence Decision, the most recent comprehensive update to the 1984 Waste Confidence Decision, asserts that the Commission has:

reasonable assurance that at least one mined geologic repository will be available within the first quarter of the twenty-first century, and that sufficient repository capacity will be available within 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of any reactor to dispose of the commercial high-level radioactive waste and spent fuel originating in such reactor and generated up until that time. (This finding revised the finding in the original decision that a mined geologic repository would be available by the years 2007 to 2009).

55 Fed. Reg. at 38,474. The Commission repeated the same assertion in 1999. Waste Confidence Review Decision: Status, 64 Fed. Reg. 68,005-06 (December 6, 1999). The finding was codified in 10 C.F.R. § 51.23.

The 1990 Waste Confidence Decision also predicts that the first repository, now proposed for Yucca Mountain, Nevada, will not have enough capacity to handle all the spent fuel that will be generated by the current generation of nuclear reactors, or from the next generation of nuclear reactors, and therefore it “appears likely” that a second repository will be needed to accommodate all of the spent fuel from those reactors. 55 Fed. Reg. at 38,501-02. The Waste Confidence Decision does not predict the volume of spent fuel that would be generated by a new generation of reactors, but assumes that spent fuel generated by new reactors would go to a second repository, and that the repository would be available “well within” 30 years after expiration of their licenses. 55 Fed. Reg. at 38,504.

The 1990 Waste Confidence Decision also notes that in 1986, Congress had indefinitely postponed the second repository program, due to “decreasing forecasts of spent fuel discharges, as well as estimates that a second repository would not be needed as soon as originally supposed.” 55 Fed. Reg. at 38,501. In 1987 amendments to the Nuclear Waste Policy Act, Congress required DOE to report to Congress on the need for a second repository between January 1, 2007, and January 1, 2010. *Id.* The Commission found it is “not clear that the institutional uncertainties arising from having to restart a second repository program should be considered in detail in the current Waste Confidence Decision review,” and decided not to address them. *Id.* at 38,503-04.

In 1999, the NRC issued a “status report” on the 1990 Waste Confidence Decision, reporting that:

no significant and unexpected events have occurred – no major shifts in national policy, no major unexpected institutional developments, no unexpected technical information – that would cast doubt on the Commission’s Waste Confidence findings or warrant a detailed evaluation at this time.

64 Fed. Reg. at 68,007. Thus, the Commission decided not to modify the findings codified in 10 C.F.R. § 51.23. *Id.*

C. Changed Circumstances and New and Significant Information.

The Commission has committed to periodic review of its waste confidence findings. 55 Fed. Reg. at 38,474. In the 1999 Status Report on the Waste Confidence Review, the Commission stated that the “appropriate trigger” for the next review:

could be a combination of events or it could be a single event. For example, *any significant delays in DOE’s repository development schedule* or a decision by the Secretary of Energy to not recommend Yucca Mountain as a candidate site might necessitate a reevaluation of the Commission’s Waste Confidence Decision. Thus, the Commission would consider undertaking a comprehensive reevaluation of the Waste Confidence findings when the impending repository development and regulatory activities run their course or *if significant and pertinent unexpected events occur*, raising substantial doubt about the continuing validity of the Waste Confidence findings.

64 Fed. Reg. at 68,007 (emphasis added). Petitioners submit that a number of events have occurred which call for the reevaluation of the Waste Confidence decision before any licensing decision is made with respect to new reactors, including the proposed Vogtle reactors. These changed circumstances undermine the NRC’s conclusion in Finding 2 of the 1990 Waste Confidence Rule that:

sufficient repository capacity will be available within 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of any reactor to dispose of the commercial high-level radioactive waste and spent fuel originating in such reactor and generated up until that time.³⁴

³⁴ The first statement, that a repository will be available within the next 25 years, is irrelevant because the Waste Confidence Decision admits that this first repository has insufficient capacity to dispose of spent fuel from new reactors. 55 Fed. Reg. at 38,504.

55 Fed. Reg. at 38,474. The changed circumstances and new and significant information include the following:

1. The 1990 Waste Confidence Decision is based on the assumption that work on a second repository will begin in 2010, but this assumption is clearly unreasonable. It is unlikely that work on a second repository will begin while the Yucca Mountain proceeding is underway. The Yucca Mountain project has been substantially delayed, and DOE now predicts that the repository will not open until 2017.

2. When the NRC issued the 1990 Waste Confidence Decision, the prospect of new reactor licensing was virtually nonexistent. In fact, the DOE had postponed the second repository program in 1986 because of “decreasing spent fuel discharges” and “estimates that a second repository would not be needed.” 55 Fed. Reg. at 38,501. In 2005, Congress changed this circumstance dramatically by approving more than \$13 billion in subsidies and tax breaks for new reactors. Several applications for early site permits have are pending and a number of companies have stated that they intend to file combined construction permit/operating license applications. Now that it has become likely that many new tons of spent reactor fuel will be generated with no means of disposal, it is “clear” that the time has come to conduct a careful and thorough evaluation of the availability of a second repository. 55 Fed. Reg. at 38,502 (“[I]t is not clear that the institutional uncertainties arising from having to restart a second repository program should be considered in detail in the current [*i.e.*, 1990] Waste Confidence Review.”)

3. The NRC’s expression of confidence that spent fuel can be safely stored at nuclear power plant sites for lengthy period was made before the attacks of September 11, 2001, and thus does not reflect a current assessment of their vulnerability to accidents caused by intentional attack. The environmental impacts of storing spent fuel at reactor sites for any period of time,

but especially for 30 years or more, must be re-examined in light of new information regarding the threat of intentional attack against U.S. facilities, including nuclear power plants. See Committee on the Safety and Security of Commercial Spent Nuclear Fuel Storage, Board on Radioactive Waste Management, National Research Council, *Safety and Security of Commercial Spent Nuclear Fuel Storage: Public Report* at 12 (Washington, DC: National Academies Press, 2006)(Information gathered by this Committee “led it to conclude that there were indeed credible concerns about the safety and security of spent nuclear fuel storage in the current threat environment.”).³⁵ Petitioners request the NRC to apply the holding of the U.S. Court of Appeals for the Ninth Circuit in *San Luis Obispo Mothers for Peace v. NRC*, 449 F.3d 1016 (9th Cir. 2006) that the NRC must consider the environmental impacts of terrorist attacks in the NEPA analyses supporting its licensing decisions.

In light of these changed circumstances and new information, the NRC no longer has any basis for refusing to prepare an EIS that addresses the environmental impacts of extended spent fuel storage at nuclear power plant sites, including the site of the proposed Vogtle reactors. The ER for the Vogtle ESP should address the issue, or it should be addressed in a generic EIS. In either event, the NRC may not issue an ESP to SNC for the Vogtle site unless and until the analysis is completed.

³⁵ An excerpt of this report is attached hereto as Exhibit 3.1.

Contention 4: Failure to Address Environmental Impacts of Intentional Attacks

The Environmental Report (“ER”) for the Vogtle ESP application is inadequate to satisfy the National Environmental Policy Act (“NEPA”) and NRC regulation 10 C.F.R. § 51.45(b) and (c) for the following reasons:

(a) it fails to address the environmental impacts of intentional attacks on the proposed nuclear power plants, or to evaluate a reasonable range of alternatives for avoiding or mitigating those impacts.

(b) it fails to address the cumulative impacts of an intentional attack on the existing Plant Vogtle, or to evaluate a reasonable range of alternatives for avoiding or mitigating those impacts.

Basis:

NRC regulations implementing NEPA, 10 C.F.R. §§ 51.45(b) and (c), require SNC’s ER to address the impacts of the proposed licensing and operation of the new nuclear plants on the environment, as well as alternatives for mitigating or avoid those impacts. The ER for the Vogtle plant fails to satisfy these requirements because it does not address the environmental impacts of intentional attacks on the proposed nuclear power plants. The NRC’s policies and procedures for preparing against terrorist attack, including the commencement in 2001 of a “top to bottom” review of NRC security procedures and the establishment of the Office of Nuclear Security and Incident Response, demonstrate that the NRC considers such attacks to be reasonably foreseeable for purposes of requiring a NEPA review. *San Luis Obispo Mothers for Peace v. NRC*, 449 F.3d 1016 (9th Cir. 2006) (“*Mothers for Peace*”).

In *Mothers for Peace*, the U.S. Court of Appeals for the Ninth Circuit reversed the Commission’s refusal, as a matter of law, to consider the environmental impacts of terrorist

attacks in its licensing decisions. *See Pacific Gas & Electric Co.* (Diablo Canyon Independent Spent Fuel Storage Installation), CLI-03-01, 57 NRC 1 (2003); *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-02-25, 56 NRC 340 (2002). While the Court's decision is not binding on the NRC outside of the Ninth Circuit, the Commission should apply the decision to all of its licensing decisions, including the Vogtle ESP decision. As Commissioner Jaczko stated in a recent dissenting opinion, "the NEPA terrorism issue is a significant matter that needs resolution," and that "the current uncertainty surrounding the impact of this issue may lead to unnecessary confusion in the review of new reactor licenses." *Pacific Gas & Electric Co.* (Diablo Canyon Independent Spent Fuel Storage Installation), CLI-06-23, slip op. at 5 (September 6, 2006).

Pacific Gas & Electric Company ("PG&E") has petitioned the Supreme Court for a writ of certiorari regarding the *Mothers for Peace* decision. However, the NRC's failure to file its own petition for certiorari, or even to submit a timely response in support of PG&E's petition, indicates that the NRC does not consider the decision to warrant Supreme Court review and is prepared to carry out the Ninth Circuit's mandate.³⁶ Petitioners urge the Commission to follow Commissioner Jaczko's counsel and require SNC to address, in its ER, the environmental

³⁶ *See* Sup.Ct.R. 12.6, which provides that:

All parties other than the petitioner are considered respondents, but any respondent who supports the position of a petitioner shall meet the petitioner's time schedule for filing documents, except that a response supporting the petition shall be filed within 20 days after the case is placed on the docket, and that time will not be extended.

The Supreme Court docketed PG&E's petition for certiorari on October 3, 2006. *See* <http://www.supremecourtus.gov/docket/06-466.htm>. Pursuant to Sup.Ct.R. 12.6, if the government wished to file a brief in support of the petition it was required to do so by October 23. Therefore it is reasonable to expect that the government's brief, now due on December 15, 2006, will oppose the taking of certiorari.

impacts of a terrorist attack on the new reactors and the cumulative impacts of an attack on the existing Vogtle reactor. Regardless of the outcome of PG&E's petition for certiorari, the Commission may exercise its discretion to conduct such a review, thereby joining the other agencies who review the environmental impacts of terrorist attacks on their facilities.³⁷

The ER should provide a full discussion of the potential consequences of a range of credible events involving destructive acts against the proposed reactors. The range of events considered in the ER should include all types of attacks that are reasonably foreseeable, including events that SNC and NRC considers to fall beyond the plant's design basis. *Limerick Ecology Action v. NRC*, 869 F.2d 719, 726 (3rd Cir. 1989).

The ER should also evaluate the potential that severe accidents caused by attacks on the existing Vogtle nuclear reactor will lead to accidents at the new nuclear reactors. SNC has notified the NRC of its intent to file a license renewal application in June of 2007, and thus it is possible that the existing nuclear reactor will continue to operate alongside two new nuclear reactors for a lengthy period.³⁸ The ER's analysis of cumulative impacts should include a

³⁷ The U.S. Department of Energy, for example, has evaluated the environmental impacts of terrorist attacks in numerous EISs. *See, e.g.*, DOE/EIS-0250F, Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada at H-1 (February 2002); DOE/EIS-0161, Final Programmatic Environmental Impact Statement for Tritium Supply and Recycling, Vol. I at 2-1 (October 1995) (evaluating environmental impacts of recycling and production of tritium for nuclear weapons); DOE/EIS-0319, Final Environmental Impact Statement for the Proposed Relocation of Technical Area 18 Capabilities and Materials at the Los Alamos National Laboratory at iii, 5-1 (August 2002) (evaluating environmental impacts of sabotage on a DOE research facility).

It also must be noted that the DOE recently issued guidance specifically directing that "each DOE EIS and EA should explicitly consider intentional destructive acts. This applies to all DOE proposed actions, including both nuclear and non-nuclear proposals." December 1, 2006 Memorandum from Department of Energy to DOE NEPA Community. (Exhibit 4.1).

³⁸ Letter from Jeffrey T. Gasser, SNC, to U.S. Nuclear Regulatory Commission re: Vogtle Electric Generating Plant, Application for License Renewal (June 20, 2003). A copy of the letter

discussion of the potential impacts on the new reactors if the existing reactor or its spent fuel pool is successfully attacked. For example, if the Vogtle site is surrounded by high levels of radiation as a result of an attack, and the new reactors are rendered inaccessible, could the safety of the new reactors be compromised? Or, might a new reactor be required to be shut down for many years or permanently because the site is contaminated, causing huge economic and social impacts?

Finally, the ER should evaluate a range of reasonable design alternatives to the proposed action that would protect the environment from the potentially catastrophic environmental impacts of a successful attack. Such alternatives should include below-ground construction, recommended as a prudent design feature over 50 years ago by Dr. Edward Teller, one of the founders of the U.S. nuclear industry.³⁹ Alternatives could also include passive safety features

(Accession # ML031760547) can be found on the NRC's website at:
<http://www.nrc.gov/reactors/operating/licensing/renewal/applications.html>.

³⁹ In a July 23, 1953, letter to the Joint Committee on Atomic Energy, Dr. Teller noted:

[t]he various committees dealing with reactor safety have come to the conclusion that none of the powerful reactors built or suggested up to the present time are absolutely safe. Though the possibility of an accident seems small, a release of the active products in a city or densely populated area would lead to disastrous results. It has been therefore the practice of these committees to recommend the observance of exclusion distances, that is, to exclude the public from areas around reactors, the size of the area varying in appropriate manner with the amount of radioactive poison that the reactor might release. Rigid enforcement of such exclusion distances might hamper future development of reactors to an unreasonable extent. In particular, the danger that a reactor might malfunction and release its radioactive poison differs for different kinds of reactors. It is my opinion that reactors of sufficiently safe types might be developed in the near future. *Apart from the basic construction of the reactor, underground location or particularly thought-fully constructed safety devices might be considered.*

Letter from Dr. Edward Teller to the Honorable Sterling Cole, Chairman of the Joint Committee on Atomic Energy, United States Congress (emphasis added). A copy can be found on the website of the Nuclear Age Peace Foundation at:
www.nuclearfiles.org/menu/library/correspondence/teller-edward/corr_teller_1953-07-23.htm.

advocated by Dr. Alvin Weinberg, a major contributor to the design of today's pressurized water and boiling water reactors, for the next generation of nuclear reactors. As described in Dr. Weinberg's paper, *The Second Nuclear Era*, these features, as included in the design for the advanced "PIUS" reactor, can be relied on "without calling into action any active safety equipment and without any human actions" and allow the plant to operate safely without human attendance for an extended period.⁴⁰ Additionally, a panel of industry experts drafted an 800 page report in 1980 addressing designing future reactors to be more secure.⁴¹ This report offered a number of feasible, low-cost design changes to make nuclear plants less vulnerable to sabotage and acts of terror. As not one of these low-cost changes appear in the so-called advanced reactor designs, Petitioners request that SNC and NRC refer to this report and take these low-cost changes into account.

Contention 5: Failure to evaluate energy alternatives

The ER for the Vogtle ESP is deficient because the Alternatives analysis is flawed on two accounts: First, it is based on premature and incomplete information that cannot be adequately assessed at this point in time, as Georgia Power has been ordered to submit a detailed assessment of the maximum achievable cost effective potential for energy efficiency and demand response

Petitioners note that they were unable to obtain a copy of the original letter. The copy that is attached is was retyped and posted on the website of the Nuclear Age Peace Foundation. (Exhibit 4.2).

⁴⁰ Alvin M. Weinberg, *The Second Nuclear Era*, Institute for Energy Analysis, Oak Ridge Associated Universities at 35-26 (1984). *The Second Nuclear Era* can be found on the website of the U.S. Office of Science and Technical Information at: <http://www.osti.gov/featuredsites/weinberg.shtml>.

⁴¹ U.S. N.R.C., NUREG/CR-1345, Nuclear Power Plant Design Concepts for Sabotage Protection, Vol. 1 & 2, January 1981. (excerpt attached as Exhibit 4.3)

programs in its service area in 2007.⁴² Second, it lacks a full and objective evaluation of all reasonable alternatives.

Basis:

Even the very summary information contained in the ER regarding alternatives is premature, and necessarily incomplete, as Georgia Power's upcoming Integrated Resource Plan to be filed with the Georgia Public Service Commission in January 2007 will not be fully reviewed and analyzed until later in 2007. The ER is therefore also deficient because it fails to state the degree to which energy efficiency can meet projected demand. Indeed, Georgia Power Company (co-owner of Plant Vogtle) did not include nuclear power as an option for meeting future demand in its 2004 Integrated Resource Plan. Its next Integrated Resource Plan has not been filed yet and will not even be reviewed by the Georgia Public Service Commission until 2007.⁴³ Additionally, claims surrounding the need for power linked to the target value of 2,234 MWe for net electrical output for a proposed two-unit facility at VEGP have not been reviewed by the Georgia Public Service Commission. The ER for the Vogtle ESP refers to the fact that no determination of participation percentages of each co-owner has been made and that such

⁴²Docket No. 22449-U, Georgia Power Company Request for an Accounting Order, Final Order, June 22, 2006, page 4. (Exhibit 5.1). Additionally, Georgia Power used planning procedures to develop its 2004 Integrated Resource Plan that significantly understated the achievable cost effective potential for energy efficiency in the utility's service area. This flaw was serious enough that the Georgia Public Service Commission decided to establish a Demand Side Working Group to more fully assess demand side options. This Group is still operating and ongoing data collection for Georgia Power's upcoming 2007 Integrated Resource Plan review is underway now. This data will not be available until at least next year.

⁴³ There are other supply options available that have not been reviewed yet and cannot be adequately reviewed until the 2007 Integrated Resource Planning process is completed. Therefore, evaluation of supply alternatives is premature at this time. See Environmental Law and Policy Center v. U.S. Nuclear Regulatory Commission, ___ F.3d ___, 2006 WL 3490839 *7 (7th Cir. 2006)(indicating that it is reasonable for an applicant to defer such analysis until the combined license application).

determination is not likely to be made until 2008. Only a vague, uncertain summary of who will use the additional, proposed new capacity is included in the ER. This is simply insufficient.

Further, no specific proposal for building new nuclear reactors has been filed with or approved by the Georgia Public Service Commission.⁴⁴ Another example of a deficiency in the ER is that there is significant, untapped energy efficiency potential in the service territory of the applicant utilities. The 2005 study by ICF⁴⁵, cited in the ER at p. 9.2-4, documents significant under-utilization of demand side resources that are readily available.⁴⁶ If deployed, these demand side resources could significantly offset the need for new capacity in the future. Of note, the ICF study done for Georgia is recognized to be conservative in its estimates and is also not reflective of recent fuel price increases that Georgia utilities have experienced which in turn make the cost effective potential for energy efficiency higher. It is recognized that the ICF study produced energy efficiency results at the low end of other energy efficiency potential studies. The ER fails to present the fuller scenario and analyses for demand side options available to the Georgia utilities and focuses instead on the limited and inadequate information that Georgia

⁴⁴ In response to Georgia Power Company's request for an accounting order to record certain early site permitting and construction operation license costs, the Georgia Public Service Commission stated the following in its order of June 22, 2006: "The Commission will complete its examination of the prudence of GPC's costs before rates are adjusted to reflect the costs incurred and accumulated in Account 183. Nothing in this Accounting Order shall be construed as prejudging the prudence of the decision to incur preliminary survey and investigatory charges. Nor shall anything in this Accounting Order be construed as prejudging the prudence of the individual charges incurred in pursuit of the preliminary survey and investigation of nuclear power or the outcome of the 2007 Integrated Resource Planning proceeding or any subsequent certification proceedings." In Re: Georgia Power Company Request for an Accounting Order, *supra*. (Exhibit 5.1).

⁴⁵ ICF Consulting, Georgia Environmental Facilities Authority Assessment of Energy Efficiency Potential in Georgia Final Report, May 5, 2005 at Chapter 3. (excerpt attached as Exhibit 5.2).

⁴⁶ See ICF Consulting, Georgia Environmental Facilities Authority Assessment of Energy Efficiency Potential in Georgia Final Report, May 5, 2005 at Chapter 3. (excerpt attached as Exhibit 5.2).

Power presented to the Georgia Public Service Commission during the last Integrated Resource Plan proceedings held in 2004.⁴⁷

Conclusion

For the foregoing reasons, the petition and contentions should be admitted.

Respectfully submitted this 11th day of December, 2006,

/s/

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⁴⁷ The ER ignores Combined Heat & Power potential and makes no mention of this resource. A 2005 Energy and Environmental Analysis (EEA) study done on combined heat & power (CHP) in the Southeast estimated that Georgia has the technical potential for an additional 6,445 MW of combined heat & power capacity (2,615 commercial and 3,830 industrial) based on existing facilities only. Bruce Hedman, Energy and Environmental Analysis (EEA), Southeast Planning Session: CHP Market Review, July 6, 2005 at p.22. A significant percentage of the technical potential for CHP is estimated to be economic. Further, Section 9.2.2.6 of the ER fails to identify which biomass energy generating technologies and biomass feedstocks were analyzed. In Georgia, some biomass energy technologies, particularly those utilizing gasification technologies, along with some existing biomass feedstocks, such as pecan hulls, pine bark, and poultry litter, among others, could be more cost effective and should be studied as alternatives to new nuclear reactors. Also, claims made in Section 9.2.2.11 Integrated Gasification Combined Cycle (IGCC) presume that the stated risks for cost-of-service utilities of new IGCC facilities are greater than the risks of building new nuclear reactors whereas an overall risk comparison has not been made available nor has it been reviewed yet by the Georgia Public Service Commission. Lastly, Section 10.4 Benefit-Cost Balance, Section 10.4.1.2 of the ER only analyzes the option of natural gas. Other baseload options including biomass and IGCC should be analyzed, and until they are, the ER remains deficient. See fn 1, *supra*, discussing inadequacies of the 2004 Integrated Resource Plan.

/s/

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

_____)
In the Matter of)
Southern Nuclear Operating Company, Inc.) Docket No. 52-011
Early Site Permit for Plant Vogtle ESP Site)
_____)

CERTIFICATE OF SERVICE

I hereby certify that the foregoing Petition to Intervene was sent this ____ day of
December, 2006 via the method indicated to each of the following:

Secretary of the Commission (Original via U.S. Mail)
United States Regulatory Commission
Washington, DC 20555-0001
Attention: Rulemaking and Adjudications Staff

Office of General Counsel (1 copy via U.S. Mail)
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Office of the Secretary (via federal express)
Sixteenth Floor
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852

Betina C. Terry
Southern Nuclear Operating Company, Inc.
Bin B-022
P.O. Box 1295
Birmingham, AL 35201-1295

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

_____)	
In the Matter of)	
_____)	Docket No. 52-011
Southern Nuclear Operating Company, Inc.)	
_____)	December 11, 2006
Early Site Permit for Plant Vogtle ESP Site)	
_____)	
_____)	

NOTICE OF APPEARANCE FOR MARY MACLEAN D. ASBILL, ESQ.

Pursuant to 10 C.F.R. § 2.7133(b), Mary Maclean D. Asbill, Esquire, hereby enters an appearance on behalf of Center for a Sustainable Coast, Savannah Riverkeeper, Southern Alliance for Clean Energy (“SACE”), Atlanta Women’s Action for New Directions (“WAND”), and Blue Ridge Environmental Defense League (“BREDL”) provides the following information:

3. I am an attorney licensed to practice law in Georgia. My offices are located at Turner Environmental Law Clinic, Emory University School of Law, 1301 Clifton Road, Atlanta, Georgia 30322. Telephone (404) 727-3432.
4. I have been appointed by the petitioners to jointly represent these organizations in this proceeding.

_____/s/_____
Mary Maclean D. Asbill, Esq.

_____12/11/2006_____
Date

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

_____)	
In the Matter of)	
_____)	Docket No. 52-011
Southern Nuclear Operating Company, Inc.)	
_____)	December 11, 2006
Early Site Permit for Plant Vogtle ESP Site)	
_____)	
_____)	

NOTICE OF APPEARANCE FOR DIANE CURRAN

Pursuant to 10 C.F.R. § 2.7133(b), Diane Curran Esquire, hereby enters an appearance on behalf of Center for a Sustainable Coast, Savannah Riverkeeper, Southern Alliance for Clean Energy (“SACE”), Atlanta Women’s Action for New Directions (“WAND”), and Blue Ridge Environmental Defense League (“BREDL) provides the following information:

5. I am an attorney licensed to practice law in the District of Columbia. My offices are located at Harmon, Curran, Spielberg & Eisenberg, L.L.P., 1726 M Street, N.W., Suite 600, Washington, D.C., 20036. Telephone (202) 328-3500.
6. I have been appointed by the petitioners to jointly represent these organizations in this proceeding.

/s/ _____

Diane Curran, Esq.

12/11/2006

Date