

Blue Ridge Environmental Defense League

www.BREDL.org PO Box 88 Glendale Springs, North Carolina 28629 BREDL@skybest.com (336) 982-2691

April 19, 2007

Office of the Secretary
Rulemakings and Adjudications Staff
US Nuclear Regulatory Commission
Washington, DC 20555-0001

Re: Docket No. 52-008-ESP, ASLBP No. 04-822-02-ESP

Limited appearance statements before the Nuclear Regulatory Commission in the matter of the Dominion Nuclear North Anna, LLC Early Site Permit.

On behalf of the Blue Ridge Environmental Defense League and our members in the Commonwealth of Virginia, we submit the following testimony to the Atomic Safety and Licensing Board.

In the course of this proceeding, we have been denied access to documents which are necessary for the development of our testimony. In 2005 we raised concerns centering on seismic activity in the vicinity of the North Anna Power Station. During the course of the investigation, we attempted to gain access to papers from VEPCO and the US Atomic Energy Commission regarding North Anna Power Station from 1968 to 1974. However, these records are held in special collections at the library of the University of Virginia at Charlottesville. When we asked for these documents we were told that they are restricted by Dominion/VEPCO. Our request for the information was denied. These documents are part of the public record; I believe they are improperly kept secret. Further, NRC staff exhibits or testimony which we believe are relevant for us to provide a limited appearance statement are unavailable. The Federal Register notice of January 11, 2007 states that "Documents related to this proceeding are available for public inspection at the Commission's Public Document Room or electronically...." However, Exhibit 23 Topic 6 Seismic Safety is not available. The April 10th NRC Staff Exhibit List provided to the ASLB states: "Evidentiary Hearing Presentation Exhibits (EHPE) will be provided at the hearing pursuant to II.F.2.a of the Instructions for Submission of Written Materials and Setting of Topics and Procedures for Evidentiary Hearings." I understand that the hearing referred to would be the upcoming evidentiary hearing scheduled for April 24, 2007. Therefore, we request the assistance of the ASLB in securing access to the previously described documents; further, we request additional time to review both the withheld information and NRC staff exhibit 23. The basis for our request is related to *Safety Issue 2: Reactors cannot be constructed without undue risk to public health and safety.*

Safety Issue 1:

Issuance of the ESP would be inimical to the common defense and security

Unless and until the agency performs an assessment of terrorist attacks at North Anna and

Esse quam videre

provides for protective measures, the highly radioactive fuel storage areas will be potential vulnerable targets for sabotage, domestic and foreign.

Fuel rod behavior during incidents involving sabotage would cause fine particles and vapors to be released from nuclear waste fuel assemblies. The following scenario details how it could happen:

An attempt to disperse the fuel would likely involve a high explosive device that must first penetrate a transport cask. Such a device would penetrate one or both sides of the cask, shatter the fuel rods and pellets in its path, and heat the area along that path. The shock and heat involved would...initiate several processes not normally experienced by uranium dioxide and zirconium alloy. At high temperatures in the presence of oxygen, both materials will change form. Uranium dioxide UO₂ will "reoxidize" and become U₃O₈...expanding and forming a very fine powder in the process. Zirconium will literally ignite, vaporizing itself.... The fuel pellets may also shatter back to the consistency of the uranium powder involved in their manufacture. Ruthenium will vaporize and combine with oxygen to form minute particles, while other elements, such as iodine, will be released as gases. [a]

An irradiated nuclear fuel assembly contains approximately 200 thousand curies of radioactivity. [b] Accidents which involve the release of radioactive material would expose unknown numbers of people to disease and death.

Recent decisions by the US Court of Appeals and the US Supreme Court hold that environmental impact statements for nuclear facilities should explicitly address potential environmental consequences of intentional destructive acts; that is, acts of sabotage and terrorism.

The NRC granted a license for dry storage of irradiated nuclear fuel, high-level nuclear waste, to Pacific Gas and Electric Company in 2003. At that time, NRC said that the possibility of a terrorist attack was too speculative to warrant consideration. The NRC said any attempts to evaluate the risk of an attack "are likely to be meaningless and consequently of no use in the agency's decision-making." San Luis Obispo Mothers for Peace disagreed and filed suit. The Ninth Circuit ruled in favor of Mothers For Peace, stating that the NRC must consider the environmental impacts of terrorist attacks before licensing a waste storage plan and directed the Nuclear Regulatory Commission to carry out the Court's mandate (*San Luis Obispo Mothers for Peace v. NRC* {449 F.3d 1016}).

Safety Issue 2:

Reactors cannot be constructed without undue risk to public health and safety

Fifty-one nuclear reactor shut-downs of over one year in duration have occurred since the first nuclear reactor went on line; 38 have happened since the partial meltdown at Three Mile Island. It is the responsibility of the Nuclear Regulatory Commission and to enforce federal safety regulations which require nuclear plant owners to find and fix problems in a timely manner. The Union of Concerned Scientists states:

Nuclear power is clearly not safe enough when so many reactors have to shut down for so long to restore safety to the minimum level considered acceptable. The recurring year-plus outages constitute prima facie evidence of how far safety levels fell below minimally acceptable levels, making nuclear power far more dangerous and costly than necessary. The chronic violations of federal safety regulations must stop before the increased safety risks yield an even higher cost—human tragedy. [c]

Evidence presented to the Nuclear Regulatory Commission reveals that there have been negative impacts on public health since North Anna 1 & 2 went on line; these data point to serious implications for the proposed new reactors. The increase in mortality rates suggests that routine low-level radioactive emissions to the local environment from additional reactors would unnecessarily risk the health and safety of local residents.

Our findings were compiled and released in 2004 by the research group Radiation and Public Health Project. Joseph Mangano, MPH found that from 1978 to 1979-81 (the first years of North Anna operation), several death rates rose in the nine counties within 30 miles of the plant. Miscarriages rose 3%, but fell 15% in the rest of Virginia. Deaths to infants younger than one year rose 11%, but fell 2% in the rest of Virginia.

Death rates for children age 1-4 rose 99% from the period 1979-82 to 1983-86, but declined 8% in the rest of the state. Death rates age 5-14 rose 72% from 1983-86 to 1987-90. All these indicators suggest that persons born in the earliest years that North Anna operated were harmed by radioactive emissions from the plant.

Elderly residents may also have been harmed by North Anna. The total number of local deaths increased 6.4% from 1978 to 1979-82, but only rose 2.5% in other Virginia counties. This computes to 275 excess deaths in the nine counties in these four years. Most of these deaths are to elderly persons, who are also susceptible to toxic radioactive chemicals because of their declining immune systems. The nine counties have a population of about 400,000, a number that is rapidly rising. They include Albemarle (including Charlottesville city), Culpeper, Fluvanna, Goochland, Greene, Louisa, Madison, Orange, and Spotsylvania. (See Attachment 1 for detailed mortality tables.)

What might be the cause of increased mortality? We know that routine operations at nuclear power stations cause radioactive releases to the atmosphere. We know there have been unplanned shut-downs. We know that radioactive tritium leaks to groundwater have been found at more than a dozen nuclear plants across the nation. We believe the data indicate that operating new nuclear reactors at North Anna would further raise death rates and that this issue has not been resolved by the Commission.

NEPA Issue:

The Early Site Permit should not be issued as proposed

The Commission's review is inadequate. The National Environmental Policy Act establishes the requirement for federal agencies to execute complete reviews of the impacts of human development on the environment. Before taking actions that may have

a significant impact, the law requires federal agencies to prepare written statements that carefully consider the environmental impacts of proposed decisions and alternatives for reducing or avoiding those impacts. Moreover, agencies must consider environmental impacts which are “reasonably foreseeable” and which have “catastrophic consequences, even if their probability of occurrence is low.”

As detailed elsewhere in these remarks, major legal decisions which affect issues centering on irradiated nuclear fuel storage at the expanded North Anna reactor site have been finalized as recently as January 16th. The Commission must now return to the drawing board to determine the impact of *San Luis Obispo Mothers for Peace v. NRC* (449 F.3d 1016) before granting an early site permit at North Anna.

NEPA Baseline Issue 1:

Failure to comply with 10 CFR 51 Subpart A

The sections of the Code of Federal Regulations which implement the National Environmental Policy Act state that the NRC must “examine any future interpretation” in the Council on Environmental Quality’s NEPA regulations. 10 CFR § 51.10 states:

Subpart A, National Environmental Policy Act, Regulations Implementing Section 102(2) § 51.10 Purpose and scope of subpart; application of regulations of Council on Environmental Quality.

(a) The National Environmental Policy Act of 1969, as amended (NEPA) directs that, to the fullest extent possible: (1) The policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in NEPA, and (2) all agencies of the Federal Government shall comply with the procedures in section 102(2) of NEPA except where compliance would be inconsistent with other statutory requirements. The regulations in this subpart implement section 102(2) of NEPA in a manner which is consistent with the NRC’s domestic licensing and related regulatory authority under the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and the Uranium Mill Tailings Radiation Control Act of 1978, and which reflects the Commission’s announced policy to take account of the regulations of the Council on Environmental Quality published November 29, 1978 (43 FR 55978-56007) voluntarily, subject to certain conditions. This subpart does not apply to export licensing matters within the scope of part 110 of this chapter nor does it apply to any environmental effects which NRC’s domestic licensing and related regulatory functions may have upon the environment of foreign nations.

(b) The Commission recognizes a continuing obligation to conduct its domestic licensing and related regulatory functions in a manner which is both receptive to environmental concerns and consistent with the Commission’s responsibility as an independent regulatory agency for protecting the radiological health and safety of the public. Accordingly, the Commission will:

(1) Examine any future interpretation or change to the Council’s NEPA regulations;

On January 16, 2007, the United States Supreme Court ruled denied Pacific Gas and Electric Company’s petition for a writ of certiorari for review of a ruling by the U.S. Court of Appeals for the Ninth Circuit in *San Luis Obispo Mothers for Peace v. NRC*, 449 F.3d 1016 (June 2, 2006). The Supreme Court’s action means that the Nuclear Regulatory Commission must carry out the lower court’s mandate to assess the impact of intentional attacks on the irradiated nuclear fuel storage proposed for the Diablo Canyon Nuclear Power Plant. Under the Court’s order, the obligation to comply with NEPA is

placed upon the NRC. (See Attachment 2 for a detailed explanation.)

Therefore, before granting the early site permit at North Anna, the Nuclear Regulatory Commission must now review its environmental assessments for the ESP to determine the environmental impacts of potential acts of terrorism and take into account the wide variety of actions the permit applicant may implement subsequent to these rulings.

NEPA Baseline Issue 2:

Failure to balance conflicting factors in the record

The ESP EIS omitted critical information about seismology in the central Virginia area. The Commission has not resolved questions regarding the proposed construction of two or more reactors in close proximity to two existing nuclear reactors in an active earthquake zone. In 2005 the Blue Ridge Environmental Defense League requested in Allegation NRR-2005-A-0014 that the Nuclear Regulatory Commission include and consider all documents in the case filed by North Anna Environmental Coalition during their litigation against construction permits for North Anna Units 1 and 2. A member of the North Anna Environmental Coalition provided me with some information. But, despite my efforts to obtain important documents, records stored at the University of Virginia's Special Collections Library remain unavailable to me. The NRC certainly has records dating back to the beginning of the North Anna 1 and 2 permit process. I again requested that the Commission to recover these documents for the purpose of the allegation. Until these records are obtained and reviewed, the matter is unresolved.

NEPA Baseline Issue 3:

Considering reasonable alternatives, the early site permit should be denied

In view of the full range of alternatives available, the prudent course for the Board in this matter is to deny the site permit for Dominion Nuclear North Anna. A concise explanation of the available options was published in October 2006 by the Anna Aurilio, Legislative Director for U.S. PIRG. Ms. Aurelio is responsible for policy development, research and advocacy on energy issues and anti-environmental subsidies. She has testified numerous times before House and Senate Science, Energy and Appropriations committees.

Nuclear energy is too expensive, too dangerous, and too polluting. And despite claims from the nuclear industry, it's simply not necessary either for our future electricity needs or to meet the very real challenge of global warming.

Worldwide, renewable alternatives such as wind, solar and geothermal power, along with small decentralized heat and power cogeneration plants, already produced 92 per cent as much electricity as nuclear power did in 2004 – and those sources are growing almost six times faster. A recent study prepared by Synapse Energy Economics found that by using clean energy technologies in the next twenty years, the U.S. could cut our reliance on nuclear in half, reduce

projected carbon dioxide emissions from electricity by 47% and save consumers \$36 billion annually.

After 50 years and more than \$150 billion dollars in subsidies, the nuclear industry is still unable to build a plant on its own. With the new incentives in the 2005 Energy Policy Act, taxpayers would be covering 60 to 90 per cent of the generation cost of electricity from a new nuclear plant. What do we get for our money?

In a post-9/11 world, nuclear facilities will always be a tempting target for terrorists, and government studies have highlighted the weaknesses in our current safeguards.

Even without attackers, the danger of an accident is ever-present. The Davis-Besse plant in Ohio narrowly avoided a disaster in 2002 when inspectors found a hole that had corroded almost all the way through a pressure vessel, leaving just 3/16 of an inch of steel preventing the release of radioactive steam. Instead of clamping down, the Nuclear Regulatory Commission seems more intent on loosening safety rules to help aging plants keep operating for longer.

And when plants are operating perfectly, they're still producing high-level radioactive waste. No country in the world has solved the problem of how to dispose of it, and even the most optimistic advanced reactor designs will continue adding to the lethal mountain of waste already produced.

The argument that nuclear energy is our best bet to reduce global warming emissions only makes sense if you pretend that coal is the only other option. That's a false choice, and it ignores the rapidly developing range of energy efficiency and clean, renewable energy sources. Whatever challenges still face technologies like solar and wind power, they pale compared to the fundamental security and environmental problems that won't be fixed by any new reactor design. For 30 years, no one has ordered or built a new nuclear plant, for very good economic reasons. Now Congress and the nuclear industry are trying to distort the market with new subsidies. They're pushing a technology with serious health, safety and economic risks, and in doing so diverting research dollars away from better alternatives. [d]

The economic issues surrounding nuclear power should give pause to regulatory agencies as well as local chambers of commerce and Wall Street investors. A 2003 study by Massachusetts Institute of Technology found the following: [e]

- No nation has chosen a new nuclear plant through an open and transparent competitive procurement process
 - Competition policy and buyer choices matter more; regulatory policy and government preference matter less.
- Private investors saw TMI transformed from a \$2 billion asset to a \$ 1 billion clean up job in about ninety minutes.
 - Capital cost estimates and construction times for all alternatives more certain and smaller

- All alternatives to nuclear provide more flexibility, less uncertainty.
- Nuclear units under construction are especially vulnerable to cost escalation caused by an accident elsewhere.
- Favorable economics of new plants don't apply until several have been built
- The high costs of reprocessing are inconsistent with competitive markets.

Securities analysts are becoming more concerned about the financial pitfalls of nuclear powerplants: [f]

- Risk of higher construction costs
 - Some significant increases in construction costs should be expected even if actions by federal government and nuclear industry mean no repeat of the 200 percent or higher overruns experienced by the existing generation of plants.
- Risk of plant cancellations
 - More than 50 percent of planned reactors were cancelled.
- Public Acceptance of new nuclear units could be lost if a significant accident/event occurs at any nuclear power plant.
- Risks associated with the temporary storage and the permanent disposal of high level nuclear wastes.
- Risk of nuclear terrorism.
- Risks resulting from deregulation of electric industry in areas of the U.S.

Conclusion

Taking all these factors into consideration, the Nuclear Regulatory Commission should not permit construction of additional reactors at North Anna.

Respectfully submitted,

Louis Zeller

CC: Alex S. Karlin, ASLB Chairman

References

- a. Audin, L., "Analyses of Cask Sabotage Involving Portable Explosives: A Critique," Draft Report, Prepared for Nevada Nuclear Waste Project Office, October, 1989.
- b. Halstead and Ballard, *Nuclear Waste Transportation Security and Safety Issues: The Risk of Terrorism and Sabotage Against Repository Shipments*, December 1998, page 64]
- c. Walking a Nuclear Tightrope: Unlearned Lessons of Year-plus Reactor Outages, Union of Concerned Scientists, September 18, 2006

d. *Nuclear Energy is Simply Not Necessary*, Anna Aurelio, US Public Interest Research Group, Washington DC, October 2006

e. *Nuclear Power, Climate Change, and Public Policy*, Peter A. Bradford, New York Society of Securities Analysts, June 8, 2006

f. *The Risks of Building New Nuclear Power Plants*, David Schlissel, NY Society of Security Analysts, Synapse Energy Economics, June 8, 2006, www.synapse-energy.com

Attachment 1: Death Rates Near North Anna, Radiation Public Health Project, Joe Mangano, MPH, 2004

Attachment 2: US DOE NEPA Lessons Learned, Issue 49, December 2006, page 3

Attachment 1

CHANGES IN DEATH RATES
NINE COUNTIES CLOSEST TO NORTH ANNA NUCLEAR PLANT
AFTER STARTUP OF REACTORS

A. Fetuses and Infants

Indicator	Deaths/100,000 (No.)		% Change in Rate	
	1978	1979-81	Local	Other VA
Fetal Deaths ¹	1398 (44)	1432 (142)	+ 3%	- 15%
Deaths < 1 Year	1112 (35)	1231 (122)	+11%	- 9%
Deaths <28 Days	763 (24)	857 (85)	+12%	+ 1%

B. Children

Indicator	Deaths/100,000 (No.)		% Change in Rate	
	1979-82	1983-86	Local	Other VA
All Causes age 1-4 ²	24.18 (12)	48.08 (26)	+99%	- 8%

Indicator	Deaths/100,000 (No.)		% Change in Rate	
	1983-86	1987-90	Local	Other VA
All Causes age 5-14 ²	8.40 (11)	14.46 (21)	+72%	- 3%

C. Adults

Indicator	Number of Deaths		% Change in Deaths	
	1978	1979-82 (avg.)	Local	Other VA
All Causes, All Ages	1763	1876	+ 6.4%	+ 2.5%

¹Stillbirths gestation 20 weeks or more

²All causes excluding accidents, suicide, and homicide

Local counties include Albemarle (including Charlottesville city), Culpeper, Fluvanna, Goochland, Greene, Louisa, Madison, Orange, and Spotsylvania. Virtually all of these counties' population is within 30 miles of the North Anna nuclear plant.

Source: National Center for Health Statistics, Vital Statistics of the United States, Annual Volumes.
Also available at <http://wonder.cdc.gov>, underlying causes of death

RPHP initiated this study in response to a request by the Blue Ridge Environmental Defense League

Attachment 2

Address Sabotage and Terrorism Threats in EISs and EAs

DOE Interim Guidance Issued in Response to Court Rulings

All DOE EISs and EAs, whether for nuclear or non-nuclear proposals, should include explicit consideration of the potential environmental impacts of sabotage and terrorism, states interim guidance issued on December 1, 2006, to the DOE NEPA Community by Carol Borgstrom, Director, Office of NEPA Policy and Compliance. The interim guidance was prepared by the NEPA Office in consultation with the Assistant General Counsel for Environment and the Deputy General Counsel of the National Nuclear Security Administration.

Court Decisions Prompt Guidance

DOE prepared the interim guidance following two recent decisions by the United States Court of Appeals for the Ninth Circuit. The more recent of these two decisions involved DOE's EA for *Construction and Operation of a Biosafety Level-3 Facility at Lawrence Livermore National Laboratory* (DOE/EA-1442, 2002). In that October 16, 2006, decision, *Tri-Valley CAREs v. Department of Energy*, the court wrote:

Concerning the DOE's conclusion that consideration of the effects of a terrorist attack is not required in its Environmental Assessment, we recently held to the contrary in *San Luis Obispo Mothers for Peace v. Nuclear Regulatory Commission*. In *Mothers for Peace*, we held that an Environmental Assessment that does not consider the possibility of a terrorist attack is inadequate. Similarly here, we remand for the DOE to consider whether the threat of terrorist activity necessitates the preparation of an Environmental Impact Statement. As in *Mothers for Peace*, we caution that there "remain open to the agency a wide variety of actions it may take on remand [and] . . . [w]e do not prejudice those alternatives." (citations omitted)

(For a summary of the court's decision in *Mothers for Peace*, see *LLQR*, September 2006, page 19.)

Consistent with the court's recognition that an agency may take a variety of actions to comply with its ruling, the interim guidance does not prescribe particular methods to analyze the potential environmental impacts associated with sabotage or terrorism. In some circumstances, sabotage and terrorism may involve initiators (e.g., fires, explosions, drops, punctures, aircraft crashes) and potential impacts similar to those for an accident. For such circumstances, *Recommendations for Analyzing Accidents Under NEPA* (July 2002) includes example language and a

discussion of ways to apply an analysis of accidents to an analysis of the potential consequences of acts of sabotage or terrorism.

"This approach may not be adequate for all situations, however," the interim guidance states, "because accident scenarios may not fully encompass potential threats posed by intentional destructive acts. For example, this approach may not adequately reflect the threat assessments for facilities with inventories of special nuclear materials. Each EIS and EA should explicitly consider whether the accident scenarios are truly bounding of intentional destructive acts. Regardless of whether additional analysis is necessary, each EIS and EA should contain a section demonstrating explicit consideration of sabotage and terrorism."

Additional Guidance Being Prepared

The Department is developing additional guidance on considering sabotage and terrorism in NEPA documents, and expects that the guidance will address such topics as:

- Determining the appropriate level of detail for analysis, consistent with the "sliding-scale" principle (e.g., a more detailed threat analysis is appropriate for a special nuclear material management facility, or for a non-nuclear facility with a significant amount of material at risk; a less detailed analysis may be adequate for a proposed office complex).
- Determining when a finding of no significant impact for an EA is appropriate in view of potential large impacts from terrorist acts.
- Determining what information regarding analyses of these threats can be released to the public.
- Considering intentional destructive acts even when some or all of the analyses may be classified; protecting classified security information through the use of classified appendices and unclassified summaries.
- Timing considerations for cases where threat analyses are needed.

The interim terrorism guidance and the 2002 accident analysis guidance are available on the DOE NEPA website at www.eh.doe.gov/nepa under Selected Guidance Tools. For additional information about the guidance, contact Eric Cohen, NEPA Office, at eric.cohen@hq.doe.gov or 202-586-7684, or the DOE or NNSA Office of the General Counsel, as appropriate. LL