

May 9, 2008

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

)	
In the Matter of)	
Dominion Virginia Power)	
North Anna Unit 3)	Docket Nos. 52-017
Combined License)	

**PETITION FOR INTERVENTION AND REQUEST FOR HEARING
BY THE BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE**

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 73 Fed. Reg. 12760 (March 10, 2008), the Blue Ridge Environmental Defense League (“BREDL”) and its chapter People’s Alliance for Clean Energy (“PACE”) hereby petition for leave to intervene and request a hearing in Virginia Electric and Power Company’s combined operating license for North Anna Unit 3. This petition sets forth with particularity the contentions we seek to raise. As demonstrated below, BREDL and PACE (“Petitioners”) have representational standing, through our members, to make this request.

Description of the Proceeding

This proceeding concerns the application for a combined license (“COL”) filed pursuant to 10 CFR Part 52 Subpart C by Virginia Electric and Power Company (dba Dominion Virginia Power) (“Dominion” or “DVP”) on November 26, 2007 and supplemented by letters dated January 17 and 28, 2008. The application was accepted for

docketing on January 28, 2008. Notice of hearing and opportunity to petition for leave to intervene was published in 73 Fed. Reg. 12760 on March 10, 2008.

Description of Petitioners

Blue Ridge Environmental Defense League is a regional, community-based non-profit environmental organization working in Virginia, North Carolina, South Carolina, Tennessee, Alabama and Georgia. BREDL's 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 and protecting public health. BREDL also functions as a "watchdog" of the environment, monitoring issues and holding government officials accountable for their actions. BREDL is a league of community groups called "chapters." BREDL and its chapters are unitary, with a common incorporation, financial structure, board of directors and executive officer. BREDL's chapter Peoples Alliance for Clean Energy was founded in 2004 to advocate for safe, renewable energy in the Commonwealth of Virginia.

Standing

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

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

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

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

Standing to participate in this proceeding is demonstrated by the declarations of the following members of the Blue Ridge Environmental Defense League, people who live within 50 miles of the proposed site who have authorized Petitioners to represent their interests in this proceeding.

Jeffrey A. Adams, 1452 Reynovia Drive Charlottesville, Virginia
John A. Cruickshank, 700 Spring Lake Drive Earlysville, Virginia

Donal Day, 151 Buckingham Circle Charlottesville, Virginia
Elena B. Day, 151 Buckingham Circle Charlottesville, Virginia
Jason Halbert, 803 Stonehenge Ave. Charlottesville, Virginia
Vanthi Nguyen, 1116 Little High Street Charlottesville, Virginia
Nathan Van Hooser, 1215 Little High Street Charlottesville, Virginia
Barbara White, 839 Landover Road Troy, Virginia

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

The Petitioners' members seek to protect their lives and health by opposing the issuance of a COL to Dominion. Petitioners seek to ensure that no COL is issued by the U.S. Nuclear Regulatory Commission unless Dominion demonstrates full compliance with the Atomic Energy Act and NEPA.

Further, *locus standi* is based on three requirements: injury, causation and redressability. Petitioners hereby request to be made a party to the proceeding because (1) Construction and operation of a nuclear reactor at Bellefonte would present a tangible and particular harm to the health and well-being of our members living within 50 miles of

the site, (2) The NRC has initiated proceedings for a combined license, the granting of which would directly affect our members, and (3) The Commission is the sole agency with the power to approve, to deny or to modify a license to construct and operate a commercial nuclear power plant.

Contentions to be Raised in this Petition

A combined license is authorization from the NRC to construct and operate a nuclear power plant at a specific site. Before issuing a COL, the NRC staff must complete safety and environmental reviews of the application. The COL must comply with provisions of the Atomic Energy Act, the National Environmental Policy Act, NRC regulations and all applicable laws.

CONTENTION ONE: Dominion Lacks Realistic Low-level Radioactive Waste Plan

As of June 30, 2008, no facility in the United States will be licensed and able to accept for disposal, Class B, C or Greater-Than-C radioactive waste from the North Anna nuclear power reactors, including the proposed Unit 3. The applicant fails to offer a viable plan for how to dispose of Class B, C and Greater than-C so-called “low-level” radioactive waste generated in the course of operations, closure and postclosure of North Anna Unit 3.

The statement of fact is that the applicant fails to address how NRC regulations for the disposal of so-called “low-level” radioactive waste will be met in the absence of a disposal facility (dump). This issue must be addressed in order for the US Nuclear Regulatory Commission to grant an operating license with credibility. If perpetual or extended on-site storage of these wastes is to be the “fall back,” then this must be

addressed in the COL application and is not. Since there is no offsite part 61 licensed disposal available, extended on site storage becomes defacto onsite disposal. This could significantly increase the safety and security risks of the North Anna site. Therefore serious consideration must be given to licensing the site itself under 10 CFR Part 61 (licensed permanent radioactive waste disposal) or Virginia's compatible agreement state regulations.

It is imperative that the safety and security issues of extended onsite storage, defacto disposal, be addressed prior to generation of the waste because the "low-level" radioactive waste for which there is no disposal available is the hottest, most concentrated¹ waste in the category.

The issue of radioactive waste management is barely addressed in Dominion's COL application. A short section (3.5) of the Environment Report on page 3.5-1 simply describes the generation of radioactive waste during operations and states that the systems are:

"designed to minimize releases from reactor operations to values as low as reasonably achievable (ALARA). These systems are designed and maintained to meet the requirements of 10 CFR Part 20 and 10 CFR 50, Appendix I."

The applicant provides nothing in terms of the ongoing on-site management and potential environmental impact at the reactor site of keeping so-called "low-level" waste from operations on the site of generation.

¹ GAO-RCED-98-40R Questions on Ward Valley pages 49-52, 1998. Indicates some of this waste can give a lethal dose in 20 minutes if exposed unshielded.

Chapter 11 of the FSAR is entitled “Radioactive Waste Management” all of which assumes that there will be a “WAC” (waste acceptance criteria) from a disposal site. The fact that there is not currently a site licensed to take the full range of wastes that North Anna 3 will generate if operated is not mentioned. Section 11.4.5 offers a perfunctory discussion of a “process control program” (PCP) for radioactive waste management:

Its purpose is to provide the necessary controls such that the final disposal waste product meets applicable federal regulations (10 CFR Parts 20, 50, 61, 71, and 49 CFR Part 173), state regulations, and disposal site waste form requirements for burial at a low level waste (LLW) disposal site that is licensed in accordance with 10 CFR Part 61.

No explanation is offered for how the applicant will meet this plan in the absence of a licensed disposal site. Since Dominion might argue that offsite storage and treatment are potential options, it should be noted that “low-level” radioactive sent for offsite storage and processing could be returned to North Anna, under certain circumstances. This is not addressed in the COL. Absent any known disposal means, the applicant should at least analyze the impacts of all the possible alternatives for its LLW disposal. The application is incomplete because what is proposed is not a "realistic" alternative.

CONTENTION TWO: Unit 3 Would be Built on Top of a Seismic Fault

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

incorporated into the probabilistic seismic hazard analysis (PSHA) as appropriate based on the technical information available.” DVP’s COLA Part 2, FSAR Sections 2.0-27-A and 2.0-28-A contain information on vibratory ground motion and surface faulting.

However, DVP has requested a variance for Vibratory Ground Motion NAPS. The request states:

This is a request to use the Unit 3 horizontal and vertical spectral acceleration (g) values for the site-specific safe shutdown earthquake (SSE) at the top of competent rock (Zone III-IV) rather than the corresponding ESP spectra. The Unit 3 values do not fall within (are slightly larger than) the ESP and SSAR values at frequencies less than 3 Hz for the horizontal spectrum, and less than 4 Hz for the vertical spectrum, although by only 1.05 percent and 1.4 percent or less, respectively. The Unit 3 site-specific SSE horizontal and vertical spectra at the top of competent material (Zone III-IV) at elevation 83.2 m (273 ft) are plotted in FSAR Figure 2.5-205. The corresponding ESP spectra at elevation 76.2 m (250 ft) are provided in FSER Supplement 1, Appendix A, Figure 2, and in SSAR Figure 2.5-48A. FSAR Figure 2.0-206 compares the Unit 3 and ESP horizontal response spectra. FSAR Figure 2.0-207 compares the Unit 3 and ESP vertical response spectra. While the ESP values exceed or essentially match the Unit 3 values, at frequencies less than 3 or 4 Hz, FSAR Table 2.0-202 and FSAR Table 2.0-203 show that the Unit 3 values exceed the corresponding ESP values by a small amount.

ESP VAR 2.0-4 The NRC Regulatory Guide 1.208 stipulates, *inter alia*, that “10 CFR 100.23, paragraph (d)(1), ‘Determination of the Safe Shutdown Earthquake Ground Motion,’ requires that uncertainty inherent in estimates of the SSE be addressed through an appropriate analysis, such as a probabilistic seismic hazard analysis (PSHA).”

Dominion’s Unit 3, if approved, would be the only nuclear plant in the nation licensed by the NRC and located on top of a geologic fault. In 1967, soon after Dominion (then Virginia Electric and Power Company) began work on the North Anna Power Station (“NAPS”), evidence of seismic faults were found at the site. In February 1970 the excavation wall for Reactor Unit 1 collapsed. One month later, independent

geologists visited the site, identified a major fault zone, took pictures and reported their finding to DVP's resident engineer. But in November of that year company representatives appearing before the Atomic Safety and Licensing Board omitted any mention of these problems and their comprehensive Safety Analysis report at that time stated: "Faulting at the site is neither known nor suspected." Three years later, on May 17, 1973, the Atomic Energy Commission received notification from DVP about faulting under North Anna. On that same day the Atomic Safety and Licensing Board closed the license hearing record to further public comment. On June 21, 1973 an AEC memo confirmed faults beneath all four reactor sites. Five years later, the NRC granted an operating license to DVP for North Anna Units 1 and 2.

DVP withheld significant documents and presented false information to the Commission during its attempt to build the first nuclear reactors at the North Anna nuclear power station. The company made the false statements during license application proceedings before the Commission in 1973. The details of the violations and cover-up did not come to light until a lawsuit was brought by a group of citizens living in the Charlottesville area, the North Anna Environmental Coalition which was organized in 1973. The group testified at public hearings and enlisted the expertise of a geology professor who testified that geologic faults did, in fact, underlay the proposed reactor site. The group waged a long and expensive legal campaign. On September 11, 1975 the Nuclear Regulatory Commission imposed fines on DVP for making false statements in its licensing documents. The violations were critical because the North Anna nuclear power station construction site is on top of a geologic fault. DVP had failed to tell the Atomic

Safety and Licensing Board of the problem at construction permit hearings on North Anna units 3 and 4 held on May 7-10, 1973. DVP's competence and management were called into question by NRC. Judge Lester Kornblith termed DVP's failure "entirely inexcusable." He added, "Such blatant disregard of the need of the commission, its staff and its hearing board to have the information necessary to carry out its duty to protect the health and safety of the public is almost entirely beyond belief and is indicative of, at best, extremely poor and unsound judgment on the part of DVP management." One of the violations cited was DVP's report to NRC which stated that the North Anna site had no geologic faults. Maps which indicated faulting were omitted from the licensing report. Regarding the Department of Justice investigation of wrongdoing, Assistant Attorney General Peter Taft said,

"...VEPCO and its consultants knowingly and willfully filed false statements of material fact with the AEC and conspired to conceal from the public and the Board the existence of a fault underlying its nuclear reactor site..."

Transcribed by June Allen, President NAEC, Statement to the Virginia State Corporation Commission. Ultimately, civil penalties but no criminal sanctions were levied; the case was tainted by the actions of the Nuclear Regulatory Commission itself. Because NRC condoned DVP's actions, criminal prosecution was considered all but impossible by the Justice Department. Virginia Electric and Power Company should never have received approval to build and operate the reactors at North Anna. But DVP's deceit was discovered only after construction permits were issued.

On behalf of the Blue Ridge Environmental Defense League and our members in Virginia, I hereby request that the Nuclear Regulatory Commission include and consider

all documents in the case filed by North Anna Environmental Coalition during their extensive litigation of this matter and all documents in the NRC's records regarding the construction permits for North Anna Units 1 and 2. The proposed construction of a third reactor in close proximity to two existing nuclear reactors in an active earthquake zone must not be permitted.

CONTENTION THREE: Cooling System Will Not Meet CWA Requirements and Water Supply Will Not Be Sufficient for Plant Cooling Systems

Unit 3 will not the requirements of the US Clean Water Act. The Commonwealth of Virginia has continually granted variances to Dominion under Section 316 of the CWA which allow excessive amounts of thermal pollution to be discharged into waters of the United States. Section 1.1.4 of the ER, Cooling System Information states:

As described in the ESP-ER, the cooling system for Unit 3 will be a closed-cycle, combination dry and wet cooling tower system, with make-up water supplied from Lake Anna. Make-up water will be withdrawn from the North Anna Reservoir through a new intake structure located on a cove on the south shore of the lake, originally planned for the intake of the never-constructed Units 3 and 4. This new structure will be adjacent to the existing units' intake structure. Cooling system discharges for the existing units and the Unit 3 wet cooling tower blowdown will be sent to the Waste Heat Treatment Facility (WHTF) via the existing discharge canal.

During the last decade, the Commonwealth of Virginia has experienced prolonged periods of drought. Streams reached record low flows in most of the state's river basins including the York which includes Lake Anna. [*Status of Virginia's Water Resources*, A report to the Governor Mark Warner and the General Assembly of Virginia by the Department of Environmental Quality, January 2003]. In response to this problem, the General Assembly directed the State Water Control Board to develop a long-term

statewide water control plan. Since 2005, the state's rules require local governments to develop water control plans which address water supply sources and water usage demands for a period of 30 to 50 years into the future. The addition of North Anna Unit 3 to the NAPS will have a large impact on water demand during that time frame and would, as such, be a major factor in the water control plan. In accordance with 9 VAC 25-780, the Town of Louisa has entered into a regional water planning process with a completion due date of November 2, 2011. Dominion acknowledges its duty under other state water permit laws; for example, COLA Part 3 Section 1.2 "Status of Reviews, Approvals and Consultations" lists in Table 1.2-1 state rule 9VAC25-220 regarding the company's intent to obtain the necessary permit to withdraw water from Lake Anna. However, Dominion's ER omits 9 VAC 25-780 "Local and Regional Water Supply Planning" from Table 1.2-1. Unit 3 is to utilize a closed-cycle dry and wet tower cooling system which is expected to have an evaporation rate of 8,707 gallons per minute and a minimum make-up flow rate of 15,376 gpm in Maximum Water Conservation mode [COLA Part 3, Environmental Report, Table 3.0-2]. [Make-up flow rate is the "expected rate of removal of water from Lake Anna to replace water losses from the closed-cycle cooling system," i.e., losses from evaporation, blowdown and drift. Table 3.0-2, Evaluation of ESP Design Parameters] Therefore, Unit 3 alone would have an annual consumptive use of over 8 billion gallons in water conservation mode. Thermoelectric power plants require huge amounts of water and the Surry and North Anna nuclear stations are the two top water users in Virginia. Together, they accounted for 44% of statewide surface water withdrawals; in 2001 the North Anna Power Station alone used

56% more surface water than all of Virginia's agricultural, commercial, manufacturing, mining and public water supply users *combined*. [*Status of Virginia's Water Resources*, A report to the Governor Mark Warner and the General Assembly of Virginia by the Department of Environmental Quality, January 2003]. All these data were available to the Applicant before November 27, 2007, the submittal date of the COLA.

The river basin in which the NAPS is located has still not returned to normal conditions. The US Geological Survey reports:

Streamflows in the York River basin remain at about half their historical mean. Today, the North Anna River discharge near Partlow, Virginia (USGS Station No. 01670400) is at 43% of its long term median flow rate of 145 cfs. According to a US Geological Service statement on drought in Virginia, "In a typical year, highest streamflows occur during the winter months, decreasing through the spring and summer, with lowest streamflows occurring during the fall months.

USGS, Seasonal Streamflow Conditions and Historic Droughts in Virginia, <http://va.water.usgs.gov/drought/histcond.htm>. The question the Commission must answer under this contention is: Will Unit 3 operate in compliance with federal, state and local water regulations during the expected operating life of Unit 3 of 40 years?

CONTENTION FOUR: Unit 3 will not meet national emission standards for radionuclides to the atmosphere.

The goal of the radionuclide emission standard is to limit the lifetime risk of induced fatal cancer to a maximally exposed individual to approximately one in 10,000. The implementing regulations translate this into a maximum individual exposure of 10 millirem/year for airborne emissions that result in exposure through any environmental

pathway. 10 CFR § 50 Appx. I This translates into a risk of 5.6 excess fatal cancers/10,000 people. BEIR V, Table 4-2, pp. 172-173. The US EPA develops standards for industries which are major emitters of hazardous air pollutants (HAP) that require the application of controls, known as maximum achievable control technology (MACT). However, no MACT has been issued for radionuclides. Therefore, until a health protective measure is in place under Section 112, the NRC must determine the control technology before issuing an operating license. Clean Air Act Section 112 <http://www.epa.gov/ttn/atw/112g/112pgg.html>

CONTENTION FIVE: The assumption and assertion that uranium fuel is a reliable source of energy is not supported in the combined operating license application submitted by Dominion Virginia Power (the applicant) to the U.S. Nuclear Regulatory Commission

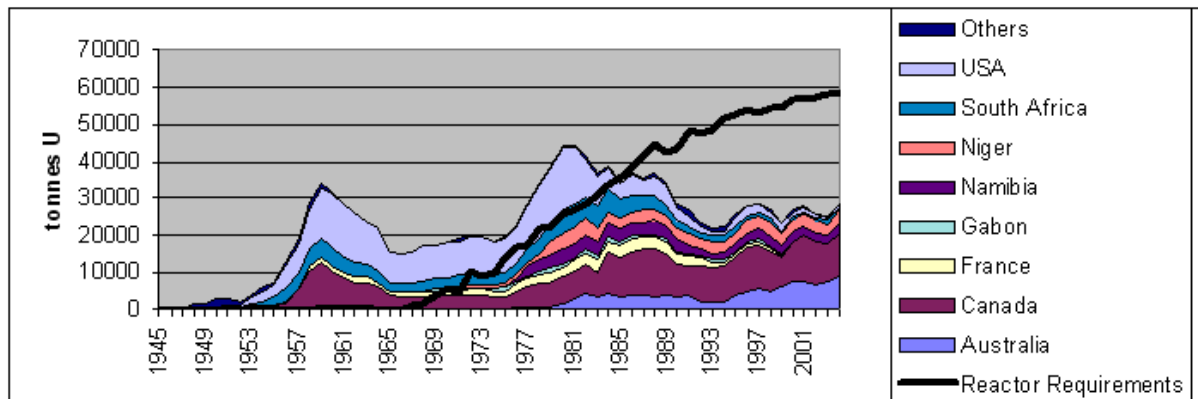
The applicant fails to discuss the matter of reliability of uranium fuel supply in the COL when asserting that building new nuclear power reactors is a means of achieving a reliable and cost-effective supply of electricity. The cost of the power from a power plant that has no fuel is effectively infinite.

Worldwide uranium consumption (about 67,000 tonnes² per year) has exceeded worldwide uranium production for some time. Only about 60% of consumption is currently supplied by annual production;³ further, actual production of uranium has been

² World Nuclear Association backgrounder on Uranium Supply posted at: <http://www.world-nuclear.org/info/inf75.html?terms=uranium+supply>

³ The same authority quotes the production of uranium from mines as being 40,251 tonnes for 2004; 41,702 tonnes for 2005 and 39,429 tonnes for 2006. This leaves a shortfall of uranium to fuel the existing reactors

effectively level for the last twenty years, as can be seen in the graph below from the World Nuclear Association.⁴



While there are various short-term supplies of uranium such as down-blending from nuclear weapons inventories, none of these are projected to last indefinitely. It is incumbent upon the applicant to address these issues and to support the statements cited below which imply that uranium availability will be sufficient to service the existing worldwide fleet of nuclear power reactors over the current periods of license, and in addition, the proposed North Anna 3.⁵

If there is a plan to address the failure of uranium supply during the license period for North Anna 3 with a substitution of plutonium fuel (MOX or mixed-oxide), this information is also missing from the COL application as filed by the applicant. Citations within the COL that are examples of where the applicant fails to address these issues:

of about 26,000 tonnes. This shortage is being made up by consuming former stockpiles, reprocessing of nuclear weapons uranium, longer reactor cycles and more efficient enrichment processes. The former stockpiles and weapons reprocessing are short term stopgaps and are failing fast.

⁴ See World Nuclear Association graph posted at <http://www.world-nuclear.org/info/inf23.html>.

Tech Specs: Technical Specifications Bases – background on core reactivity assumes that uranium at appropriate level of enrichment will be fuel.

Environment Report: Page 8.2 Dominion states:

Both the Virginia City facility and Unit 3 are required to meet DVP's baseload requirements to achieve a reliable, cost efficient baseload generation portfolio.

and:

The primary benefit of the proposed Unit 3 is the provision of baseload capacity necessary to meet the needs of customers in the region served by DVP and ODEC,3 and to maintain a reliable, stable supply of electricity within the Dominion Zone.

Page 8-3 The discussion of fuel diversity assumes availability of uranium fuel.

Page 8-65 States:

Expanding nuclear power within DVP's generation portfolio affords DVP the ability to provide much needed additional fuel diversity and a reliable baseload generation resource with stable operating and fuel cost for its retail customers.

Once again, these assertions rest wholly upon a steady supply of uranium.

Page 10-13 -- Table 10.4-1: the assertion is made that building Unit 3 will "enhance electric reliability" and also gives credit for fuel diversity. There are numerous other examples of these assertions and assumptions throughout the COL. Nowhere in the COL does the applicant support these assertions.

CONTENTION SIX: The NRC Fails to Execute Constitutional Due Process and Equal Protection

The Fifth Amendment to the US Constitution states, “No person shall...be deprived of life, liberty, or property, without due process of law.” The Fourteenth Amendment adds that the States may not, “deny to any person within its jurisdiction the equal protection of the laws.” In addition to the Atomic Energy Act, the National Environmental Policy Act and other statutes the Nuclear Regulatory Commission must certainly abide by the highest law in the land. However, the agency has violated these rights by applying inequitable standards of protection by treating different people differently and depriving them of Constitutional guarantees.

Radiation doses to the public from Unit 3 will increase significantly.

The Applicant states in COLA Part 3 Environmental Report that the North Anna Unit 3 ESBWR will meet design objectives for ALARA under Part 50 Appendix I; however, numerical guides in 10 CFR Part 54.34a and Part 50 Appendix I are “not to be construed as radiation protection standards.” Nevertheless, according to Dominion, we see that the Total Body Dose for the NAPS including the Unit 3 reactor would be 3.7 mrem/year [COLA ER Table 5.4-6], a level which is above the Hypothetical Lifetime Annual Risk benchmark of 35 in a million (3.5E-05) [NRC’s BRC Policy Appendix J: Risk coefficient of 5×10^{-4} per rem (5×10^{-2} per Sv) for low linear energy transfer radiation has been conservatively based on the results reported in UNSCEAR 1988 (Footnote 2) and BEIR V (see also NUREG/CR-4214, Rev. 1)]. Further, compared to present radiation emissions from NAPS there would be a very large increase in the

thyroid dose outside the plant caused by atmospheric emissions from Unit 3 alone of 15 mrem/year, increasing the site total by 682% [COLA ER Table 5.4-6]. This huge increase may well be caused by tritium emissions from the cooling tower and the ESBWR boiling water reactor. If NRC approves the combined license, total body dose from North Anna Power Station will be 176% of present levels, bone dose 368% and thyroid dose 772%. COLA ER Table 5.4-6

NRC regulations will not prevent these elevated levels of exposure. The limits for radiation dose to individual members of the public is 100 millirem, a dose which equates to an annual risk of 5 in 100,000 (5.0×10^{-5}) and a lifetime risk of 3.5 in 1,000 (3.5×10^{-3}). This means that 5 persons could die for every 100,000 members of the public exposed the plant's ionizing radiation for a year; 3 to 4 persons per 1,000 could die if exposed over a lifetime. Table of Fatal Cancer Risk from Ionizing Radiation, NRC Below Regulatory Concern Policy, 22 June 1990

Unequal Protection Under the Law: Radioactive exposure standards do not protect all members of the public fairly.

The BEIR VII Committee published morbidity and mortality data in 2006 which show that children have a significantly higher risk of developing cancer from radiation than adults do and women have a higher risk of radiation-induced cancer than men do. BEIR VII found that a lifetime dose of one million person-rem results in a cancer incidence rate of 900 for men and 1370 for women; mortality rates for the same dose are 480 and 660 for men and women, respectively. See Richard R. Monson (Chair) et al. Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII – Phase 2.

Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation, Board on Radiation Effects Research, National Research Council of the National Academies. Washington, DC: National Academies Press, 2006, page 15.

The North Anna COLA Part 3 Environmental Report, Section 5.4.2 Radiation Doses to Members of the Public, states:

In the ESP-ER, the maximum annual occupational dose to the workers from normal operation of proposed Unit 3 was estimated to be 150 person-rem. Using ESBWR-specific data, the annual occupational dose has been recalculated to be 60.4 person-rem. The ESP-ER value for occupational dose bounds the dose calculated for the ESBWR, and thus the impact due to occupation worker dose remains SMALL and no new mitigation measures or controls are warranted.

Regulations limiting carcinogens in other federal agencies are set at much more protective levels. Equal protection under the law must mean that equal standards for protecting public health. The National Research Council published the following analysis:

“Rather than gear criteria to an analytic technique, the agency defined its standards in terms of risk. It proposed that any assay approved for controlling a carcinogenic drug must be capable of measuring residues that present more than an insignificant risk of cancer, and specified a 10^{-6} lifetime risk of cancer as a quantitative criterion of insignificance.”

See *Risk Assessment in the Federal Government: Managing the Process*, Committee on the Institutional Means for Assessment of Public Health, Commission on Life Sciences, National Research Council (1983) ISBN 0-309-03349-7

In a Fourth Circuit Court decision challenging the Price Anderson Nuclear Industries Indemnity Act, plaintiffs raised *inter alia* the issue of due process. In 1978 the

Supreme Court overturned the decision of the lower court. Justice John Paul Stevens concurred in the judgment but in a separate opinion said:

With some difficulty I can accept the proposition that federal subject-matter jurisdiction under 28 U.S.C. 1331 (1976 ed.) exists here, at least with respect to the suit against the Nuclear Regulatory Commission, the agency responsible for the administration of the Price-Anderson Act. The claim under federal law is to be found in the allegation that the Act, if enforced, will deprive the appellees of certain property rights, in violation of the Due Process Clause of the Fifth Amendment. One of those property rights, and perhaps the sole cognizable one, is a state-created right to recover full compensation for tort injuries. The Act impinges on that right by limiting recovery in major accidents. [438 U.S. 59, 95] ... But there never has been such an accident, and it is sheer speculation that one will ever occur. For this reason I think there is no present justiciable controversy, and that the appellees were without standing to initiate this litigation. (emphasis added)

Now, there has been such an accident. The Supreme Court decision occurred the year before the partial meltdown at Three Mile Island and the release of the eponymous “China Syndrome.” Justice Stevens continued:

The Court's opinion will serve the national interest in removing doubts concerning the constitutionality of the Price-Anderson Act. I cannot, therefore, criticize the statesmanship of the Court's decision to provide the country with an advisory opinion on an important subject. Nevertheless, my view of the proper function of this Court, or of any other federal court, in the structure of our Government is more limited. We are not statesmen; we are judges. When it is necessary to resolve a constitutional issue in the adjudication of an actual case or controversy, it is our duty to do so. But whenever we are persuaded by reasons of expediency to engage in the business of giving legal advice, we chip away a part of the foundation of our independence and our strength.

Duke Power Co. v. Carolina Environmental Study Group, 438 U.S. 59 (1978)

Petitioners believe that after thirty years it is time to revisit the issues of due process, equal protection and “the business of giving legal advice.”

CONTENTION SEVEN: Failure to Evaluate Whether and in What Time Frame Spent Fuel Generated by Unit 3 Can Be Safely Disposed Of

The Environmental Report for the Dominion COLA is deficient because it fails to discuss the environmental implications of the lack of options for permanent disposal of the irradiated (*i.e.*, “spent”) fuel that will be generated by the proposed reactors if built and operated. Nor has the NRC made an assessment on which DVP can rely regarding the degree of assurance now available that radioactive waste generated by the proposed reactors “can be safely disposed of [and] when such disposal or off-site storage will be available.” Final Waste Confidence Decision, 49 Fed. Reg. 34,658 (August 31, 1984), citing *State of Minnesota v. NRC*, 602 F.2d 412 (D.C. Cir. 1979). Accordingly, the ER fails to provide a sufficient discussion of the environmental impacts of the proposed new nuclear reactors.

The ER for the proposed new reactors does not contain any discussion of the environmental implications of the lack of options for permanent disposal of the irradiated fuel to be generated by North Anna site. Therefore, it is fatally deficient. *State of Minnesota v. NRC*, 602 F.2d at 416-17.

First, the U.S. Department of Energy recognizes that significant radioactivity releases from a Yucca Mountain repository would in fact occur over time. See, for example, U.S. DOE Office of Civilian Radioactive Waste Management, “NWTRB Repository Panel meeting: Postclosure Defense in Depth in the Design Selection Process,” presentation for the Nuclear Waste Technical Review Board Panel for the

Repository, January 25, 1999. Also, the U.S. Environmental Protection Agency's proposed Yucca Mountain radiation release regulations, offering that such regulations extend out to a million years post waste burial, shows that such releases will continue for many hundreds of thousands of years into the future. See United States. Environmental Protection Agency. "40 CFR Part 197: Public Health and Environmental Radiation Protection Standards for Yucca Mountain , Nevada : Proposed Rule." Federal Register, v.70, no.161, August 22, 2005, pages 49014-49065. On the Web at <http://a257.g.akamaitech.net/7/257/2422/01jan20051800/edocket.access.gpo.gov/2005/pdf/05-16193.pdf>.

While DVP may have intended to rely on the NRC's Waste Confidence decision, issued in 1984 and most recently amended in 1999, that decision is inapplicable because it applies only to plants which are currently operating, not new plants. The second finding of the Waste Confidence Decision, as amended in 1999, is 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.

Waste Confidence Decision Review: Status, 64 Fed. Reg. 68,005, 68,006 (December 6, 1999). This finding revised the finding in the original decision that a mined geologic repository would be available by the years 2007 to 2009. Clearly, the Commission's finding applies to any existing reactor, including reactors whose licenses are revised or

renewed. The Commission gives no indication that it has confidence that repository space can be found for spent fuel and other high-level radioactive waste from new reactors licensed after December 1999.

Moreover, the revised second finding in the 1999 Waste Confidence review statement conspicuously fails to assert confidence in the likelihood that more than one repository will be licensed. In fact, the Commission has backtracked on its original 1984 “Nuclear Waste Confidence Decision,” in which the Commission expressed confidence that “one or more” repositories would open between 2007 and 2009. Waste Confidence Decision, 49 Fed. Reg. at 34,673. The 1999 Status Report states merely that “at least one” repository will open by 2025. 64 Fed. Reg. at 68,006.

It is also clear that the inventory of spent fuel and other high-level radioactive waste being generated by the *current* generation of nuclear reactors is far greater than what can be accommodated in the single repository in which the Commission places its confidence, Yucca Mountain, Nevada. The proposed Yucca Mountain repository can only accept 63,000 metric tons of commercial high-level radioactive waste and irradiated nuclear fuel, at least until a second national repository became operational.⁶ Even

⁶ Under the Nuclear Waste Policy Act (“NWPA”), 63,000 metric tons is the legal limit for commercial waste storage that can be “disposed of” at Yucca Mountain, Nevada, at least until a second repository is operational elsewhere in the U.S. As the NWPA states at Section 114(d):

The [NRC] decision approving the first such application [for a license to open and operate a repository] shall prohibit the emplacement in the first repository of a quantity of spent fuel containing in excess of 70,000 metric tons of heavy metal or a quantity of solidified high-level radioactive waste resulting from the reprocessing of such a quantity of spent fuel until such time as a second repository is in operation...”

42 U.S.C. § 10134(d). By long-established DOE policy, the first 70,000 metric tons of irradiated nuclear fuel and solidified high-level radioactive waste “disposed of” at Yucca Mountain, Nevada would include 90% commercial nuclear reactor waste, and 10% DOE waste from the nuclear weapons production

assuming only 40 years of operations with no operating license renewals and no new nuclear reactors, the U.S. Department of Energy (DOE) has known since at least the mid-1990's—since before the most recent (1999) NRC review of its “Nuclear Waste Confidence Decision”—that by the year 2030 or so well over 80,000 metric tons of irradiated nuclear fuel generated at commercial nuclear reactors will exist in the U.S. U.S. Nuclear Waste Technical Review Board (“NWTRB”) “Disposal and Storage of Spent Nuclear Fuel: Finding the Right Balance,” Figure 2 at page 11 (March 1996). This is significantly in excess of the “disposal” capacity at Yucca Mountain.

As recently as March, 2008, at the U.S. Nuclear Regulatory Commission's Regulatory Information Conference, the director of the U.S. Department of Energy's Office of Civilian Radioactive Waste Management, Ward Sproat III, announced that 63,000 metric tons of commercial irradiated nuclear fuel—enough to fill Yucca to its legal limit—will exist in the U.S. by the spring of 2010. He added that in two to three months, the U.S. Department of Energy will issue a report on the need for a second repository, as called for by the Nuclear Waste Policy Act as Amended. Unless something changes between now and then, Sproat announced, then DOE will find that a second repository is indeed needed.

NRC's now-routine approval of 20-year license extensions to old commercial nuclear reactors will only increase the quantity of high-level radioactive waste that exceeds the capacity limits at the proposed Yucca Mountain, Nevada repository. In its

complex and nuclear energy research activities. 90% of 70,000 metric tons means that only 63,000 metric tons of commercial irradiated nuclear fuel could be “disposed of” at Yucca Mountain, Nevada, at least until a second national repository is operational in the United States. *See* Yucca Mountain EIS at A-1.

“Final Environmental Impact Statement for a Repository for Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada,” (Feb. 2002) (hereinafter “Yucca Mountain EIS”), DOE predicted the generation of over 105,000 metric tons of commercial irradiated nuclear fuel by the year 2046. *Id.*, Table A-8, page A-16. While NRC’s standard license extension term is 20 years, the DOE prediction assumed that the term of license extensions would be only 10 years. DOE also assumed no new commercial nuclear reactors in the U.S. Thus, the high-level waste and spent fuel generated by the *current* generation of reactors will far exceed the capacity of the single repository that the NRC has identified as feasible and likely.⁷

Accordingly, the spent fuel and other high-level radioactive wastes generated at the proposed new reactors could not be “disposed of” at Yucca Mountain unless and until a second national repository is operating. But the Commission has not expressed confidence that a second repository will open. Any spent fuel or other high-level radioactive waste generated after the spring of 2010 (after 63,000 metric tons of commercial irradiated nuclear fuel has been generated) would have nowhere to go, would

⁷ Experience also shows that the NRC has been overly optimistic about the opening of the first repository. It took from 1982 (the year the Nuclear Waste Policy Act was passed) until 2002 – 20 full years -- just for the DOE to recommend Yucca Mountain as “suitable” for repository development. This finding, however, has been consistently challenged by the State of Nevada, environmental groups, and numerous scientists. Even before DOE’s suitability determination, the U.S. General Accounting Office (GAO) reported that a repository at Yucca Mountain, Nevada probably could not open to receive waste shipments till 2015 at the earliest, given nearly 300 unfinished scientific and technical studies. GAO-02-191, “Nuclear Waste: Technical, Schedule, and Cost Uncertainties of the Yucca Mountain Repository Project” (December, 2001). DOE later admitted that 2017 was the “best achievable” date for opening Yucca. Currently, however, DOE has admitted that it has no projected opening date for the Yucca repository. *See, e.g.*, U.S. NWTRB, “Technical Report on Localized Corrosion” (November 25, 2003, and Allison M. Macfarlane and Rodney C. Ewing, “Uncertainty Underground: Yucca Mountain and the Nation’s High-Level Nuclear Waste,” the MIT Press, Cambridge, MA, 2006). In addition, several legal challenges have been filed against the Yucca Mountain repository and the proposed standards for operation, including a successful State of Nevada/environmental coalition challenge to the U.S. Environmental Protection Agency’s radiation release regulations for the Yucca repository. On July 9, 2004, the U.S. Circuit Court of Appeals for the District of Columbia ordered EPA to revise its regulations, which EPA has not yet finalized.

lack “disposal” space at a repository, unless and until a second repository is opened and operating in the U.S. somewhere other than Yucca Mountain, Nevada – a process that could very well take many decades, based on the experience of trying to open the first repository at Yucca Mountain, Nevada.

Moreover, Congress has not given the NRC any basis for assuming that a second repository will be opened. Section 161(b) of the NWPA provides that: “[t]he Secretary [of Energy] shall report to the President and to Congress on or after January 1, 2007, but not later than January 1, 2010, on the need for a second repository.” 42 U.S.C. § 10172a(b). Section 161(a) also states that: “The Secretary [of Energy] may not conduct site-specific activities with respect to a second repository unless Congress has specifically authorized and appropriated funds for such activities.” 42 U.S.C. § 10172a(a). The Department of Energy has not made a finding that a second repository is needed, nor has Congress specifically authorized or appropriated funds for site-specific activities. However, as mentioned above, DOE OCRWM director Ward Sproat III announced at the NRC RIC in March 2008 that DOE will issue a report in two to three months stating that a second repository is needed.

The Commission’s failure to express confidence that a second repository will be opened any time soon also implicates the third and fourth findings of the Waste Confidence Decision, *i.e.*, that spent fuel and other high-level radioactive waste can be safely stored at reactor sites for up to 30 years. 64 Fed. Reg. at 68,006. If the Commission has no confidence that a repository will open at some reasonable time in the future, it must be assumed that spent fuel may sit at the proposed reactor site for an

indefinite period of time. The environmental impacts of such indefinite storage must be evaluated before a Combined Operating License can be granted.

CONTENTION EIGHT: Even if the Waste Confidence Decision Applies to This Proceeding, It Should be Reconsidered.

Even if the Waste Confidence Decision applies to this proceeding, it should be reconsidered, in light of significant and pertinent unexpected events that raise substantial doubt about its continuing validity, *i.e.*, the increased threat of terrorist attacks against U.S. facilities.

In its 1999 “Nuclear Waste Confidence Decision” revision, NRC stated “the Commission would consider undertaking a comprehensive reevaluation of the Waste Confidence findings...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. Clearly, the catastrophic terrorist attacks upon the United States on September 11th, 2001 constituted significant and pertinent unexpected events that raise substantial doubts about the continuing validity of the third and fourth findings of the revised Waste Confidence Decision. These findings are:

3. The Commission finds reasonable assurance that high-level radioactive waste and spent fuel will be managed in a safe manner until sufficient repository capacity is available to assure the safe disposal of all high-level waste and spent fuel. (This finding is identical to the finding in the original Waste Confidence Decision in 1984).
4. The Commission finds reasonable assurance that, if necessary, spent fuel can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin, or at either onsite or offsite independent spent fuel storage installations. (This finding

is basically identical to that in the original Waste Confidence Decision with the addition of the consideration of license renewal and spent fuel storage 30 years beyond the licensed life for operation of a reactor).

64 Fed. Reg. at 68,006. The terrorist threat to irradiated nuclear fuel and high-level radioactive waste – whether it is being stored on-site at commercial reactors in storage pools or dry casks; stored in away-from-reactor Independent Spent Fuel Storage Installations; or transported by truck, train, or barge between nuclear plants and off-site interim storage facilities – demands an evaluation of whether (a) it is appropriate to store spent fuel and other highly radioactive waste for 30 years or more pending availability of a permanent repository, and (b) whether nuclear power should be phased out as quickly as possible as a matter of environmental protection, national security, public safety, and common defense.

The homeland security risks posed by indefinite temporary storage of spent fuel have been recognized by former Energy Secretary Spencer Abraham:

Yucca Mountain is an important component of homeland security. More than 161 million people live within 75 miles of one or more nuclear waste sites, all of which were intended to be temporary. We believe that today these sites are safe, but *prudence demands we consolidate this waste from widely dispersed, above-ground sites into a deep underground location that can be better protected.*

Statement of Spencer Abraham, Secretary of Energy, Before the Energy and Natural Resources Committee, U.S. Senate (May 16, 2002), (the full statement can be viewed and printed from: <http://yuccamountain.org/abraham051602.htm>)

It is undisputed that neither fuel storage pools nor dry storage facilities are designed to withstand the type of determined and sophisticated attack that was carried out on September 11, 2001. In fact, the U.S. National Academy of Sciences documented

such security vulnerabilities in its report entitled “Safety and Security of Commercial Spent Nuclear Fuel,” released on April 6, 2005.

To protect against and mitigate the impacts of terrorist attacks, the NRC has developed a system to maintain a constant state of alert, undertaken a comprehensive review of the adequacy of its safety and security regulations, and upgraded its security requirements for all operating nuclear facilities in the United States. Clearly, under NEPA it is also appropriate to consider whether the Commission continues to have a basis for expressing confidence that stored spent fuel and other high-level radioactive waste is safe from terrorist attacks.

Petitioners are aware that the Commission has ruled that environmental impacts of terrorist attacks are not cognizable under NEPA. *See, e.g., 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 Fuel Storage Installation), CLI-02-25, 56 NRC 340 (2002). Petitioners request that the Commission reconsider this policy, in light of (a) the obvious attractiveness and vulnerability of spent fuel to terrorist attack; (b) the Secretary of Energy’s recognition of the relationship between homeland security and assured capacity for timely spent fuel disposal; (c) the Commission’s explicit statement in the Waste Confidence status review that it would undertake a comprehensive reevaluation of the Waste Confidence findings if “significant and pertinent unexpected events” occur raising substantial doubt about the continuing validity of the Waste Confidence findings; and (d) the decision of the 9th Circuit U.S. Court of Appeals. June 2,

2006 ruling by the U.S. Court of Appeals for the Ninth Circuit in San Luis Obispo

Mothers for Peace (SLOMFP) v. NRC, 449 F.3d 1016.

Clearly, a Commission reconsideration is warranted.

Respectfully submitted,

A handwritten signature in black ink that reads "Louis A. Zeller". The signature is written in a cursive style and is followed by a horizontal line.

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May 9, 2008

May 9, 2008

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE SECRETARY

In the Matter of)
Dominion Virginia Power)
North Anna Unit 3) Docket No. 52-017
Combined License)
_____)

CERTIFICATE OF SERVICE

**I hereby certify that copies of the May 9, 2008
PETITION FOR INTERVENTION AND REQUEST FOR HEARING
BY THE BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE**

was served on the following persons via Electronic Information Exchange this 9th day of
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