NUCLEAR CONTROL INSTITUTE
Washington, D.C.

April 7, 2000

Mr. Thomas E. Capps
President and Chief Executive Officer
Dominion Resources, Inc.
P.O. Box 26532
Richmond, VA 23261-6532

Virginia Power's Plutonium-Uranium Mixed Oxide ("MOX") Fuel Program

Dear Mr. Capps:

On behalf of the Nuclear Control Institute (NCI), a nuclear non-proliferation research and advocacy center that opposes the use of nuclear-weapons material in civilian commerce, I am writing with regard to Virginia Power's plans to irradiate plutonium fuel in two of its nuclear power plants.

In 1998, Duke-Cogema-Stone & Webster (DCS), a business consortium that includes Virginia Power, signed a contract with the U.S. Department of Energy to fabricate some 33 tons of plutonium recovered from dismantled nuclear warheads into so-called mixed oxide ("MOX") fuel for use in two Virginia Power reactors (North Anna 1 & 2), as well as four Duke Power nuclear power reactors (McGuire 1 & 2, Catawba 1 & 2). Virginia Power plans to load this MOX fuel into its North Anna reactors beginning in 2007, though the program is likely to be fraught with delay for a variety of reasons. Plutonium is both a nuclear explosive and a radioactive poison, requiring extraordinary security and safety measures.

The plutonium MOX fuel program is portrayed by the consortium as a patriotic initiative to dispose of nuclear-bomb material that also would economically benefit the companies involved. But we and other public-interest organizations nationwide strongly object to the use of weapons plutonium as fuel in civilian reactors because it poses a significant threat to public safety, security and the environment, and runs counter to 25 years of U.S. nuclear non-proliferation policy. We would prefer to see weapons plutonium immobilized with glassified, highly radioactive waste for direct disposal. The proposed use of MOX fuel also presents Virginia Power with hidden costs and financial risks, and subjects the company to an unpredictable MOX fuel use schedule given that the pace of plutonium disposition in the United states is tied to the disposition schedule in Russia.

I was disappointed to find no mention whatsoever of Virginia Power's participation in the MOX fuel program in Dominion Resource's 1999 annual report. Your shareholders deserve to know that Virginia Power is jeopardizing the future viability and economic competitiveness of its nuclear-power program in exchange for possible future savings amounting to only a small fraction of its nuclear-fuel costs.

Plutonium MOX fuel has never been used commercially in the United States and is now generating concerns and controversy in nations where it is being produced and used. For example, recent revelations that British Nuclear Fuels Ltd. (BNFL) cut costs by making up fictional quality-control data for MOX fuel produced for Japanese, German and Swiss utility customers has resulted in those customers canceling orders for MOX fuel. Quality-control problems with MOX fuel produced by Virginia Power's consortium partner, Cogema, have recently been uncovered in Germany, triggering a national regulatory review of all German reactors using Cogema's MOX fuel. ["German Regulators Go to Cogema Plant to Check QC Flaws with MOX at ISAR-2," *NuclearFuel*, April 3, 2000, pp. 7-8] As a consequence, Virginia Power's MOX fuel program will be subject to greater scrutiny and possibly a heavier regulatory burden from the Nuclear Regulatory Commission (NRC), including costly quality-control requirements on MOX fuel fabricated for Virginia Power's reactors.

Even under perfect manufacturing conditions, MOX fuel poses a grave safety threat. Dr. Edwin Lyman, NCI Scientific Director, conducted a MOX fuel safety study using the same computer codes employed by DOE and NRC. Dr.

Lyman's study concluded that, in the event of a severe accident resulting in a large radioactive release, an average of 25% more people would die of cancer if the reactor were using a partial core of plutonium-MOX fuel, as opposed to a full core of conventional uranium fuel. DOE itself has concurred with many of Dr. Lyman's findings. Dr. Lyman also found that the impact of MOX fuel on certain reactor characteristics might also increase the chance that such a severe accident would occur. DOE and the MOX consortium dismiss such accidents as extremely improbable---but it must be remembered that the accidents that took place at Three Mile Island, Chernobyl, and the Tokai nuclear-fuel plant in Japan last September all had been similarly dismissed as highly unlikely or even "impossible" events.

Last February, NCI wrote to Virginia Power and Duke Power, requesting an opportunity to present and discuss Dr. Lyman's findings. At that time, both companies declined to meet with us because Dr. Lyman's study was still under peer review for publication in a scientific journal. Now that Dr. Lyman's study has been peer-reviewed and accepted for publication in Princeton University's *Science & Global Security*, we now renew this request. We believe Virginia Power should assess all potential risks to the safety of its neighbors and customers before committing itself to MOX fuel.

Public concern about the risks of MOX is growing, and shareholders are beginning to take notice. A shareholder resolution opposing the MOX fuel program was tabled at Duke Power's 1999 annual meeting. The initiative received 7.7 percent of the vote, enough to qualify a similar initiative for consideration at the shareholders meeting this year, scheduled for April 20 in Charlotte. There is no anti-MOX shareholder initiative on this year's proxy ballot for Dominion's annual meeting, but your shareholders may well have concerns about the financial, safety and security risks associated with MOX fuel once they become informed of the liabilities of this program. The MOX-fuel program is an imprudent risk that Virginia Power shareholders and ratepayers should not allow the company to undertake on their behalf. Congressional and public scrutiny of this program will only increase as DOE requests large appropriations for construction of the MOX fuel-fabrication plant.

I am enclosing a fact sheet, prepared by NCI Research Director Steven Dolley, detailing our concerns about Virginia Power's participation in the MOX program. I would welcome the opportunity to discuss this important matter with you, and to have Dr. Lyman present the results of his MOX safety study to Virginia Power's technical staff.

Thank you for your consideration. I look forward to hearing from you.

Sincerely,

Paul Leventhal

Attachments

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