Blue Ridge Environmental Defense League

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Remarks of Charles N. Utley
to the National Nuclear Security Administration, U.S. Department of Energy
North Augusta Municipal Center, 100 Georgia Avenue, North Augusta, South Carolina
RE: SPD Supplemental EIS, DOE/EISï 0283ï S2
September 4, 2012

On behalf of the Blue Ridge Environmental Defense League, I have the following comments on the Surplus Plutonium Disposition Supplemental Environmental Impact Statement noticed in the Federal Register on July 27, 2012.[1]

In brief, we oppose the expansion of radioactivity-producing activity at the Savannah River Site in South Carolina and at the Los Alamos National Laboratory in New Mexico.

Background

The current Draft SPD Supplemental EIS analyzes the environmental impacts of the disposition of an additional 14.4 tons of surplus plutonium from dismantled nuclear weapons. Also, the draft now considers the potential use of plutonium fuel in commercial nuclear reactors operated by the Tennessee Valley Authority at Sequoyah in Tennessee and Browns Ferry in Alabama. Unchanged is the DOEôs plan to convert 37.5 tons of plutonium to fuel at the SRS Mixed Oxide Fuel Facility.

Under the four action alternatives proposed in this draft EIS, the US Department of Energy (DOE) considers:

1. Immobilizing 14.4 tons of the additional plutonium at the SRS Defense Waste Processing Facility
2. Converting most of the plutonium to fuel at the SRS Mixed Oxide Fuel Factory for use in commercial reactors and sending the remainder to the Waste Isolation Pilot Plant in New Mexico
3. Converting some of the plutonium to fuel at the SRS Mixed Oxide Fuel Factory for use in commercial reactors and sending the remainder to SRSôs Hï Canyon/HBï Line for disposal at the SRS Defense Waste Processing Facility
4. Converting some of the plutonium to fuel at the SRS Mixed Oxide Fuel Factory for use in commercial reactors and sending the remainder to WIPP for disposal.

The DOEôs stated preference is alternative number 2, converting the metallic pit plutonium and much of the non-pit plutonium into fuel at the SRS Mixed Oxide Fuel Factory and sending the remainder to the Waste Isolation Pilot Plant in New Mexico.

Comments

We oppose the reprocessing of plutonium as civilian nuclear power fuel because it presents unsupportable risks to public safety and the environment. Plutonium fuel requires transportation of weapons grade plutonium and fuel across thousands of miles of open country, making transport vulnerable to terrorist attacks and theft. Manufacturing

[1] Federal Register Volume 77, Number 145, Pages 44222-44224, July 27, 2012

plutonium fuel would create vast quantities of radioactive waste. The plutonium fuel contractor for the US estimates *annual* waste outputs of up to 21,000 gallons of high activity radioactive waste containing 84,000 Curies of americium, 46,000 gallons of plutonium- and uranium-bearing wastes, and 385,000 gallons of low-level radioactive waste.[2]

Further, we oppose the use of plutonium fuel at commercial nuclear power reactors anywhere, including those operated by the Tennessee Valley Authority; specifically, three boiling water reactors at Browns Ferry, Alabama and two pressurized water reactors at Sequoyah near Soddy-Daisy, Tennessee.

Radioactivity around SRS rising, health impacts mounting

A report issued in February by Joseph J. Mangano, MPH MBA, finds that in the past decade, levels of most types of radioactivity at the Savannah River Site are rising, as are rates of radiosensitive diseases. The 75-page report is available on our website and is incorporated into my comments by reference.[3] The Mangano report is based on a year-long study of data from the U.S. Energy Department, state and federal environmental regulators and health departments in Georgia and South Carolina. Among the findings were indicators that radiation levels are gradually increasing, rather than decreasing, and that ñradiosensitiveò diseases and deathsð including infant and fetal deaths, thyroid and lung cancers and leukemiað exceeded the national average in the five-county area surrounding SRS, where about 2,000 excess morbidities and mortalities have occurred since 2002. In brief, Manganoôs principal findings:

1. From the late 1990s to the 2000s (when EM activities reached full capacity), emissions and environmental concentrations of radioactivity in or near SRS increased for 71% of measures with complete data. With nuclear weapons manufacturing at an end and environmental remediation attempting to reduce radioactivity, this finding differs from the expectation that levels would steadily decrease over time.
2. In the five counties within 25 miles of SRS, with a current population of 417,000, rate increases in 96% of radiosensitive diseases or causes of death exceeded that of the U.S. In 20, the increase was statistically significant. The categories included were those affecting the fetus (infant deaths, fetal deaths, low weight births); cancer among children and the very elderly; radiosensitive cancers (thyroid, female breast, and leukemia); and those conditions in which previous articles had detected a risk among SRS workers (leukemia, lymphoma, lung cancer, myeloma, and non-cancerous lung diseases).
3. Approximately 2,000 excess deaths and cases of disease occurred in the five counties during the latest nine year period.

[2] *Mixed Oxide Fuel Fabrication Facility Environmental Report, Revision 1 & 2*, Duke COGEMA Stone & Webster, 11 July 2002, (tables 3-3 and 3-4)

[3] *Assessing Changes in Environmental Radioactivity and Health Near the Savannah River Site*, Joseph J. Mangano, Executive Director, Radiation and Public Health Project, February 22, 2012, available at http://www.bredl.org/pdf3/FINAL_CIF_Report.pdf

Pursuant to NEPAð specifically, Section 102 42 U.S.C. 4332ð DOE must utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making which may have an impact on manôs environment. Therefore, before proceeding with any new facilities at SRS, the DOE must ensure that future activities proposed in this EIS do not undermine the safety and health of local residents and workers.

Commercial Nuclear Reactors are Unsuitable for Plutonium Fuel

Originally, DOE had contracted with two electric utilities to use plutonium fuel in their power plants: Duke Energy and Virginia Power. But both have withdrawn their reactors from the program. In 2008, Duke Energy aborted its experiment with plutonium fuel. Tests of plutonium fuel scheduled to run for four-and-a-half years in Dukeôs Catawba nuclear reactor were ended after three years. The fuel assemblies grew abnormally long in the reactor, indicating a safety hazard in the MOX/plutonium fuel.[4] Also, during tests utilizing plutonium fuel in France, in accidents involving the loss of cooling water, slumping and ballooning of zirconium-clad fuel was observed, altering core geometry and restricting water flow.

Now TVA has stepped into the breach. The draft EIS considers the use of Sequoyah and Browns Ferry. However, there are critical differences between plutonium fuel and conventional uranium fuel which should disqualify both of the subject TVA reactors.

The critical problem is that plutonium is fundamentally different from uranium. With plutonium fuel loaded into any commercial reactor, the power station becomes more dangerous because plutonium releases energy in a different way than uranium. Plutonium has a higher neutron flux, meaning higher energy particles at higher speeds. This and other nuclear phenomena break down metal reactor parts quicker; a process called embrittlement. This weakening of metal components would be accelerated in any reactor using plutonium fuel. Greater embrittlement means the reactor vessel may fail under circumstances which would otherwise not cause a problem. If and when failure happens and radioactive materials are released from the plant, more dangerous radionuclides are released from a reactor containing plutonium fuel, including greater quantities of radioactive elements which pose hazards to human health. The NRCôs reactor safety committee stated:

> Public attention has been drawn to the higher actinide inventories available for release from MOX than from conventional fuels. Significant releases of actinides during reactor accidents would dominate the accident consequences. Models of actinide release now available to the NRC staff indicate very small releases of actinides from conventional fuels under severe accident conditions. (emphasis added) [5]

[4] Duke Energyôs report to the NRC, ADAMS digital library: ML081650181, June 10, 2008, available at www.nrc.gov/reading-rm/adams/web-based.html

[5] Letter from Advisory Committee on Reactor Safeguards to US Nuclear Regulatory Commission Chairman, May 17, 1999

No matter the utility or type of reactor, plutonium fuel has greater quantities of plutonium and other hazardous radioactive isotopes such as Americium 241 and Curium 242ð actinide elementsð which would cause additional harmful radiation exposure to the public.

Sequoyah

Sequoyahôs nuclear reactors utilize ice condenser containments, baskets of borated ice, to reduce heat and pressure in the event of an accident. Sandia National Laboratories evaluated the reactor containment structures at similar to those at Sequoyah Units 1 and 2 and found that if an accident involving hydrogen ignition occurs, the concrete containment will almost certainly fail.[6] Such systems are particularly vulnerable to reactor sump clogging; numerous problems with ice condensers have been identified during the last two decades of operation.

Browns Ferry

The Nuclear Regulatory Commission has issued a notice of violation to the Browns Ferry plant because of the failure of a coolant injection valve, a ñredò finding of ñhigh safety significance.ò The NRC has only issued five red findings nationwide in the past decade. Browns Ferry is a similar design to the Fukushima Dai-ichi nuclear plant in Japan and should be closed down entirely rather than subjected to a plutonium fueled experiment.

Conclusion

For over a decade, the Blue Ridge Environmental Defense League has opposed the reprocessing of plutonium as civilian nuclear power fuel because it presents unsupportable risks to public safety and the environment. We have partnered with Russian non-governmental organizations who, like us, support dismantling of nuclear weapons but who also call for abolition of the plutonium fuel program. Our overall opposition to plutonium fuel programs is based on the negative impacts on public health, the critical safety hazards of plutonium fuel in commercial nuclear power plants and the fundamental injustice of siting plutonium waste facilities in African-American and Native American communities in the Central Savannah River Area and New Mexico.

Thank you for the opportunity to comment on this matter.

Respectfully,

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Environmental Justice Campaign Coordinator

[6] NUREG/CR-6427, Assessment of the Direct Containment Heating Issue for Plants With Ice Condenser Containments, April 2000