

REQUEST FOR HEARING

before

The United States of America  
Nuclear Regulatory Commission

in the matter of

DOCKETED  
USNRC

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OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

Duke - COGEMA - Stone & Webster  
Construction Authorization Request  
to Build a Mixed-Oxide Fuel Fabrication Facility  
at Savannah River Site on the Savannah River  
which borders Georgia and South Carolina

Georgians Against Nuclear Energy (GANE) requests a public hearing of safety issues concerning the proposal by Duke - COGEMA - Stone & Webster to receive a license to build a facility to manufacture reactor fuel from weapons-grade plutonium (MOX) at the Savannah River Site on the South Carolina side of the Savannah River which serves as border between Georgia and South Carolina.

Georgians' health and safety are potentially affected by hazards posed by a plutonium fuel factory on its border.

GANE observes that weapons-grade plutonium poses an inherent threat to life on earth if it is used as nuclear weapons and applauds efforts to reduce that military threat by rendering plutonium useless as a weapon.

Manufacture of plutonium fuel not only fails to reach the goal of rendering plutonium unavailable for weapons, but its manufacture and use increase the risk of nuclear weapons proliferation through the many transportation and handling steps in plutonium fuel manufacture.

The alternative action proposed by the U.S. Department of Energy in its plutonium disposal decision is ceramic immobilization of plutonium in which the plutonium concentration is decreased to a non-fissile level and then fixed in a ceramic form and encased in glassified high-level nuclear waste currently stored precariously in liquid form in 50-year-old tanks above the Tuscaloosa Aquifer. This lethally hot, two metric ton container, while stabilizing the high-level waste inventory at SRS, will serve as a high radiation barrier to theft of the plutonium it guards.

Since the mission of the Nuclear Regulatory Commission is to protect public health and safety, GANE observes that it is an immobilization facility which is required to protect public health from use of plutonium as weapons, not a plutonium fuel factory.

A plutonium fuel industry is unprecedented in its complexity and potential hazards. Following are several deficiencies of the MOX fuel factory Construction Authorization Request GANE has identified that threaten Georgia citizens.

#### POTENTIAL for ACCIDENTAL RELEASES of RADIATION OFF-SITE

- The design basis for the facility proposed by Duke - COGEMA - Stone & Webster does not appear to meet seismic standards enforced for the other facilities at Savannah River Site. A major geologic fault runs from Charleston, South Carolina through Shell Bluff in Burke County (immediately across the Savannah River from Savannah River Site) to Columbus, Georgia. Failure of the MOX facility to withstand an earthquake could result in off-site release of radiation which could harm Georgia citizens.
- Inferior HEPA filters are specified for the plant instead of better, more expensive sand filters. This inadequate situation is exacerbated by HEPA filters' vulnerability to fire and the pyrophoric nature of plutonium. Previous experience with plutonium oxides at DOE facilities revealed difficulty in containing powdered plutonium and plutonium collected in air ducts with the potential for accidental criticality. An accidental plutonium criticality would injure Georgians' health and property.
- Georgians' health, property and natural environs are threatened by lack of an Emergency Management Plan for the MOX fuel factory.
- The certainty of safely manufacturing fuel is compromised by lack of data on unique criticality concerns posed by weapons-grade plutonium. Duke - COGEMA - Stone & Webster's MOX experience is limited to reactor-grade plutonium fuel production. An accidental criticality involving plutonium poses a real threat to Georgia residents' health and property.

- GANE shares the concern of the NRC staff (A. Persinko, Summary of Meeting With Duke - COGEMA - Stone & Webster to Discuss Design Basis for the Mixed Oxide Fuel Fabrication Facility, Jan 24, 2001) regarding the lack of glovebox confinement around the sintering furnaces in the MOX plant design. The sintering of MOX pellets is one of the most dangerous steps in the MOX fabrication process, given that it takes place at high temperature (1700 degrees C), utilizes potentially combustible hydrogen gas and involves the piece of equipment that requires the most maintenance, according to experience at the MELOX plant. Therefore, this stage should be equipped with more robust barriers against plutonium release than the other stages, not less robust ones.
- GANE strongly disputes the DCS contention that SRS workers who are not affiliated with the MOX plant should be regarded as "workers" and be subject to Part 70 worker dose limits. Such workers derive no benefits or wages from the MOX plant operation and therefore rightly should be regarded as members of the public and afforded the same level of protection as members of the public. Therefore, the appropriate place to compute public doses for the purpose of complying with Part 70 dose limits is the MOX plant area fence.

#### POTENTIAL for NON-ACCIDENTAL RELEASES of RADIATION OFF-SITE

- Questions arise from the lack of recent experience of NRC staff with licensing plutonium activities. A public accounting of the experience and training of the experts designing, executing, regulating and guarding plutonium processing must be given. An oversight in licensing review of the MOX factory due to a lack of familiarity on the part of regulators exacerbated by the extremely short time-line of this license review may result in off-site contamination which will harm Georgia residents.
- NRC staff continues to raise questions about adequacy of the Construction Authorization Request submitted by Duke - COGEMA - Stone & Webster and the document will probably require extensive revision. Changes concerning the amount and characterization of plutonium oxides and decisions about which facilities at SRS will

provide MOX support have programmatic impacts that may affect the MOX factory design and product. A public hearing will provide scrutiny to the evolving Construction Authorization Request and the avenue for the public to remain empowered and involved in ensuring safeguards to commercial plutonium activities in our region.

- Safety issues regarding the facility's location on a highly contaminated, U.S.-government weapons production site must be resolved. There are many aspects to this question: 50-years of previous contamination from a variety of activities at Savannah River Site which is not even fully characterized; converging waste streams from MOX and other SRS activities, including environmental restoration efforts; the ramifications of catastrophic disruption such as an earthquake on MOX facilities added to numerous other hazardous facilities and storage areas at SRS.
- The only safety record included in the Environmental Report issued by Duke - COGEMA - Stone & Webster is that of Savannah River Site. The licensing decision must include safety and environmental records of each DCS entity, most especially COGEMA. Serious ongoing inquiries into egregious pollution around European COGEMA facilities and questions in Canada concerning worker safety compel deep and public inquiry into COGEMA's suitability to engage in MOX manufacture in the watershed of the Savannah River. From what we know about COGEMA's environmental record in Europe, Georgia's health and environment could suffer serious consequences from COGEMA plutonium activities on its border.
- Recent studies have observed plutonium is more soluble in water than previously thought. Radioactive elements from the Savannah River Site have been detected in groundwater which sits above the largest freshwater aquifer in North America, the Tuscaloosa. Tritium thought to be linked to Savannah River Site has been detected in Georgia wells. A five-year DOE study has stalled out after four years. Georgians' health, property and natural resources are threatened by the potential of plutonium to contaminate water sources.

- People downstream from SRS fish the Savannah River for their main diet. Traditional people eat the whole fish, including its bones, which increases the risk of radiation uptake and exposure for these largely minority populations on both the South Carolina and Georgia sides of the Savannah River.
- Gallium removal to prepare plutonium pits for conversion to MOX (a step not required for plutonium immobilization) will produce an enormous inventory of liquid waste on the overburdened Savannah River Site. Efforts to deal with wastes filling 49 of 50 tanks have failed, and the one empty tank is now being used to back up a leaking tank. Estimates for amounts of liquid waste and methods for handling the waste have not been established. The high-level radioactive waste tanks already pose a significant hazard to Georgians. An added waste burden to the already egregiously contaminated Savannah River Site would create a clear threat to Georgia public health and its natural environment.
- The transportation of plutonium oxides to Savannah River Site threatens life and health along every transportation corridor. Safeguarded Transport (SGT) standards do not require monitoring personnel and equipment accompaniment to shipment. This is a deficiency for safeguarding the public. Prior notification to every state, county and town on each shipment route must be required and enforced. Special training and equipment for emergency responders along the transportation routes must be assured. Questions raised to DOE by the State of Georgia concerning maximum credible accident and thus, preparedness, remain unaddressed.
- The best security is inadequate to safeguard weapons-grade plutonium from theft, diversion or acts of terrorism in transport to, accounting for and transport from Savannah River Site as fuel. The threat to public health is exponentially increased by, and no community is immune to, the risk of stolen plutonium used as a weapon. There is an additional risk from acts of terrorism with the objective of radiological disaster. It is not sufficient to categorically dismiss the possibility of diversion, accidents or sabotage in any handling of plutonium therefore realistic scenarios and emergency protocol must be provided and analyzed. Security and safeguards are the cornerstone principals of the NRC

and in the special nuclear materials class, plutonium demands the highest security performance to effectively protect the public.

- Specifications for monitoring radiation emissions to air, land and water are insufficient and unreliable. Georgians' health is already threatened by historically poor DOE and SRS data on radiation releases and exposures to both general and worker populations. Quality of monitoring data must be fundamental to any NRC claim to protect public health.
- The plutonium fuel factory lacks a decommissioning requirement. Funding, responsibility, time frame or even any requirement for decommissioning are all unclear. Omission of decommissioning provisions is a new and dangerous exception to NRC requirements; the precedent alone is a worthy concern. The MOX factory might simply become an orphan left when the current plutonium disposition mission is fulfilled. This poses hazards for Georgia residents as an additional feature of a contaminated federal sacrifice zone which will soon be the barrier to economic development of the region, rather than its base. Of equal or greater hazard to Georgians is the prospect that the "deactivation" of the MOX factory would simply be a seamless transition to a new mission. A plutonium fuel factory is nuclear infrastructure which is vital to support expanded use of plutonium fuels. Further plutonium separation would be available in the adjacent F area reprocessing canyon. The MOX factory would provide constant opportunity for the use of separated plutonium. Reprocessing has been the most polluting nuclear activity in previous U.S. experience, with impacts to Georgians from the release of air emissions, releases to the Savannah River, and generation of the liquid waste now stored in tanks which are not only leaking, but also present some of the highest radiological risks in the U.S. in the event of explosion or other release. These concerns about expanded MOX activity are supported by the apparent NRC disregard for the premise provided by DOE for this MOX venture. DOE presented this program as a venture to deal with surplus stocks of weapons plutonium, promising the public that it would be a "once-through" process to dispose of a discreet inventory of plutonium. The NRC, in issuing a generic Standard Review Plan for any number of MOX factories, fosters public

perception that there is a hidden agenda (now made public in the Bush-Cheney energy plans) to re-establish a reprocessing program in this country. Deactivation of the MOX factory instead of decommissioning supports the perception that a reprocessing industry is being established. It also contributes to finding that there is not clear information about what this program really is, and what in fact an approval of the Construction Authorization Request would authorize. No matter which of these alternatives may come to pass, NRC requirements for decommissioning are vital to Georgians, since without them, decommissioning will never be attempted because no entity will have clear responsibility. The potential exists for the MOX factory to remain a permanently contaminated facility and site on Georgia's border. Decommissioning is a basic requirement to protect the health and property values of Georgia residents near the Savannah River.

- The financial stability of the Duke - COGEMA - Stone & Webster consortium is open to question. Stone & Webster has filed for bankruptcy twice and changed ownership since the forming of the consortium and the letting of the contract to build and operate a plutonium fuel factory by DOE. Stone & Webster's most notable nuclear associations are with controversial, fruitless projects such as fusion, the breeder reactor, and the new reactor to manufacture tritium for nuclear bombs. Its financial woes are linked to chronic underbidding on exotic projects. Estimated costs for the plutonium fuel facility have risen rapidly since the current inception of the MOX concept. Essentially, every U.S. taxpayer is affected and should have standing to request a hearing on the DCS plutonium fuel factory. A financially unsupported plutonium program has the potential for safety lapses which could result in off-site releases of radiation which would adversely affect the health and property of Georgia residents.
- The license request fails to establish the limit of plutonium to be processed at the plutonium fuel factory which should be consistent with the DOE plutonium disposition proposal. This could result in an aging, open-ended plutonium fuel manufacturing program at SRS with increased risk to Georgians of contamination and off-site releases of radiation.

- There are unresolved questions of how the plutonium fuel factory is covered by Price-Anderson. Price-Anderson, in limiting liability, gravely limits financial protection to Georgians potentially affected by radiation associated with the MOX program at SRS. Additional confusion as to coverage from Price-Anderson applied to the MOX program, increases the level of financial risk to the health and property of Georgia residents.
- A lawsuit accusing Westinghouse/BNFL, the primary contractor at SRS, of giving dangerous assignments inordinately to black workers remains unresolved. COGEMA activities were suspended for more than a year at Cigar Lake by the Canadian government after chronic disregard of worker safety was proven. An unsafe climate and weak safety culture for workers in the plutonium fuel factory is unacceptable. Many SRS workers live in Georgia communities and the potential for radiation to move off-site through the medium of workers' contamination threatens not only the workers safety and health, but neighbors and facilities in Georgia as well.
- British military experience with U.S. depleted uranium in the Balkan wars has revealed the presence of fission products in depleted uranium. Fission products pose a grave health risk for SRS workers handling depleted uranium in MOX manufacture. The depleted uranium may have to be purified prior to processing for MOX. The safety and waste requirements of depleted uranium must be fully understood prior to issuing a license for MOX manufacture. Besides the potential for contaminated workers to affect the communities in which they live, an additional waste burden from processing depleted uranium threatens the already contaminated natural environs on both the South Carolina and Georgia sides of the Savannah River.
- The MOX factory is planned to be highly automated and dependent upon computers and computer software. The computer software industry has inherent safety issues stemming from the cultural imperative of the computer industry to be first on the market and fix its problems by marketing upgrades. Public health and safety cannot afford a safety breach and potential off-site radiation release from unaccountable and unregulated software.

- The potential for regulatory oversight gaps resulting from overlapping and novel interagency responsibilities of DOE, NRC and EPA as well as state and local emergency response create safety hazards. Many areas of the MOX mission are potentially negatively impacted including: safeguards, infrastructure (electricity, water, waste management at SRS), materials and product transport, plutonium oxide production and quality control, depleted uranium production and quality control, classified and proprietary information, final disposition of facility and wastes. Georgia public health and safety is left unprotected by these potential gaps in regulatory oversight of an experimental nuclear process conducted by a consortium of companies with no prior track record for environmental and public health regard.

#### POTENTIAL for ACCIDENTAL RELEASES of RADIATION from MOX REACTORS

- Serious unresolved issues exist regarding the Duke - COGEMA - Stone & Webster's plan for production and testing of MOX lead test assemblies, the availability of irradiated MOX fuel for independent testing by NRC staff, and the way in which the results of such testing will be fed back into MOX facility design and operations. The public is potentially impacted in several ways by the lead test assemblies: by accidents in transport or in the reactor and by changes to processes and facility design related to the lead test assemblies.
- Questions concerning quality assurance for DOE production of plutonium oxides must be resolved. Quality problems with plutonium oxide supplies to the MOX process risk inconsistent particle size and uneven distribution in the depleted uranium mix which could result in fuel failure and radiation release to the environment. An accident involving a core-melt in North Carolina at McGuire, or in South Carolina at Catawba, would affect the entire globe, and devastate health and the environment of the Southeastern United States, including Georgia.
- Quality control problems have plagued the European experience with MOX. Gallium-contaminated plutonium made into fuel will risk

cladding failure either unused in storage or, worse, during use in a Southeastern ice condenser reactor which increases the probability of a severe radiation release affecting Georgians. A tolerance level for gallium has not been established.

- An NRC report revealing ice condenser containment vulnerability to failure should settle discussion about the obvious inadequacies of ice condenser technology as a vehicle for the MOX program. It is a crime against U.S. taxpayers to let the program to manufacture MOX fuel proceed until a suitable, safe reactor situation would be arranged. If MOX fuel is, indeed, ever loaded into Southeastern ice condenser reactors, Georgians health and safety would be compromised.

#### DEFICIENCIES IN PUBLIC PROCESS

- The proprietary, classified version of the Construction Authorization Request must be made available to representatives of the public for insight into fundamental safety and security information that affects public interests.
- It is premature for the NRC to review the Duke - COGEMA - Stone & Webster Construction Authorization Request. The NRC has not even completed its scoping process for drafting an Environmental Impact Statement. With the pressure the NRC is putting on itself to rush the Construction Authorization Request through a license review, the review may be nearly complete before a Final EIS is even published. This is not a condition conducive to safety principles and creates a potentially unsafe situation for Georgia residents.
- Recent upgrades to the Subpart L process that will be used in the MOX Construction Authorization Request license review to include limited discovery and cross-examination are welcomed. The nature of judicial review has not yet been established. The complex and difficult issues to be settled before granting a MOX fuel factory license compel a full, three-member Atomic Safety & Licensing Board to be established to ensure that the safety and health of Georgians and their environment are fully protected.

The safety issues listed here establish that Georgia residents' life and property are threatened by manufacturing plutonium fuel at Savannah River Site.

These many serious safety issues weaken already shaky defenses of a messy, expensive and risky process to make a dangerous, experimental fuel to load in decrepit, vulnerable Southeastern reactors with the shallow goal to dispose of a mere 1 percent of genuinely problematic plutonium.

GANE supports a cautious, open inquiry into plutonium immobilization at Savannah River Site. The same wastes which were generated in the initial manufacture of plutonium pose an ever-present danger to the Savannah River Basin and the prospect to vitrify those wastes into a protective safeguard for weapons plutonium is appealing. Immobilization processes, though risky, do not require several of the messiest steps with the most obnoxious waste streams associated with MOX and will more effectively provide a barrier to re-use of plutonium stocks, a goal which MOX is unable to achieve.

We urge this vital immobilization pursuit to be placed under the regulatory aegis of the NRC. Immobilization is a long-awaited step in closing the nuclear cycle and dealing with the waste product of the Atomic Age. We encourage all the parties to embrace a vision of developing effective disarmament technologies and leading exploration into the still-uncharted regions of nuclear physics applied to waste management.

Respectfully submitted,



Glenn Carroll

GANE - Georgians Against Nuclear Energy

Enclosure

dated May 17, 2001 in Decatur, Georgia

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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In the Matter of  
Duke - COGEMA - Stone & Webster  
Construction Authorization Request  
Mixed-Oxide Fuel Fabrication Facility  
Savannah River Site, South Carolina

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AFFIDAVIT

Comes now SUSAN BLOOMFIELD, who being duly sworn, deposes and states as follows:

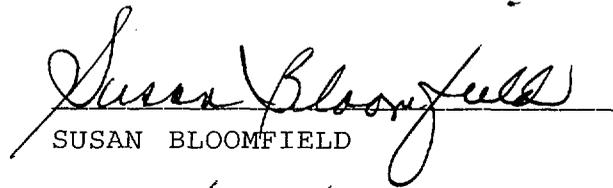
1. I authorize and request Georgians Against Nuclear Energy (GANE) to represent me and my interests in the above proceeding involving Duke - COGEMA - Stone & Webster's request to receive a license to build a facility to process weapons-grade plutonium into a mixed-oxide reactor fuel. More specifically, I authorize Ms. Glenn Carroll or anyone she designates to represent me and my interests.

2. I reside at 14 Raintree Place in Augusta, Georgia. I believe my life and health are jeopardized by Duke - COGEMA - Stone & Webster's plans to build and operate a Mixed-Oxide Fuel Fabrication Facility at Savannah River Site.

3. The site of the proposed Mixed-Oxide Fuel Fabrication Facility is less than 20 miles from my home. Plutonium would travel near my home en route to the Savannah River Site for processing. In the event of a release of radiation from the facility, my personal health could suffer serious consequences.

4. I have read GANE's 5/11/01 Request for Hearing. If GANE's position is upheld, there is a reduced likelihood of serious accident involving the Mixed-Oxide Fuel Fabrication Facility; Savannah River Site will be safer. I am less likely to suffer injury from it.

This statement is made under penalty of perjury.

  
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SUSAN BLOOMFIELD  
  
5/14/01  
\_\_\_\_\_  
Date