

Advanced Test Reactor Shutdown Due to Seismic Problems

According to Department of Energy (DOE) Idaho National Laboratory spokesperson John Walsh's Operations Summary issued November 2008: "The Advanced Test Reactor [ATR] was shut down and a review undertaken after an investigation identified potential seismic concerns with a cinder block wall in the facility. Compensatory actions were taken to ensure the wall would not damage required utility systems in a seismic event, and the reactor was restarted."ⁱ

In 2007, Keep Yellowstone Nuclear Free, Environmental Defense Institute, Mary Woollen, John Peavey and Debra Stansell ("Plaintiffs") filed a lawsuit against the DOE for violations of the National Environmental Policy Act (NEPA) for failure to conduct an Environmental Impact Statement for the continued operation of the Idaho National Laboratory's Advanced Test Reactor (ATR). Plaintiffs asked Idaho Federal District Court Judge Winmill to consider the following; "That DOE meet the requirements of the National Environmental Policy Act with respect to the Advanced Test Reactor Life Extension Program (the "LEP") by immediately commencing the preparation of an Environmental Impact Statement for the LEP." This \$200 million program is extending the forty-year-old ATR an additional 10 years long past its 20-year design life. Judge Winmill subsequently ruled in favor of DOE, however, the ATR vulnerabilities articulated in Plaintiff's lawsuit remain prescient in view of the above ATR shutdown due to "seismic concerns."

Plaintiff's attorney Mark Sullivan states in the above lawsuit Complaint that according to DOE technical consultant's ARES report: "Concrete wall lacks reinforcement; a very large concrete block shielding wall (8 feet tall and 73 feet long) is inadequately braced, and would fail in the event of a major earthquake, crushing the [Advanced Test Reactor] ATR's adjacent primary coolant system lines. The ARES Report plainly states that 'Failure of this wall could result in a loss of primary coolant.' The report notes that the wall is vulnerable to damage 'at relatively low seismic impact levels' and 'will behave as two rigid bodies pivoting about the top and bottom supports.' The report recommends further evaluation and addition bracing for the wall. To KYNF's knowledge, although more than a year has passed, nothing has been done to correct this serious concern."

Plaintiff's Complaint continues; "Other concrete block walls unreinforced and vulnerable; the shielding wall above is by no means the only vulnerable structure in the

Test Reactor Area. The ARES Corporation reviewed the construction drawings for a number of buildings in and around the ATR to determine whether numerous concrete block walls are reinforced. In many cases, the safety of these walls could not be determined because construction drawings were missing or inadequately detailed, or because it could not be determined if the plans had been followed. In other cases, it was concluded that the walls were not reinforced. As the ARES Report states 'the drawing review indicates that the concrete block structures are only lightly reinforced at best.' This includes walls for the deep well pump-houses which would be relied on to supply cooling water to the ATR in the event of the disruption of commercial power, as well as numerous walls through which the Emergency Firewater Injection System piping passes. The buildings do not meet the current building code or DOE standards. The report recommends strengthening or replacing the walls. Although more than a year has passed, KYNF is not aware of any action by the DOE to secure these vulnerable structures."

Plaintiff's overriding concern is a Loss-of Coolant-Accident at the Advanced Test Reactor (ATR). Unlike current power reactors that have concrete containment domes, the ATR, in the event of a major accident, dampers release steam/radiation directly to the atmosphere that prevent pressure buildup.ⁱⁱ This forty-year-old reactor (designed in the 1950s that began operation in 1967) poses an immediate threat to populations living in southeastern Idaho and western Wyoming because radiation released during a major accident that would be nearly half that released from Chernobyl. This imminent (but preventable) threat warrants investigation by state and federal regulatory agencies.

Plaintiff's Complaint also states; "According to DOE's own related programmatic environmental impact documents, in the event of a serious accident, the ATR could release as much as 175,000,000 curies of radiation, which would contaminate a vast area and rank second only to Chernobyl in terms of radiation release."ⁱⁱⁱ

Based on DOE's continued multi-year delays on Freedom of Information requests on ATR's operating history^{iv} it is our contention that the DOE which operates the ATR at the Idaho National Laboratory (INL) is currently hiding, ignoring and discounting information regarding ongoing serious safety issues in the operation of the ATR. As the next article below documents, DOE's FOIA document dribbling releases show major ATR safety problems.

FOIA Documents Reveal More Problems with Advanced Test Reactor

In April 2008, the Environmental Defense Institute (EDI) and Keep Yellowstone Nuclear Free (KYNF) filed a Freedom of Information Act (FOIA) request with the Department of Energy (DOE) for documents related to the Advanced Test Reactor (ATR) located at the Idaho National Laboratory (INL).

DOE recently released **some** of the requested ATR safety reports needed to document ATR's extended operation hazard to the public. A June 2008 declassified DOE report gained by EDI through FOIA acknowledges ATR problems and imposed high-power level limitations. "This limitation results from the evaluation of the frequency of a Direct Damage Loss-of-Coolant Accident (beyond design basis) and the application of the consequence-limiting protective margin criterion for certain Condition 4 Loss-of-Coolant Accidents."

Despite these safety problems, DOE allows parts of the ATR reactor core power level to increase between 362 and 379 mega-watts (MW) which is significantly higher (~44% and 51% respectively) than the 250 MW overall reactor power limit. DOE also admits that these increased power levels were not factored in the ATR "Safety Analysis Report Reflector Aging [that] did not analyze for a failure of the reflector block during a seismic [loss-of-coolant-accident] LOCA." ^v

An April 2008 declassified ATR report puts the "Effective Point Power Limit" at 428 MW, which is 71% over the 250 MW operational power limit. ^{vi} This wide variation in effective power levels within different sections of the ATR core can result in "hot-spots" and exacerbate an already deficient reactor coolant system during an accident. Two 2008 ATR shutdowns ("scrams") are attributed to "a sharp increase in dedicated center lobe power" and coolant system "degradation." ^{vii} Two other ATR scrams were reported in 2006 and 2007. ^{viii}

Crucial to effective ATR scram is the insertion of reactor safety control rods that have a history of degradation and failure. ^{ix} Despite the hazard, DOE views "The unique capability of the ATR to provide either constant or variable neutron flux during a reactor operating cycle makes irradiations in this reactor very desirable." ^x

Another DOE "deficiency report" states: "**Why is this a problem?** The ATR was designed and constructed in the 1950s and 1960s according to the design and safety standards in place at the time." ^{xi} DOE claims to have addressed the ATR safety problems, however, as the above/below Operations Reports show, it is uncertain that ALL of the ATR safety problems have been adequately

corrected to meet current seismic/confinement/safety regulations. EDI's preliminary review of the 2007-2008 FOIA documents show the following additional revelations; ^{xii}

1. "Finding: Some potential accidents and accident phenomena have not been adequately analyzed and documented to provide assurance that the ATR safety systems are capable of mitigating loss-of-coolant accidents in accordance with the ATR updated final safety analysis report (UFSAR).

2. "Safety Analysis Report over-states [**exaggerates**] the capability of the confinement to withstand an over-pressure event to establish a barrier against the uncontrolled release of radioactivity to the environment and to assure that the confinement design conditions important to safety are not exceeded for as long as postulated accident conditions require. There are no test data supporting the conclusion that the confinement leak integrity will be maintained after an elevated pressure transient." ^{xiii} [emphasis added]

3. "The Remote Monitoring System (RMS-2) function for confinement over-pressure protection was eliminated in 1998 **without** adequate evaluation. The RMA-2 feature provided this function by initiating a trip of the ventilation supply while the exhaust was still operating [venting directly to the atmosphere during a seismic, fuel and coolant failure accident]. An over-pressure protection feature has **not** been installed and eliminated without adequate evaluation.

4. "While the ATR confinement structural integrity should be maintained at up to 9.0 inches of water [unit of pressure], the design basis leak [to the environment] rate integrity probably would not be maintained at this elevated pressure. Some seal materials would be expected to **fail** at 7.5 inches of water (RLRO-07-88).

5. "Confinement [reactor leaks to the environment] performance data has been extrapolated **far beyond** the range of measured data. The Safety Analysis Review (SAR) does **not** adequately account for potential confinement heat sources. 'Evaluation of confinement pressure transient capability results in potential **inadequacy** in the Safety Analysis. The ATR Design Basis Reconstruction Project [also] identified [these] five issues with the ATR safety basis evaluation of potential confinement over-pressurized and confinement under-pressure has not been evaluated.'" ^{xiv}

[emphasis added]

EDI emphasizes that the above extremely critical revelations are contained in DOE's own current internal reports not easily available to the public. On December 16, 2008 DOE FOIA officer Clayton Ogilve claims the next installment shipment of documents to EDI is being declassified and will be mailed to EDI. Stay tuned!

After DOE refused to release another FOIA request related to the ATR Life Extension Program operations, KYNF and EDI filed a separate lawsuit in Wyoming Federal District Court in 2006. DOE claimed release of the

documents would compromise national security. Judge Downes agreed in December 2007 to review the documents “in camera” and determine if DOE’s claims of national security secrecy are justified. As of this writing more than a year later, Judge Downs has not ruled on his review of DOE documents in this case.^{xv}

The bottom line is we the public are blocked from knowing the full risk the ATR poses. EDI cannot claim that all the relevant ATR documents are being released by DOE, however, these released internal reports under FOIA document critical ATR safety problems that could have enormous impact on residents in Idaho and Wyoming in the event of a nuclear accident.

Public Nixes Two of Three Nuclear Power Reactors Slated for Idaho

Public opposition to construction of nuclear power reactors has effectively canceled two projects in Idaho. The Mid-American Nuclear Energy reactor (backed by Warren Buffet) slated for Payette, ID was canceled. The Alternet Energy Holdings Bruneau Gillespie reactor planned for Elmore County (65 miles southeast of Boise) had its permit denied by County Planning and Zoning 11/5/08. It is uncertain if this permit denial will be appealed.^{xvi}

The third reactor planned by DOE’s Next Generation Nuclear Plant (NGNP) slated for the Idaho National Laboratory remains on track for construction thanks to Congressional funding. This “Generation IV” is a “very-high-temperature-gas-cooled” reactor that uses a “pebble-bed” fuel cooled with helium. The cost to build the reactor is currently estimated at \$2.4 billion. Congress authorized the DOE to spend \$1.25 billion on the project through 2013.

This is a continuation of decades of misguided priorities (including Barack Obama) perpetrated by the powerful nuclear lobby when we desperately need investment in safe renewable power production; especially when given the opportunity, as documented above, the public categorically rejects the nuclear power option.

Doug Smock contributing editor for *Design News* reports 11/6/08; “One bellwether project to watch as a gauge of President-Elect Barack Obama’s energy policy will be funding for a commercial demonstration project at the Idaho National Laboratory to produce hydrogen and heat with high-temperature, helium-cooled nuclear power.

The project faces technical and finding hurdles and is already running behind schedule. “The Department of Energy asked us to complete the plant by 2016, but we are revising the date to 2021.”

“The Energy Policy Act of 2005 authorized the Department of Energy to develop a research and development program that could deliver a high-temperature gas-cooled reactor prototype to increase domestic energy supplies, reduce greenhouse gas emissions, and move more quickly towards a national hydrogen economy. Westinghouse and its partners plan to build a pebble bed modular reactor that uses fuel balls surrounded by a hollow sphere of graphite moderator. These are stacked in a close-packed lattice and are cooled by helium, not water. The term “pebble bed” derives from the use of spheres. Rods are used to control fission in conventional nuclear reactors.”

An August 2008 report to Congress states; “DOE has determined that the NGNP nuclear reactor will be a very-high-temperature gas-cooled reactor (VHTR) for the production of electricity, process heat, and hydrogen. The VHTR can provide high-temperature process heat (up to 950 °C) that can be used as a substitute for the burning of fossil fuels for a wide range of commercial applications. **Since the VHTR is a new and unproven reactor design, the Nuclear Regulatory Commission (NRC) will need to adapt its licensing requirements and process, which have historically evolved around light-water reactor (LWR) designs, for licensing the NGNP nuclear reactor.**”^{xvii} [emphasis added]

With a 950 degree operating temperature, there are less safety “margins to failures” during an accident for a fuel meltdown. Currently there is non-existent testing of “material behavior (e.g., creep, fatigue), effects of irradiation on material properties, structural stability during long-term aging in a radiation environment, and corrosion behavior of structural graphite and high-temperature material components during air ingress and otherwise in an impure helium environment.” Also, if there is a helium gas coolant leak, there would be a limited supply of helium as backup coolant; unlike a light water-cooled reactor where water coolant is not as limited.

The general public justifiably has no confidence in DOE/NRC to implement this new Generation IV power reactor program safely because of an abominable history of managing existing nuclear programs.

Feds Solicit Public Opinion on Idaho Uranium Enrichment Plant

The *Idaho Business Review* reports 12/9/08 that “The Nuclear Regulatory Commission held a public comment meeting in Idaho Falls Dec. 10 to assess community support for international energy firm Areva’s proposed Eagle Rock Uranium Enrichment Facility at a site in Blackfoot between Idaho Falls and Pocatello in southeast Idaho.

The meeting is part of the lengthy application process Areva must go through for licensing of the facility. Areva,

which announced that it had selected the Idaho Falls area for its new enrichment plant earlier this year, has already submitted both parts of its **loan guarantee application to the Department of Energy, asking for the federal government to guarantee \$2 billion in loans to finance the Eagle Rock project.** [emphasis added]

Company officials said last week that the loan guarantee application was a “critical” in the project, with the next phase focusing on licensing from the Nuclear Regulatory Commission, the federal agency that oversees nuclear permitting and oversight.

Areva said it plans to file its license application with the NRC by the end of this month, and hopes the commission will complete its review within two-and-a-half years of the filing.

Ground could be broken on the \$2 billion facility as early as 2011, with operations commencing in 2014. Areva plans to employ 250 full-time workers at the operational site and 1,000 during construction.”^{xviii}

This is a perverse \$2 billion nuclear diversion of our tax dollars at a crucial time when America needs to be investing in renewable energy sources such as wind, solar and geothermal.

James Cromwell outlines Areva’s sordid US and international history. “Areva has global nuclear interests, including in the U.S. where it is gobbling up contracts for new reactors, uranium enrichment and plutonium fuel plants and even at the proposed and hopefully doomed project to turn Yucca Mountain, NV into a radioactive waste dump. Areva’s 40 years of uranium mining in Niger Africa has left miners and their families exposed to the often fatal health effects of radioactive dust and radon gas that have dispersed everywhere. The water is poisoned with radioactivity and other toxins or simply depleted, starving the people, their livestock and their crops.”^{xix}

Uranium mining/enrichment has serious environmental and health impacts.

Production/disposal of nuclear reactor fuel has multiple stages (“fuel cycle”) each of which has its own disastrous environmental impact. Initially, the mining of uranium and ore processing causes extensive health effects on workers and environmental contamination from waste discharges.

Deb Abrahamson reports in *Voices from the Earth* “Shawl Society speaks out about uranium mining on Tribal lands in Washington State; Many of the women who contracted cancer were the mothers, the aunties, and the sisters. They cleaned the clothes for their sons, brothers, and husbands who went to work in the mines. A lot of the time people were doing double shifts at the mine sites, so people would come home 16 hours of work and literally take their coats off and fall asleep, not change their clothing or anything.”^{xx}

The Navajo Nation alone claims over a thousand of its

members have died of cancer directly attributed to uranium mining.^{xxi} Uranium ore is further processed into uranium “yellow cake” and puts it through uranium enrichment applying a gaseous diffusion process that also has significant environmental impacts.^{xxii}

According to Helen Caldecott, inadequate government disclosure of climate impact of nuclear fuel production (uranium enrichment) fails to include the gaseous diffusion plant in Paducah, Kentucky that releases the highest amounts of chlorofluorocarbons (CFC). Despite a ban on CFCs that destroy the ozone layer, this plant was grandfathered in and exempted from regulation and this plant requires the coal powered electrical equivalent of a large city. This means nuclear fuel production has a large CO2 footprint that further exacerbates global warming.

The Institute for Energy and Environmental Research report states; “In addition to requiring a large amount of electricity during operation, the compressors in the gas diffusion facilities also generate a great deal of heat that requires dissipation. In U.S. plants this heat is dissipated through the use of ozone depleting chlorofluorocarbons (CFCs) such as the coolant CFC-114 (often referred to simply as Freon). In 2002, the Paducah, KY enrichment plant emitted more than 197.3 metric tons of Freon into the air through leaking pipes and other equipment. This single facility accounted for more than 55% of all airborne releases of this ozone depleting CFC from all large users in the entire US.”^{xxiii}

**Nuclear Reprocessing: Danger
Nuclear Reprocessing: Dirty, and
Expensive**
By Dr. Edwin Lyman

The Bush administration is requesting a FY2009 budget of \$302 million for its major nuclear energy initiative, the Global Nuclear Energy Partnership (GNEP), which involves “reprocessing” the used (or “spent”) fuel from nuclear power reactors. Reprocessing separates plutonium and uranium from other nuclear waste contained in spent nuclear fuel. The separated plutonium can be used to fuel reactors, but also to make nuclear weapons. Nearly three decades ago, the United States decided on non-proliferation grounds not to reprocess spent fuel from U.S. power reactors, but instead to directly dispose of it in a deep underground geologic repository where it would remain isolated from the environment for at least tens of thousands of years.

While some supporters of a U.S. reprocessing program believe it would help solve the nuclear waste problem, reprocessing would not reduce the need for storage and dis-

posal of radioactive waste. Worse, reprocessing would make it easier for terrorists to acquire nuclear weapons materials, and for nations to develop nuclear weapons programs.

In FY2008, the administration sought \$405 million for GNEP, but Congress only provided \$179 million and focused the program on basic research, specifically denying funding for construction of the commercial-scale reprocessing plant and fast neutron reactor proposed by the administration.

Reprocessing would increase the risk of nuclear terrorism.

Less than 20 pounds of plutonium is needed to make a nuclear weapon. If the plutonium remains bound in large, heavy, and highly radioactive spent fuel assemblies (the current U.S. practice), it is nearly impossible to steal. In contrast, separated plutonium is not highly radioactive and is stored in a concentrated powder form. Some claim that new reprocessing technologies that would leave the plutonium blended with other elements, such as neptunium, would result in a mixture that would be too radioactive to steal. This is incorrect; neither neptunium nor the other elements under consideration are radioactive enough to preclude theft. Most of these other elements are also weapon-usable.

Moreover, commercial-scale reprocessing facilities handle so much of this material that it has proven impossible to keep track of it accurately in a timely manner, making it feasible that the theft of enough plutonium to build several bombs could go undetected for years.

A U.S. reprocessing program would add to the worldwide stockpile of separated and vulnerable plutonium that sits in storage today, which totaled roughly 250 metric tons as of the end of 2005—enough for some 40,000 nuclear weapons. Reprocessing the U.S. spent fuel generated to date would increase this by more than 500 metric tons.

Reprocessing would increase the ease of nuclear proliferation.

U.S. reprocessing would undermine the U.S. goal of halting the spread of fuel cycle technologies that are permitted under the Nuclear Non-Proliferation Treaty but can be used to make nuclear weapons materials. The United States cannot credibly persuade other countries to forgo a technology it has newly embraced for its own use. Although some reprocessing advocates claim that new reprocessing technologies under development will be "proliferation resistant," they would actually be more difficult for international inspectors to safeguard because it would be harder to make precise measurements of the weapon-usable materials during and after processing. Moreover, all reprocessing technologies are far more proliferation-prone than direct disposal.

Reprocessing would hurt U.S. nuclear waste management efforts.

First, there is no spent fuel storage crisis that warrants such a drastic change in course. Hardened interim storage of spent fuel in dry casks is an economically viable and secure option for at least fifty years.

Second, reprocessing does not reduce the need for storage and disposal of radioactive waste, and a geologic repository would still be required. Plutonium constitutes only about one percent of the spent fuel from U.S. reactors. After reprocessing, the remaining material will be in several different waste forms, and the total volume of nuclear waste will have been increased by a factor of twenty or more, including low-level waste and plutonium-contaminated waste. The largest component of the remaining material is uranium, which is also a waste product because it is contaminated and undesirable for reuse in reactors. Even if the uranium is classified as low-level waste, new low-level nuclear waste facilities would have to be built to dispose of it. And to make a significant reduction in the amount of high-level nuclear waste that would require disposal, the used fuel would need to be reprocessed and reused many times with an extremely high degree of efficiency—an extremely difficult endeavor that would likely take centuries to accomplish.

Finally, reprocessing would divert focus and resources from a U.S. geologic disposal program and hurt—not help—the U.S. nuclear waste management effort. The licensing requirements for the reprocessing, fuel fabrication, and waste processing plants would dwarf those needed to license a repository, and provide additional targets for public opposition. What is most needed today is a renewed focus on secure interim storage of spent fuel and on gaining the scientific and technical consensus needed to site a geological repository.

Reprocessing would be very expensive.

Reprocessing and the use of plutonium as reactor fuel are also far more expensive than using uranium fuel and disposing of the spent fuel directly. In the United States, some 55,000 tons of nuclear waste have already been produced, and existing reactors add some 2,000 metric tons of spent fuel annually. The Energy Department recently released an industry estimate that a reprocessing plant with an annual capacity of 2,000 metric tons of spent fuel would cost up to \$20 billion to build—and the U.S. would need two of these to reprocess all its spent fuel. An Argonne National Laboratory scientist recently estimated that the cost premium for reprocessing spent fuel would range from 0.4 to 0.6 cents per kilowatt-hour—corresponding to an extra \$3 to \$4.5 billion per year for the current U.S. nuclear reactor fleet. The American public would end up having to pay this charge, either through increased taxes or higher electricity bills.^{xxiv}

How A-Bomb Testing Changed Our Trees

Robert Krulwich reports on National Public Radio 11/16/08 that "Back in the 1950s, the Americans, the British, the French and the Russians tried to impress each other by "testing" atomic weapons. This involved blowing up multi-megaton bombs in the air in remote places, but the explosions didn't stay local.

A Couple of Extra Neutrons...

Each atomic blast released lots of neutrons into the atmosphere, many of which slammed into carbon atoms floating by with the result that lots of carbon atoms gained a couple of extra neutrons. If you remember your Periodic Table of Elements, carbon ordinarily carries 12 protons and neutrons. Add a couple of extra neutrons, and the 12 becomes 14. Which means during the 1950's the world got a boost of carbon-14 atoms. There was, says Professor Nadlini Nadkarni, an ecologist at Evergreen State College in Washington, "a tremendous spike of carbon-14 — actually 100 percent more carbon-14 coming into the atmosphere than what we'd had previous to those [atom bomb] tests."

Leaving the Neighborhood

Those clouds of carbon-14 atoms didn't stay at the bomb sites. "This cloud of carbon-14 went round and round and round the Earth and was persistent for quite a while," says Professor Nadkarni. When President Kennedy signed a test ban treaty with the Russians in the early 1960s, nations stopped blowing up bombs above ground and the population of carbon-14 in the atmosphere went down, but, from around 1954 to around 1963, trees all over the world sucked in extra dollops of carbon-14.

Trees don't know the difference between regular carbon and carbon-14. They just breathe in carbon dioxide and use the sunshine to turn that CO₂ into plant food stored in their trunks, so that if you look inside a tree, any tree, you can measure the carbon within. And here comes the big surprise.

An Atomic Bomb "Souvenir"

It turns out that virtually every tree that alive starting in 1954 has a "spike" — an atomic bomb souvenir. Everywhere botanists have looked, "you can find studies in Thailand, studies in Mexico, studies in Brazil where when you measure for carbon-14, you see it there," says Professor Nadkarni. All trees carry this "marker" — northern trees, tropical trees, rainforest trees — it is a world-wide phenomenon." If you come upon a tree in the Amazon that has no tree rings (and many tropical trees do not have rings), if you find a carbon-14 spike in the wood, then, says Nadkarni, "I know that all the wood that grew after that had to be after 1954." So botanists can use the atomic testing decade as a calendar marker.

You Can Carbon-14 A Person, Too!

And, naturally, what goes for trees goes for others as well. In 2005, A Swedish stem cell biologist at the Karolinska Institute in Stockholm, Jonas Frisen, decided to see if he could date people using the same technique. Frisen had studied pine trees and knew about the carbon-14 atomic bomb spike. He also reasoned that people eat the products of trees — apples, pears, peaches, olives, almonds, walnuts — and we also eat the animals that eat the fruits of trees, so he decided to see if atomic testing had affected human cells.

At a cellular level, he surmised, we are affected by what we eat and so he performed autopsies on two sets of humans: one group was born in the mid-1950s during the era of atomic testing. The second group was born later, in the '60s, after the test ban treaty. When he examined some brain cells in both groups, he discovered that humans born in the '50s had more carbon-14 in their DNA, so the spike we see in trees is echoed in humans. This allowed him to age or "dates" a person by examining the brain cells — a high carbon-14 count means you were conceived in the era of atomic testing. (That's not a test you'd want to try at home, since rather than extract a brain cell, you can always ask you parents when you were born), but it did lead Frisen down some interesting paths.

Bottom Line: Those Atomic Bombs Fifty Years Ago...?

The amazing lesson of all this is that a bunch of atomic bomb blasts from 50 years ago not only changed the biology of the world, but those blasts seared themselves into most living things and the evidence is still there. If you were born around 1954 or shortly thereafter, those bombs made their mark — in you!"

Baby Tooth Survey of Nuclear Fallout Effects

Patrice St. Germain reports in *The Spectrum* (4/17/06), "During the era of nuclear testing in the Nevada desert at the Nevada Test Site, there was an air of secrecy surrounding the tests although those in the path of the clouds carrying radioactive particles were reassured by the government that they were safe.

"Because of the veils of secrecy - especially when questioned about the health of children - a group consisting of scientists, physicians and citizens from church groups and civic organizations initiated what was called the Baby Tooth Survey in 1958.

"The goal was to develop a data bank on the changing levels of strontium 90 in the milk supply by measuring its presence in baby teeth. Families were encouraged to save teeth as they fell out and to donate them for analysis. Over a five-year period 250,000 teeth were collected from child-

ren who 'gave their teeth to science' rather than to the 'tooth fairy.'

"While residents in St. George were subjected to fallout during the testing, the test's primary concentration was in St. Louis, Mo., an area which was considered a 'hot spot' - high in levels of radioactive fallout. Dr. Charles Weiner, Professor of History of Science at MIT, the Massachusetts Institute of Technology, presented a talk Thursday evening in Springdale, sponsored by Z-Arts!, about the program.

"The first official results of the test done by the Committee for Nuclear Information in November 1961 showed - based on an analysis of children born from July 51 from December 1954 whose mothers lived in St. Louis while they were pregnant - a direct linear increase in strontium 90.

"Weiner said people enthusiastically participated in the program, as notes sent in with the teeth showed. 'One note that was sent in read 'Dear Fairy, I would like to have a dime but do not take my tooth. I am going to send it to sense (sic),' Weiner said. Another note came in from a mother that said 'I pulled the tooth with a pair of pliers before it became loose in a burst of scientific enthusiasm.' In return, the children received a note with a button that stated 'I gave my tooth to science.'

"The Baby Tooth Survey followed testing done on cadaver thigh bones measuring the amount of atmospheric fallout. The British Atomic Authority admitted in 2001 that it removed the thigh bones from 3,400 infants to be tested without their parent's authority.

"In addition to the Baby Tooth Survey testing for strontium 90, other testing detected Iodine 131, which affected the thyroid of small children who drank a lot of milk and developed thyroid problems.

Help for downwinders

"The above-ground nuclear test Dirty Harry was appropriately named since, as Weiner stated, it was really dirty, dropping much more fallout than anticipated due to atmospheric conditions. While some scientists and the government said during and after testing that "no harm was done," programs such as RESEP, Radiation Exposure Screening Education Program, and RECA, the Radiation Exposure Compensation Act, speak otherwise.

"To date, 15,261 claims have been approved by RECA with 9,707 of those approved as downwinders, for a total of \$485,320,000. The downwinder clinic, located at the 400 East campus of Dixie Regional Medical Center, has been open for two years. DRMC public relations director Terri Draper said the clinic has had more than 1,400 patient visitors and last year, 64 cancers were discovered that did not have any other precancerous indications.

"We feel like this has been worthwhile,' Draper said 'if you can diagnose 64 people who had concern and are totally not aware of it, that's a success.' The purpose of the RESEP clinics is for the education and medical screenings of "downwinders." An estimated 40,000 area residents who fit

that designation were exposed to radiation from above-ground nuclear testing at the Nevada Test Site from 1951 to 1958 and during the month of July in 1962. Draper said the clinic will continue to operate as long as the federal government, which is funding the clinic, views it as worthwhile."

A Science Panel's Curious End: How a Critical Advisory Group Got Sidelined by Two Administrations

By Marina Walker Guevara

Growing up in southeastern Washington State, Trisha Pritikin played among the waters and islands of the Columbia River and gave little thought to the looming neighbor upstream: the Hanford Nuclear Reservation, a sprawling complex of factories where, beginning in the mid-1940s, the U.S. government secretly manufactured plutonium for the nation's nuclear weapons program. Pritikin, whose parents worked at the Hanford site, was unaware that radioactive residues from the facility had not only contaminated her riverside playgrounds but had also leached into her yard, tainted the milk she drank, and possibly even been tracked across the rugs in her family's home.

By the late 1980s, it became clear to Pritikin that living near Hanford posed serious health risks. At age 38 she was diagnosed with severe hypothyroidism, which caused joint deterioration and other debilitating ailments. Her father, who worked at Hanford as a nuclear engineer, was diagnosed with thyroid cancer, which rapidly spread to his lungs and brain; he died in 1996. Three years later, her mother succumbed to malignant melanoma. Her older brother had died in 1947 amid an unexplained spike in baby deaths near the 560-square-mile reservation, which today is home to [the nation's largest environmental cleanup effort](#).

Pritikin's illness, coupled with the release of federal documents that showed, for the first time, extensive radioactive releases from Hanford, inspired her to activism. In 1989, she organized a meeting in California of other Hanford-area expatriates who also may have suffered health problems associated with radiation exposure. Her scrutiny of Hanford increased as, one after another, her parents were overcome by illnesses she believes were tied to their workplace.

In 2000, after a decade of trying to piece together the facts surrounding her family's afflictions, Pritikin was invited to join the Advisory Committee on Energy-Related Epidemiologic Research—a federal panel made up mostly of scientists—as a non-voting community representative.

The committee, known by the acronym ACERER, had been created in 1992 to help the U.S. Department of Health and Human Services make sure that its research into the potential health effects of nuclear production and testing was scientifically sound, and that HHS achieved its goal of answering questions that "downwinders" like Pritikin had been asking for years: whether there were links, for example, between releases at federal nuclear sites and diseases such as thyroid cancer.

At issue: The panel wanted the U.S. government to help Americans who had been affected by nuclear weapons testing. Starting in 1995, its members pushed a reluctant—but ultimately yielding—Clinton administration to release a [National Cancer Institute study](#) that concluded that nuclear fallout had affected Americans nationwide, not just those living close to the Nevada Test Site where, from 1951 to 1962, nearly 100 above-ground nuclear tests were conducted. As a result, later studies estimated, as many as 212,000 people were at elevated risk of developing thyroid cancer.

It was around this time, members say, that the committee's relationship with HHS—particularly the Centers for Disease Control and Prevention—soured, with meetings suddenly seeming like carefully scripted sessions in which government officials presented decisions they had already made. "We began to wonder, 'What are we doing here?'" said Jack Geiger, professor emeritus of the City University of New York's medical school.

"A Black Hole"

By 1999, the committee's fallout recommendations "seemed to have disappeared into a black hole," said former panelist Owen Hoffman, an environmental scientist in Oak Ridge, Tenn. Relations became even more strained when some ACERER members openly criticized a [CDC-sponsored study](#) that found no links between radiation exposure and thyroid cancer near Hanford. ([The National Academy of Sciences later found shortcomings](#) in the study.) One of them, Tim Connor, who had been the driving force behind the proposed thyroid screening program, resigned, saying he'd grown tired of being stonewalled by CDC staff. "It was depressing and frustrating," Connor said. "We were in the best position to help the nation respond to this historic problem. Instead, we hit a dead end."

In response, Michael McGeehin, a division director at CDC's National Center for Environmental Health (NCEH), characterized the panel's fallout recommendations as "a general public health program that ACERER was not chartered to try to implement or even give advice on." He added that ACERER members "felt constrained by that." In February 2000, Geiger and two other ACERER members wrote a letter to then-director of NCEH, Richard Jackson.

There, they expressed concerns that CDC was under "outside pressures that reduce its responsiveness to the

public." They said NCEH staff had told them that their reluctance to address the fallout recommendations was "the result of political pressure from outside of CDC, perhaps even from the White House." In their view, the committee's main purpose had been subverted.

Conflict Resolution

In February 2001, shortly after President Bush took office, CDC officials—accompanied by a conflict-resolution specialist—met with ACERER's members to consider the panel's fate. ACERER, it was agreed, should continue its work, although perhaps with a clearer charter. But no meetings were held in 2001, and the following February HHS quietly allowed the committee to expire—a move that caught even the panel's chairman, John Bagby, off-guard. "I thought we had a lot to do yet," he said, "but for some reason the new administration didn't want it, so they just dropped it."

Current and former CDC officials say they can't recall the precise circumstances of ACERER's demise, although they note that the agency's focus shifted to bioterrorism after the September 11 attacks, and that funding for radiation research from the Energy Department began to evaporate. "The agency has mandates and has constraints on its resources, and it has to stay within the bounds of what is mandated," McGeehin said.

But some former panelists believe the decision to kill ACERER was purely political. "We were raising issues that the Bush administration didn't want to deal with," said Seth Tuler, a senior researcher at the Social and Environmental Research Institute in Greenfield, Mass. "Not even in the Clinton years was this topic a priority." Trisha Pritikin, who is still battling ailments that she blames on Hanford, is among those distraught over the wasted effort: "All my family was killed and no one has helped us." ^{xxv}

Push for Expansion of Radiation Exposure Grows

By Preston Truman, Mary Dickson and Tona Henderson

The move to expand compensation for fallout victims under the Radiation Exposure Compensation Act (RECA) continues to grow as congressmen and mayors from Utah and Idaho demand hearings from the U.S. House Judiciary Committee. The Department of Justice administers RECA.

Downwinders in Utah and Idaho are applauding their elected representatives and mayors for taking the lead in moving forward on the expansion of RECA and are encouraging delegations from other western states to join with them.

"For the first time in years there is real action being taken by Western members of Congress to obtain justice for

all downwinders,” says J. Preston Truman, head of the group, Downwinders. “Following the defeat of Divine Strake, it was a joy to see congressional delegations from much of the West as well as newspapers and television stations across Utah call for expanding RECA to all those who were exposed. All downwinders see this as a sign that progress is possible and hope that the rest of the delegations who have yet to join in these efforts will soon do so.”

Rep. Bill Sali (R-Idaho) became the latest congressman to write to the committee urging hearings, calling current geographic designations “arbitrary” and noting that it has been seven years since RECA was last seriously reviewed by Congress. Rep. Jim Matheson (D-Utah) and Rep. Mike Simpson (R-Idaho) were the first to send a joint formal letter to the leadership of the House Judiciary Committee requesting that it hold oversight hearings on expanding RECA. Sen. Mike Crapo (R-Idaho) has been working with the delegations of Montana, Utah and Arizona to begin meetings to discuss the possibility of expansion. Salt Lake City Mayor Rocky Anderson, Boise Mayor David H. Bitter and Emmett, Idaho Mayor Marilyn Lorenzen also have written to the committee urging it to honor the Congressmen’s request and hold hearings on expansion. Other letters are pending. “The arbitrary boundaries established in the original Act leave out large areas of contamination including a major portion of Idaho,” Lorenzen wrote in her letter to the judiciary committee. “This is a very serious omission and needs to be revisited based on later research.”

“It’s great to hear that Congressmen Simpson and Matheson and others are asking for hearings on expanding RECA. We are most grateful Congressman Sali has given his support to their request for House Judiciary Hearings. His recent letter and that of the Gem County Commission shows the extent of support for obtaining justice for those harmed by testing and shows the unity among Idaho’s leaders.” says Idaho downwinder Tona Henderson. “Downwinders deserve the opportunity to tell Congress what happened to them during the years of nuclear testing and how they are still suffering and dying. We need to expand RECA and help Downwinders, first and foremost, by giving them screening clinics to detect cancers early as is currently provided those areas now covered.”

Currently, only Downwinders with cancer in 22 rural counties in southern Utah, northern Arizona and eastern Nevada are eligible for compensation. Downwinders for years have said that the geographic designation makes no sense, given how widespread the fallout from nuclear testing was.

“We’ve known since the National Cancer Institute Study released in 1997 that virtually every county in the continental United States received some level of fallout from testing,” says Salt Lake City Downwinder Mary Dickson. “But, those findings were never taken into account by RECA, which was passed in 1981. It’s time that

RECA reflected the realities of the human toll of fallout rather than politically convenient boundaries.”

After holding hearings in 2003 and 2004 on expanding RECA, the National Academy of Sciences Board on Radiation Effects Research concluded that geographic boundaries made no sense since the entire United States was affected. They passed their findings onto Congress to make recommendations. But nothing has happened until now.

Downwinders urge citizens in Idaho and Utah to call on their local government officials to join the growing chorus of those writing letters to the House and Senate Judiciary committees requesting hearings on these issues as soon as possible. ^{xxvi}

Any Way the Wind Blows America’s nuclear bomb-testing legacy catches up with Orangevale octogenarian by R. V. Scheide

In 1943, 17-year-old Margaret Williamson left her home in Sunset, Utah, to visit relatives in Northern California. She met and fell in love with a Navy man, and they were soon married in San Francisco. She never looked back. “I’d had enough of Utah to last me a lifetime,” explains Williamson.

The 82-year-old Orangevale resident had no way of knowing it at the time, but the move just might have saved her life. Her immediate relatives, along with thousands of other Americans, were about to become unwitting guinea pigs in the U.S. government’s quest for nuclear supremacy.

Even as World War II ended with the atomic bombings of Hiroshima and Nagasaki, the United States was working frantically to develop new and more powerful nuclear weapons. Between 1951 and 1958, the Atomic Energy Commission detonated more than 100 of these second-generation nuclear devices in the atmosphere at the Nevada Test Site, 65 miles northwest of Las Vegas.

The tests spewed deadly radioactive fallout across the country, but the Western states of Nevada, Arizona, Utah, Idaho and Montana, directly downwind from the atmospheric blasts, were the hardest hit. As leukemia, lymphoma and other cancer rates spiked in small towns throughout the lightly populated region, it became clear to ordinary citizens that the tests hadn’t been as safe as the federal government had advertised.

Williamson was terrified by the destructive force of the atom bombs dropped on Japan. She remembers the nuclear testing in Nevada and recalls the news reports in the 1970s, from towns such as St. George, Utah, where cancers caused by radioactive fallout wiped out entire families. But St. George is in the far southwestern corner of the state. Her family back home in Sunset, 35 miles north of Salt Lake City and more than 300 miles from St. George, was pre-

sumably out of harm's way. Then, one after the other, cancer killed all of them. Their obituaries are brittle and yellowed, like autumn leaves flattened between the pages of a book. Williamson handles the clippings carefully, like they might turn to dust at the slightest touch, leaving only her memories as proof her kin ever existed.

She was born in 1922, the oldest of three sisters. Her father played the banjo and taught her how to play guitar as a young girl. Omer, the oldest of her four brothers, also played banjo, and the pair often performed duets for local churchgoers. They were poor, with no indoor toilet and the proverbial miles-long walk to school in the snow, but nevertheless, the family persevered through the Great Depression.

"We had it kind of hard, but we were close," Williamson says. All four brothers served in World War II, then returned to northern Utah to settle down and raise families. Her two younger sisters also stuck close to home. Only Williamson wandered. She kept in touch, but had her hands full in Northern California, raising two sons with her banjo-playing husband, Bob. When they weren't working or taking care of the boys, the couple toured as a successful gospel and country-music act. Life in California had its ups and downs, but it certainly wasn't dull.

When her father died in 1969 from prostate cancer, it didn't seem out of the ordinary. He was 77 and had lived a full life. Then, in 1975, ovarian cancer took the life of her second-youngest sister, Shirley, at age 43. The following year, their 76-year-old mother passed away, also from ovarian cancer. A disturbing pattern was developing.

"I kept wondering, when am I going to get it?" Williamson reflects stoically. "Am I going to be next?" But her turn never came—instead, cancer picked off the rest of her siblings, one by one. Prostate cancer took the life of her oldest brother, Omer, in 1979, at age 74. Her youngest sister Amy died of ovarian cancer in 1995. Her last remaining brother, Howard, died of prostate cancer in 2003, at age 79. Williamson, a feisty, cancer-free octogenarian, is quite literally the last family member standing.

"I've outlived my whole immediate family," she says. Both of her sons died in separate incidents, and after 61 years of marriage, Bob passed away in 2004, from natural causes. "If it wasn't for my grandchildren, there wouldn't be anyone left."

Margaret Williamson's experience is not unique. Thousands of people across the western United States have shared the same grief. Activist Preston J. Truman, founder and director of Downwinders, has met hundreds of families stricken with cancers and other fallout-related diseases since starting the organization in 1978.

For Truman, it was a matter of survival. Born in 1951 in Enterprise, a rural Utah town near St. George, his first memory is sitting on his father's knee as they watched an atomic bomb explode at the test site more than 100 miles

away. By the time he was in high school, nine of his 30 classmates had died from illnesses that are now known to have been caused by radioactive fallout.

"I remember one family of 12 in St. George, all of them died," Truman relates from his home in Malad, Idaho, where he continues to operate the Downwinders organization. Diagnosed with lymphoma at 17, he has battled a host of radiation-caused illnesses for most of his life, including recent treatment for thyroid cancer. He's also battled the federal government; Downwinders was instrumental in the passage of the Radiation Exposure Compensation Act in 1990, which currently provides up to \$100,000 to individual fallout victims and family members.

Although the act has since been expanded to include 21 counties in Nevada, Arizona and Utah near the proximity of the test site, it has never gone far enough for Truman. That's been particularly true since 1997, when the National Cancer Institute released a long-suppressed study that showed radioactive fallout from the bomb tests had spread much further, in far higher amounts, than the government had previously reported. In an open letter written after the study's release, Truman made the argument that we're all downwinders: "It is time to realize in the wake of the release of the National Cancer Institute's Fallout Report last year that fallout fell all over the United States and that it did so in about the same dose along an arc taking in much of the nation. Those of us working on behalf of fallout victims from this country's nuclear testing program must realize it is now impossible to draw a line anywhere on a map of the United States and say, 'You people on this side of the line should get compensated and those of you on the other side should not.'"

Although the study made national news at the time, it wasn't widely disseminated and quickly faded from public thought. So when Emmett, Idaho, resident Tona Henderson learned in 2004 that the county she was born and raised in had received one of the highest doses of radioactive fallout in the country, it came as a complete shock.

"That is when I learned why my family has so many cancers and thyroid problems," Henderson explains via telephone from Emmett, where she directs the Idaho Downwinders organization. Radioactive iodine (I-131), one of many toxic compounds contained in fallout, enters the human body through the thyroid. "To date, I can count 42 relatives, including my mother, who had breast cancer; my brother, who had testicular cancer; and my 15-year-old cousin, who died from Ewing's sarcoma. Of the 24 people in my family who've had cancer, 12 have died."

Radiation never sleeps; the data continues to pour in. In 2005, a study found that cancer rates in northern Utah, where Margaret Williamson had moved away from so many years ago, were much higher than could be expected to occur naturally. Williamson never saw the report, and it wasn't until her grandson recently ran across the Radiation

Exposure Compensation Act on the Internet that she finally put two and two together.

“There’s a lot of cancer in Utah,” she says ominously. While there’s no definitive proof that radiation fallout caused the deaths of her entire immediate family, Williamson is convinced that’s what happened. There’s no chance she’ll ever see any compensation, not in her lifetime. But thanks to the ongoing efforts of activists like Downwinders, compensation may someday be extended to everyone in the highest fallout zones, including the victims in Emmett and Sunset.

Don’t hold your breath, Truman says. For now, the knowledge of what might have happened gives Williamson a semblance of closure. It explains why she lived and the rest of her family died. It also confirms her skeptical view of the federal government, which wittingly exposed the entire country to deadly radioactive fallout. That’s no surprise to her at all. “We were always suspicious,” she says. “But what are you going to do? They decide to do something, and boom! That’s the way it goes.”

Endnotes

ⁱ DOE-ID Bi-Weekly Summary, citing 11/03/08 occurrence; (NE-ID-BEA-ATR-2008-0028). Also see 2003 ATR shutdown order “Use of incomplete fuel element data, used to perform physics analysis of fuel element plate restriction, resulted in an incorrect CSAP. Use of the incomplete data is determined to be the direct cause of this event.” Occurrence Report, Doc. No. NE-ID-BBW-ATR-2003-0002.

ⁱⁱ Occurrence Report, Final, Operability Requirements for ATR Confinement Isolation Dampers Results in Potential Inadequacy in the Safety Analysis (PISA), NE-ID-BEA-ATR-2007-0023.

ⁱⁱⁱ U.S. District Court for the District of Idaho Eastern Division Complaint, Case No. 07-36. Citing ARES Report pages 9-11. See EDI web-site publications for the full text of this Complaint. <http://environmental-defense-institute.org>

^{iv} U.S. District Court, District of Wyoming, Keep Yellowstone Nuclear Free, et al. v. U.S. DOE, Case No. 06-CV-205-D, pending Freedom of Information Act request; Also incomplete Environmental Defense Institute FOIA request to DOE/Idaho 1/06.

^v Idaho National Laboratory, Doc. No. CCN-214175, June 30, 2008, Advanced Test Reactor Cycle 142B-1 Core Safety Assurance Package, pages 8, 9 and 14.

^{vi} Idaho National Laboratory, Doc. No. CCN-213422, April 22, 2008, Advanced Test Reactor Cycle 142A-1 Core Safety Assurance Package, page 20. Also see ATR power at 428 MW, January 31, 2008, CCN-212539, page 20.

^{vii} Occurrence Report, NE-ID-BEA-ATR-2008-0001, ATR N-16 System Degradation Results in Manual Shutdown.

^{viii} Occurrence Report, NE-ID-BEA-ATR-2006-0019 and Occurrence Report, NE-ID-BEA-ATR-2007-0021.

^{ix} Occurrence Report, NE-ID-BEA-ATR-2006-0009, #3 Safety Rod Actuator Controller Failure. Also see Occurrence Report, NE-ID-BEA-ATR-2007-0001.

^x Frances M. Marshall, Advanced Test Reactor Capabilities and Future Operating Plans, September 2005, INL/CON-05-00549, Idaho National Laboratory.

^{xi} Deficiency Reports, ICARE No. 3518 and 3519

^{xii} Occurrence Report, NE-ID-BEA-ATR-2007-0022

^{xiii} The ATR confinement structure is an industrial sheet metal sided building unlike the commercial nuclear power reactors that have a sealed concrete dome to contain any radioactivity released during an accident.

^{xiv} DOE Occurrence Report, NE-ID-BEA-ATR-2007-0022

^{xv} U.S. District Court for Wyoming, Case No. 06CV205-D

^{xvi} For more information see; <http://myidahoenrgy.com>

^{xvii} Next Generation Nuclear Power Plant Licensing Strategy, A Report to Congress, USDOE/Nuclear Regulatory Commission August 2008, see at; http://www.ne.doe.gov/pdfFiles/NGNP_reporttoCongress.pdf

^{xviii} Areva operates reprocessing plants in UK’s Sellafield, Japan, and other EU sites. Comments can be sent to the Nuclear Regulatory Commission; breeda.reilly@nrc.gov; <http://regulations.gov/fdmspublic/comment/>; or call 1-800-492-3110.

^{xix} See; www.beyondnuclear.org, Beyond Nuclear, 6930Carroll Av. # 400, Takoma Park, MD 20912

^{xx} Deb Abrahamson, Spokane Lands, *Voices from the Earth*, Spring 2007, Southwest Research and Information Center; SHAWL, Sovereignty, Health, Air, Water and Land, www.sric.org

^{xxi} For more information see *Voices from the Earth*, Global Voices Against Uranium, Navajo Nation; Southwest Research and Information Center, www.sric.org

^{xxii} Yellowcake is used in the preparation of fuel for nuclear reactors where it is processed into purified UO₂ for use in fuel rods for pressurized heavy water reactors. It may also be enriched by being converted to uranium hexafluoride gas (UF₆), by isotope separation through gaseous diffusion or in a gas centrifuge to produce enriched uranium suitable for use in weapons and reactors.

^{xxiii} Arjun Makhijani PhD., et al. Uranium Enrichment, Just Plain Facts, October 15, 2004, Institute for Energy and Environmental Research, www.ieer.org

^{xxiv} For more information contact Dr. Edwin Lyman, Union of Concerned Scientists Senior Staff Scientist: (202) 331-5445; elyman@ucsusa.org; UCS, 1825 K Street NW, Suite 800, Washington, DC 20006.

^{xxv} See; <http://www.publicintegrity.org/shadow/report.aspx?aid=975>

^{xxvi} For more information go to <http://downwinders.org>

Happy New Year

On behalf of all of us at EDI we wish to extend the best of all good things to you and your loved ones in this new year.

Change fundamentally has always come from the bottom up. It remains our collective obligation to ensure that the new Obama Administration fulfills its campaign commitments despite nominations of cabinet level individuals with a history of complicity with the current foreign and financial debacles.

Obama’s continued support for nuclear power and the bogus “clean coal” policies must be challenged by all of us who care deeply about the environment and human health.

Send comments to official website of Barack Obama 2008 Presidential Campaign. <http://www.barackobama.com/>