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Nuclear Reactors Pose Health Hazard

In a 1/29/01 *Nation* article, Harvey Wasserman identifies independent health research studies that indicate significant health hazards in populations living near commercial nuclear power plants and Department of Energy nuclear operations.¹ Wasserman contends that topping the list of reactor shut-downs in health terms was the long-overdue final shutdown of the Russian Chernobyl nuclear power station on December 15. Unit Four at the Ukrainian complex blew up in 1986, spewing radioactive death and destruction around the planet. Evidence points to a skyrocketing death rate among the 800,000 “liquidators” who were forced by the then-Soviet government to help clean up the stricken reactor, while new studies also show escalating cancers among civilians in the downwind areas.

Earlier in the year, on the fourteenth anniversary of the Chernobyl debacle, the Radiation and Public Health Project and Standing for Truth About Radiation (STAR), a national safe-energy organization, released a path breaking study showing that radioactive emissions from commercial reactors are having catastrophic health effects on people living near them comparable to those experienced by nuclear weapons workers, for which the Energy Department has finally admitted responsibility. The study, by Joseph Mangano, a nationally known epidemiologist, compared infant death rates in areas surrounding five nuclear power plants while they were operating and in the years after their shut-downs. Mangano found that from 1985 to 1996, average nationwide death rates for infants under the age of 1 dropped 6.4 percent every two years. But in the areas surrounding five reactors closed down between 1987 and 1995, infant death rates dropped an average of 18 percent in the first two years. “It’s hard to imagine a clearer correlation,” says Mangano. “The fetus in utero and small babies are the most vulnerable to even tiny doses of the kinds of radiation emitted from nuclear power plants. Stop the emissions, and you save the children.”

Published in the journal *Environmental Epidemiology and Toxicology*, Mangano’s study covered these reactors: Wisconsin’s LaCrosse, which closed in 1987; Rancho Seco, near Sacramento, and Colorado’s Ft. St. Vrain, both closed in 1989; Trojan, near Portland, Oregon, which shut in 1992; Connecticut’s Millstone plant, which

closed in 1995. Later research on two additional reactors, Main Yankee and Big Rock Point in Michigan, both of which went cold in 1997, showed that infant death rates fell a stunning 33.4 percent and 54.1 percent, respectively.

“Forty-two million Americans live downwind within fifty miles of commercial reactors,” says Mangano. “The Nuclear Regulatory Commission allows nuclear plants to emit a certain level of radiation, saying that amount is too low to result in adverse health effects. But it does not do follow-up studies to see if there are excessive infant deaths, birth defects or cancers.” Additional research by Mangano also indicates a drop in overall cancer deaths among elderly people living near nuclear plants once they are deactivated.

On June 5, 2000 the Supreme Court ruled that some 1,900 central Pennsylvanians living downwind from the Three Mile Island nuclear plant could sue for health damages. Local residents and researchers claim that a plague of death and disease followed the March 28, 1979 melt-down and radiation leak at TMI Unit 2.

Even longer-overdue justice is coming to workers in the Energy Department’s nuclear weapons production facilities. From the 1943 beginnings of the Manhattan Project to the ongoing enrichment of uranium at gigantic plants in Ohio, Kentucky and Tennessee, the government has denied virtually all claims from thousands of workers suffering from a range of radiation-related diseases. But the DOE finally issued a series of sweeping admissions after DOE-sponsored research found excess worker deaths from cancer and other causes at fourteen DOE facilities. A DOE report issued in May, 2000 confirmed that hundreds of workers at Ohio’s Portsmouth Gaseous Diffusion Plant, whose supervisors did not require them to wear protective masks, routinely inhaled uranium dust, arsenic and other lethal pollutants. President Bill Clinton signed into law a federal compensation program for DOE workers exposed to radiation, beryllium and silica. The program will cover some 600,000 people involved in making nuclear weapons.

The DOE’s admissions give new weight to public demands that the commercial reactor industry come to terms with public health risks now that numerous aging and leaky reactors are waiting in line for extended licenses from the NRC. “How much more of the bodies-in-the-morgue

approach to public health research do we need?" asks Robert Alvarez, executive director for STAR. "Shutting reactors may save lives. What more needs to be said."

Harvey Wasserman, author of "The Last Energy War: The Battle Over Utility Deregulation" is senior adviser to the Nuclear Information and Resource Service. H

US Congress Approves Nuclear Bomb Tests

Paul Richter reporting for the *Los Angeles Times* in an article (5/10/03), states that the Bush administration took a big step toward developing a new generation of nuclear weapons when a Senate panel approved a bill that would lift a 10-year ban on researching small atomic bombs for battlefield use and fund more study on a nuclear "bunker-buster" bomb.

The annual defense authorization bill, approved by the Senate Armed Services Committee, also increases funding for a nuclear weapons site in Nevada to enable the Pentagon to more quickly resume the weapons testing it suspended 11 years ago.

The administration, in a major shift of recent U.S. nuclear weapons doctrine, has been moving to develop options with nuclear weapons to enable it to better deal with emerging threats, such as the deeply buried bunkers where potential adversaries may conceal banned weapons and missiles.

Administration officials have been formulating a new policy since President Bush came into office but are only now beginning to carry out the changes. Since the end of the Cold War, the United States has not acknowledged designing any new nuclear weapons, as it and Russia have worked to scale back their strategic nuclear arsenals.

The administration's new tack has alarmed arms control advocates, who fear that the availability of smaller bombs that promise less secondary damage would encourage nations to use weapons that have been nearly unthinkable for half a century.

They worry that expansion of the U.S. nuclear arsenal would encourage more countries to build weapons and weaken already fragile international non-proliferation efforts.

"We're moving away from more than five decades of efforts to delegitimize the use of nuclear weapons," said Sen. Jack Reed (D-R.I.), a member of the Senate Armed Services Committee. He questioned whether the United States needs additional nuclear weapons, especially given the growing capabilities of its conventional precision guided munitions.

The administration's logic, Reed said, is that "we don't want to be constrained in any way about any weapon we want to field."

The defense authorization bill was passed 5/23/03. When critics sought during committee deliberations to strike the language lifting the ban, they were unable to prevent some of the 12 Democratic members from joining the 13-member Republican majority in approving it.

The bill provides \$15.5 million in funding for research on a large hydrogen bunker-buster bomb called the Robust Nuclear Earth Penetrator. This bomb would be a redesigned version of an "existing" nuclear weapon to make it better able to burrow deeply into the earth. Unlike the proposed low-yield bombs, which have an explosive force of no more than 5 kilotons (five thousand tons of TNT) this weapon would have yields in the range of tens of kilotons, to a megaton, making it at least six times more powerful than the bomb that was dropped on Hiroshima, Japan.

It would be intended to generate shock waves that could crush targets 300 meters below the earth, experts say. Critics contend only 50 meters of penetration, and the fallout would cover such a wide area and cause so many casualties that presidents would be reluctant to order its use. Fallout is expected when the testing phase begins again at the Nevada Test Site, which has a sordid and tragic history of contaminating American citizens.

Along with the \$15 million for research on the bunker buster, the bill would set aside \$6 million for advanced research on nuclear weapons.

The bill also seeks \$25 million in improvements to the Nevada nuclear weapons test site and U.S. nuclear labs because U.S. officials fear some of the nuclear infrastructure has become unreliable since President Clinton declared a voluntary test moratorium in 1993. Clinton ordered that the nuclear weapons complex should be prepared to restart testing within two to three years of a presidential order to do so.

But Bush administration officials fear that tests may be needed to ensure the reliability of U.S. nuclear weapons, and they want the lead time reduced to no more than 18 months. Arms control advocates say they fear that, given the administration's other statements about nuclear weapons, the proposal for these improvements suggests that the White House intends to begin retesting, perhaps in a second term if Bush is reelected.

The \$25 million proposal "indicates the administration wants to keep the door open," said Daryl G. Kimball, executive director of the Arms Control Association.

John D. Isaacs, president of the Council for a Livable World, which advocates arms control, noted that while some lawmakers have been pushing to change nuclear policy for some time, this year there has been a new source of momentum.

"This year, initiative is coming from the executive

branch," Isaacs said. These latest moves on nuclear policy follow a series of policy pronouncements from the administration that suggested a desire for a sharp change in direction on nuclear policy.

In 2001, the administration issued a policy statement called the Nuclear Posture Review that urged development of new nuclear capabilities, and suggested that the United States might, in some circumstances, use nuclear weapons against some countries that have none: Syria, Libya, Iraq and Iran.

Last year, the White House issued a presidential directive that made explicit the previously ambiguous policy that the United States may use nuclear weapons if chemical and biological weapons are used against U.S. forces.

- We have conventional weapons that will work anywhere in the world against any target. We don't need new nuclear weapons. And there is no military requirement to develop new nuclear weapons.
- The development of low-yield nuclear weapons will provide incentives for other countries and rogue states to develop nuclear weapons of their own.
- The more nuclear weapons there are in the world, the easier it will be for terrorists to gain access to these weapons of mass destruction.
- Developing new nuclear weapons will hinder the U.S.'s ability to persuade others to disarm and will make the world a more dangerous place.
- The National Cancer Institute reports show massive contamination, especially in Idaho, resulting from previous nuclear testing in Nevada.

Utahns Oppose Nuclear Tests

Given the close proximity of southern Utah to the Nevada Test Site, it is understandable why residents are appalled by the Bush Administration' and the Republican dominated Congressional approval of resumption of nuclear bomb testing passed in May.

Todd Seifert, Managing Editor of the Utah *Spectrum* newspaper, in a 5/25/03 article noted that a nuclear weapon detonated in the Nevada desert would cause a tremendous tremor and send radioactive fallout spewing into the air, where it is carried downwind to Southern Utah and beyond to Idaho and Montana.

Such a scenario played out more than 928 times during the 1950s and through 1993 that caused an estimated

"This is to give our scientific community a chance to see if there are options that can be put in the toolbox for a future president to use," said David J. Smith, chief operating officer of the National Institute for Public Policy. "And, obviously, when you're talking about a nuclear weapon, it's only going to be considered in an extreme situation."

The administration's moves have stirred alarm in other parts of the world. The mayor of Hiroshima, one of two cities hit by a nuclear weapon, last month wrote Bush to protest the research on the bunker buster, saying it represented a "frontal attack on the process of nuclear disarmament."

United Nations disarmament officials have also expressed alarm that the U.S. policy could undermine efforts at arms control. Supporters of the UN concerns add: 212,000 thyroid cancers alone,² when the federal government subjected American citizens to fallout from tests during the Cold War arms race. In addition to thyroid cancer, many other types of cancer and immune deficiency diseases are attributed to radiation exposure. Federal lawmakers, including Utah Sens. Robert Bennett and Orrin Hatch, have decided to take our nation down the path to more health-threatening tests.

The U.S. House and Senate voted to lift the nuclear test ban as part of procedural votes during debate over the \$400 billion military spending bill, which was passed in slightly different forms in May.

Included are funds to research a new generation of nuclear weapons, touted as potential tools that could be used to destroy bunkers hiding weapons of mass destruction as well as provide deadly, pinpoint attacks on enemies.

But sooner or later, these weapons would have to be detonated underground to see how they really work. With that comes the risk of radioactive fallout seeping from the ground, into the air and wafting across Southern Utah and beyond.

Simply put, the federal government has no credibility when it comes to this issue. It told people 50 years ago that above-ground testing was safe -- a claim disputed by the thousands of people who either died from radiation-caused cancer or who suffered with birth defects from the fallout.

While underground tests might be safer, nobody can be certain that nuclear fallout won't enter the air and be carried downwind. If the critics are correct that the "bunker buster" bombs will only penetrate 50 meters, then the ground cover will not be sufficient to retain the blast, thus releasing enormous amounts of radioactive material into the atmosphere.

Rep. Jim Matheson, D-Utah, voted for an amendment -- which was defeated -- that would have allowed for bunker-busting studies using conventional weapons. He expressed his dismay at the possibility of more nuclear tests in a statement that is no doubt echoed by

many Utahns: "The legacy of the government abusing Southern Utah with respect to atomic fallout is well-documented." H

comments on our website publications/reports link at: <http://personalpages.tds.net/~edinst>
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INEEL ANL-W Reactor Fuel Reprocessing Delayed

In a desperate attempt to keep its Breeder Reactor and uranium electrometallurgical spent nuclear fuel reprocessing program alive at the Argonne National Laboratory-West (ANL-W), DOE petitioned the State of Idaho for a variance to the federal court Settlement Agreement between the State of Idaho and DOE.

The State, to its credit, sent out a public mailing asking for comment on the proposed variance, and in less than a week received over 300 responses. As a result, DOE withdrew the petition, and the State announced a "delay" in the proposal. It is unclear if this is a strategic decision to resubmit at a future date when public opposition is not so widespread.

The Idaho public announcement notes: "State officials have postponed a decision on Argonne National Laboratory-West's request for a waiver of Settlement Agreement provisions banning the import of spent nuclear fuel into Idaho. The state had intended to make a decision late in March, but the Department of Energy informed the state that DOE could not support the waiver request within the time frame set by Framatome, the company that was seeking a facility to examine fuel rods. Framatome decided to drop ANL-West from consideration, so the state ended its review of the waiver request."

DOE and ANL-W announced yet another plan to construct a Remote Treatment Facility that "would include a shielded hot cell with equipment for sorting, characterizing, **treating** and repackaging highly radioactive transuranic, mixed, and other radioactive waste."³ [emphasis added]

It is unclear if this is an end run on the above discussed "variance" and what exactly is entailed in the "treatment" part of this project. DOE hopes to squeak by with only an Environmental Assessment as opposed to a full Environmental Impact Statement that would provide for more public involvement and comment. As of this writing, the content of this new plan is not publicly available. Any treatment of this category of mixed radioactive and toxic hazardous waste would have major environmental emissions, and therefore must receive a full analysis of the impacts and public review as provided by the National Environmental Policy Act.

For more information on this issue, see EDI

DOE Moves on Plan to Produce Plutonium at INEEL

DOE issued a Draft Programmatic Environmental Impact Statement (PEIS) for "Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States."⁴

According to the PEIS, this program involves the production of plutonium-238 from neptunium-237 using the following steps: 1) production/storage of neptunium-237, 2) fabrication of neptunium-237 targets, 3) irradiating the targets in an irradiation (reactor) facility, 4) processing the targets to prepare the plutonium-238 for fabrication into heat sources for power systems.

The Draft PEIS identifies an INEEL nuclear reactor to irradiate the "targets" and reprocessing operations to extract the plutonium from the irradiated targets.

Slated are the INEEL Advanced Test Reactor (ATR) and the Fluorine Dissolution Process Facility (FDPF) plants. Reportedly, the plutonium is to be used by NASA as a power source in the agency's space program. Pu-238 is the most radioactive form of plutonium and the heat produced by the radiation is used to generate electricity and keep the space vehicle from freezing up. If a "Challenger" or "Columbia" type accident occurs on liftoff, this plutonium could expose downwind populations to major radiation.

DOE's PEIS fails to acknowledge that the ATR is an old reactor built in 1967 that could not meet current Nuclear Regulatory Commission (NRC) operating standards due to lack of radiation containment, seismic structural standards, among other major deficiencies.⁵ Congress granted DOE an exemption for its "existing" reactors and processing plants from "external" NRC regulations otherwise required of all commercial nuclear operations.

This new Pu-238 production operation will generate more difficult to manage mixed hazardous and radioactive liquid waste. The FDPF, along with other INEEL nuclear processing facilities, has never been able to operate within regulatory emission standards and therefore has never been issued a Resource Conservation Recovery Act (RCRA) hazardous waste permit. Additionally, INEEL mixed chemical and radioactive operations are (according to EPA) violating RCRA and Clean Air Act emission

standards.

It should be noted that the Bush Administration forced EPA to grant DOE major exemptions to some of the Clean Air Act regulations currently imposed on industrial and utility power plants generating major sources of toxic pollution. These arbitrary exemptions for DOE appear to violate the statutory intent of the Federal Facilities Compliance Act passed by Congress in 1992 that requires all federal operations to comply with the same environmental regulations imposed on the rest of American polluters.

The Environmental Defense Institute attempted to access a copy of the PEIS but DOE's website denied access without security clearance and a "password." Even with the assistance of the State of Idaho, the PEIS and DOE's Record of Decision is yet to be publicly released.

This is "transparency," "accountability," and "openness" turned on its head. Clearly, there is no credible public process here, which is a flagrant violation of the National Environmental Policy Act that mandates public involvement and comment.

New Mission for INEEL at Expense of Cleanup

Over its fifty-four years of operations, the INEEL went through three name changes. In the beginning (1949), the Atomic Energy Commission (then in charge of all things nuclear) gave the site its name of National Reactor Testing Station. This name was apropos given that some 52 reactors were built and tested here, the highest concentration of nuclear reactors in the world.

Most of these reactors were "excursioned" to melt-down to establish their "safe" operating parameters. INEEL has had forty-two reactor melt-downs, but only sixteen were "accidents."⁶

Then, in the 1970s, the Atomic Energy Commission was dissolved into two federal agencies; the Nuclear Regulatory Commission (commercial nuclear power), and the DOE (military nuclear operations). At that time, 1974, the site name changed to the Idaho National Engineering Laboratory. The site name was subsequently changed again, in 1997, to the Idaho National Engineering and Environmental Laboratory (INEEL) that reflected the government's attempt to convey a public relations message and "sensitivity to environmental issues."

Another INEEL name switch was to change the Idaho Chemical Processing Plant, which reprocesses reactor

fuel for the military nuclear bomb program, to the innocuous sounding Idaho Nuclear Technology and Engineering Center (INTEC).

The INEEL cleanup costs for **partial remediation** of over five decades of radioactive and hazardous waste mismanagement, according to DOE's own estimates disclosed by the State of Idaho in federal court documents, is currently in excess of \$44.3 billion to be spent over the next seven decades.⁷ DOE's cleanup costs for the several dozen operations scattered around the country is \$212 billion. That is a tragic legacy to leave to future generations.

Now with intense competition from other DOE operations like Los Alamos National Lab and Lawrence Livermore National Lab that currently dominate new nuclear weapons designs, the DOE Idaho Operations Office is actively seeking new nuclear missions for INEEL. DOE Secretary Spencer Abraham, during a visit to Idaho, announced an initial \$ 5 million pledge to be followed by \$300 million commitment to "jump-start **INEEL's transformation from a site focused on environmental cleanup to one leading the way in the development of nuclear energy.**"

This major shift in mission priorities brings with it a change in DOE funding that boosts nuclear reactor development and reduces cleanup budget allocations. DOE's projected INEEL cleanup funding short-fall is \$13.8 billion.⁸

These priority shifts away from cleanup justifiably raise public concerns that INEEL is destined to be a "nuclear waste sacrifice zone" and inevitable continued pollution of the Snake River Aquifer.

INEEL's new mission focus is to lead the nation's effort to research and develop the next generation of nuclear power reactors and work on the development of advanced reactor fuels as part of President Bush's national energy policy. This represents an irrational addiction to nuclear power, especially in view of the fact that no commercial power company has placed a reactor order in nearly thirty years. The Bush/Cheney group is building it because no one else will!

Administratively, INEEL is now internally moved from DOE's Office of Environmental Management to the Office of Nuclear Energy.

Though DOE issued its final plan in November 2000 on plutonium production at INEEL, the Department apparently has not issued a Record of Decision on the program. It is uncertain if this is due to DOE's new priorities to build the \$1 billion next generation of nuclear reactors at INEEL and utilize the new reactor as a "dual-purpose" reactor for the production of Pu-238 and electrical power as opposed the earlier DOE preferred alternative to use the existing aging and NRC unpermitted and non-compliant INEEL Advanced Test Reactor. H

INEEL's Reactor Spent Fuel Vulnerabilities

An independent international panel of distinguished nuclear experts issued a report called "Reducing the hazards from stored spent power-reactor fuel in the United States."⁹

This lengthy technical report outlines the inherent vulnerabilities of existing commercial and DOE reactor fuel storage operations to catastrophic failure from system malfunctions and terrorist attacks. This hazard looming over the heads of Americans has spurred national attention.¹⁰

The report notes: "Because of the unavailability of off-site storage for spent power-reactor fuel, the [Nuclear Regulatory Commission] NRC has allowed high-density storage of spent fuel in pools originally designed to hold much smaller inventories. As a result, virtually all U.S. spent-fuel pools have been re-racked to hold spent-fuel assemblies at **densities that approach those in reactor cores.**"

"In order to prevent the spent fuel from going critical, the fuel assemblies are partitioned off from each other in metal boxes whose walls contain neutron-absorbing boron. It has been known for more than two decades that in case of a loss of water in the pool, convective air cooling would be relatively ineffective in such a 'dense-packed' pool.

"Spent fuel recently discharged from a reactor could heat up relatively rapidly to temperatures at which the zircaloy [sic] fuel cladding could catch fire and the fuel's volatile fission products, including 30-year half-life cesium-137, would be released. The fire could well spread to older spent fuel. The long-term contamination consequences of such an event could be significantly worse than those from the [Russian] 1986 reactor meltdown at Chernobyl." [Emphasis added]

DOE made a programmatic policy decision in 1995 to consolidate its inventory of aluminum-clad spent nuclear fuel (SNF) at its Savannah River Site in South Carolina, and its zirconium and stainless steel-clad spent fuel at the INEEL. This "centralization" plan resulted in an INEEL SNF inventory of 2,742 metric tons of heavy metal that includes 78 metric tons of zirconium clad fuel.¹¹ This inventory may be significantly understated on zirconium SNF since the Navy's inventory at INEEL is classified.¹²

Robert Alvarez, one of the principal authors of the independent hazards report, adds: "One concern about zirconium-clad SNF is that if the water drains enough to expose the fuel and the cladding heats up to somewhere between 600 to 1,000 degrees C, it will go exothermic. If the fuel is metal, then if it gets wet, it hydrides and also

catches fire."

The Navel Reactor Facility (NRF) at INEEL receives all Navel Nuclear Propulsion SNF and conducts destructive tests on nearly all Navy SNF (predominantly zirconium clad assemblies) that involve cutting the fuel mid-section to determine how well the fuel preformed in the Navy's ships and submarines. The NRF then transfers the SNF to INTEC's CPP-666 for storage.

The salient point being is that the NRF zirconium reactor fuel cladding is compromised due to the destructive testing and therefore more vulnerable to storage coolant malfunctions. Moreover, the cuttings from NRF testing of zirconium clad fuel are a major problem because the Navy dumps these pyrophoric wastes in the INEEL burial ground. According to an INEEL worker currently employed at the burial ground Pit-9 project, 18 tons of pyrophoric zirconium cuttings are interned in INEEL's dump.¹³

INEEL is in the process of consolidating current on/off-site SNF inventories to its INTEC (CPP-666) storage pools or to dry storage units. In order to make room for the additional SNF, CPP-666 is "re-racking" and condensing the SNF packing in the storage pool. This re-racking results in spacing nearly the same as in a reactor core, so any active cooling malfunction caused by systems failure or terrorist attacks presents a huge risk counted in days if active coolant systems and/or water level is not maintained.

Alvarez adds that, "The safe storage at CPP-666 depends very much on containing the risks of criticality. It's the exothermic reaction caused by very hot zirconium in a partially drained pool (about 75% is lost) that can ignite a potentially catastrophic fire."

INTEC has experienced dozens of power grid failures as well as backup power generator failures in the last decade.¹⁴ DOE's own quasi-independent Defense Nuclear Facilities Safety Board has issued numerous critical reports in recent years identifying INEEL's deficient emergency power backup systems.¹⁵ It is uncertain if current SNF storage or re-packing at CPP-666 requires active water cooling systems, if so, the operation's vulnerability is extremely problematic. An electronic copy of this independent hazards report is available via email from EDI at: edinst@tds.net

Christine Todd Whitman Head of EPA Resigns

In an apparent clash with the ultra-conservative polluter friendly Bush Administration, the head of EPA submitted her resignation (5/21/03) along with previous EPA department heads that opposed the Bush

anti-environmental agenda.

Resignations include EPA's Office of Enforcement Director Schaefer who quit over the Whitman directed EPA approval of gutting the Clean Air Act regulations that included exemptions for DOE waste processing operations. Whitman championed these DOE and utility exemptions calling them good for the environment because it gave polluters the "option" to use emission control systems without the imposed "burden" of a federal mandate. It does not take a rocket scientist to figure out which "option" DOE and the other polluters chose.

There are many talented and dedicated public servants at the technical staff level in federal and state regulatory agencies that are just as appalled as we are, but are bound by their own agency heads' political management policy decisions. To these technical staff folks, we take our collective hats off, and hope they will continue to tell us about their misgivings on the agency policy decisions.

The bottom line is thanks to the Bush Administration and Whitman's management of EPA, the Clean Air Act is effectively gutted. These new policy changes affect INEEL's mixed hazardous and radioactive waste processing operations by exempting them from many of the Clean Air Act regulations.

Thankfully, the Resource Conservation Recovery Act emission standards still apply; and since none of the major mixed hazardous and radioactive waste processing units has ever been able to meet these standards and get a permit, there is hope for legal action to bring these operations into compliance with environmental law. Regulators have issued fines against DOE; however in the context of the INEEL budget, they are just paid just like a "parking ticket" as a cost of doing their nuclear business in Idaho. The regulators get to claim they are "enforcing the law" however the net result is perpetual violation of the environmental statutes.

Tragically, any legal action will come from the public and not from the state or federal regulators. A reasonable argument can thus be made that our tax dollars supporting these regulatory agencies is miss-spent, especially when these agencies provide substantive cover for DOE's transgressions. H

Endnotes:

1. Radiation and Public Health Project and Standing for Truth About Radiation report authored by Joseph Mangano published in *Environmental Epidemiology and Toxicology*.

2. *Estimated Exposures and Thyroid Doses Received by the American People from Iodine-131 in Fallout Following the Nevada Atmospheric Nuclear Bomb Tests*, National Cancer Institute, October 1997, page 2-8. Also see, *Exposure of the American People to Iodine-131 from Nevada Nuclear-Bomb*

Tests: Review of the National Cancer Institute Report and Public Health Implications, Institute Of Medicine, and the National Academy of Sciences, 1998, that claims 212,000 excess thyroid cancers from the Nevada tests, page 58.

3. Warren Bergholtz, Acting INEEL Manager, Dear Citizen letter 1/31/03 on NEPA Planning.

4. According to DOE (5/28/03 email) another name for this PEIS is "Nuclear Infrastructure" but is not listed.

5. Advanced Test Reactor Vessel Seismic Analysis, R. F. Davidson, EG&G Engineering Analysis Division, RE-A-78-038, page 16 and 18.

6. *Citizens Guide to INEEL*, Environmental Defense Institute, 1989, see chronological listing of individual reactor melt-downs and other accidents.

7. U.S. District Court for the District of Idaho, USA vs. Kempthorne, S. Allred Affidavit, February 19, 2002, page j. Also see Status Report on Paths to Closure, U.S. DOE Office of Environmental Management, March 2000, page 4 for total DOE cleanup estimates at \$212 billion.

8. U.S. District Court for the District of Idaho, USA vs. Kempthorne, S. Allred Affidavit, February 19, 2002, page i.

9. *Science and Global Security*, Princeton University, written by Robert Alvarez, Jan Beyea, Klaus Janberg, Jungmin Kang, Ed Lyman, Allison Macfarlane, Gordon Thompson, and Frank N. von Hippel, January 31, 2003.

10. *New York Times*, "Threats and Responses: Nuclear Plants: Study Warns Attack on Fuel Could Pose Serious Hazards," Matthew Wald, 1/30/03

11. DOE Final Environmental Impact Statement, EIS-0203-F, Volume 1, Appendix B, page 3-7

12. Idaho Chemical Processing Plans Spent Fuel and Waste Management Technology Development Plan, 4/24/92, US DOE Operations Office.

13. U.S. Department of Energy, Idaho Operations document IDO-14532, page 50.

14. See *Citizens Guide to INEEL* listing of reactor melt-downs and accidents, Environmental Defense Institute, 1989.

15. See Defense Nuclear Facilities Safety Board reports on INEEL at: www.dnfsb.gov

Our heart felt thanks to all those readers of INEEL News who sent in contributions that are essential to bring this publication to you and to government policy makers.

1. Radiation and Public Health Project and Standing for Truth About Radiation report authored by Joseph Mangano published in *Environmental Epidemiology and Toxicology*.

2. Estimated Exposures and Thyroid Doses Received by the American People from Iodine-131 in Fallout

Following the Nevada Atmospheric Nuclear Bomb Tests, National Cancer Institute, October 1997, page 2-8. Also see, Exposure of the American People to Iodine-131 from Nevada Nuclear-Bomb Tests: Review of the National Cancer Institute Report and Public Health Implications, Institute Of Medicine, and the National Academy of Sciences, 1998, that claims 212,000 excess thyroid cancers from the Nevada tests, page 58.

3. Warren Bergholtz, Acting INEEL Manager, Dear Citizen letter 1/31/03 on NEPA Planning.

4. According to Kathleen Trever, Director of State of Idaho INEEL Oversight Program, (5/19/03 email) another PEIS has been issued by DOE called "Nuclear Infrastructure" that reportedly also covers plutonium production at INEEL. This PEIS is not listed on DOE's NEPA website. The fact that none of these NEPA documents are publicly available is extremely troubling.

5. Advanced Test Reactor Vessel Seismic Analysis, R. F. Davidson, EG&G Engineering Analysis Division, RE-A-78-038.

Seismic analysis of INEEL reactors also documents non-compliance with current codes. The Advanced Test Reactor (ATR) vessel "spacer bolt loads and support skirt radial bolt loads exceeded allowable values." Loads on the support skirt bolts were calculated at 76 kips and the yield load of the bolts was 43 kips. [RE-A-78-038 @ 16&18] The ATR's Emergency Firewater Injection System (EFIS) would be inoperable during a design basis earthquake. The purpose of the EFIS is to inject firewater into the reactor core to prevent irradiated fuel elements from being uncovered in the event of a loss-of-coolant accident or a complete loss of coolant flow during reactor operation or shutdown. The ATR was built in the 1963 in accordance with national building code standards applicable at that time, but it was not built to earthquake standards. Because the EFIS does not meet current seismic codes and because of the potential firewater piping hanger failure, engineers declared the system technically inoperable. This means the system is functional but documentation does not support operability for the full range of intended safety functions (i.e. earthquakes). [OE-95-35] The ATR also has no containment building currently required around nuclear reactors to contain radioactive releases in the event of an accident. The ATR continues to operate today - primarily conducting materials testing for the Nuclear Navy.

6. *Citizens Guide to INEEL*, Environmental Defense

Institute, 1989, see chronological listing of individual reactor melt-downs and other accidents.

7. U.S. District Court for the District of Idaho, USA vs. Kempthorne, S. Allred Affidavit, February 19, 2002, page j. Also see Status Report on Paths to Closure, U.S. DOE Office of Environmental Management, March 2000, page 4 for total DOE cleanup estimates at \$212 billion.

8. U.S. District Court for the District of Idaho, USA vs. Kempthorne, S. Allred Affidavit, February 19, 2002, page i.

9. *Science and Global Security*, Princeton University, written by Robert Alvarez, Jan Beyea, Klaus Janberg, Jungmin Kang, Ed Lyman, Allison Macfarlane, Gordon Thompson, and Frank N. von Hippel, January 31, 2003.

10. *New York Times*, "Threats and Responses: Nuclear Plants: Study Warns Attack on Fuel Could Pose Serious Hazards," Matthew Wald, 1/30/03

11. DOE Final Environmental Impact Statement, EIS-0203-F, Volume 1, Appendix B, page 3-7

12. Idaho Chemical Processing Plans Spent Fuel and Waste Management Technology Development Plan, 4/24/92, US DOE Operations Office.

13. U.S. Department of Energy, Idaho Operations document IDO-14532, page 50

14. See *Citizens Guide to INEEL* listing of reactor melt-downs and accidents, Environmental Defense Institute, 1989.

15. See Defense Nuclear Facilities Safety Board reports on INEEL at www.dnfsb.gov