rwc Waste Paper

radioactive
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Spring
1988

Deadly Defense

(see story on page 3)

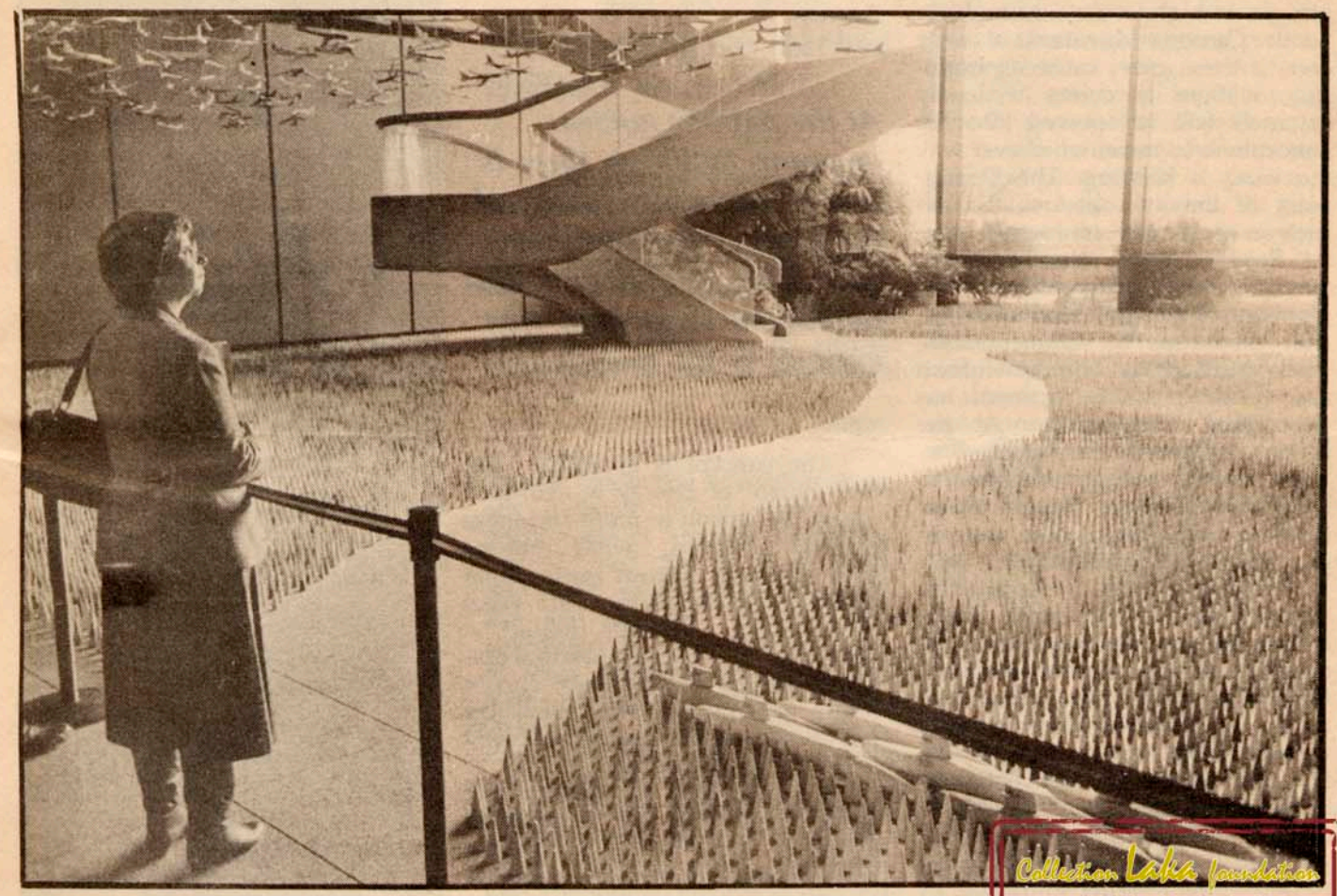

Photo by Robert del Tredici from At Work in the Fields of the Bomb, *Harper and Row, 1987*

This field of 25,000 ceramic nose cones, displayed in the Boston Science Museum, represents the entire U.S. nuclear arsenal. The photo also appears in the new Radioactive Waste Campaign book, Deadly Defense.

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Editorial

Independent Oversight of the Department of Energy

By Minard Hamilton

Nuclear waste hit the front page of the *New York Times* repeatedly in late 1987 and early 1988.

Corrosive salty water is flowing into the chambers of a salt cavern dug deep under the desert near Carlsbad, New Mexico. This cavern is destined to receive barrels and barrels of extraordinarily toxic, plutonium-contaminated waste. The Department of Energy says the leaks pose no problem and will pose no threat to the integrity of the steel drums.

A dangerous build-up of hydrogen gas in high-level waste tanks in South Carolina threatens a wide area. If these gases cause an explosion, millions of curies of deadly materials will be spewed into the atmosphere to travel whichever way the wind is blowing. The Department of Energy reassures us that such an accident won't happen.

Readers of the *Waste Paper* are familiar with more problems. Department of Energy shipping casks, after thousands of shipments, are deemed unsafe and withdrawn from use. Further, the Department has suppressed vital reports. At the Hanford military reservation, iodine-129 is moving underground towards the Columbia River. Reports about the leak were suppressed for ten years by the Department.

Now, readers of the Radioactive Waste Campaign's new book, ***Deadly Defense***, discover that at the nation's nuclear weapons facilities, there is one groundwater source after another polluted, one river after another contaminated, one wasteland after another in the making. All of these sites are run by the Department of Energy.

And the Department of Energy is the entity recently entrusted by the U.S. Congress to design, build and operate a *safe* storage area for all of the nation's high-level waste in Nevada? An area that will be *safe* for thousands of years?

Increasingly, environmentalists, policy makers and Congress itself are skeptical regarding the Department of Energy's record. Several bills are pending on Capitol Hill that would strip that agency of its self-regulating powers. The Energy Department would be regulated by an outside, independent agency such as the Environmental Protection Agency.

At the nations nuclear weapons facilities, there is one groundwater source after another polluted, one river after another contaminated, one wasteland after another in the making.

The concept is appealing. The Department of Energy is dedicated to the production of more and more nuclear weapons, which means more and more nuclear waste. What producer can regulate itself? What producer can say, our product is dangerous, does pose a risk to workers, to nearby communities, and to future generations? What producer can say we made a mistake and need to do our job differently?

It would help to have another agency regulating the Department of Energy. It would help to have the Environmental Protection Agency or some independent entity with the integrity of the American Federation of Scientists in an oversight capacity. However, even these bureaucratic changes, difficult as they may seem within the context of a cautious, slow-to-act U.S. Congress, may not go far enough. After all, critics of the Atomic Energy Commission were ju-

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Minard Hamilton is director of the Radioactive Waste Campaign.

rwc Waste Paper

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The Radioactive Waste Campaign promotes greater public awareness of the dangers to human health and the biosphere from the generation of radioactive waste. The Campaign's programs include research, information dissemination and public education.

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America's Deadly Defense —A Double-Edged Sword—

By Tom Carpenter

America's nuclear weapons factories are themselves slow-motion bombs raining radioactivity into our air, soil and water. This ongoing disaster is not the result of some sinister foreign power. Rather, it is the poisonous by-product of a secret and dirty program that pumps out three to ten new nuclear weapons a day, environment be damned. This is the message-and the warning-of the Radioactive Waste Campaign's just-released book, ***Deadly Defense***.

Deadly Defense is the result of two years of intensive study by the Campaign's scientific staff, drawing upon their research into this under-explored territory. Such notables as Dr. Rosalie Bertell, Dr. Alice Stewart, whistleblower William Lawless and others contributed to this valuable resource. The Radioactive Waste Campaign's latest effort is particularly relevant because it pulls together hard-to-find information on a massive industry that has operated in virtual secrecy for decades.

As a community activist, I vividly recall my own frustrating attempts a few years back to research the Fernald uranium reprocessing plant in Ohio. Surprisingly, no one in Cincinnati had heard of the thirty-year-old plant, even though it was an important link in the nuclear weapons chain. No information was available, either in the libraries or from the government. After years of Congressional oversight and digging, and with the invaluable help of the Fernald unions, Cincinnati learned that Fernald had sent hundreds of thousands of pounds of uranium dust into the air. Now, through the Radioactive Waste Campaign's scientific research efforts, published in ***Deadly Defense***, we know the extent and severity of the contamination of the water supplies for Cincinnati and Dayton.

Deadly Defense fills the information breach. Not only does it describe Fernald in detail, it also focuses on all thirteen major nuclear weapons production sites in the country. This report is a must for citizen activists, scientists, politicians, and all thinking persons on the planet. It forges into the debate on nuclear weapons the one issue that is most overlooked—the poisoning of our environment in the name of national security.

The poisoning has reached epidemic proportions.

Unfortunately, Campaign scientists tell us that the news is unsettling. The poisoning has reached epidemic proportions. Federal officials have admitted that clean-up costs for the radioactive and hazardous waste pollution problems could surpass $100 billion. And the Environmental Protection Agency is powerless to regulate the Department of Energy, the agency responsible for overseeing the production of nuclear weapons. At every nuclear weapons production site in America, groundwater, soil and air pollution is the norm. Billions of gallons of radioactive and chemical pollution have oozed into the water and soil. Many of these environmental quagmires have irreversibly polluted groundwater resources. At the Hanford Reservation in Washington State and the Savannah River plant in Aiken, South Carolina, radioactive materials contaminate groundwater 400 times higher than allowable standards. The continuing environmental carnage is irreversible. At the Lawrence Livermore Laboratory, expansion plans call for the generation of an astounding 2,400,000 liters of radioactive waste a year.

Deadly Defense traces the historical development of nuclear weapons production from the genesis of the atomic age to the present, and provides an overview of the current production system. The book details the role of the thirteen major factories, and discusses the problems common to each. It also discusses in understandable language the potential health effects associated with the radioactive contamination of our water resources, particularly focussing on the type of radionuclides most commonly emitted by these facilities. Most importantly of all, the Campaign staff urges crucial solutions to this mind-boggling problem, offering serious policy recommendations that could well become a platform for presidential candidates.

As the authors point out, even were the government to walk away from these facilities today, the problem of groundwater contamination will be with our grandchildren's children and beyond. The earth's water system is interconnected in a multitude of ways. Water travels via a complex path of cracks, fissures, permeable strata and aquifers. Once an underground source of fresh water is contaminated, there is no turning back-it will take hundreds of thousands or even millions of years to cleanse itself. Furthermore, radioactive pollution is just one aspect of the problem. The Campaign's research has exposed, for example, hazardous solvent contamination at the Tennessee Oak Ridge facility at levels at least 1,000 times higher than proposed drinking water standards permit. ***Deadly Defense*** sounds the alarm that aquifer after aquifer is threatened from the bomb factories, putting at risk the water supply of entire cities.

Apart from the dire warnings, ***Deadly Defense*** offers us a way out of this dilemma. Its first recommendation is perhaps the most contro-

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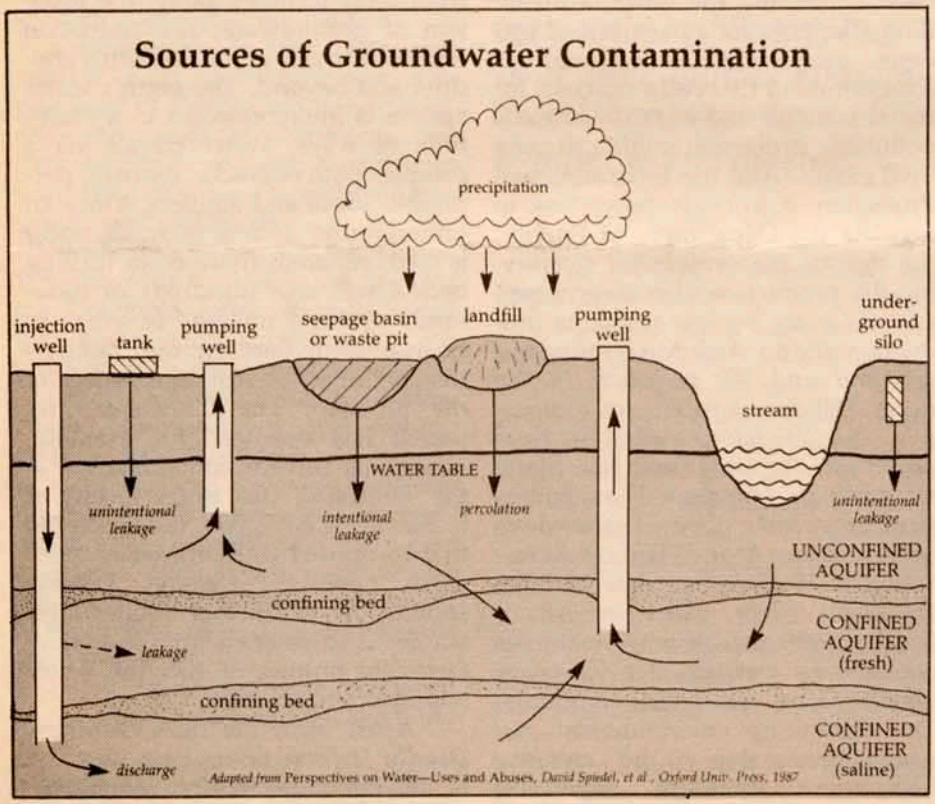
Tom Carpenter is the Citizens' Clinic Director of the Government Accountability Project in Washington, DC, and has represented whistleblowers from several nuclear weapons factories such as Fernald.

versial, but it unquestionably (and boldly) defines the fundamental first step—break the spiral of self-destructive behavior by phasing out nuclear weapons production altogether. This recommendation is made, not based upon the usual political and moral grounds, but instead upon the obvious scientific fact that environmentally we cannot survive peace the way we are now practicing it—in perpetual preparation for war. No nuclear weapon need even be exchanged for us to lose the environmental war. Certainly it will soon be too late to hope to clean up the environmental mess, if we don't act now.

Other recommendations include the immediate exhumation of the worst landfills; the end to unsafe waste disposal practices (such as stream dumping); the application of federal environmental laws to these facilities; the monitoring of burial grounds, with the results made public; the independent regulation of the nuclear bomb factories apart from the Department of Energy, which is responsible for production; the allowance of more opportunity for community involvement in decision-making; the conducting of independent health studies around these facilities; the public release of information concerning contamination problems at all the facilities; and finally, whistleblower protection legislation to take the chill off of employees fearful of reporting health and safety threats.

These are basic, first-step recommendations, surprising only in that they have not yet been thought of by the government, much less implemented. Many of the recommendations offered by the Radioactive Waste Campaign indeed would already be requirements if these facilities were subject to the same laws to which we expect our commercial enterprises to conform. It is a sad comment on the state of these facilities, and upon Congress in particular, that under-funded watchdogs like the Campaign should have to fight for these basic, common-sense solutions.

In summary, ***Deadly Defense*** is not just a compilation of facts and statistics. It is a readable and well-prepared exposition of the problem as a whole, with photographs, maps and charts, and recommendations which propose sane solutions and useful strategies for citizens who find themselves "downwind or downstream." It finally puts into context the actual consequences of nuclear bomb production in a non-emotional and matter-of-fact manner. The extent of the damage done to date may shock readers, but hopefully it will energize them as well, and provide them with tools for the struggle towards environmental sanity and world peace. I urge everyone to read this book.



This figure accompanies the discussion on groundwater contamination that occurs in Chapter 3 of ***Deadly Defense***

Editorial/continued

bilant back in 1974 when the Nuclear Regulatory Commission was formed. And now, a short fourteen years later, grave questions are being raised regarding the Commission's effectiveness.

A bureaucratic change probably will help. But deeper changes in the fabric of our society are necessary. Collectively, we need to start asking if the failings of bureaucracies in Washington are, in part, the result of our persistent refusal to recognize and respond to the true magnitude of the nuclear waste dilemma. Is the problem deliberate disinformation on the part of our own government and its agency in this matter, the Department of Energy? Is it secrecy and lies? Is it the inertia of timid bureaucrats unwilling to admit to past mistakes? Or is our true enemy not a bureaucracy, not an administration, but rather our own self-delusions—our own perpetual faith that just around the corner is a nice neat scientific solution to the radioactive contamination that today is threatening our drinking water, our agricultural base, our cities, our children and grandchildren?

Let's go for independent oversight of the Department of Energy, but let's not delude ourselves. That will be a mini-step, only the first of a series of painful and difficult decisions that we as a society must collectively start to make now. Citizens will need to get involved far more extensively than ever before to monitor whichever agency takes on the Department of Energy. Reading technical reports and attending public hearings will become a must.

And if this public participation evokes a rigorous re-evaluation of both our energy and our defense policies then that, too, must be taken on. The prevention of the poisoning of future generations requires utmost dedication on all our parts.

Compact Update

By June Peoples

By January 1, 1990, less than two years away, individual states and regional compacts must select the site for a "low-level" nuclear waste dump. This deadline has been mandated by the federal 1982 Low-Level Radioactive Waste Policy Act. An operating plan must also be in place at this time.

Citizens, environmentalists and lawmakers across the land are juggling regional ecological concerns, budgetary pressures and the federal timetable. Here's what is happening around the nation:

Appalachian Compact

Pennsylvania, Delaware, Maryland, West Virginia

Pennsylvania has volunteered as host state. The Pennsylvania Department of Environmental Resources is currently seeking a contractor to screen the state for possible sites.

A strict "low-level" waste disposal act was adopted by the state government in February. It bans commercial incineration, does not limit the liability of the site operator and severely restricts below-ground disposal options.

Jeff Schmidt of the Harrisburg Sierra Club, who was active in promoting the bill's passage, notes that the bill requires above-ground disposal unless the contractor can prove to the state that underground solutions are safer. An operator will be selected by November of 1988, and Westinghouse, ChemNuclear and US Ecology are reportedly considering a bid. By March of 1989, the contractor will select three potential locations from which the state will choose. A final site will be picked by early in 1992. The Appalachian Compact still requires ratification by the U.S. Congress. It is expected this year.

Central Compact

Nebraska, Arkansas, Kansas, Louisiana, Oklahoma

In December of 1987, Nebraska was picked as the host state. Chaos ensued.

In both Nebraska and Arkansas, citizens are organizing initiatives to pull out of the compact and develop single-state disposal plans. Kansas had also threatened to secede at one point.

To counter such threats, the compact commission adopted stringent penalties for states leaving the compact. For Nebraska, for example, the commission estimates pull-out penalties as high as $81 million, which does not include the subsequent cost of developing the state's own disposal site.

Citizen groups are not daunted. "If you divide that ($81 million) among the residents over 30 years, it comes to $1.72 per person per year," says Sam Welsch, a spokesman for Nebraska for the Right to Vote. He adds: "If that's the price we have to pay, it's worth it."

While activists organize the secession vote, the Nebraska Department of Environmental Control and the compact's contractor, US Ecology, will proceed with the site selection process. Nebraska will license the disposal facility.

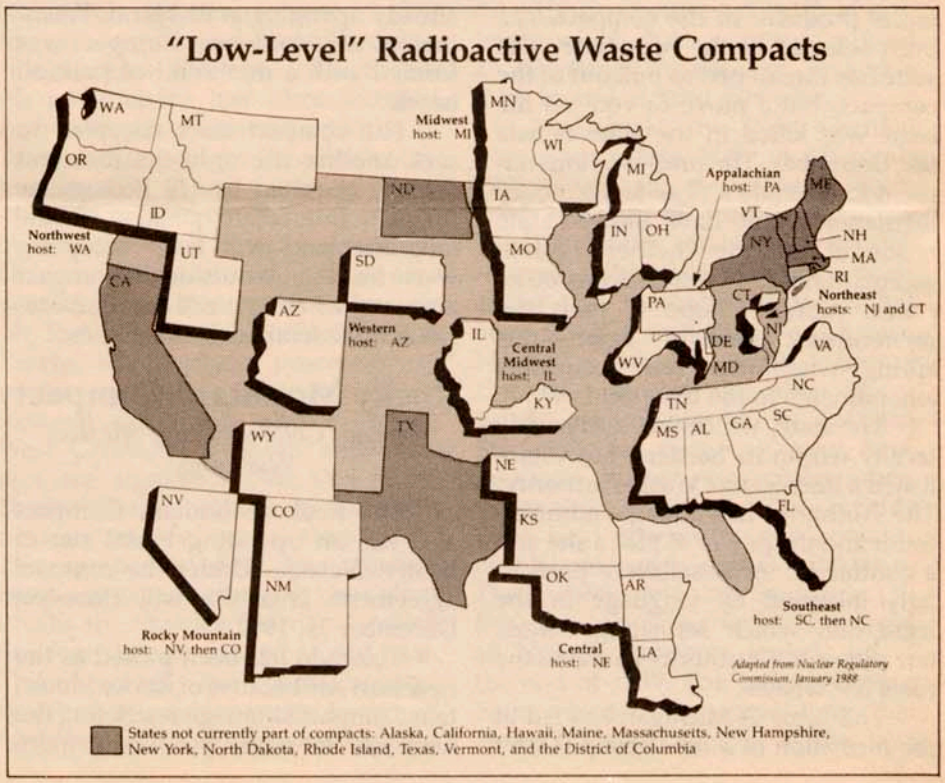
Central Midwest Compact

Illinois and Kentucky

Illinois—the nation's leading producer of "low-level" waste—is the host site. So the question remaining, one which Illinois officials are scrambling to answer, is which of the state's 102 counties will host the dump site.

The issue of "low-level" waste is not a new one for Illinois. Residents of Sheffield, Illinois, are well-acquainted with the scenario. US Ecology opened a radioactive waste storage site there in 1967. The site leaked, and now the state is suing US Ecology for $97 million for clean-up costs.

Eight counties have voted against hosting the burial site. But a small



June Peoples, who lives in Millbrook, New York, is a journalist and a member of the Radioactive Waste Campaign Board of Directors.

town in one of the eight counties has now volunteered as the site. Clark County's Martinsville, located in southeastern Illinois, lured no doubt by the compact's multimillion-dollar incentive package, has allowed the state to conduct in-depth site characterization tests, and may contract to host the site despite county government opposition. If tests give a green light to a Martinsville storage area, court battles are likely to follow as Clark County challenges the town's right to proceed.

In the meantime, after a long campaign by environmentalists, the Department of Nuclear Safety has proposed several significant rule changes. The Department is endorsing the concept of "zero release" of radioactivity as a performance objective for the facility. As a performance requirement, the Department is also proposing a one millirem per year whole body dose for people outside the disposal area. Both are extremely progressive protective rules, and both are strongly opposed by industry and generator representatives. Illinois has also committed to above-ground storage methods.

Midwest Compact

Michigan, Indiana, Iowa, Minnesota, Missouri, Ohio, Wisconsin

Michigan, which is the largest waste producer in the compact, has been selected as the host state. The state has threatened to pull out of the compact, but a move to vote on the issue was killed in the state Senate last December. The proposed amendment to the state's "low-level" policy legislation would have allowed state residents to decide whether or not to accept radioactive waste from other states. Activists hope to raise the referendum question again this spring when the state considers amendments to the compact law.

The state, which will license any facility within its borders, has established a Radioactive Waste Authority. The Authority has a single administrator and the power to pick a site and a contractor. Activists were particularly incensed by language in the legislation which set siting criteria but allows the Authority to waive the rules if it wishes.

The furor in Michigan has led to the formation of a new group, Don't Dump Michigan, which is geared toward preventing Michigan's use as a seven-state disposal ground.

Michigan officials are among those calling for a meeting to discuss the possibility of reducing the number of disposal sites across the country through "megacompact" agreements between existing compact commissions. State officials reportedly would like Congress to rewrite the Low-Level Radioactive Waste Policy Act to limit the number of disposal areas to four nationwide.

The state also has sought the reopening of compact negotiations to address questions not covered in the original language, such as sharing of liability at the site.

Northeast Compact

Connecticut and New Jersey

Both states have been targeted to host a disposal site by this compact, which initially included several other northeastern states. Each state is responsible for selecting and developing a site. It's likely the facilities will handle different grades of waste, with specifics of the plan and storage methods to be developed this year.

Northwest Compact

Washington State, Alaska, Hawaii, Idaho, Montana, Oregon, Utah

With a "low-level" waste site already operating at Richland, Washington, the Northwest Compact was formed with a minimum of political hassle.

The compact does not plan to seek another site until the Richland facility, operated by US Ecology, is full. The immediate question is how long Richland will keep accepting waste from states outside the compact area, and whether it will handle material from federal nuclear facilities.

Rocky Mountain Compact

Nevada, Colorado, New Mexico, Wyoming

The Rocky Mountain Compact also has an operating burial site at Beatty, Nevada. Under the compact agreement, that site will close on December 31, 1992.

Colorado has been picked as the new host site because of Rocky Mountain Compact language restricting the host site to states producing more than 20 percent of the region's waste. At present, Colorado is the only state meeting this criterion.

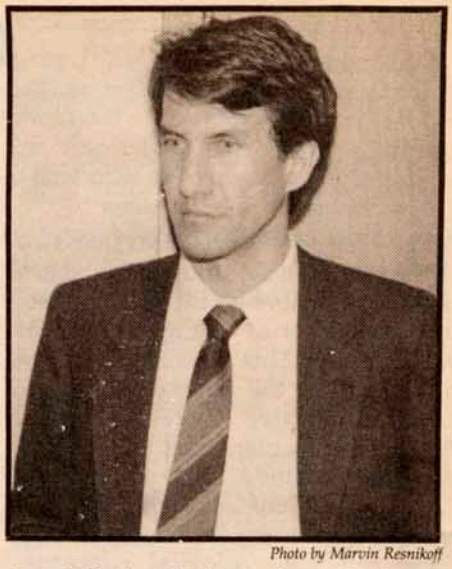


Photo by Marvin Resnikoff

Sam Welsch, a beekeeper by trade, is a leader of Nebraskans for the Right to Vote. The group is seeking to put the issue of Nebraska's participation in the Central States Compact on the November ballot.

Colorado will license the new site and is expected to proceed with site selection this year. The compact has already agreed to accept waste from Rhode Island and Washington, D.C., on a contract basis, and may negotiate similar arrangements with other unaffiliated states.

Southeast Compact

South Carolina, North Carolina, Alabama, Florida, Georgia, Mississippi, Tennessee, Virginia

Chem-Nuclear currently operates a burial site at Barnwell, South Carolina, which will continue in use until a new site is opened in 1992. North Carolina has been selected to host the second site, and Alabama may be in line for the third. A compact amendment restricts each state's disposal site life to 20 years or 32 million cubic feet, whichever comes first.

The Southeast Compact is the nation's largest, both in number of states and volume and curie count of material.

To assure that other states carry their share of this considerable burden in the future, North Carolina's legislature passed a law restricting pullout from the compact to a period of 30 days after the North Carolina

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West German Radioactive Waste Scandal Revealed

By Bill Shutkin

On January 22, 1988, the Bundestag, West Germany's lower house of parliament, established an 11-member committee to investigate a radioactive waste scandal involving the German company Nukem GmbH. The multi-partisan committee, headed by Social Democrat Ingrid Matthaeus-Maier, is expected to call over 100 witnesses for testimony and to subpoena documents from various environmental and energy ministries in addition to the businesses involved. The hearings are expected to last two years.

The German nuclear fuel cycle company Nukem GmbH and its subsidiary, Transnuclear GmbH, are at the center of a controversy involving charges of embezzlement, bribery and violations of the Nuclear Non-Proliferation Treaty. Guenther Lurf, new managing director of Nukem GmbH, claims that 5-6 million deutschmarks ($3-3.6 million) were embezzled by former Transnuclear officials in the waste management department from their dealings with the Belgian Nuclear Research Center, located in the city of Mol. Approximately 1% of this amount supposedly went to Center officials. Another 7-10 million deutschmarks are alleged to have been embezzled by Smet-Jet, a Belgian waste management subcontractor, from contracts with Transnuclear. It is believed that only a small portion of the work paid for, worth 22 million deutschmarks, was actually done. Smet-Jet may have been overpaid as much as 10 million deutschmarks. Moreover, the relationship between Smet-Jet and the Center is suspicious. According to the publication *Nucleonics Week*, while Smet-Jet has worked for the Center since 1980, it did not send it a bill until 1987, and that one for only 20,000 deutschmarks.

Bill Shutkin is a Campaign intern active in environmental affairs. He will be starting law school in August and hopes to eventually practice and teach environmental law.

The scandal extends beyond Germany and Belgium into Sweden. Transnuclear's transactions with the Swedish nuclear company Studvik allegedly included bribes, such as gifts of bar and bordello visits, to Swedish executives, in exchange for lucrative contracts. The Swedish newspaper, *Aftonbladet*, printed the front page headline "I Bribed the Swedes," based on information obtained from an anonymous Transnuclear ex-employee. This ex-employee named five Swedish executives whom, he claimed, patronized prostitutes and posh restaurants at the company's expense. Also, the informant's former boss at Transnuclear, Hans Holt, was imprisoned in 1987 for such crimes and committed suicide there last December. The Swedish government has since initiated an investigation into the activities of Transnuclear and its Swedish counterparts.

The controversy involves charges of embezzlement, bribery and violations of the Nuclear Non-Proliferation Treaty.

Of greater weight and consequence than the charges of embezzlement schemes and bribery are possible violations by Transnuclear of the Nuclear Non-Proliferation Treaty, which places possession of nuclear materials under strict international safeguards and to which West Germany, Belgium and Sweden are signatories. In December, Transnuclear's licences to transport nuclear material were suspended. The company's new management has since expressed regret over what it calls the "nuclear tourism" which the company conducted in the past. This involved the "unnecessary" shuffling of nuclear waste back and forth between German reactors and Mol, Belgium, where the waste was sorted, treated and packaged. Now, say Transnuclear officials, German reactor waste will be packaged at the reactor sites themselves and not in Belgium. Transnuclear also claims that the Mol Center is responsible for any possible violations of the Non-Proliferation Treaty because it failed to identify the contents of at least 321 200-liter drums of cemented waste contaminated with plutonium which had been sent back to West Germany after packaging. In fact, the waste did not belong to Transnuclear but rather a Belgian reactor. Last December, the Mol Center agreed to take back the contaminated waste and return the actual German waste. The Center claimed the mistake was unwitting. Mysteriously, however, 2000 drums of this waste later "disappeared" from the Belgian center. Then, in February, in Ellweiler, West Germany, at least one drum of this missing waste unexpectedly "reappeared" at a non-Nukem disposal site there. The discovery was the indirect result of an investigation prompted by local protests, which had centered around an alarming increase of leukemia rates in and around Ellweiler.

At Lubeck, the West German port from which 90% of Nukem's 1987 waste shipments were sent, more evidence of possible Non-Proliferation Treaty violations were discovered. The West German press claims that radioactive material has been shipped to Pakistan and Libya. Nukem, which under license shipped unknown quantities of cobalt-60 and cesium-137 to Pakistan for medicinal purposes, may have also sent nuclear material for other, uncertain, purposes. No records were kept concerning the contents of Nukem cargo sent to Pakistan. The Lubeck Port and Seamen's Office, further, apparently destroyed all Nukem transport records up to the end of 1985. The Lubeck Greens have asserted for some time that waste transport control at the port

is unsatisfactory. The German press also indicates that fissionable material has been sent to Libya via Swedish transport. The Swedish government is following up on these allegations.

Matthaeus-Maier has acknowledged that Non-Proliferation Treaty violations are the most serious charges brought against Nukem and its subsidiary. Moreover, while her desire is to "keep the investigation operating within the realm of facts," Matthaeus-Maier is certain the proceedings will ignite a broader debate on nuclear energy, since they will "have to provide an answer to the question of whether the safe and final disposal of nuclear waste and spent fuel is even possible."

Nukem GmbH and Transnuclear GmbH have undergone massive management changes in the last few months. Under investigation by auditors, tax inspectors, public prosecutors, and internal security, Nukem's fate remains uncertain. Nevertheless, management is optimistic. "Some things are bound to change," said Bernhard Liebmann, the head of Nukem's management board, "but we believe Nukem can survive." Public acceptance is primary on the agenda, said Liebmann. Secondary is the "unweaving of the complex and cumbersome Nukem family of companies and managers."

Nukem's old executive system, a triumvirate with no one clearly in charge of operations, apparently left the way open for possible corruption and mismanagement. Liebmann pledges more responsible leadership. In the meantime, Nukem's transport licenses remain suspended pending the outcome of the Bundestag investigation. The company's operations other than waste transport, which account for 80% of Nukem's business, continue to function normally.

In the United States, both the Nuclear Regulatory Commission's Office of International Programs and the Department of Defense have expressed concern over the Nukem scandal. James Shea, director of the Office of International Programs, has demanded detailed information regarding Transnuclear, Inc., an American company partially owned by Transnuclear GmbH which manufactures nuclear fuel shipping containers used in the United States. Specifically, Shea wants an "explanation of the management independence of the licensee from management direction, policy and programs of Transnuclear and Nukem." Also, the Department of Defense is interested in the investigation. It has been studying for four years the adequacy of physical security for United States-flagged nuclear material in Europe. For the Department, it is an opportunity to gauge the seriousness with which West Germans consider and treat Non-Proliferation Treaty issues.

Compact Update/continued

site opens. The legislation requires other compact states to pass similar laws, under the threat that North Carolina will withdraw from the compact if they do not. It is unclear whether the other seven states will comply, and even less clear whether it is constitutional to pass a law binding a state government to actions 20 to 40 years hence.

North Carolina activists, worried their state may end up a dump site forever, are urging state lawmakers to secede from the compact. "I just think we've been suckered into it," says Lisa Finaldi, director of the Clean Water Fund in Raleigh. "People don't realize it, but this dump may never close."

Western-Southwestern Compact

California, Arizona, North Dakota, South Dakota

This compact, which still requires Congressional approval, is a catch-all of western states that couldn't decide where else to go. California, well underway with its site search, has agreed to host the first burial site. The state has targeted a site in Ward Valley, in the state's eastern Mojave Desert, near the town of Needles. The location, however, is home to one of the few remaining populations of the desert tortoise, a species threatened with extinction and which is, coincidentally, California's official reptile.

US Ecology, the state's contractor, has suggested fencing off the disposal area with "tortoise-proof" barriers. But the site is staunchly opposed by the Desert Tortoise Council, a group of 150 biologists, ecologists and zoologists. A ruling on the tortoises from the state Fish and Wildlife Department is expected soon.

It's likely that the compact's second dumpsite will be in Arizona, the second largest waste producer in the region.

Unaffiliated States

Maine, Massachusetts, New York, Texas, New Hampshire, Vermont, Rhode Island, Washington, D.C.

Maine officials are studying the possibility of using the Maine Yankee nuclear power plant as a "low-level" waste storage site after the plant closes in 2008. The state's "low-level" waste siting plan was originally rejected by the U.S. Department of Energy. It is now being reconsidered.

Late last year, Massachusetts set aside $670,000 to start developing siting criteria. The state legislature created a "low-level" waste authority to address the issue.

Vermont and New Hampshire are out of compliance with federal deadlines. New Hampshire has indicated that it plans to stay out of compliance, observing that the state produces little radioactive waste due in part to delays in opening the Seabrook nuclear power plant. Vermont's state government is still considering the matter in committee.

Maine, Massachusetts, Vermont and New Hampshire are reportedly still negotiating the possibility of forming a New England compact.

New York has not completely ruled out the possibility of joining in a compact with other East Coast states, but is progressing with its own siting plan in the meantime. In the summer of 1988, six to eight potential sites will be identified. These will be narrowed down to one site by January, 1989. State officials are said to be eyeing central New York's salt dome formations as a possible location for the dump.

Texas, in the process of opening four new nuclear power plants, is eager to site a "low-level" waste area as soon as possible. The state has picked two potential dump sites in Hudspeth County, near El Paso. The choice met with heated citizen opposition and several lawsuits. The site's proximity to the Mexican border also has been raised as an objection.

Fallout on the Freeway

By Marvin Resnikoff

A preliminary review by the Radioactive Waste Campaign of Department of Energy documents shows that trucks have been involved in numerous accidents while shipping nuclear materials between weapons production facilities. The documents were recently obtained through a Freedom of Information Act request. In the past 12 years, there were 178 accidents (known as 'hazardous materials incidents' to the Department of Transportation), some of which were quite severe. Nuclear materials were released or containers damaged in five of these accidents. A summary of this review is being incorporated into the Campaign's new book, ***Deadly Defense***, to be released at the end of May.

Nuclear materials that make up a nuclear warhead are plutonium, tritium and highly-enriched uranium. These are shipped between Department of Energy facilities in convoys of two or more trucks along interstate highways. The prime facilities are located in Texas, Nevada, Washington, South Carolina, Tennessee, Ohio and Colorado. Warheads that are assembled at the Pantex Plant in Amarillo, Texas, are shipped to defense installations all over the country. Completed warheads headed for Trident submarines are shipped by train along regular rail lines.

The semi is unmarked; not even radioactive symbols appear.

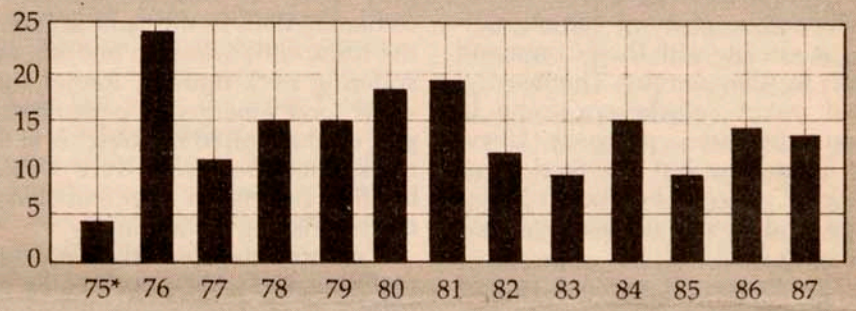
Analysis of Department of Energy records shows 178 accidents/incidents occurred between the fall of 1975 and December of 1987, or approximately 15 per year. Most were minor incidents in parking lots. As seen by the table below, the yearly numbers show no pattern, neither improvement or worsening of accident rates. By state, New Mexico, Tennessee and Texas stand out with the most accidents, 34, 33 and 21, respectively. This comes as no surprise since the Department of Energy parking lots are located at Albuquerque, Oak Ridge and Amarillo. Parking lot incidents involve unwieldy semi's scraping other vehicles in tight parking spaces. The main causes of accidents differ little from non-nuclear accidents: driver fatigue, speed too fast for conditions, snow and ice, and deer or elk on the highway at night. No accidents appear to be due to faulty equipment, though trucks have lacked snow tires under winter driving conditions. The accident/incident rate is approximately four accidents per million miles travelled. This is slightly below the national Department of Transportation accident rate of 4.5 accidents per million miles for heavy (greater than 5 tons) trucks.

Other accidents have occurred as nuclear material travelled between plants, Air Force bases, Naval ports and missile installations and fuel fabrication facilities. Some of the serious incidents involving radioactive contamination or puncture are summarized here:

- On July 29, 1986, a shipment of irradiated fuel from Sandia National Laboratory in Albuquerque, New Mexico, to the Savannah River Plant in Aiken, South Carolina was shipped in a contaminated container. Rather than clean it up, Sandia officials simply wrapped the container in plastic

Marvin Resnikoff is staff scientist for the Radioactive Waste Campaign.

Department of Energy
Transportation Accidents



*includes only the fourth quarter

Accidents by State

Alabama	1	Kentucky	5	Tennessee	33
Arkansas	3	Nevada	4	Texas	21
Arizona	1	New Mexico	34	Utah	2
California	9	New York	6	Virginia	5
Colorado	10	North Carolina	2	Washington	1
Connecticut	2	North Dakota	1	West Virginia	2
Georgia	1	Ohio	5	Wyoming	7
Idaho	4	Oklahoma	1	unidentified state	1
Illinois	1	Oregon	1		
Indiana	2	Pennsylvania	6	TOTAL	178
Iowa	2	Rhode Island	1		
Kansas	3	South Carolina	1		

and sent it on its way. The radiation levels were 30 times the Department of Transportation's regulations.

- Two shipments in 1981 involved punctured containers. Though no plutonium was released in either accident, one shipment involved plutonium-contaminated waste travelling from the Rocky Flats Plant to the Idaho National Engineering Laboratory via the Union Pacific Railroad.
- In 1980, a radioactive 'spill' (release of contents) occurred in a shipment of "low-level" waste from a Cheswick, Pennsylvania, fuel fabrication plant.
- In 1976, a shipment from Ohio's Mound Laboratory to the Maxey Flats, Kentucky, landfill, contaminated a trailer with tritium.
- On August 11, 1987, a Department of Energy tractor-trailer, most probably on its way to pick up a fully-armed nuclear warhead at Brookhaven, New York, was involved in a multi-vehicle accident on the Cross-Bronx Expressway in the Bronx.

Truck convoys consist of at least one semi and a heavily-armed escort vehicle. The semi is unmarked; not even radioactive symbols appear. The truck cabs are armor-plated; each truck door itself weighs 210 pounds. Trucks are in constant communication via satellite with their Command Center in Albuquerque. The heavily-armed escort vehicle can come in various disguises, primarily Chevrolet Suburbans, but also Ford Vans, an Olds Cutlass, a Beechcraft Motor Home, and even a 40-passenger bus have been used.

The shipments are not carried out by contractors, but by the Department of Energy itself. The drivers are federal officials who have taken a 12-week training program consisting of courses on vehicle maintenance, supervised driving and communications. In addition, couriers are trained in the use of pistols, shotguns, automatics and grenade-launched weapons. The semi's themselves are operated by three drivers in shifts—a driver, a sleeper and a guard "riding shotgun."

The primary mission of these paramilitary outfits is to deliver nuclear materials to their destinations. The Department of Energy is dedicated to keeping these nuclear materials out of "terrorist" hands. "Terrorist" sometimes seems to be defined to mean anyone but the Department of Energy. Occasionally, guns have been pulled on legitimate local emergency personnel simply for asking the wrong questions. For example, at an accident near Baker, Oregon on April 6, 1982, a truck landed on its side and highly-enriched uranium containers broke from their weak moorings. When the fire chief inquired whether or not radioactive material was involved, the escort pulled a handgun on him. The fire chief had a legitimate health and safety need for this information in order to alert ambulance and hospital crews to possible radioactive contamination. In the same accident, the truck crew was also injured, one suffering neck injuries. Rather than allow local emergency personnel to pick up the injured by stretcher at the truck, the truck crew were walked by the escorts to the ambulance, thereby risking further injury.

A more detailed study on military transport will be released by the Radioactive Waste Campaign in 1989.

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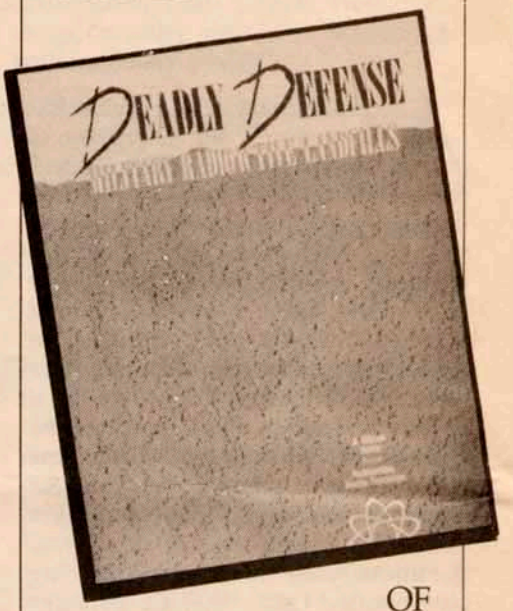

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Nation's First Military Waste Repository Springs a Leak

By Jennifer Scarlott

The federal government's $700 million plan for demonstrating the safe disposal of plutonium-contaminated military waste has recently sprung a leak. In the dry and dusty desert of southeastern New Mexico in what was once thought by government scientists to be one of the driest places on earth—the salt beds of a long-evaporated prehistoric ocean—water is leaking in at the rate of more than one gallon a minute. At this rate, one vast underground cavern dug by the Department of Energy will be full of water in 25 to 30 years.

In the long search for a suitable geologic repository for radioactive wastes, the government has long favored salt deposits over other geological formations. In 1974, government officials selected a vast salt formation 26 miles east of Carlsbad, New Mexico, for the nation's permanent military waste repository. The site was named the Waste Isolation Pilot Project, and touted as the demonstration project that would end all doubts about the safe storage of radioactive wastes.

An underground groundwater source had accidentally been pierced by a ventilation shaft during construction, and efforts to stop the flow have not been successful.

Jennifer Scarlott is currently Assistant Director of the New York City-based Lawyers' Committee on Nuclear Policy. She has worked as Public Information Coordinator for the Union of Concerned Scientists in Cambridge, MA, and holds an M.A. in International Affairs from Columbia University.

The project suffered many stops and starts, with some scientists warning that salt would not be able to isolate nuclear wastes from the environment for the thousands of years required. President Jimmy Carter shelved the project in 1980, but in 1981, new Department of Energy Secretary James B. Edwards gave the Pilot Project the go-ahead and construction began. Miners have now carved a vast labyrinth of storage rooms and corridors from the rock salt 2,150 feet beneath the desert. The repository includes three separate shafts from the surface, mining tunnels and an elaborate network of 56 storage chambers. The facility is designed to hold 1.1 million barrels of waste, the first of which supposedly are to be put into place in October of this year. Most of the barrels will contain plutonium-contaminated wastes, generated during nuclear weapons production, which are currently being stored at the Idaho National Engineering Laboratory.

Late last year, the Pilot Project hit a snag when independent experts from the University of New Mexico at Albuquerque determined that water was leaking into the repository was leaking from two sources. An underground groundwater source had accidentally been pierced by a ventilation shaft during construction, and efforts to stop the flow have not been successful.

Water is also leaching into the repository from the surrounding salt itself, as the site is permeated by huge pockets of brine trapped when a prehistoric ocean evaporated 225 million years ago. The brine, formed by the mixture of salt and water, could corrode steel waste drums.

Independent scientists and Department of Energy officials have disputed the importance of the water seepage for some time in private hearings and letters. Last December, however, New Mexico geologists Dr. Roger Anderson and Dr. Lokesh Chaturvedi made public their concerns about the extent of the water seepage. Dr. Anderson said, "these developments negate the long-held and vital assumption that a repository for nuclear wastes in salt beds will remain dry."

Water is leaking in at the rate of more than one gallon a minute.

New Mexico's Congressional delegation asked the National Academy of Sciences to study the water problem. The Academy concluded in early March of this year that although the leaks are not severe, they create enough uncertainty to warrant a more careful investigation before the Energy Department moves waste into the repository. The Academy recommended that experiments be conducted to determine leakage rates and how they might alter conditions in the repository.

On March 11 of this year, the New York Times reported that in response to the Academy's recommendations, the Energy Department is planning to reduce the amount of radioactive material it will bury in the repository. Department engineers have promised that less than one quarter of the 125,000 barrels of waste intended for the repository (15% of the amount currently being stored) over the next five years would be stored there this year.

But according to Don Hancock at the Southwest Research and Information Center in Albuquerque, a public interest group which has studied the New Mexican facility for many years, the Energy Department is trying to convince the Academy that it is still feasible to store the full number of barrels originally destined for the facility in the first five years.

continued on page 14

Send It To Nevada

By Laura Haight

Congress recently "solved" the nation's 40-year old problem of how to deal with its deadly stockpiles of commercial high-level radioactive waste. Their "solution"? Send it to Nevada.

During end-of-session Congressional maneuvering last December, amendments to the original 1982 Nuclear Waste Policy Act were passed to sidestep the exhaustive site-selection process mandated by the original legislation. The original Department of Energy plan for extensive scientific site-selection procedures to choose two high-level storage sites, one in the eastern U.S. and one in the west, was far behind schedule. The selection of an eastern repository had been "postponed indefinitely" in May of 1986 due to public outcry, and opposition was also mounting at the potential western sites (Hanford, Washington; Deaf Smith County, Texas; and Yucca Mountain, Nevada.) The 1987 law bypassed consideration of the Washington and Texas sites, opting to study only the Nevada site, with further study of the other sites only if Yucca Mountain proves unsuitable.

"The problem with nuclear waste has never been scientific: it's always been emotional and political," says Senator Johnson.

Nevada proved to be the path of least resistance largely because the Department of Energy already owned the proposed site and because Nevada lacked the political muscle in Congress to defend itself, despite the fact that its junior Senator, Harry Reid, was elected on an "anti-dump" platform. The primary architect of the amendments was Louisiana's Senator J. Bennett Johnston, who made it "his personal quest to get the waste program back on track", according to Caroline Petti of the Southwest Research and Information Center in Albuquerque. Senator Johnston told the New York Times in December: "The problem with nuclear waste has never been scientific: it's always been emotional and political."

But many scientific concerns have been raised about the geological suitability of Yucca Mountain as a secure high-level waste storage site engineered to last at least 10,000 years. The proposed site is located in an area prone to volcanic and seismic activity, and is adjacent to the U.S. underground nuclear weapons testing grounds, factors which the Energy Department did not consider in its characterization and conceptual models. In an internal memo circulated last November but not made public until January of this year, Department geologist Jerry Szymanski sharply criticized the Department for failing to assess the complex interrelations between geology and hydrology at the site.

Foremost among the Department's critics is the state of Nevada itself, which has established a Nuclear Waste Project Office to conduct independent study of the Yucca Mountain site, review the technical information already available, and to promote citizen participation in the siting process. The project's technical policy coordinator is Steven Frishman, who draws parallels between the Yucca Mountain siting process and the recent news that the government's Waste Isolation Pilot Plant in New Mexico is leaking. The Pilot Plant project, like the selection of Yucca Mountain, reflects "the Department of Energy's tendency to assume suitability and go directly to engineering," Frishman says. He adds that, "The federal government has been saying 'Trust us.' The public is not that gullible any longer."

"The federal government has been saying 'trust us.' The public is not that gullible any longer."

Nevada activists are gearing up for a long battle to reveal and publicize problems with the Yucca Mountain site. "We can uncover more damning flaws at Yucca Mountain than any other site," says Bob Fulkerson of Citizen Alert in Reno. Nationally, activists are working to build a National Nuclear Waste Transportation Task Force to organize communities along nuclear waste transport routes, which will ultimately cross 45 states (all except North and South Dakota, Montana, Alaska and Hawaii).

"If they solve the high-level waste issue," Fulkerson said, "they've solved the last major hurdle to nuclear power."

NOTE: The Nuclear Waste Transportation Task Force needs your support! For more information, contact Bob Fulkerson, Citizen Alert, P. O. Box

Laura Haight is an Environmental Program Associate with the Hudson River Sloop, Clearwater, Inc., in Poughkeepsie, New York, and is a member of the Radioactive Waste Campaign Board of Directors.

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More Than Jalapenos Make Hudspeth County Hot

By Marvin Resnikoff

Targeted as a statewide radioactive waste disposal site by the State Low-Level Radioactive Waste Authority, Texas' Hudspeth County has become the focus of a high stakes political game. Enticing dump supporters with "incentives" and threatening dump foes with high-cost studies and legal actions, the Authority has set the pressure pot boiling, attempting to split the anti-dump alliance between Hudspeth and El Paso Counties. Two potential dump sites in Hudspeth County have been selected by the Authority; El Paso County, located about 13 miles from the prime site, has vowed to fight the selection.

To a county with 3000 residents and Jalapeno peppers, pecans and onions as prime crops, three-quarters of a million dollars is big money.

To encourage Hudspeth County to embrace a "low-level" waste facility, the Texas Authority mailed "information bulletins" to county residents in January and February. One bulletin promised county residents 33 jobs, with annual salaries ranging up to $50,000, plus benefits. Likening the dump to a small industrial facility, the Authority intends to offer hiring preference and job training to local residents.

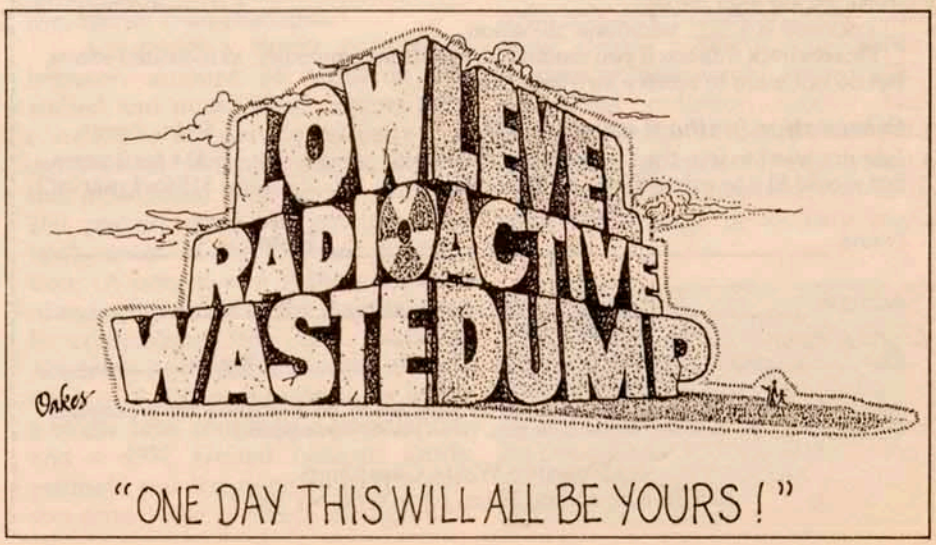
In February, the Authority offered $400,000 to $750,000 a year to local governmental bodies. Under state legislation enacted in 1987, the funds would be distributed by a Citizen Advisory Committee from Hudspeth County. To a county with 3,000 residents, where Jalapeno peppers, pecans and onions are prime crops, and where budget line items of $100 are regularly voted on by elected officials, three-quarters of a million dollars is big money. The bulletin neglected to mention that money would not be coming to the county until 1992 (when the waste arrives), and that what the state legislature passed today it could rescind tomorrow. Nevertheless, the promise of money is beginning to soften county resistance to the dump. Though still officially opposed to the facility, the inducements have encouraged the County to consider joint site characterization studies with the Authority.

For neighboring wealthy El Paso County, whose judge Luther Jones has vowed "to send the Authority packing", the Disposal Authority has adopted a different posture of no money combined with threats of matching El Paso with high-cost studies and court actions. In a January meeting, Rick Jacobi, general manager of the Authority, told El Paso County Commissioner Charles Hooten that an independent geological study by the County would cost up to $1 million. Hooten responded, "I'm not sure (El Paso) County should spend that much money." He continued, "I don't want the dump just 16 miles from the El Paso County line . . . but at some point it would not be economical to continue fighting. It might be prudent just to make sure it's safe." The Commissioner's Court, composed of five Commissioners, is the County governing body.

Much of the monthly Authority Board business is conducted in Executive Session, which is not open to the public. At its February 18 meeting, the Board convened at 10 a.m., and soon thereafter went behind closed doors. The meeting adjourned at 11:25 a.m., when two of six Board members reluctantly remained to hear from the public.

El Paso County then brought in its experts. Archeologist David Batcho reported on magnificent Native American rock art at the proposed dump site. The paint and etch abstract designs show that the proposed site was sacred to native peoples 900 to 2,000 years ago. El Paso County is moving to include 22 of its archeological sites in the National Register of Historic Places.

Also testifying were Dr. David LeMone, University of Texas geologists and the engineering firm of



Marvin Resnikoff is staff scientist for the Radioactive Waste Campaign.

Sergent-Haskins-Beckwith, all of whom described the site as "unsuitable", with runoff potentially entering the Rio Grande River. None of this powerful information seemed to make an impression on the Authority Board who, in the words of a local activist, "seemed to be marching to a different drummer".

Activists have also expressed concern about the transport of the waste. Almost all of the "low-level" waste which would enter a Texas site would come from three nuclear reactors located on the Gulf of Mexico near Fort Worth. El Paso and Hudspeth Counties are at the extreme western part of the state, hundreds of miles from waste generators. Also, although Hudspeth County is relatively dry, flash floods periodically cause massive erosions in gullies, which would threaten any burial facility.

El Paso County is opposing the dump on two other fronts, legal and Congressional. On the legal front, El Paso County obtained an injunction from the State Court on the grounds the Authority had chosen the site on political, rather than scientific, grounds, as opposed to choosing the "best" site, as required by state law. The state legislature then closed this legal "loophole" in 1987, when it eased the requirements. The injunction was subsequently reversed on appeal, and in January, the State Supreme Court refused to hear the case. The County has asked for a re-hearing.

On the federal level, U.S. Representative Ronald Coleman, who represents the El Paso County area, announced his intention to introduce legislation barring radioactive waste dumps within 60 miles of the border. Coleman's proposed legislation would support a 1983 executive agreement between President Reagan and Mexican President Miguel de la Madrid Hurtado that set aside 60 miles on either side of the border as special environmentally protected zones. Residents of Juarez, which is just across the border from El Paso, still remember the 1984 incident in which many people were accidentally contaminated when radioactive cobalt-60 was used in metal furniture.

Hearings on the federal legislation are expected this spring.

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WIPP/continued

The Department contends that this much waste will be needed for the leakage studies.

Whether or not the Department of Energy has decided to modify its near-term plans for the Project, the agency is clearly chagrined by the water leakage. According to Dr. Wendell Weart, manager of the nuclear waste technology department at the government's Sandia National Laboratory in Albuquerque, "The change is affecting all programs...If we cannot convince (the Academy) that this problem can be addressed, then I think the Energy Department will have to address some engineering and technical fixes so that brine seepage is not an issue."

"The more we find out about the site, the worse it looks" says Hancock.

The Southwest Research and Information Center hopes that the Department will refrain from putting any waste into the repository in 1988. In addition to the brine seepage, Hancock cites other problems which, singly and in combination, raise serious doubts about the feasibility of the site. These include 20 million gallons of pressurized brine just under the caverns, proven natural gas reserves under the salt which will be a tempting target for drilling, the lack of emergency response training and viable transportation routing for the site, and the fact the it would take less than 10 years for on-site groundwater to travel off-site. "The more we find out about the site, the worse it looks," says Hancock.

Action: *Before WIPP can open, Congress must transfer authority of the site from the present "owner," the Department of the Interior, to the Department of Energy. "Land withdrawal" legislation has been introduced in both houses (H.R. 2504 and S. 1272). Readers should encourage Congress to require the Department of Energy to comply with disposal standards set by the Environmental Protection Agency, and to establish an independent safety board to oversee Department activities.*

Radiation Effects Judged More Serious

By Marvin Resnikoff

Forty-three years after the atomic bombing of Hiroshima and Nagasaki, scientists are still trying to understand the health effects of exposure to radiation. A new study of Japanese bomb survivors by a joint Japanese-United States commission now raises the projected number of cancers, and has stirred up a hornets' nest of controversy. Since the study of Japanese survivors has been the basis for radiation standards throughout the world, allowable radiation doses are expected to become more restricted as a result.

Following six years of careful documentation, the study by the Radiation Effects Research Foundation, which was released in September of last year, projects a higher number of cancers due to radiation than did a 1965 study by the Oak Ridge National Laboratory in Tennessee. The new study, which was jointly funded by the U.S. Department of Energy and the Japanese Ministry of Health, tracked almost 94,000 survivors of the Hiroshima and Nagasaki bombings. The increased results were attributed to two factors. Since 22 years have passed since the last study, many additional cancers, including excess cancers due to radiation, were incorporated into the new study. In particular, Japanese women, who were children during the bombings, are experiencing a breast cancer rate in excess of the 1965 projections.

The second basis for the increased cancer projections is a revision of how much radiation was received by each survivor. In order to determine the effects of radiation, the joint commission had to estimate the amount of radiation received by the whole body and individual organs. This required knowledge of the position and shielding of each survivor during the bomb blast.

But an extra unknown was the type and amount of radiation given off by each bomb. While much was known about the plutonium-type Nagasaki bomb, from atmospheric explosions at Trinity, New Mexico, the Pacific islands and the Nevada Test Site, the Hiroshima bomb was a one-of-a-kind uranium-235 weapon. The higher number of cancers at Hiroshima was originally thought to be due to a greater emission of neutrons, which was thought to contribute up to 20% of the radiation dose. But, in fact, new calculations show that the extra neutrons did not exist, and that the types of radiation given off by the Hiroshima bomb were similar to those of the Nagasaki bomb. Extra neutrons did not exist because of absorption of neutrons by heavy metal, as well as the humid conditions in Japan. Previous estimates of radiation had been obtained by operating an unshielded nuclear reactor in the dry Nevada desert, conditions greatly different from Japan in the summer of 1945. The bottom line is that the increased cancers at Hiroshima were due to gamma radiation, which is similar to X-rays but more penetrating, rather than neutrons.

The new results are roughly 16 times greater than presently accepted by establishment physicists.

Assuming a direct correlation between amount of radiation absorbed and numbers of cancers generated, the new study, already under nuclear industry attack, shows that a radiation dose on the order of 260 person-rems will produce one fatal cancer in the exposed population. (A person-rem is the sum total of radiation doses to the population.) In comparison, the U.S. National Academy of Sciences accepts a standard of 5,000 person-rems to effect a single fatal cancer in a population, and a 1977 United Nations study estimate put the dose at 10,000 person-rems. The average background radiation dose due to cosmic and terrestrial radiation is 100 millirems per year (1000 millirems equals one rem).

What international and national radiation standards-setting bodies will do with this new information is another question. The joint governmental study predicts a response to radiation dose roughly comparable to that projected for Hanford workers by independent researchers Mancuso, Stewart and Kneale. The new results are roughly 16 times greater than presently accepted by establishment health physicists. The United Nations radiation review body will incorporate the results at the end of this year.

The International Commission on Radiological Protection stated at its September 1987 meeting that it will not begin to review the new information until 1990. Not waiting for these bodies to act, the British National Radiological Protection Board recommended in November that whole body radiation doses to workers be made three times more restrictive. If other national radiation bodies follow suit, the International Commission, long followed on these matters, will begin to lose its influence.

The Commission, composed of and influenced by nuclear industry representatives, has based its radiation standards, not only on the effects of radiation, but what is acceptable risk compared to other industries, clearly a political judgement. Citizen groups would argue that no additional radiation (above background levels) is acceptable. With the recent Japanese results, a further tightening of regulations would be expected should be quickly implemented.

Marvin Resnikoff is staff scientist for the Radioactive Waste Campaign.

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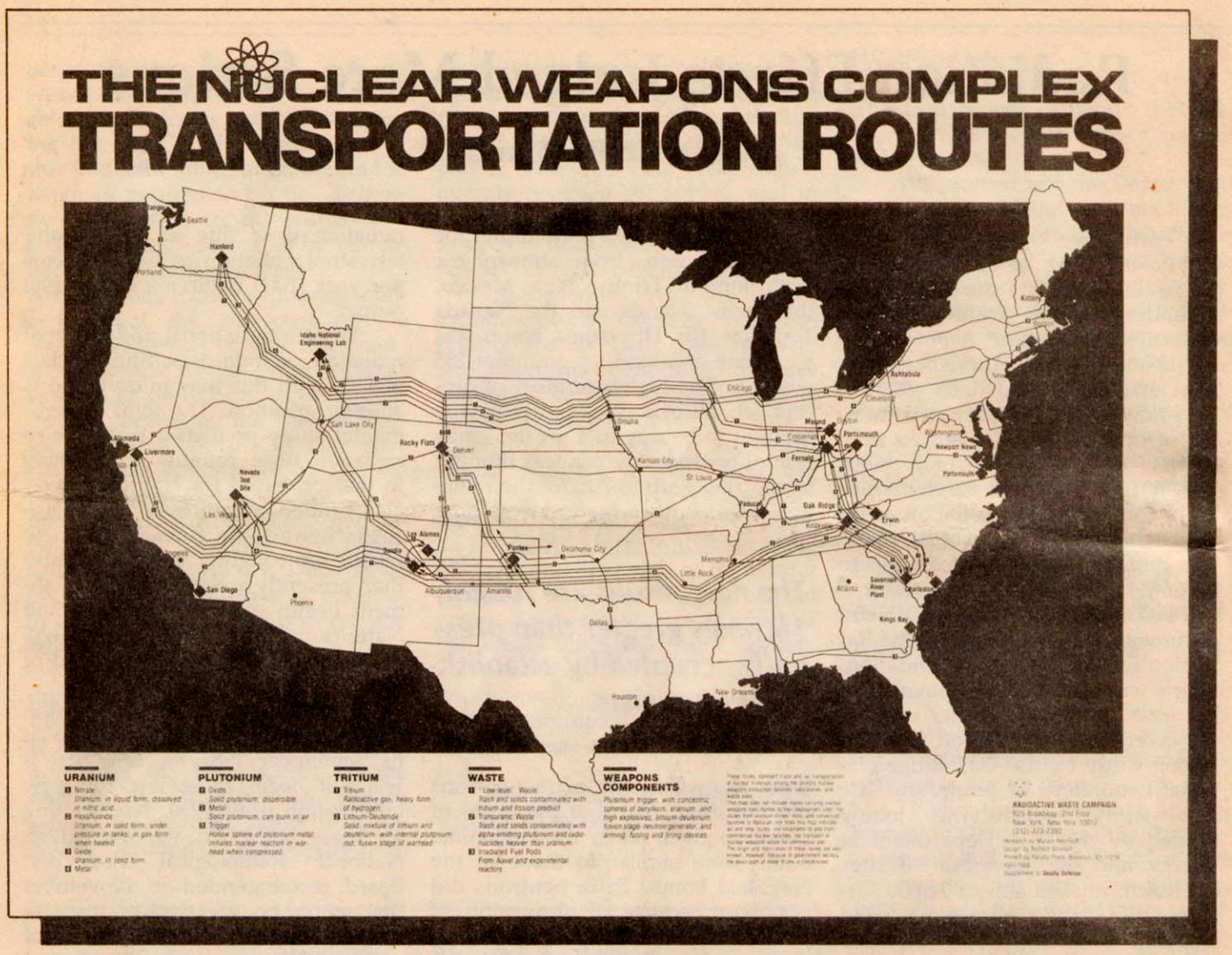

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