sierra club
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the Waste Paper

Volume 7 Number 1

photo by Bud Hoekstra

Military Dump Dairy cows graze on the Fernald, Ohio Department of Energy property. Until December, 1984 500,000 tons of radioactive and chemical wastes were dumped in the ground. The Fernald plant, which refines uranium ore into pure metal, is a key part of the U.S. nuclear weapons production system. See our story on page 1.

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Nuclear Woes at Fernald

Military Admits Uranium Released at Ohio Plant

Editor's Note: *The irony of this story is that the Reagan Administration is spending billions of dollars on weapons research and production to protect us from the Communist threat, meanwhile endangering the health and ruining the lives of residents who live around the approximately 21 Department of Energy (DOE) facilities in the U.S.* The Waste Paper *suspects that Fernald is not an isolated incident, and that other DOE facilities are contaminating the surrounding environment in their determination to build a better bomb. So while you contemplate the consequences of a nuclear war, think about the people who are paying now for this Administration's war mongering.*

The drinking water at the Crosby Elementary School in Fernald, Ohio is contaminated with radioactivity. So is the well of Lisa and Ken Crawford. It has strontium, plutonium, radium and other radioactive materials in it. These are only two of many frightening stories which have recently come to the public eye about a DOE nuclear factory in northwest Ohio.

The DOE's Feed Material Production Center at Fernald, 18 miles northwest of Cincinnati, smelts uranium ore and refines it into pure metal. It has operated since 1953. The plant now runs 24 hours a day, 7 days a week because of the step-up in the defense program by the Reagan Administration. The plant converts uranium oxide into uranium hexaflouride for use in the gaseous diffusion plants at Piketon, Ohio and Paducah, Kentucky. The plant also converts depleted uranium hexaflouride into oxide which goes to fabrication plants in Hanford, Washington and Ashtabula, Ohio, an area also heavily contaminated with uranium dust. "Depleted" uranium is almost entirely made up of U-238. When "depleted" uranium targets are inserted into government nuclear reactors at the Savannah River Plant (South Carolina) and Hanford, U-238 is converted into plutonium for nuclear warheads. Thus, the Fernald plant is an integral part of the weapons complex.

Ralston-Purina? For years people thought the plant, operated by National Lead of Ohio (NLO), was just another factory. The DOE, in an attempt to keep the facility's true work a secret, even painted some of its water towers a red and white checkerboard, a familiar symbol throughout Ohio of the Ralston-Purina Corporation.

A series of accidental releases of uranium made the Fernald plant newsworthy in November 1984 and smudged the plant's reputation for being kind to the environment. About 272 lbs. of uranium escaped from the 20-foot-high stacks when the plant's management knowingly ordered the replacement of filters with ones that did not fit properly. The event drew the attention of the press, and plants No. 5 and No. 9 were shut down for some months.

DOE sought to still the controversy by issuing a 100-page findings report by its Incident Investigation Board which introduced an engineering term—a "puff" release—to describe a four-pound uranium dust cloud. But DOE documents obtained by the Miami Group of the Sierra Club showed "puffs" had been going on for thirty years. Since the plant opened, 96 tons of uranium were expelled into the air; 74 tons more made its way into Paddy's Run and the Great Miami River. Another 337 tons are reported missing and, at this time, unaccounted for.

Balloon Launch Residents of West Valley, New York, 30 miles south of Buffalo, launched 1,000 balloons this spring to protest proposed legislation by Governor Cuomo which would allow an incinerator to operate at the closed nuclear waste dump. The balloons, marked carbon-14 and tritium, symbolize the radioactive particles that will be released from incinerator stacks. The Legislature recessed in June without the passage of any legislation on radioactive waste management. The Senate and the Assembly could not come to agreement on many of the controversies surrounding the low-level radioactive waste issue. *photo by Brian H. Starkey*

NLO officials claimed the releases of uranium gas and dust fell to the ground inside the monitored perimeter of the plant. The same "stopped-at-the-fence" thinking has been used to excuse releases at other nuclear sites like West Valley, New York and Hanford, Washington to hide radiation exposures from effected commmunities.

Later, the issues of poisoned wells and double standards came to light. Since 1981 the DOE and NLO have known of uranium-contaminated wells in the Fernald community. It is interesting to note that this plant is a mile west of the Ross Pumping Station where people of metropolitan Cincinnati get drinking water. Not until 1985 did the Crawford family find out what the DOE has known for four years: that their drinking water was laced with 190 micrograms per liter of uranium, far over the proposed Environmental Protection Agency (EPA) standards

continued on page 7

Highlights of What's Inside

Radscope

TMI Clean-up Costs: Higher than Plant Construction

The clean-up of the Three Mile Island 2 nuclear power plant near Harrisburg, Pa. will cost about $1 billion, $300 million more than the construction of the plant in the 1970's.

Millions alone are being spent on 250 drums designed to hold radioactive waste from the reactor coolant system. At $17,200 each, this must be some kind of stainless steel container!

Interested in where all this money is coming from? Here's a sampling. Note that many of us are paying through the Department of Energy budget and through utilities across the U.S. who are contributing to this clean-up. So even if you live in California, you may be paying for Three Mile Island.

Who Pays for TMI	How Much
Ratepayers	$246 million
Nuclear utilities across the U.S.	$153 million
U.S. Department of Energy	$ 38 million
TMI owner's corporate funds	$ 82 million
Pa. taxpayers	$ 30 million
Japanese utilities	$ 18 million
N.J. taxpayers	$ 11 million
Insurance proceedings	$305 million
Out-of-court settlement between TMI utility and Babcock and Wilcox	$ 21 million

graphics by Gretl Rasmussen

Boy Scouts Earn Nuke Badge

Editorial Comment

Boy Scouts in the Harrisburg area in Pa. were given a chance to earn an Atomic Energy Merit Badge this spring by spending eight hours at the Three Mile Island (TMI) nuclear power plant. Employees at TMI volunteered to teach Scouts from nine counties about nuclear power. The session included lectures, slide shows and practical exercises.

Though preparations for a nuclear meltdown seem to carry the Boy Scouts motto "Be Prepared" to the limit, questions come to mind about this practice: Should children be allowed onto sites where large quantities of radioactivity are stored? Should the Boy Scouts only be given the pro-nuclear side of this debate? This type of badge seems unusual for Boy Scouts who are supposed to be learning about camping, being kind to others and building tree forts—not being brainwashed for eight hours about the safety of nuclear power and the TMI clean-up.

We wonder if the Boy Scouts will give out Merit Badges for a course on the dangers of nuclear power and nuclear waste. We need some volunteers for our office.

Oops! Near Mishap at TMI

On November 20, 1979, radioactive waste from Three Mile Island (TMI) was almost burned in a municipal incinerator in Middletown, Pa. The clean-up crew mistakenly labelled radioactive waste drums with green tags indicating that they were suitable for disposal at the local garbage incinerator.

The mistake wasn't caught by any inspector at the defunct plant, even though detectable levels of radiation emanated from the drums. Somehow the mistake was discovered hours after shipment and the drums were returned to Three Mile Island.

Upon discovery of the mistake—a day after the incident—General Public Utilities (GPU), owner of TMI, did not plan a press release to let people know what happened, though it did notify the Commonwealth of Pennsylvania. Instead, GPU worried about "media interest" due to the "public sensitivity to activities at Three Mile Island." It is not known whether similar incidents have taken place without the public being informed.

the Waste Paper

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Special thanks to all the volunteers and Panagraphics who give their time and energy to *the Waste Paper*.

Volume 7 Number 1 Summer 1985

Letters to the Editor

Dear, wonderful folks!

This is to let you know how important and useful it was for us in North Carolina to have your fine staff come here and meet with state agencies, the press, and concerned citizens near the proposed radioactive waste incinerator in Bladen County.

Your scientific analysis of the dioxin problem is very important to the situation. Adding dioxins (extremely potent chemical carcinogens) to radiation (a virtually universal carcinogen) is extremely threatening. Also, your work on cheaper alternatives that do not produce dioxins or release radioactive material (e.g. pulverization and supercompaction) shows clearly that there are better alternatives to this project. Finally, your analysis of the permit application shows that the facility is sized to take just about all of the available dry low-level waste from nuclear power plants in the Southeast, as well as animal carcasses and fluids—a crucial point.

Your media and organizing staff made great strides in bringing this important information (and problems with operable, smaller radwaste incinerators) to peoples' attention. And you're all such nice folks to travel with and be around. Come on back anytime.

Wells Eddleman
Staff Scientist, North Carolina PIRG
704½ Ninth St.
P.O. Box 2901
Durham, N.C. 27705.

Dear Editor:

Your article on "Renovo, Pa. Slated for Nuke Waste Site," Volume 6, Number 2 was very interesting. I wish every citizen in Clinton County would read this article.

The average citizen in Clinton County does not want this project. I attended one meeting in Renovo when a gentleman from Westinghouse showed pictures and spoke on this project. When anyone asked a question, the speaker always said "I will answer your question after the meeting." The questions were never answered or discussed.

Bringing nuclear waste into this area will keep campers, fishermen, hunters, hikers and tourists from coming to this section in Pa. The foresters working in the Sproul State Forest cannot complain since they may be transferred or lose their jobs.

Fred J. Iobst
(retired forester)
HCR 62 Box 142
Renovo, Pa. 17764

The Editor Responds:

Mr. Iobst's letter is just one of many calls and letters we have received from residents in Pa. concerning Westinghouse's public relations campaign to site a "low-level" radioactive waste landfill in the northcentral area of Pa. near Renovo.

Many of the town boards in the Renovo area have passed resolutions opposing a nuclear waste dump. However, this does not mean that new locations are not being looked at nearby. Residents in the northcentral and northwestern area of Pa. should keep a vigilant eye out for this type of public relations campaign which try to convince local officials and citizens that a nuclear landfill is safe. In addition, Pa. residents should read our follow-up story in Volume 6, Number 3 about this issue.

Update on Federal Legislation

Kostmayer, Gejdenson Introduce Key Amendments

Eyes are turned to Congress as it considers amendments to the 1980 Low-Level Radioactive Waste Policy Act. Under the Act, South Carolina, Washington and Nevada had anxiously anticipated limiting access to their low-level burial grounds beginning January 1986. But with no new disposal facilities in operation and none likely by that time, Congress is considering easing the time limits.

Developments change by the week, but as we go to press, HR-1083, which would extend the timetable for developing new disposal facilities, was reported out of Representative Morris Udall's Subcommittee on Energy and Environment. The new proposed schedule: by July 1986, states would have to decide whether to join a compact or to go it alone. By January 1988, states or compact regions will have identified a host state and a siting plan to develop a facility. By January 1990, a license would have to be applied for. By December 31, 1992, all states or compact regions would have a site operable. If a deadline is not met, access to existing waste facilities is cut-off to generators in the state or compact region. Volume limitations would be in effect over the 7-year period.

While much of the backroom maneuvering is concentrated on deadlines and access to existing facilities, little focus is being placed on the definition of low-level waste, performance of radioactive landfills, and the need for alternatives. Two proposed amendments to the Udall bill deserve citizen attention and support.

An amendment by Representative Samuel Gejdenson of Connecticut was accepted that requires the Nuclear Regulatory Commission (NRC) to develop regulations for alternatives to radioactive landfills within one year. Representative Peter Kostmayer of Pennsylvania has proposed that all Class "C" wastes be excluded from low-level waste facilities. This amendment is strongly supported by Pennsylvania Governor Thornburgh. Representative Udall opposed the Kostmayer amendment, and a hearing will be held, probably the end of July, on the issue of the definition of low-level waste.

Letters supporting the two amendments to U.S. Representatives who sit on the Interior Committee are important. Call the Campaign at 716/884-1000 to find out who your Representatives are, and the status of the present legislation.

Dioxin Hazard Research staff Dea Larsen and Marvin Resnikoff are ready to answer questions about dioxin emissions from the proposed radioactive waste incinerator in Bladen County, North Carolina.

photo by Karen Tam, The North Carolina News and Observer

Pro-Nuclear Group Begins Ad Blitz, Organizes "Study Groups"

The U.S. Committee for Energy Awareness (CEA) has begun a rigorous $20 million campaign to assure citizens of the safety of nuclear waste disposal in states where the Department of Energy is seriously looking for locations for nuclear waste repositories.

This pro-nuclear campaign, financed by 50 utilities (in other words, by the ratepayers), has opened a new office in Portland, Oregon, hired local public relations firms in Nevada, Washington and Utah, organized "citizen study groups" and financed teams of nuclear scientists and utility executives to conduct media tours in states eyed for a repository.

Citizens in Nevada, Utah and Washington State should be aware of the following CEA "study groups" which have already formed: the Nevada Nuclear Waste Study Group, the Washington State Site Study Group and the Gibson Dome Oversight Committee.

The Safe Energy Communications Council in Washington, D.C. is prepared to assist communities in an effort to balance the propaganda which may soon be appearing on your television screen about the safety of nuclear waste disposal. Call or write Scott Denman at the Council, 1609 Connecticut Ave. NW, Suite 201, Washington, D.C. 20009. 202-483-8491.

Dioxin Released at Radioactive Waste Incinerators

Dioxins may be forming in radioactive waste incinerators across the United States. Operating incinerators at medical institutions, hospitals and nuclear power plants burn the right mixture of waste to form this deadly carcinogen. Stack filters tested at the University of Maryland Medical Facility in Baltimore confirm measurable amounts of dioxin being released to the atmosphere.

The incineration process takes radioactive material, mostly dry radioactive waste, and concentrates it into a very radioactive ash. Radioactive water (tritium) and radioactive carbon (C-14) are released from the stack and into groundwater and the food chain. This danger is discounted by the Nuclear Regulatory Commission (NRC) and the nuclear industry because there are already small amounts of tritium and C-14 in the environment. Their calculations assume that the radiation released will be widely dispersed and thus become insignificant.

Beyond the radioactivity problems, however, is the creation of a new hazard in the incinerators—dioxin. Dioxin, even in very small amounts, is extremely carcinogenic. Canada uses a standard of 30 parts per trillion as the maximum amount that people should receive. This amount is as small as a grain of sand inside an Olympic-size swimming pool. Dioxin can enter the body through the skin, by ingestion or inhalation. It has caused cancer in rat livers, kidneys, ear ducts and intestines.

Dioxin can form in any incinerator that burns a mixture of chlorinated compounds such as polyvinyl chloride (a type of plastic) and paper. One theory to explain this formation was developed by the Center for Biology and Natural Sciences at Queens College, City University of New York. The polyvinyl chloride forms hydrochloric acid upon combustion and the chlorine from this unites with compounds in the paper to form dioxin on particles in the off-gas system. This means that the dioxin forms in the filter system after the material is supposed to be completely harmless. Although scrubbers are designed to catch the hydrochloric acid, they are not sufficient to catch all of it. Japan and Canada place limits on the amount of polyvinyl chloride in waste fed to the incinerator.

Tests conducted on operating incinerators have shown dioxin emissions. According to a Canadian report from the Expert Advisory Committee on Dioxins in November 1983, the largest source of dioxin-type substances emitted into the environment is from improperly operated incinerators.

More incinerators must be tested for dioxin. Fifty to seventy hospitals and research institutions currently burn radioactive waste containing polyvinyl chloride and paper. This is precisely the mixture that can form dioxin in incinerators. Many of these incinerators were licensed ten or twenty years ago and may be outmoded. A recent call by *the Waste Paper* revealed that the NRC does not even know how many of these institutions are burning radioactive waste across the nation.

Regulations on hospital and research incinerators are woefully inadequate for both toxic and radioactive emissions. Under air quality laws, the Environmental Protection Agency (EPA) has not classified dioxin as a controlled substance, even though such small amounts cause cancer. Between the state and federal regulations, dioxin has fallen through the regulatory cracks. In addition, the NRC does not monitor or regulate non-radioactive substances, let alone know where the incinerators are located.

Citizens should investigate the number of radioactive waste incinerators operating in their state and call for testing of airborne particulates released. This serious health threat needs prompt attention.

Interview with James Cahill, Former USGS Researcher, About the Barnwell Radioactive Landfill

On June 11, 1985, the Waste Paper met with Jim Cahill, hydrologist and former researcher for the US Geological Survey (USGS), at the office of the Energy Research Foundation (ERF) in Columbia, South Carolina. As the interview shows, Cahill is confident that the Barnwell radioactive landfill is a good site, though his research results also show radioactive leakage, a fact that Chem-Nuclear and the Department of Health and Environmental Control (DHEC), the State regulatory body, did not want advertised. Rather than accede to gross political censorship, Cahill retired in January of 1985 after a 34-year career with USGS. Joining Marvin Resnikoff, co-director of the Campaign, for this interview is Ted Harris, president of ERF. This is a short excerpt of a two-hour interview.

Marvin Resnikoff (MR): Since you think the Barnwell site operates so well, Jim, let me ask you why.

Jim Cahill (JC): For one thing, most of the rain percolates down into the groundwater. And most of that will go into a stream, Lower Three Runs, controlled by Savannah River Plant (SRP). Consequently, no one's going to draw any water out of it. Therefore, it makes it a safe site because if any waste is going to leak, it's going to go in that stream. Par Pond, that has the coolant from the nuclear reactors at SRP, overflows into Lower Three Runs. Now, if Chem-Nuclear is allowed to go into the northern part where they have additional acreage, that's going to be a different story. That water would go towards the Town of Snelling. Snelling is about a mile and a half from the site. Some houses are within 100 yards of the site.

MR (looking at maps): There's a spring over here.

JC: There are a lot of springs over here. There is Mary's Branch Creek. Pretty close to 19 inches of rainfall percolates down into the groundwater.

MR: At West Valley, the site has this glacial till and is somewhat impermeable to water. From a waste disposal perspective, it used to be considered a most desirable site. But then the state of New York realized that the cover was more permeable than the walls and the bottom. So the trenches would eventually fill up with water.

JC: What makes Barnwell ideal is that you don't have the channelling effect. The sand is uniform and therefore you get the maximum dispersion. You won't get this bathtub effect. I mean you'll end up with water getting into the trenches. If some of the tops collapse what happens sometimes is that water would percolate down through the surface sand and move on down to the bottom. But since that time Chem-Nuclear moved the sand and packed the covers with clay. The Barnwell trenches have got water in them. There's no getting around that. But the water will only stay there during the wintertime. During the summertime, evapotranspiration takes place.

MR: Has radiation been measured in trench water?

JC: Trench 8 ends up having quite a bit of water because it's the only one from which Chem-Nuclear hasn't ended up removing all of the sand. The water goes down into the sand unit and starts dispersing.

MR: Maybe you don't look on it this way. I look on sites like West Valley as teabags. Wastes would sit in water and steep there and the water would get contaminated. But when I look at the Barnwell site, the water just moves through or evaporates out. It just doesn't stay in the trench. The industry considers the Barnwell site a good site and you consider it a good site. And the reason is because the waste doesn't sit in water. The waste contacts water very little. I look on it as hanging a teabag under a running faucet. You get very dilute flavor, but all the flavor comes out nevertheless.

JC: I see what you're getting at. Because the water doesn't stand there doesn't mean it isn't going to eventually carry leachates.

MR: We know that water goes through the trenches at Barnwell.

JC: Yes, it depends on the amount of precipitation we're going to get in the winter months, because during the summer months it doesn't seem to make much difference. In the Southeastern region, we get most of the rainfall during the summer. Because we also have a greater evapotranspiration. Therefore, the water doesn't end up accumulating in trenches. There was some water in trench 22 where they had cavitation of the walls. Eventually some of these cardboard containers are going to rot. You have these heavy trucks that drive over the trenches and the caps collapse. At least one cap is going to collapse per year. This will have to be taken care of repeatedly. Chem-Nuclear comes in and fills it up. This is one of the things the state did not want me to say. And I don't think it's right.

MR: But they know that . . .

JC: They say that it's going to upset people. But hell, we know that it's going to happen. So why not just come out and say it? . . . One reason I was looking for tritium about trench 8, and I'll have to be honest with you, is one thing Chem-Nuclear has done that it doesn't do anymore, has to do with scintillation vials put in a drum. When they brought them to the burial site, they would roll the barrels off the truck. When they would do that, the bottles would break.

MR: Chem-Nuclear gave us a photo of it which we have in our fact sheet on landfills. What they call the "kick and roll method."

JC: Now of course they don't have all this tritium. The Nuclear Regulatory Commission (NRC) allows them to dump the tritium out. It doesn't have to be put in a drum and buried. When the bottles broke, the containers would start to rust. So I started looking for a good tracer, which was tritium.

MR: What about some of the solvents, toluene, xylene?

JC: Some of these were found. They were in . . .

MR: I wouldn't think the soil would hold back any of these solvents.

JC: There's very little absorption because most of the material there is sand and clay, or quartz. It will not absorb like some of the glacial till. Now cesium will be absorbed by some of the material there . . . The only thing I was doing was trying to find the tritium because I know where the tritium was going, something later has to follow. What does make the site good is that you don't have the bathtub effect, a channelling effect, like you would at Maxey Flats or Sheffield.

continued on page 7

Campaign Co-Director Steps Down

Seven-day work weeks, 12 hour work days did not faze her. Calm and unperturbable, she labored on long after the last volunteers had gone home. Another hearing on the proposed reopening of West Valley is scheduled with only two weeks notice and she patiently gets on the phone. Result: Over 200 pack the Legislative Office Building in Albany and 150 come to the Erie County Public Library in Buffalo.

A hot new issue of *the Waste Paper* is rolling off the press—the first newspaper in the world to focus on radioactive waste and the only newspaper in the world to be put out by one person. She writes articles, takes photographs, commissions contributors, does the layout, corrects copy and oversees distribution to over 12,000 people.

She twists the recalcitrant arm of the Governor of New York. Now conventional landfills and incinerators have been deleted from a bill to reopen West Valley because of her skillful mobilization of citizens across the State.

A dozen roses are given to Buffalo Common Council members to signify 12 pounds of plutonium buried at West Valley and she is cheerfully making arrangements with a florist; a pinocchio's nose demonstration in front of Department of Environmental Conservation and she is wielding cardboard and scissors fashioning a score of noses; an ostrich egg to every New York State Legislator who has his head in the sand on West Valley. She is there ruffling feathers.

Photo by Clyde Munz

A network of citizens throughout the Northeast write letters to Mo Udall asking that the U.S. Congress request the NRC to redefine "low-level" waste. She writes the letter that citizens use as a model.

Volunteers are packing T-shirts to send to customers in Florida, Colorado, Maine, Montana and New Jersey. She ordered the T-shirts and arranged for ads in dozens of magazines.

A new fact sheet? Who edits the text, takes the photographs, selects the typeface? A meeting to be arranged? A press conference to be scheduled? There is no way we can adequately convey to *Waste Paper* readers the extraordinary intelligence, creativity, dedication and patience our Co-Director has brought to the Campaign over the years. Now, after five years, she is moving on to new pursuits. We and thousands of activists will miss her sorely, but wish her the best in a new career.

We love you, Lisa Finaldi.

Taking the "Fear" Out of "Cape Fear"

Ask any Tar Heel where Duart, North Carolina is, and they probably couldn't tell you. And if citizens in Bladen County, N.C. have their way, Duart—now just a sign by the side of the road, about 17 miles southeast of Fayetteville and a mile from the Cape Fear River—will remain unknown.

But US Ecology, the waste-management company that operated disastrous low-level radioactive waste landfills at Maxey Flats, Ky. and Sheffield, Il., has submitted a proposal to make Duart the host site of what could be the nation's first centralized commercial incinerator for burning low-level radioactive waste. (While there are no such incinerators currently operating in the U.S., two other companies have applied to construct similar ones in Apollo, Pa. and Columbus, Oh.)

Over the Memorial Day weekend, the Sierra Club Radioactive Waste Campaign hosted workshops on the incinerator in the town of St. Pauls, N.C. at the request of local concerned citizens and state environmental groups. At the same time it released a 30-page report on the proposed "Cape Fear" incinerator. On Friday, May 24, more than 175 people from all over the state crowded into the St. Pauls District Courtroom to hear a critique of the US Ecology application by Campaign staff scientists Dea Larsen and Marvin Resnikoff, followed by presentations from prominent local citizens, clergy and elected officials. The following day, May 25, some 60 people participated in more in-depth workshops and strategy sessions.

The events, funded by the Mary Reynolds Babcock Foundation, featured speakers from the sponsoring groups: St. Pauls Mayor Claude W. Fulghum, Sarah Hay and Rev. Tony Jernigan of the United Concerned Citizens for Ecology (a local group formed to oppose the incinerator), and Rev. Mac Legerton, executive director of the Robeson County Clergy and Laity Concerned. Panelists at the workshops included John Runkle, an environmental attorney for the Conservation Council of North Carolina and Bill Holman, state Sierra Club lobbyist.

The Radioactive Waste Campaign found a number of potential health hazards from the proposed incinerator. Two radionuclides—tritium, which attaches onto water, and carbon-14, which is essentially radioactive carbon dioxide—would be released through stack emissions. While US Ecology has projected that it will store no more than 25 curies on-site, it has nevertheless applied to store up to 5000 curies at a time, thus making it possible for them to accept waste from the whole southeast region of the U.S. Moreover, emissions of radioactive iodine-125, which could effect infant thyroids, would probably be at least ten times higher than US Ecology's predictions since the incinerator's scrubbers are not designed to remove iodine gas.

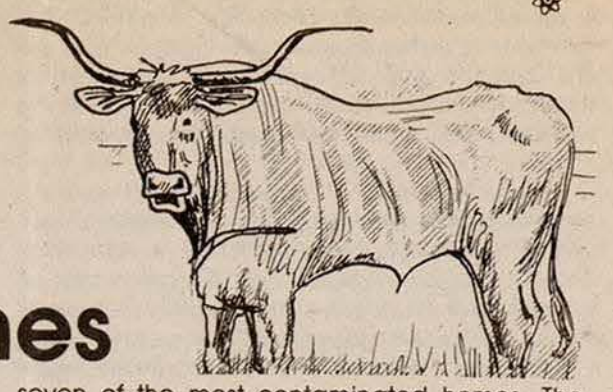
photo by Emily Thomas

Memorial Weekend Crowd *Over 150 people crowded the St. Pauls' Courthouse on Memorial Day weekend to learn about the environmental and health problems associated with incinerating radioactive waste. The Sierra Club, Clergy and Laity Concerned and the United Concerned Citizens for Ecology were among the prime sponsors of the workshops.*

More serious than the radiological hazards would be the potential formation and release of dioxins—one of the deadliest substances known to humans. The precursors for the formation of dioxins, polyvinyl chlorinated plastics (PVCs) and wood and paper, are abundant in the low-level radioactive waste stream. (see "Dioxins Could Be Released," page **3**). US Ecology does not address this hazard anywhere in its application. When Dr. Resnikoff and Ms. Larsen met with members of the Air Quality Board, the Waste Management Board and Dayne Brown, Chief of the Radiation Protection Section in Raleigh, state agency officials said that they had not reviewed the question of dioxins.

Local citizens who have been opposing the Cape Fear incinerator for the past year view it as an equity issue. Bladen County, which produces no radioactive waste, is easily accessible to the Research Triangle area and Mecklenburg County, North Carolina's greatest producers of low-level waste. It is one of the poorest counties in the state, with a large minority population; in fact, 78% of the families within a mile of the proposed site are black. (The incinerator, once constructed, would create only 17 jobs, of which only about 8 would go to local citizens). Citizens are not only concerned about their health, but about their livelihood; they fear the effects of radiation on the sale of their major cash crops of tobacco, corn, peanuts, soybeans, wheat and sweet potatoes.

For more information on the proposed incinerator in North Carolina, contact Dr. Colin Osbourne III, P.O. Box 569, Lumberton, N.C. 28359, 919-738-9528 (before 10:00 p.m.).



Radon Gas Still in N.J. Homes

After nearly two years since radioactivity was discovered in 27 homes in Montclair, Glen Ridge and East and West Orange, New Jersey, action to remediate the potential threat to homeowners' health has not occurred.

On November 30, 1983 several homeowners in north Jersey learned on the New Jersey Nightly News that their houses were contaminated by radon gas. This colorless, odorless radioactive material was detected at levels which exceed the safety standards for residences. In seven of these homes, levels exceeding federal occupational standards for uranium miners were detected in the basements.

It is suspected that fill, used when the homes were being constructed, may have been taken from an old radium company in Orange, N.J. where about 1,600 tons of radioactive waste were dumped. Between 1890 and 1930 the firm, U.S. Radium Corp., manufactured luminous watch dials. Since that time, the company has folded and this material has been shown to cause lung cancer when inhaled. These tiny particles, once inhaled, continue to emit radioactivity into the bronchial passages.

Following the news broadcast in 1983, the Environmental Protection Agency (EPA) and the state Department of Environmental Protection (DEP) assured the community that no health crisis existed. These agencies then proceeded to issue incomplete, inaccurate and conflicting information to residents. State officials warned people not to spend more than two hours a day in their basements and not to smoke. However, only through a Freedom of Information Act request did citizens first find out about the seriousness of having radon gas in their homes.

Both federal and state officials have performed numerous tests and written dozens of reports. The ventilation systems which were installed have failed to reduce the radiation levels. In a *New Jersey Star Ledger* story on December 6, 1983, James Marshall of the EPA was quoted as saying that "within a two to three-week period" the entire ventilating process should be complete.

To date, none of the contaminated soil on residential property has been removed. The Township of Montclair is considering a lawsuit which would force the state to remove all of the radioactive soil before December of 1985. The end of this year marks the two-year period set by the U.S. Center for Disease Control for total clean-up.

Besides the removal of the contaminated dirt, the clean-up program was to consist of sealing foundations and installing underground pipes. Almost two years have elapsed and none of these projects have occurred. Only recently has the DEP approved the clean-up of seven of the most contaminated homes. The costs of this phase of the project, including sending the 32 rail cars of waste out to Hanford, Washington and paying for residents to relocate temporarily, is an estimated $7 to 8 million.

The EPA is involved in other phases of the clean-up and have not yet confirmed its plans to move the rest of the contamination. Sam Pinkard, chair of the Montclair Township Council Task Force on this problem, is concerned that the federal government will not remove the rest of the contaminated soil. "If the federal government finds it's too expensive, it won't get done. We're going to need a lot of support on this one."

Montclair residents in contaminated homes feel trapped. They cannot sell their homes due to the contamination problems and, even if they could, most do not want to leave—they just want their homes cleaned-up. This community was settled in the early 1900's. Many of the residents are older blacks who feel a great sense of family in Montclair and don't want to leave their children and grandchildren.

Research for this story was done by Adrienne Markowitz of NJCOSH. For more information about the problems in the New Jersey homes contact: NJ Committee for Occupational Safety and Health at Rutgers University, 103 Washington St., Newark, NJ 07102, 201-623-4751.

Resources

Nevada Test Site

Testing of nuclear bombs poses a constant threat to people and the earth. Since 1951, 635 nuclear tests have been announced to the public. Since many go unannounced, it is safe to estimate that over 1,000 bomb tests have occured both above-ground and underground.

A drill rig works 24 hours each day to dig out the tunnels for nuclear blast tests. Tunnels as long as 8,000 feet are used. Holes are also used for testing and can be over one mile in depth. After the blast, molten caverns are formed which are filled with hot gases under extreme pressure. As the pressure drops, the earth above caves in, often breaking through the surface. At least 42 ventings of radiation off-site have occured from underground testing.

To bring this information to the public eye, a coalition of eight national peace organizations are sponsoring the August Desert Witness, a demonstration at the Nevada Test Site. The event is scheduled for August 6–9, 1985. For more information, contact August Desert Witness, P.O. Box 4883, Las Vegas, NV 89127-0883 or call 702-646-4814.

In addition, the organization publishes an important four-page fact sheet on the Nevada Test Site. There is information about major contractors and how the tests are performed, as well as a map of the site. The group also has an excellent slide show on the Nevada Test Site.

graphics by Grell Rasmussen

The Deadly Link Exposed

by Laura Worby

Nuclear Control Institute (NCI) is developing a set of materials for grassroots organizations on the links between the nuclear power fuel cycle and the spread of nuclear weapons. To launch this effort, NCI will publish a report on irradiated fuel, waste management and proliferation.

More than half of the plutonium now in existence was produced by civilian nuclear power plants. Civilian nuclear activities in the non-Soviet world have produced 300 metric tons of plutonium—one-and-a-half times the plutonium in the combined arsenals of the superpowers. Fifty-five tons of that plutonium has been separated from irradiated fuel, and therefore can be used for explosive purposes. More than a third of the plutonium was produced in the United States, most of which is stored in irradiated fuel at nuclear power plants around the country. That fuel, and the plutonium locked within it, is the subject of this report.

The report, entitled *The Deadly Link: Spent Reactor Fuel and the Spread of Nuclear Weapons*, was written by Laura Worby. It discusses the amounts of plutonium contained in commercial fuel throughout the United States, possible options for the use or disposal of that plutonium and the proliferation implications of each option. Options include disposal as in irradiated fuel, reprocessing and recycling in light water reactors, use in breeder reactors, or use in the weapons program.

The report examines each option in terms of its effect on the spread of nuclear weapons, and outlines and evaluates current legislative and other factors which restrict or enhance the likelihood that each option will be pursued. In particular, the report examines how nuclear fuel and plutonium are effected by the Nuclear Waste Policy Act and the Monitored Retrievable Storage program. The report sets U.S. irradiated fuel policies in the larger context, examining the plutonium-use and waste management policies of other countries, and how those policies are influenced by the United States.

NCI hopes that the report will serve as a tool for public education on the effect of U.S. irradiated fuel and plutonium policies on world-wide proliferation. NCI plans to develop additional materials such as press packets and legislative alerts to support grassroots work around the links between nuclear power and nuclear weapons. The report will be available in July, 1985, and can be ordered from Nuclear Control Institute, 1000 Connecticut Ave. NW, Suite 406, Washington, D.C. 20036. Approximately 100 pages, $20.00. For more information, call 202-822-8444.

Laura Worby of the Nuclear Control Institute has previously worked for NIRS in Washington, D.C., the NRC and the Senate Subcommittee on Nuclear Regulation. She has extensive knowledge concerning repositories for high-level waste.

New Fact Sheet on Landfills

The Sierra Club Radioactive Waste Campaign has just published a new fact sheet which details the problems at all commercial radioactive landfills throughout the U.S. In addition to investigating the specific problems at each site, we've critiqued the Nuclear Regulatory Commission (NRC) regulations for siting radioactive landfills, 10CFR Part 61.

So the next time industry officials or legislators tell you that the new NRC regulations will alleviate the numerous problems at closed landfills like West Valley, New York, Maxey Flats, KY or Sheffield, Ill., you'll have the answers to prove them wrong. Our fact sheet, "Radioactive Waste: Buried Forever" is eight pages with photos, charts and maps. Only $1 each, 25 or more, $.20 each. Order from our Buffalo office.

Forevermore Nuclear Waste in America

Available at a Discounted Price

The Campaign has purchased *Forevermore Nuclear Waste in America* by Donald Bartlett and James Steele of *the Philadelphia Inquirer* in bulk to bring radioactive waste buffs this fascinating book at $13.95, $4 off the list price of $17.95. In addition, you'll be making a donation to the Campaign by ordering from us.

In our last issue, *the Waste Paper* reviewed this timely book. As more states are eyed for high-level repositories and low-level landfills, *Forevermore* is an essential citizen handbook. When the Department of Energy or the Nuclear Regulatory Commission try to convince you it's safe to have a nuclear dump in your neighborhood, remind them of all the grim tales in *Forevermore*. This book is documented with hard facts and figures, yet written for the layperson. Published by W.W. Norton in 1985, 352 pages and is available by sending a check or money order for $13.95 U.S. dollars (includes tax and shipping) to the Sierra Club Radioactive Waste Campaign office in Buffalo. Order today while our supplies last!

New Book Details Nuclear Missiles at Seneca

To much ballyhoo in the news media and no surprise to peace activists, a new book details the number of nuclear warheads at the Seneca Army Depot in upstate New York. The book, *Nuclear Battlefields, Global Links in the Arms Race*, by William Arkin and Richard Fieldhouse of the Institute for Policy Studies (IPS) was released Friday June 15. It was previewed the night before on ABC's 20/20.

According to the book the Seneca Army Depot, with 1,265 atomic weapons, is the Army's largest nuclear weapons storage facility in the world. The depot contains 575 eight-inch artillery projectiles, 490 Lance missile warheads, 50 155-mm artillery projectiles, 90 Nike Hercules warheads, and 60 atomic demolition munitions such as land mines. Most of the artillery projectiles have neutron warheads which produce a high neutron field, fatal to humans, but with minimum blast damage. As is their custom, the Army neither confirmed or denied the report. Seneca is second only to the Charleston, South Carolina naval yard in the total number of missiles.

Before the release of the IPS report, *the Waste Paper* had independently confirmed that nuclear materials were on the Seneca base. A report by a government contractor, Pacific Northwest Laboratory (PNL-4640), discussed the yearly disposal of radioactive materials from Army bases, and specifically noted waste from the Depot. The purpose of the PNL report was to explore the need for waste handling facilities for Army facilities, including Veteran's Administration hospitals. Obviously, no radioactive wastes would arise from the Seneca Army Depot unless nuclear materials were on the site.

The Seneca Army Depot had been singled out several years ago by peace activists as a supply point for European missiles. It now is clear that the Army had something to hide. The IPS report details the exact numbers.

To order Nuclear Battlefields, Global Links in the Arms Race, *send $14.95 plus $2.24 for postage and handling to the Institute for Policy Studies, Publications Department, 1901 Q Street NW, Washington, D.C. 20009*

Nuclear Woes . . .

continued from page 1

allowing only 6.8 micrograms per liter. Neither the DOE nor NLO informed the Crawfords that their drinking water was fouled with uranium as the DOE's standards run more than 100 times higher than EPA's proposed standards.

Ohio Tests Wells In January of this year, the State of Ohio was summoned to test wells in the surrounding communities and found not only more wells contaminated with radioactivity, but over a dozen wells with water unfit to drink because of other pollutants, like nitrates and solvents, that may emanate from the DOE plant.

The DOE plant at Fernald also houses a radioactive waste dump. Four pounds of radium are stored in concrete silos. In addition, about 500,000 tons of radioactive and chemical wastes are buried in six pits. These pits sit on the Great Miami, the largest aquifer in the Midwest. In an interview with National Public Radio this spring, a DOE official admitted that the department does not know exactly what is buried at Fernald. Some of these buried wastes date back to the Manhattan Project. Even DOE officials have noted that the pits and silos are not a permanent solution. Because of the controversy centering around the Fernald site, the burial pits have been closed since December of 1984; wastes from the plant are currently stored in barrels stacked on an asphalt pad.

The 1976 Willrich report, conducted by the Rockefeller Institute for the DOE, warned that some of the buried wastes at Fernald are major health hazards and called the disposal system "unworkable." DOE officials denied it. In 1980, Citizens Against a Radioactive Environment (CARE) found radioactivity in runoff from the plant. DOE officials denied that as well. After years of denial, NLO released conclusions reached in its own study: that runoff from the plant and its pits are possible sources of groundwater contamination.

The health impacts of the Fernald plant are unassessed. Recently, the results of a voluntary testing program were disclosed. Of less than a hundred people tested, thirteen that went under a radiation scanner carried burdens of uranium or radon. These thirteen *never set foot in the plant*. Due this summer are the results of the DOE's own health impact studies of workers, as well as published work on epidemiology by an independent PhD candidate.

NLO's contract with the DOE for the Fernald operation will terminate in April, 1986. Westinghouse, which is currently overseeing the high-level waste solidification project at the closed West Valley reprocessing plant, is reportedly interested in obtaining the Fernald contract; possible Westinghouse plans include taking active citizens from the Fernald area on a tour of the West Valley operation.

Glenn Calls for Investigation The State of Ohio, the Environmental Defense Fund and the Sierra Club are currently tied together in litigation to compel the EPA to set standards for radionuclide emissions. The standards are required of the EPA by a 1980 Act and are now half a decade overdue. Ohio Senator John Glenn has co-authored legislation, known as the Hazardous Waste Disposal Act (S-892), to force the self-regulating DOE to accept EPA jurisdiction over facilities that create a mix of hazardous and radioactive wastes. The DOE's claim of jurisdiction—based on the concept of "national security"—is regarded by many as leaving Dracula in charge of the blood bank. Glenn says "In my view we can no longer afford to have even the appearance of a conflict of interest, especially where health and safety matters are concerned."

In February 1985, Glenn and Congressman Tom Lukan of Ohio called upon the Government Accounting Office (GAO) to launch an investigation into the management of health and safety at all DOE nuclear plants; in addition, Glenn has co-sponsored another bill (S-525) which would transfer the right to perform health studies at DOE installations from the DOE to the Department of Health and Human Services (HHS). HHS would then consult with groups such as the National Cancer Institute and the Center for Radiological Health in studying the possible health dangers at the various DOE plants.

Citizens are urged to write their U.S. representatives in support of S-892 and S-525 to ensure that DOE facilities across the U.S. are subject to both environmental standards set by the EPA and to health studies performed by a qualified and more objective agency.

Thanks to Allen Fiebelman and Kevin McGee who provided much of the material for this story. The Sierra Club, along with Fernald Residents for Environmental Safety and Health (FRESH) and Fernald Atomic Trades and Labor Council (FATLC) have been spearheading the campaign to clean-up Fernald. For more information on this site contact: Environmental Task Force on Fernald, Miami Group of the Sierra Club, c/o Allen Fiebelman, 3341 Browning #E, Cincinnati, Ohio 45209 or call 513-631-7521.

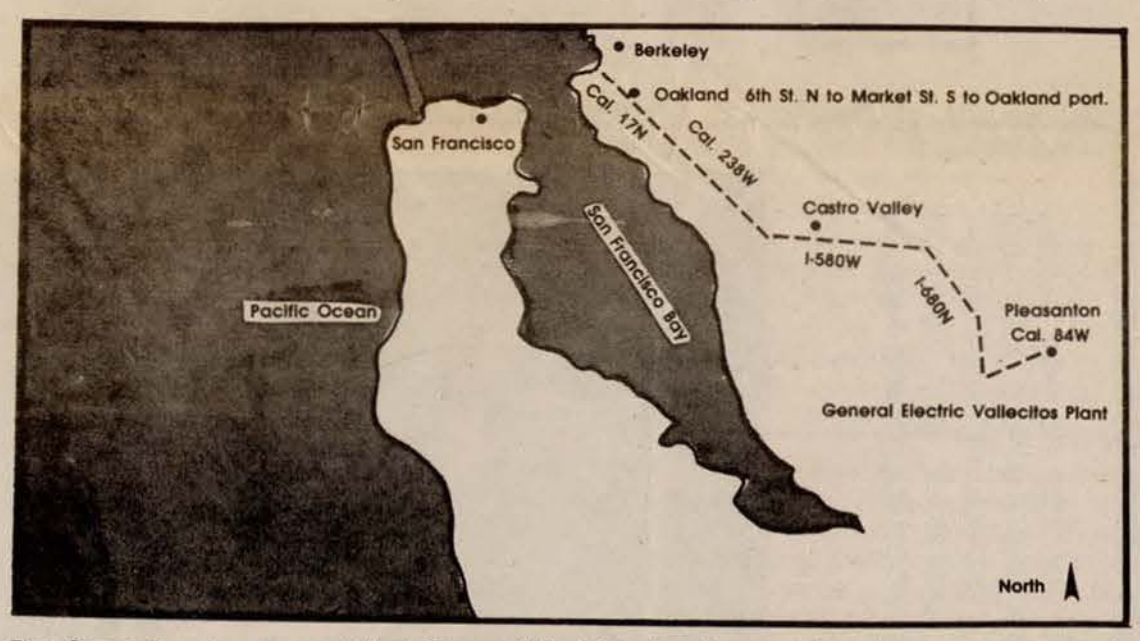
Interview with Cahill

continued from page 4

MR: When did you do your study?
JC: That was November 1979.
MR: That was about 6 years ago. And USGS has not done further studies on the Barnwell site since that time?
JC: We have further studies in the unsaturated zone, to find out how water was moving from the surface to the water table.
MR: Will you be doing that?
JC: No, I retired. A fellow by the name of Kevin Dennehy will be doing it. Kevin and I wanted to present a paper in '83 and the state wouldn't let us do it.
Ted Harris (TH): Who had the authority to keep you from publishing?
Ted Harris (TH): Who had the authority to keep you from publishing?
JC: Well, I don't care if they hear it, but the USGS head said I'm not going to jeopardize a multi-million dollar program with DHEC for a $50,000 program. Really it was political. Morally he should have said, look we did the work, it was paid for by the people, we should put out the information. I think our results showed that the site is good.
TH: Who put the pressure on you? Was it Haywood Shealy (the head of DHEC)?
JC: No, Haywood got it from Chem-Nuclear. It really shouldn't have ever been that way. Haywood should have made the decision. But Mr. E, who used to work with DHEC . . .
MR: But on what basis did Mr. E not want you to release the study? Did he just say no?
JC: No, they played a stalling game. They'd review it. Send it back. They'd review it again.
TH: Why do you think that Chem-Nuclear did not want the results to be made public?
JC: Chem-Nuclear doesn't want any results, or anything made public. That's their policy. And when I say Chem-Nuclear, I'm not speaking Chem-Nuclear itself, but Mr. E and Mr. B with Waste Management (the parent company).
TH: It doesn't seem that they are being very discriminating. Your study wasn't going to be very critical of their operations.
JC: No, we were going to show that Chem-Nuclear was doing a good job, that their techniques have improved, that they are the state of the art, that they are better. That's what I didn't understand.
TH: This is interesting. This is gross censorship. This isn't sophisticated. Let me ask you this question. What is the present state of relationship between Chem-Nuclear and the Survey?
JC: When I left the Survey, the relationship was very poor. And now I've found that it bypasses Chem-Nuclear and works with the state directly. Around Christmastime, the Survey was going to pull out completely and just say forget it. It's gotten so political, it's really taken the ball away from the technical.
TH: What is your sense of the long-term hazard of the site?
JC: That's a difficult question. It's certainly not going to move faster than water. It takes eight years for it to move to the sand unit. And then 40 years for it to reach the stream. If it gets down deeper, into another sand unit, it would run into Lower Three Runs Creek. And that would take over 1000 years.
MR: You did measure elevated levels of tritium some distance away from the burial trenches.
JC: Oh yes, I said it would take 10 years for it to move from zone 1 to zone 2, the sand unit. Eight years later we found a high tritium content in zone 2, ten feet away from the trench, we found elevated levels. The background levels at SRP are 3,000 picocuries per liter. Eight years later it was around 150,000 picocuries per liter.
MR: To follow-up Ted's question, what would you predict would be the next materials you would measure?
JC: The only one we found that was moving out of the trenches, other than tritium, was cobalt.

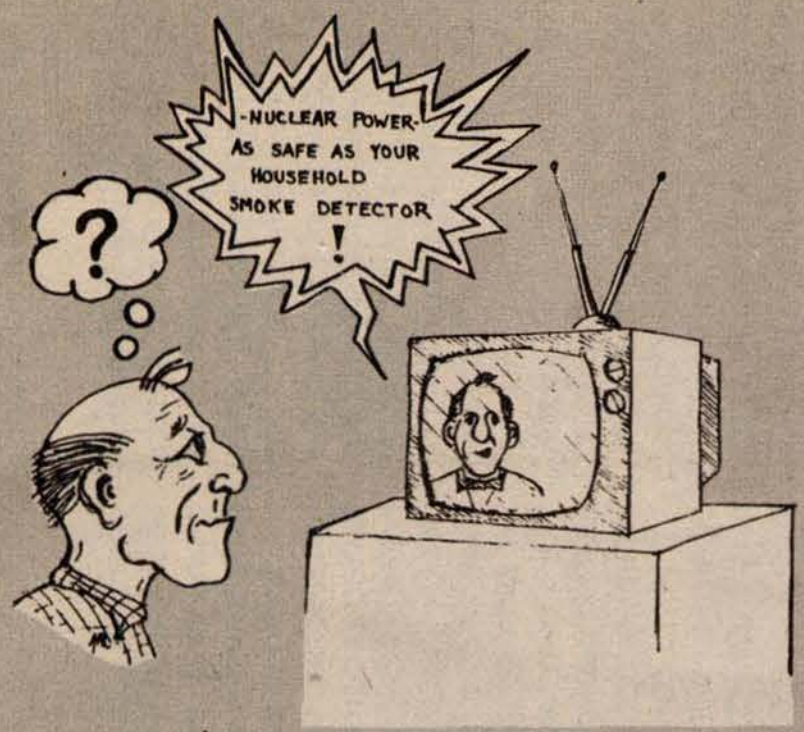
For more information on the Barnwell site in South Carolina, see the Waste Paper Volume 6 Number 2, "Barnwell Leaks."

GE Nuclear Shipments Through Oakland, CA



The Campaign has learned that General Electric plans to send two shipments of irradiated nuclear fuel through the Port of Oakland to Europe this year. The truck shipments follow the highway route shown. The purpose of sending used nuclear fuel to experimental reactors in Europe was not explained in the GE application for an export license. The trucking company carrying this extremely radioactive cargo will be Tri-State Motors or Home Transportation Co. The trucks can be identified by a large fuel-carrying container on a flatbed trailer, the signs "Radioactive," and by the standard triangular nuclear symbol with three solid vertical bars in black. The shipment will probably be escorted by armed guards.

Curious about whether pro-nuclear advertisements on television and the radio are telling the truth about nuclear power and nuclear waste?



Interested in learning the facts about the hazards of nuclear reactors and nuclear waste?

graphics by Jim Christfield

Then subscribe to *the Waste Paper*, the world's only quarterly on radioactive waste — exclusive interviews, investigative research and reporting, citizens' battles and more! We've got the facts and the figures for you. Only $8 for this important quarterly.

☐ Enclosed is $8 for a year's subscription to *the Waste Paper*, or $12 for two years.

☐ I want to stop generating nuclear waste. Here is my contribution to the Campaign.

☐ I would like to volunteer time for the Campaign. I can help with research, clerical, public speaking, writing or visual arts. (Please circle your interest.)

Clip and mail to: The Sierra Club Radioactive Waste Campaign, 78 Elmwood Avenue, Buffalo, New York 14201.

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