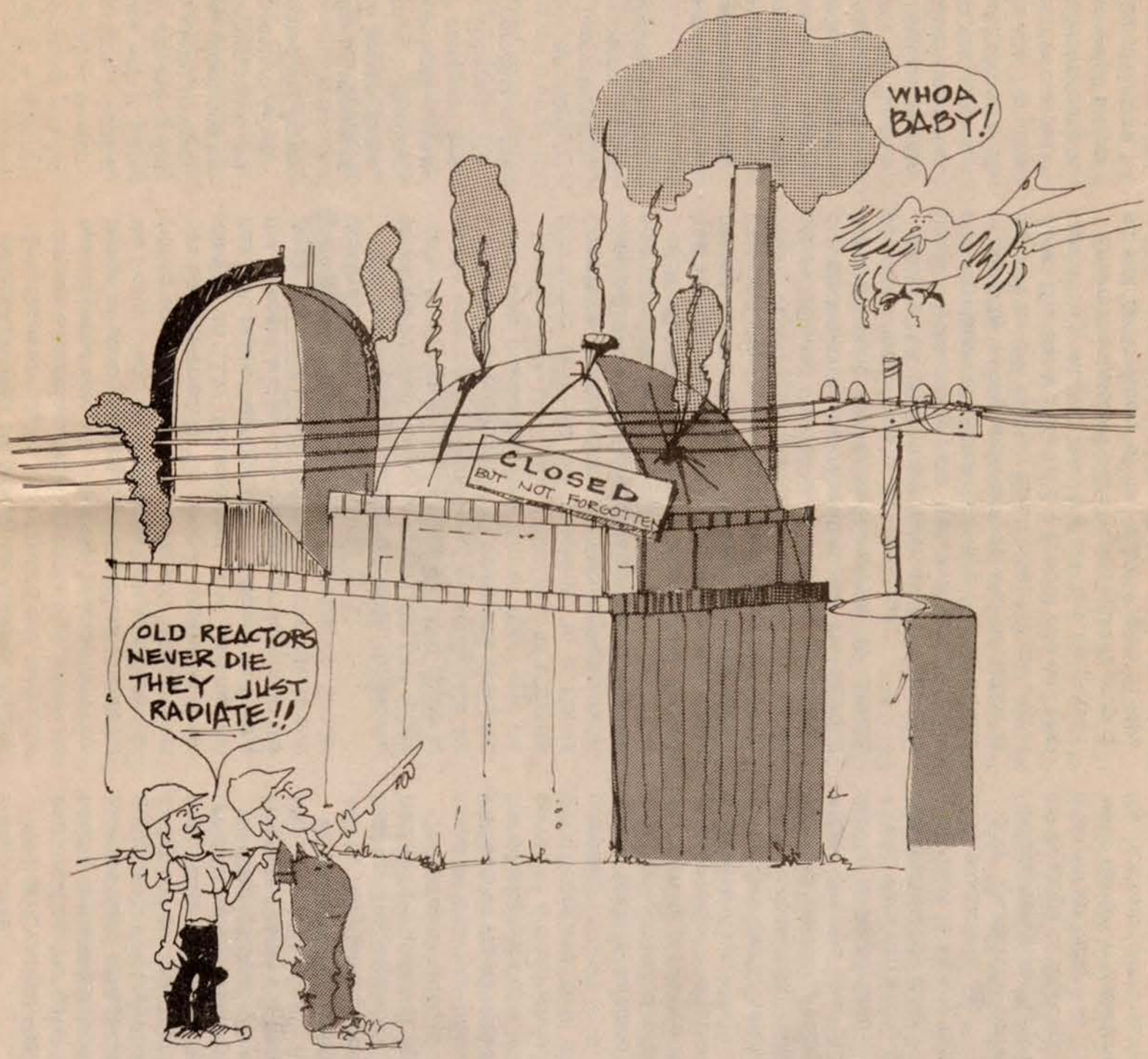
sierra club
radioactive waste
campaign

the Waste Paper

Volume 5 Number 3



graphics by Margaret Eberle

Ever wonder what happens to shut down nuclear power plants? The Sierra Club Radioactive Waste Campaign's new slide show "Decommissioning Nuclear Reactors: A Problem for Centuries," investigates the problem with worn out power plants. This graphic was taken from the program. See page 7 for details on how to rent or purchase the slide show.

What's Inside

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Volume 5 Number 3
Summer 1983

The Bomb Lives On in Weldon Spring

Another Manhattan Project Disaster

Editor's Note: Weldon Spring, Mo., is only one of over 100 sites across the U.S. that hold waste from the Manhattan Project, which constructed the first atomic bomb in the 1940's. Recently the Department of Energy (DOE) has been looking at some of these dumps for regional sites to consolidate Manhattan Project waste.

Only last winter (1982) DOE proposed that the Lewiston, N.Y., site become a regional repository for Ohio, New Jersey, Massachusetts and other parts of New York. But this tiny community refused to allow their town to become a regional dump. (see Vol. 5 No. 2).

At the same time, the DOE was eyeing Weldon Spring for a Midwest regional repository. Again, the DOE met resistance from the community and was turned away. The people of Weldon Spring, which is just outside St. Louis, have done tremendous grassroots work on this issue. The Waste Paper *is publishing articles about these confrontations to give citizens at other Manhattan Project communities vital information about what could occur in their area.*

By Leann Stevens

Over 2,000 people gathered in a high school gymnasium outside of St. Louis Mo. last summer (1982) to voice opposition to a U.S. Department of Energy (DOE) plan to bring more radioactive waste into their community. The plan called for waste from St. Louis and St. Louis County, Mo.; Joliet and Chicago, Ill.; Ames, Iowa; Cleveland, Ohio and Pasadena, Texas to be consolidated at the Weldon Spring Chemical Plant in St. Charles County, Mo.

The wastes would be entombed in four pits on the site that already contain 226,000 cubic yards of atomic and chemical waste. The pits are the result of uranium and thorium processing that was conducted at the plant from 1957-1966. Although they are called pits, the unlined, water-filled structures more closely resemble enormous lagoons.

This hearing was requested by Senator Thomas Eagleton (D-Mo.) and was held at the Francis Howell High School, less than one-half mile from the waste pits. Officials and community residents alike opposed the DOE plan; Missouri's Lt. Governor, Ken Rothman, gave a stirring speech calling Weldon Spring a national disgrace and labeling it the "Wounded Knee" of Missouri.

the opposition encountered at the hearing. After the hearing Robert Ramsey, the DOE official in charge of remedial actions stated, "This certainly was one of the most heavily attended meetings we've ever had and certainly the most hostile and vocal in opposition to our plans."

Both of Missouri's senators had expressed misgivings over DOE's remedial action for Weldon Spring. The St. Charles County and Missouri Prosecuting Attorneys threatened litigation. This threat combined with the public outcry at the hearing prompted the DOE to postpone their plans. The transport of approximately 10,000 cubic yards of waste from one of the St. Louis County sites had been scheduled for October, 1982.

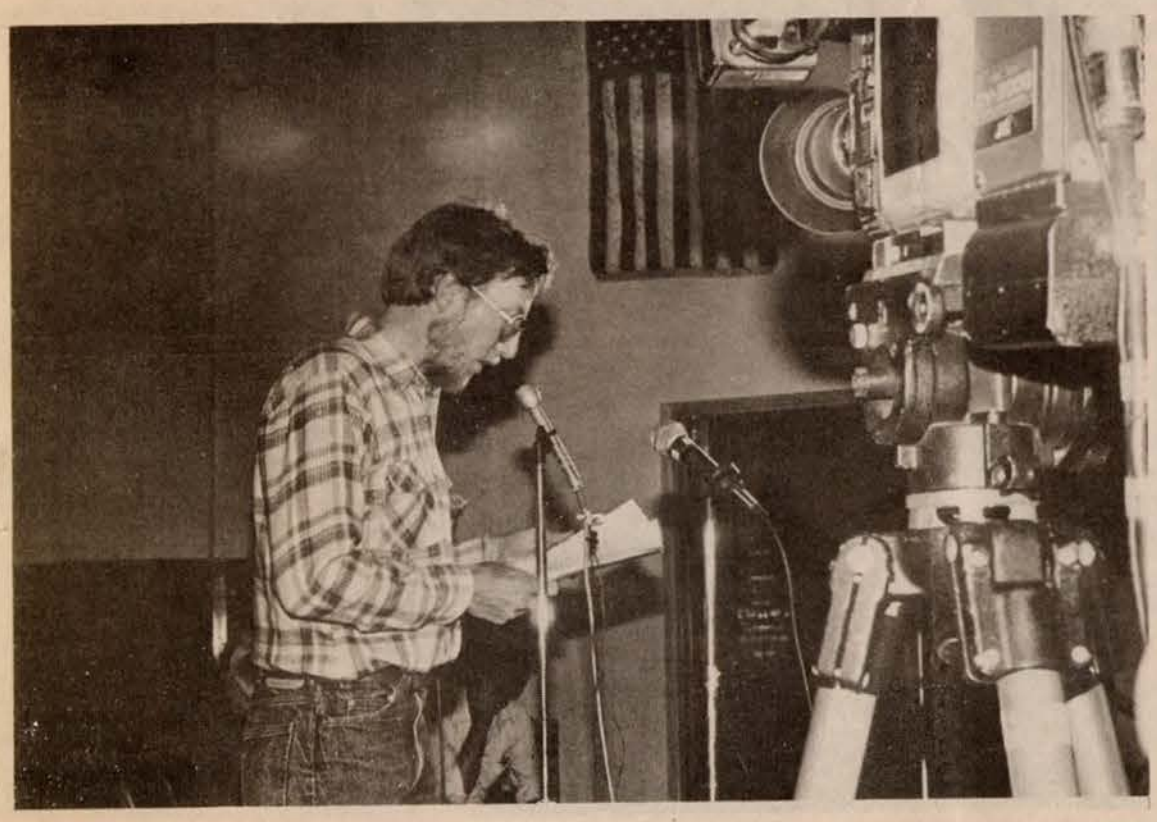
Weldon Spring is located in a geological setting made up of limestone, containing deep fissures and sinkholes, characterized by underground caves and streams which allow rapid movement of groundwater.

Officials from DOE and Bechtel National, the Weldon Spring site manager, were on hand to explain the plan. DOE officials explained that it was more economical to develop and maintain one site rather than several, and that the potential radiation exposure would be reduced by the consolidation. If implemented, the plan would bring 280,000 cubic yards of radioactive waste to Weldon Spring.

DOE, Bechtel Meet Opposition The representatives from DOE and Bechtel were unprepared for

Meanwhile local legislators went to work drafting a stipulation which stated that no waste would be brought to Weldon Spring until the DOE had complied with the National Environmental Policy Act (NEPA), that the Mo. Department of Natural Resources would be consulted on any actions, and that the site would be decontaminated if found unsuitable for long-term storage.

continued on page 6



Hereford Says No Dale Kleuskens, a Hereford, Texas farmer, tells the Department of Energy that area residents do not want high level nuclear waste in their community. The Kleuskens' farm produces 240,000 lbs. of corn, 520,000 bushels of wheat and other crops such as soybeans, cotton and sugar beet every year. (*see related story on page 4.*)

photo by Jerry Curtis

Tritium in Our Water—To Fear or Not to Fear?

by Mary McCarthy

It is not all that uncommon to come across a news item in your local newspaper that a nuclear power plant has just released an unknown quantity of radioactive gas or water into the environment. And, as you read further, a company spokesperson always reassures you *there is no danger to the public's health.*

Disappointingly however, the press never seems to bother to challenge the P.R. person's statement—neither by consulting radiation health experts or the scientific literature. Why don't they? After all, although the experts may say that the data at hand is not conclusive, there exists several studies conducted by scientists of such reknowned institutions as Brookhaven National Labs and Lawrence Livermore Labs. Both are facilities well financed and well respected for their research, development, and promotion of nuclear theory and technology since the dawn of the nuclear age. Studies strongly suggests that occasional releases may *not be innocuous* to the public's health, especially if tritium is involved.

continued on page 5

Radscope

Nature Trail at Three Mile Island

In one of the grossest plans to legitimize the Three Mile Island (TMI) crippled reactor, General Public Utilities (GPU) has announced the opening of a nature trail designed for handicapped people on the south end of the Island.

The TMI Multi-Sensory Nature Trail was built by the area Boy Scout troops with assistance from GPU Nuclear Corp., York Haven Power Co., Londonderry Lions Club and the on-site employees of EG&G, a contractor of the Department of Energy.

The trail is 400 feet long with 23 pedestals with Braille and English plaques describing the natural setting as well as scent boxes containing fragrances of local plants. Other area natural artifacts are also displayed for blind people.

A former area scoutmaster, who works for EG&G Idaho, came up with the bizarre idea. Are scouts learning more about nuclear energy than community awareness and helping others? The whistleblowing by Bechtel engineers working on the clean-up of TMI shows clearly that safety is not a priority and that the TMI Visitor Center and Nature Trail should not be open to the public.

Accidents Do Happen

by Mary Davis

One of the standards set by the Nuclear Regulatory Commission for casks that carry irradiated fuel is that they must be able to withstand a 30-foot fall into an unyielding surface.

May 1, 1983, during a heavy rain, a truck loaded with 792 containers of the weed killer Dyanap was involved in an accident on I-75 in Kentucky, which caused it to go over a concrete barrier and fall 35 feet. The cab landed on a road beneath, which was covered by water, and the trailer landed in a swollen creek. The driver was killed instantly. Approximately 1,000 gallons of herbicide eventually leaked into the creek from the ruptured containers. The first rescue workers on the scene, unaware for half an hour that a toxic substance was involved, were contaminated.

The Department of Natural Resources of Kentucky hired O. and H. Materials Co. of Findlay, Ohio, which specializes in coping with toxic waste spills, to direct the cleanup. The accident occurred at 10:30 a.m. The company's crew arrived at the site of the accident about 8 p.m. They had cleaned up the containers on the bank by 10:30 p.m. but did not get the trailer out of the creek until 2 a.m. The following day, approximately 100 drums of Dyanap were still missing.

The accident was serious, but it could have been calamitous had the truck been carrying irradiated fuel rather than weed killer. I-75 is an approved shipping route for irradiated fuel. Since the Department of Energy is expected to name Oak Ridge, Tenn. as the first away-from-reactor storage site for irradiated fuel, trucks carrying the fuel may shortly be travelling over this route on their way to Tennessee.

Thanks to Mary Davis, Nuclear Energy Chair of the Sierra Club Cumberland Chapter in Kentucky, for providing this information.

graphics by Bud Roche

Mickey Mouse and Nuclear Waste

Disney World and the U.S. Department of Energy (DOE) make strange bedfellows. But it's true. The world of Mickey Mouse and fanatsy have joined hands with the nuclear giants to come up with a plan to reduce volumes of nuclear waste.

Walt Disney World in Lake Buena Vista, Florida, has just opened a Solid Waste Conversion plant to convert visitor trash to a black glassy material that may save landfill space up to 97%. The U.S. DOE will monitor the project to determine whether the system could be used to reduce large volumes of transuranic radioactive waste. If the system works, it could be constructed for transuranics at Idaho National Engineering Labs in Idaho Falls, Idaho. The idea is based on incinerating waste at ultra-high temperatures, in order to reduce volume. Of course, toxicity of the material will still be present, only concentrated into a smaller mass.

Dump for the Midwest?

Four states have joined the Midwest compact for siting a "low-level" nuclear waste dump: Michigan, Indiana, Iowa and Minnesota. Wonder what the number of curies of radioactive waste would be if only the operating reactors in the Midwest were using the site?

This means without all the hospitals, research labs and pharmaceutical companies. In the Midwest there are 10 operating boiling water reactors and 16 pressurized water reactors.

Give up? *The curie content of "low-level" waste from Midwest reactors would be 47,075 annually.* In this region the states included are Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, South and North Dakota, Ohio, Wisconsin and Virginia. Several of these states do not yet have operating nuclear power plants.

Railroading Compact Legislation

Although citizens across the U.S. are opposing the current "compact plan" for regional storage of low-level radioactive waste, some states are trying to railroad the idea through their state legislatures without citizen input.

Case in point—South Dakota, which produces only 35 cubic feet of low-level waste each year. A compact bill was suddenly introduced at the end of the 1983 session and passed out of the Senate Committee in 24 hours. Citizen groups in the state frantically scrambled to educate House legislators and were successful—the House killed the bill and sent it to an interim study committee.

Senators were convinced by nuclear power advocates that they had to pass this bill in order to dispose of their state's low-level radioactive waste. Chem-Nuclear was probably lobbying hard for South Dakota to join the compact. The nuclear waste management company had already chosen a site in Edgemont, South Dakota for a dump. Since the death of the compact bill, Chem-Nuclear has lost interest in the South Dakota site. (*For details on the generic problems with compact legislation, see page 7.*)

the Waste Paper

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Lisa Finaldi ..... Editor, Co-Director
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Special thanks to our guest writers, photographers, and artists for their terrific work on this issue. Thanks to all our volunteer proofreaders for their energy and time and Panagraphics for their typesetting. Also thanks to Theresa Arlington and Mike Ahern for their graphics in the last issue.

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Summer, 1983

Dig It Up NYS Assemblyman Joe Pillittere accepts a shovel from the Sierra Club Radioactive Waste Campaign's Diane D'Arrigo and Citizens Against Pollution's Danielle DeGolier. The shovel signifies the need to exhume both nuclear and toxic waste sites across the country that are leaking. D'Arrigo, research associate for the Campaign, recently completed a report on digging up burial sites entitled "Insecure Landfills: The Exhumation Option." The report can be ordered from our Buffalo office; $5 for non-profit groups, $25 for corporations.

photo by Lisa Finaldi

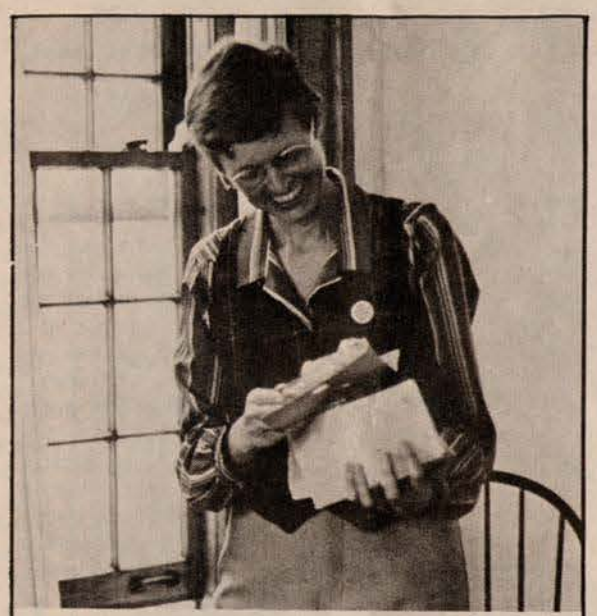
Letter From the Director

Below is a letter from Mina Hamilton, who has recently resigned as Director of the Sierra Club Radioactive Waste Campaign. We will all miss her greatly and thank her for her insight and guidance.

Dear Friends and Associates:

It is both with excitement and sadness that I announce my resignation as Director of the Sierra Club Radioactive Waste Campaign. I have spent the last five years immersed in this facinating and mind-boggling topic. The sometimes overwhelming demands of the work have always been compensated for by my contact with the talented, dedicated and caring safe-energy community. It has been an exhilarating experience for me to work with each and every one of you.

We have strategized late at night, persevered through boring, tedious, but important meetings, we have testified, marched, protested, painted signs, carried placards and worn pinnochio noses together. I have learned a tremendous amount from your insights and courage. I only regret that I have been unable to say goodbye to each and everyone of you individually, but doubtless we will meet again.



Goodbye Mina Mina Hamilton, out-going director of the Radioactive Waste Campaign, accepts gifts from staff and friends. Mina has been a tremendous strength to the Campaign and will continue to consult on nuclear waste issues. *photo by Lisa Bunin*

Now as I go on sabbatical and turn to a writing project that has long been nibbling at my soul, I commend to you the excellent talents of Diane D'Arrigo and Lisa Finaldi, who will continue to work out of the Buffalo office. Both are incredibly well-informed on the radioactive waste issue and have boundless energy and enthusiasm to help you solve your problems.

I am also very pleased to announce the return of Marvin Resnikoff who will be serving as Co-Director of the Campaign with Lisa Finaldi. For the past two years, Marvin has been at the Council on Economic Priorities writing the just-released *The Next Nuclear Gamble* (reviewed in *the Waste Paper*, Vol. 5, No. 2). The campaign is fortunate, indeed, to have Marvin with his scientific research talents and limitless energy back with us again.

I am not completely disappearing. I will continue to serve on the Steering Committee of the Campaign, write an occasional article for *the Waste Paper* and do an infrequent public speaking engagement.

Best of luck and lots of love to you all.

No Relief for Colonie, N.Y. Community

NL Industries' Waste Still Remains

by Anne Rabe and Tom Ellis

When does a short term exposure to uranium, not known to be "measurably harmful," become a long-term exposure which significantly increases the risk of cancer and other diseases? This question is on the minds of hundreds of people living near the NL Industries plant in Colonie, N.Y., five miles north of Albany, because after *four years* radioactive uranium still coats the soil in their community. The New York State Department of Health officials continue to claim there is no "imminent" health hazard from this "short-term exposure."

Since 1958, NL (formerly National Lead) was licensed to use enriched uranium to manufacture experimental fuel rods for nuclear reactors and depleted uranium for radiation shields, anti-tank shells and airplane counterweights for the Department of Defense.

The Department of Labor (DOL), however, has begun to recognize the serious health questions surrounding the uranium contamination of NL workers. In a March 1983 meeting, representatives of the Eastern New York Council on Occupational Safety & Health (ENYCOSH) asked Commissioner Lillian Roberts to provide medical data to support the group's request for a health study of former and present NL workers. A follow-up letter by Department of Labor Deputy Commissioner Drayton, stated that the DOL supported a health survey of NL workers and would provide medical data on the workers which had been requested ten months prior. ENYCOSH, former NL workers and community residents in Citizens Concerned About NL, together with Assemblyman Maurice Hinchey, will be meeting with Department of Health Commissioner Axelrod this summer to request health studies for NL workers and community residents.

Meanwhile, the Attorney General's office has pushed off the NL trial date indefinitely, while fighting NL on whether they can question Teledyne Isotopes, a private company that was contracted by NL to do a surface soil survey of the uranium contamination in 1980.

Matuszek's Discovery According to the Attorney General's office, Dr. John Matuszek, Director of the Department of Health's Radiological Sciences Unit and former employee of Teledyne Isotopes, recently discovered a 1981 Teledyne report on NL in his files which showed the company had omitted sections of the Teledyne report before submitting it as their own to the Attorney General. Dr. Matuszek does not remember when, how or where he obtained the report. The omitted sections concern the remedial clean-up plan on off-site contamination.

An estimated 26,250 cubic feet of top soil, or 58 truckloads of 55-gallon drums, will have to be removed to do a surface clean-up of the area, at a cost of $1 million—a couple days profit for this multinational corporation. The contaminated soil would be taken to either the Barnwell, S.C. or Richland, Wash. waste sites. This million dollar bill does *not* include the costs of replacing people's lawns, shrubs and gardens, nor does it include compensation for the health hazards to which people have been exposed.

The Attorney General has also released other significant reports on NL's contamination. In May 1982, the DOL ordered NL to conduct groundwater sampling at the plant to determine if buried uranium was leaching. In the fall of 1982, NL drilled four wells which were 30 to 36 feet deep. NL's methodology was to filter out solid particles of uranium and other material and then analyze the water. 1 to 3 picocuries per liter of uranium-238 were the test results, which are below the 10 picocuries per liter proposed limit of the Environmental Protection Agency. NL's November 1982 groundwater report reasoned that filtering removed only the heavy particles which would not be carried away by the water. An NL attorney stated the non-dissolved uranium-238 would "stay put."

Finally, the DOL and the Attorney General told NL their groundwater methodology was "unacceptable." The Attorney General stated that the groundwater should have been tested before filtering, that wells should have been drilled off-site to determine if uranium migration was occurring and that the wells should have been extended to the full depth of the aquifer below the site. NL then asked for detailed, written guidelines from the DOL, which have not been provided after six months.

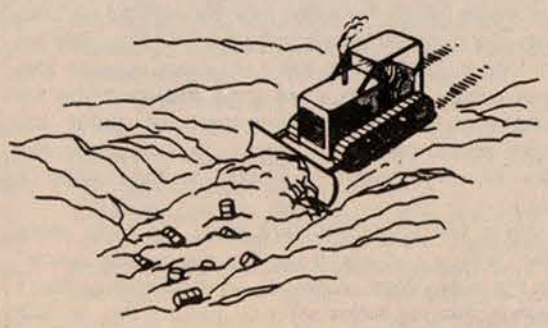
Questions Remain A second Teledyne report, conducted in 1981 on core sampling, was also recently released by Nathan Riley of the Attorney General's office. When he released the report, Riley stated, "We're talking about the waste products from the plant being buried at the site. It's impossible on the basis of the information that we have to say there are any levels of danger. There's simply too much lack of information." Attorney General officials noted that NL suspiciously avoided core sampling near the loading dock, where former NL workers claim uranium was buried. The report left many questions unanswered. Why was there no analysis of the findings in the report and no conclusions? Why was there no testing done on the left side of the front lawn, where former NL workers claim uranium was also buried? Neither the Attorney General or the Department of Environmental Conservation have stated that a further investigation, including independent core sampling, will be done to determine the full extent of the buried waste.

In the meantime, concerned citizens are publishing a counter-pamphlet to the Department of Health's on the health aspects of NL's uranium contamination. The pamphlet will be factual (including footnotes) and wil present up-to-date information on the known health effects of low-level radiation and uranium.

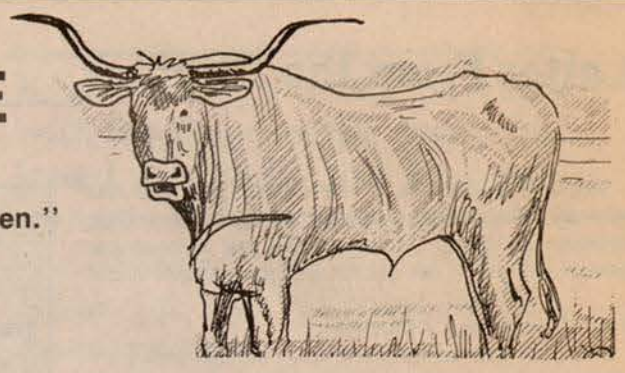
An estimated 26,250 cubic feet of topsoil, or 58 truckloads of 55-gallon drums will have to be removed from areas surrounding NL Industries, for surface clean-up only.

Former NL workers and community residents urge concerned people to support their upcoming meeting with Commissioner Axelrod to request health studies, by writing the Commissioner at Executive Division, Empire State Plaza, Tower Building, Albany, N.Y. 12237.

Anne Rabe and Tom Ellis are members of ENYCOSH. In the Spring 83 issue of the Waste Paper, Vol. 5, No. 2, they detailed the problems at NL Industries Colonie site.



The Eyes of Texas Are on DOE



graphics by Bud Roche

"I've been to Dallas to the Fair, I peeked at the Texas Legislature up close, And I've even sat for 'Bedtime for Bonzo', But this beats anything I've ever seen."

—Jim Hightower, Texas Agriculture Commissioner, commenting on DOE use of Texas for high-level waste.

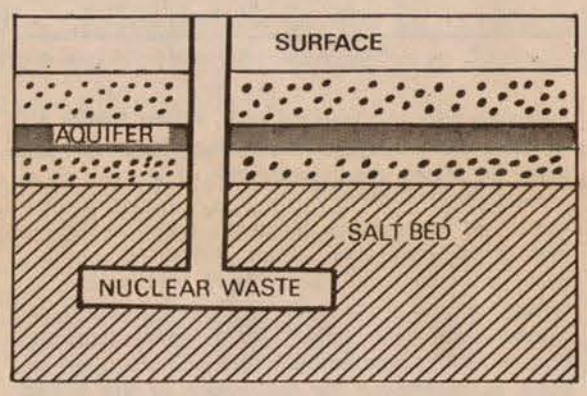
•

You'd think the Agriculture Department were withholding farm payments. What else could bring out 800 angry farmers to a government hearing on a Monday evening in Hereford, Tex.? A scheme by the Department of Energy (DOE) to dispose of 100,000 tons of nuclear waste under prime Texas agricultural land, that's what.

At hearings held in Hereford, Tulia and Austin May 16 through 18, 1983, the message from every level of Texas society was clear: DOE had not carefully considered the effect of contaminating the underground Ogallala aquifer, the sole water source in the Texas Panhandle for farming and drinking.

America's Breadbasket As Delbert Devin, president of STAND (Serious Texans Against Nuclear Dumping), a group of farmers and businesspeople from Tulia in Swisher County put it, "I haven't yet been convinced that a repository shaft can pass through the Ogallala without running the risk of contaminating it. This is the breadbasket of America. Contaminating the Ogallala and destroying land used to produce food is much more grave than DOE realizes."

Devin's comments were mild in comparison to others. Dale Kleuskens of the Deaf Smith County group POWER in Hereford, Texas had this to say, "If DOE continues, they will be met with the three L's: legislators, lawyers, then lead."



Ogallala Aquifer Threatened The Department of Energy high level nuclear waste dump in Texas would be mined out of salt below the Ogallala aquifer in the Texas Panhandle. Farmers have questioned how water from the Ogallala would be kept out of the salt below. *graphics by Lisa Finaldi*

DOE plans to drill through the Ogallala aquifer to underlying salt beds. The agency claims that this could be done without having water leak down into the nuclear waste, but few Texans believe the "feds." As Delbert Devin puts it, "I've talked to a lot of DOE people and not one of them will look you in the eye and tell you this repository idea is safe."

Politics of Site Selection Before drilling shafts and gathering more data, DOE must prepare an Environmental Assessment for each proposed repository site. In accordance with the Nuclear Waste Policy Act of 1982, DOE must also hold public "scoping" hearings to outline the range of topics to be included in the Environmental Assessments. DOE still must issue guidelines for the selection of an underground repository. Assessments are being prepared for Nevada, Washington, Texas, Mississippi and Louisiana.

probably never heard of Lyons, Kansas, and a host of other failed DOE initiatives. But DOE did not reckon with the farmers' basic distrust of Washington, from years of dealing with the Agriculture Department. "Ag" had often toyed with farm income with unkept promises of price support or payments for untilled acres. These same farmers were now asking the DOE, what if the aquifer became radioactively contaminated? How could DOE guarantee that no water would leak into the salt bed? These questions and many more will supposedly be answered in the DOE Environmental Assessment to be released in late summer 1983.

As Jim Hightower, the newly elected Agricultural Commissioner, put it, "This is not just a technical issue. It is a human, economic, cultural and even a moral issue. We're going to run this dump out of Texas."

"This is the breadbasket of America. Contaminating the Ogallala aquifer and destroying land used to produce food is much more grave than the DOE realizes."

Hereford, Tex., in the heart of Deaf Smith County, is flat. The roads are straight. The occasional tree seems out of place in this semi-arid region of the Texas Panhandle. Little surface water is available for irrigation and drinking and less than 17 inches of rain falls in an average year. Yet amazingly, the fields are green with corn, sorghum, cotton and soybeans. Hard working American farmers and the abundant Ogallala aquifer, located 400 to 1,000 feet underground, have converted Deaf Smith County to a verdant garden from parch semi-arid land. Over one-half million acres are under cultivation. The county produces Frito-Lay corn chips, Arrowhead Mill grains and three million head of cattle per year. In all, the Panhandle region produces 10% of the nation's food.

At the hearings, arguments in favor of the repository shaft quickly moved from the scientific and technical level, to a political show of force. Suspicions have always been that Deaf Smith County was chosen more for its political than scientific merit. Hereford is located 60 miles south of Amarillo, where nuclear warheads are fabricated at the Pantex plant. Surely patriotic farmers could be expected to accept DOE statements. Texans had

State Opposes DOE With Texas farmers in the forefront, in one year the State has moved from unsuspecting partners with DOE to outright opponents of waste dump. On Tuesday May 17, a day after the Hereford hearings, the Texas legislature enacted legislation to protect Texas water resources against radioactive contamination. The Texas Water Commission was given authority to regulate shaft design and construction. At certain places, the salt bed is only 75 feet thick. DOE will now need a state permit to drill though any Texas aquifer. On Friday May 20, after the three Texas hearings, John Tower, the Republican senator from Texas and powerful chair of the Senate Armed Service Committee, opposed the Texas choice, calling the DOE move "illogical" in a letter to DOE Secretary Donald Hodel.

With Texas now strongly opposing the use of Panhandle region, the state of Washington has become the frontrunner in the race for the world's first high-level nuclear waste dump. All other states have taken themselves out of the running for this dubious prize. At least the other states have asked for a higher degree of assurance than DOE has been able to provide.

West Valley Eyed for Low-Level Nuclear Waste

Once again, the West Valley site, 35 miles south of Buffalo, is threatened. Senator Dale Volker, Chair of the State Legislative Energy Committee, is the leader of the pack advocating the reopening of the burial ground for more low-level nuclear waste.

In a press statement on May 13, 1983, Volker said he was concerned about medical facilities that might have to curtail research if a dump site cannot be found. The Sierra Club Radioactive Waste Campaign calls this blackmail. Utilities are hiding behind the white coats of the medical profession claiming cancer research will cease if West Valley is not reopened.

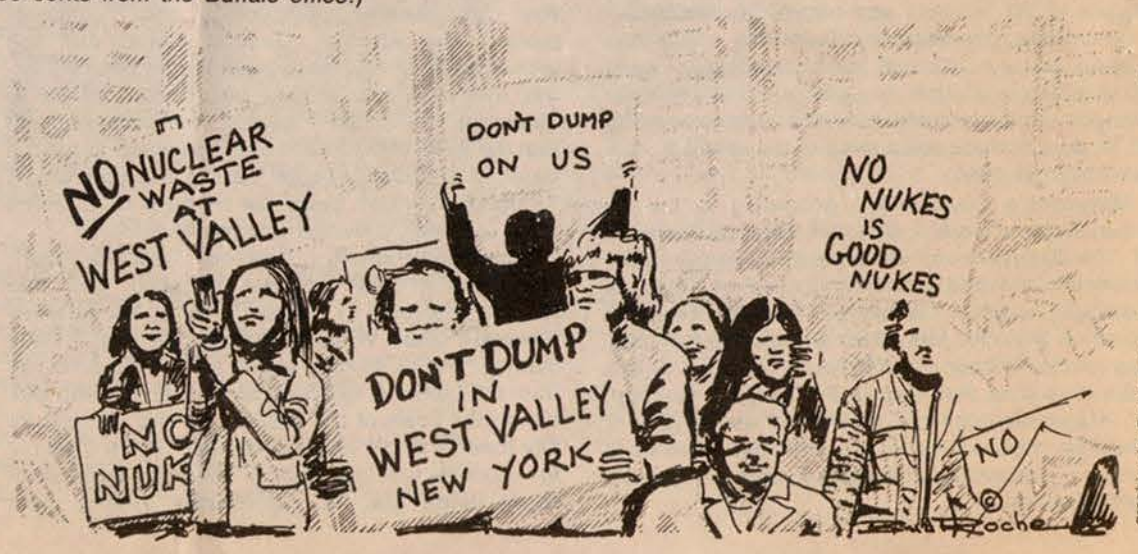
The realities are quite different. Medical institutions are containing much of their low-level radioactive waste on site for a few months until the radioactivity has dropped significantly and the materials are no longer considered toxic. Nuclear reactor low-level waste is much more toxic and must be sequestered from the environment for about 300 years. (*For more on this, order "A 'Low-Level' Nuclear Waste Primer," for $1.00 from the Buffalo office.*)

When will Senator Volker learn the facts about West Valley and about medical vs reactor waste? By the way, West Valley is no longer in Volker's district. Reapportionment has turned the nuclear dump over to Senator Jess Present. Present has not made any statements on this issue.

Citizens are urged to write Senator Jess Present or Governor Cuomo, asking them to stand firm: *NO REOPENING OF WEST VALLEY.* The site has been plagued with geological problems—sand lenses, swamps, erosion and was closed in 1975 due to a trench cover which broke open, allowing contaminated water to spill into nearby creeks which lead into Lake Erie. (*For more on the problems at West Valley, order our fact sheet, "Insecure Landfills: The West Valley Experience" for 50 cents from the Buffalo office.*)

Please write: Senator Jess Present
LOB 509
Albany, NY 12247

Governor Mario Cuomo
Executive Office
The Capitol
Albany, NY 12224



graphics by Bud Roche

Ashes to Ashes Dust to Dust

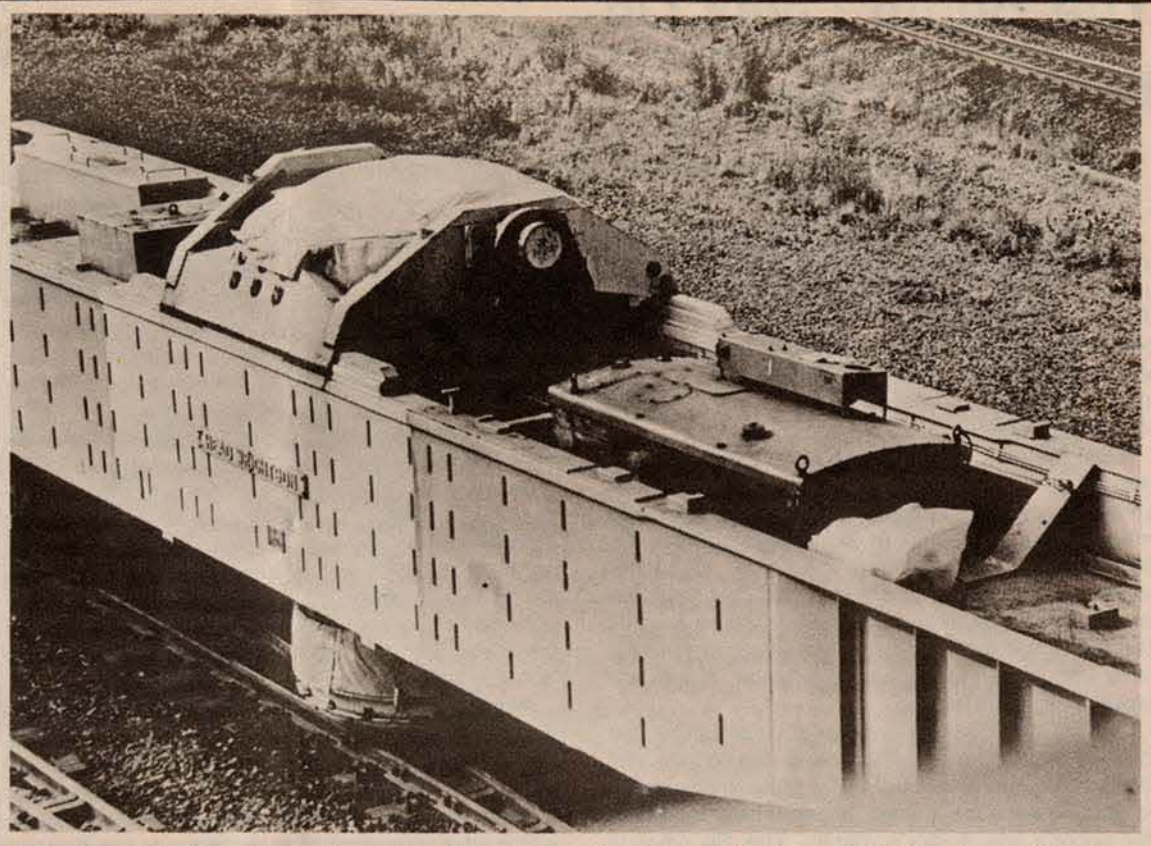
A court suit with grave implications for the safety of nuclear fuel shipments is taking place in Atlanta, Georgia, virtually hidden from public view. The suit, brought in U.S. District Court by Nuclear Assurance Corporation (NAC), a nuclear fuel shipper, against Batelle Memorial Institute and Connecticut Yankee Atomic Power Company, reveals new mechanisms for large amounts of highly toxic radioactivity to reach the public in a shipping accident.

NAC has sued the other nuclear parties for $1 million in punitive damages and $1 million in actual damages, to replace a grossly contaminated and unusable shipping cask. The shipping incident which gave rise to the federal lawsuit occurred in May 1980. On May 1, 1980 Nuclear Assurance supplied a NAC-1 shipping cask to the Haddam Neck reactor which shipped damaged irradiated fuel to Batelle in Columbus, Ohio. The nuclear fuel had overheated in the Connecticut Yankee reactor and was being shipped dry to Batelle for analysis. Water was not used as a coolant because the fuel had been cooling in the Haddam Neck reactor fuel pool for one year and two months. When the cask arrived at Batelle, an unusual amount of steam was exhausted from the cask. Apparently the water remaining in the so-called "dry" shipment had turned to steam because of the excessive heat buildup within the cask.

Black Cloud When the cask was opened underwater at Batelle, a black cloud filled the fuel pool, contaminating the cask, the Batelle pool area and several employees with radioactivity. Because the NAC-1 cask was so severely contaminated as to be unusable, NAC sued Batelle and Connecticut Yankee for damages.

According to a Batelle memo dated May 19, 1980, the contamination of the Batelle fuel pool was caused by a fine powder from the previous solid fuel pellets. At temperatures greater than 480°F, the uranium dioxide in the fuel pellets oxidizes to U_3O_8, causing flaking and "fine fuel powder which was apparently released." Some of the hotter fuel pellets reached temperatures of 550°F. After the cask lid was removed, this fine fuel powder floated to the surface of the pool. Radiation levels 3 feet above the pool read 200 millirems per hour (the average background radiation levels are 125 millirems *per year*).

The Batelle incident has grave implications for safely shipping nuclear fuel dry. Damaged hot fuel shipped in a dry state (without water as a coolant) can become a fine powder and be easily dispersed in an accident. The nuclear industry had previously claimed that nuclear fuel could only be in the form of solid pellets, hardly small enough to be inhaled. This could happen if an accident or over pressurization caused the cask to open. If this happened in a high population area, a potentially catastrophic accident could take place. No Nuclear Regulatory Commission report has yet analyzed this possible accident. Instead, the industry continues to maintain that the worst possible accident would have fuel pellets (hardly small enough to be inhaled) strewn on the ground. Only within 150 yards would people have to be evacuated while cleanup took place. The irony is that a Batelle spokesperson, Rubin Peterson, has advocated the "strewn pellet theory" despite the contamination incident that occurred on Batelle property.



No Ordinary Railroad Car A special rail car for hauling irradiated fuel from British nuclear submarines. This 90-foot special vehicle built by Rolls Royce weighs more than 100 tons and sits between an armed personnel carrier on each side. Though no photos of U.S. submarine fuel carriers have appeared in print, it is known that the British have lent three similar fuel carriers to the U.S. Navy. Approximately 15 shipments of nuclear submarine fuel per year would move between naval shipyards, primarily on the West Coast and the government fuel reprocessing plant near Idaho Falls, Idaho.

Tritium...

continued from page 1

Tritium, with a half life of 12 years, is a radioactive isotope of the element hydrogen and historically has been considered low in radiotoxicity when compared to such isotopes as plutonium. A half-life of 12 years means it will be toxic for 120 years. Tritium is released regularly from nuclear facilities into the environment. At West Valley, water is pumped from the trenches where nuclear waste is buried. Some radioactivity is removed, but all the tritiated water is released into nearby streams and the groundwater. The Three Mile Island clean-up dumps tritium into the Susquehanna River, the water supply for downstream residents.

Tritium is produced by fission in the course of nuclear energy operations. For example, neutrons bombard such impurities as boron, lithium, and ammonia which may be present in the reactor core, pressure vessel, pumps, piping and other components in concert with coolant water. Tritium exists in large quantities at power plants.

Because tritium is very similar to the element hydrogen, it can combine easily with another atom of hydrogen and an atom of oxygen to form a molecule of "tritiated" water. This has important ramifications because water is essential to all living systems. Living things are composed of approximately 60 to 90% water; humans are 70% water by weight. if tritium is abundant in the environment, the potential for tritium to be taken up by organisms in an ecosystem increases, especially if tritium is bound in organic matter, such as plant or animal tissue, so that it can be taken in via the food chain.

Possible Health Effects? This idea is not novel and several researchers have explored the problem: what effect does low-level doses of tritium have upon organisms—does it effect fetal development? Are there any genetic effects expressed? How does it effect the viability of a population? Is there a level to which an organism can be exposed without effects?

Mice and rats were the animals of choice for this research. They are sensitive to radiation, and thus, if any mutations are observed from one generation to another, they can be quantified in a controlled environment. Substances that cause cancer in mice are often suspected to cause it in other mammals such as human beings.

Dobson and Cooper chose to study the effects of low-levels of tritium on the "sensitive, embryonic, fetal, and post-natal stages of the mammalian life cycle." Particularly they studied mouse female germ cells—the precursors of sperm and eggs - because they cannot be replaced after birth as the offspring matures. They found that mice whose mothers were continuously fed low doses, corresponding to 2.4, 0.24 and .024 rads per day of tritiated water, during pregnancy and lactation had a significant decrease in these cells. In evolutionary theory, the more sperm and eggs, the greater potential to produce offspring. Since some amounts fed to the mice were very small, these researchers concluded that *there is no threshold* and immature egg survival *decreases exponentially with dose*. That is, *any exposure is too much* and may increase the risk or reduce reproductivity in mice.

Other researchers interested in the effects of chronic ingestion of low levels or tritiated water upon the development of mouse embryos, considered some genetic effects. They observed an increase in early deaths and the viability of embryos when either the female or both parents were exposed, and they found a reduction in the number of blood-forming cells.

Zamenhoff and Marthens observed that when their mice were continually fed low doses, the amount of DNA per cerebrum was significantly decreased, and there was a deficiency in cerebral cell numbers and cell size in newborns. Consequently, the brains were smaller and brain damage occured.

Thus,from a sampling of these papers, it seems tritium, which was previously considered not harmful, is *unequivocabily* toxic in low doses, at least to rodents. As far as the results to humans however, these researchers were careful to append "caveats" to their papers by cautioning that any extrapolation of these results, i.e. comparison to humans, should be weighed carefully.

Verification Needed But species to species, extrapolation is universally accepted by biochemical researchers and is fundamental to experimental biology and modern medicine. "We cannot however, exclude the possibility that sensitive stages may occur during human development *in utero*."

This is particularly important because tritium is an important fuel for the nuclear fusion process and it is believed that fission will be replaced by fusion technology in the future, and that tritium will become even more abundant as a contaminant in the environment. Fusion is touted as the energy technology which produces no nuclear wastes.

If scientists are unable to prove conclusively that tritium affects humans either, *in utero* or in future generations or that effects can be subtle and difficult to assess, *then the hypothesis that tritium is not harmful to human populations cannot be verified*. Although mice are not humans, they still remain bellwethers as to what is harmful and what is not. Any questions concerning the safety of low doses of tritium should consider those experiments and others. Citizens and scientists should be prompted to question the safety of low-level doses of tritium introduced into the environment.

The next time you hear of a tritium release from a nearby reactor or nuclear waste dump, try encouraging local media people to further investigate the incident.

References for this article are available for 50 cents from the Buffalo office of the Campaign. Mary McCarthy is a graduate student at New York University. She has contributed to the Waste Paper *with research and writing and article on ocean dumping of nuclear waste. (see Vol. 4 No. 3). Thanks to Kay Drey of Missouri for providing basic research and ideas for this article.*

The Bomb Lives On in Weldon Spring

continued from page 1

In July 1982 a citizen's group formed to oppose the DOE's plans. In the two weeks preceeding the hearing, the St. Charles Countians Against Hazardous Waste collected over 7,500 signatures on petitions opposing the plan. The group was largely responsible for the overwhelming turnout at the hearing. The group is a chapter of Missourians Against Hazardous Waste.

High Risks? Area doctors have voiced concerns that St. Charles County has elected levels of lymphatic cancer, leukemia, bladder cancer and melanoma, a rare form of skin cancer. While the doctors have no hard data (there is no cancer registry in Missouri), they contended that they see more cases of these cancers than would be normal. The two hospitals in the county have passed resolutions opposing the continued storage of nuclear waste at Weldon Spring.

Last fall the Missouri Division of Health promised to study the incidences of cancer in the county. The Division recently announced that no study would be conducted because a check of death certificates did not support the doctor's claims. The St. Charles Countians Against Hazardous Waste countered that death certificates are not an accurate measure of cancer incidences because they do not reflect the number of living cancer victims and because many cancer patients die of complications that would be listed as the cause of death.

Five of the public water supplies in the county are out of compliance with the Missouri Safe Drinking Water Standards due to excess radioactivity.

The Missouri Department of Natural Resources (DNR) has questioned the suitability of the Weldon Spring site for storage of hazardous waste. The department contends that the pits are located in a geologic setting that would allow contamination to groundwater if leakage takes place. Geologists with the DNR have suggested that pit #4, the largest, may be leaking.

Deep Fissures and Sinkholes The DOE claims the waste pits are largely impermeable and well suited for the disposal of radioactive waste. However, their claims do not seem to "hold water" (let alone nuclear waste) when scrutinized closely.

An assessment of the Weldon Spring Chemical Plant site done by the Department of the Army in 1976 reported that, based on soil samples, a 20,000 cubic meter pit would leak 700 cubic meters of water per year. The pits collectively contain approximately ten times that volume. Therefore it could be assumed that about 7000 cubic meters would infiltrate the subsurface annually.

Another report done in 1978 by a St. Louis environmental engineering firm stated, based on a boring near pit #4, that "Because of the relatively long distance the contaminants must have migrated to be detected in this boring, the possibility of groundwater contamination of the underlying bedrock aquifer is very real."

Weldon Spring is located in an area of karst topography (a region made up of porous limestone containing deep fissures and sinkholes and characterized by underground caves and streams) which allows rapid movement of groundwater.

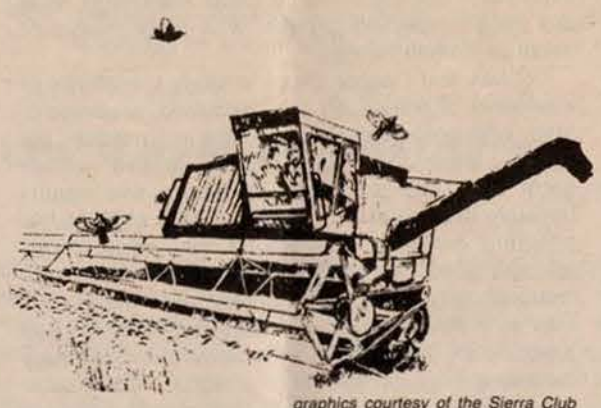
Mississippi And Missouri Rivers Surround Dump The Weldon Spring Chemical Plant site is, according to one DOE spokesperson, the largest depository of low-level radioactive waste in the United States. The plant is situated on a 169-acre tract 25 miles west of St. Louis. It is located on a ridge between the Mississippi and Missouri rivers. The contaminated buildings, which will ultimately require isolation, account for 312,000 cubic yards of waste. While the Army has jurisdiction over the plant buildings, DOE owns the pit area.

Three major tracts of land adjoin the site: The U.S. Army Reserve and National Guard Training Area, the August A. Busch Memorial Wildlife Area and the Weldon Spring Wildlife Area. Both of the wildlife areas are controlled by the Mo. Department of Conservation.

In 1940 the U.S. War Department seized 17,232 acres of land for the construction of an explosives production facility. In the haste to produce explosives for World War II, little attention was paid to the disposal of the toxic wastes generated. Initially seven lagoons were constructed to contain the wastes. However, trenches were dug from the production lines to the nearest drainageway. Overflow of the production lines was commonplace. The wastes were deep red in color. Consequently, the contamination of streams, springs and wells in the area was easily traced. The major watershed in the county, Dardenne Creek, was dyed red from the point where it received drainage from the site to its confluence with the Mississippi River. All of the fish life in this 15-mile stretch of the creek was temporarily destroyed. After the lagoon system proved unsatisfactory, the wastes were discharged directly into the Missouri River.

When the explosives facility closed, the land was declared surplus and transferred to the War Assets Administration. The government retained 2,000 acres and sold the rest to the Missouri Department of Conservation and the University of Missouri, which later sold most of its holdings to the Conservation Department. In 1949 the government transferred 38 acres to the school district as a site for a new high school. The new school adopted the name of its predecessor, Francis Howell High School, which was razed in 1940.

The Bomb Lives On In 1956 the government leased the portion of the land it retained that was nearest the school to the Mallinckrodt Chemical Corporation. Mallinckrodt was already operating a uranium refining facility in St. Louis. (The materials used in the first sustained nuclear reaction performed by Enrico Fermi at the University of Chicago in 1942 were produced at the St. Louis plant. The waste from that first reaction still awaits disposal. It was among the wastes that DOE slated for transport to Weldon Spring.) Mallinckrodt's Uranium Division transferred its operations to the Weldon Spring Chemical Plant upon its construction.



graphics courtesy of the Sierra Club

Uranium and thorium concentrates were processed at the new plant from 1957 until 1966 under contract to the Atomic Energy Commission (AEC). Because Mallinckrodt's work was done under government contract, the company is not responsible for any clean-up costs.

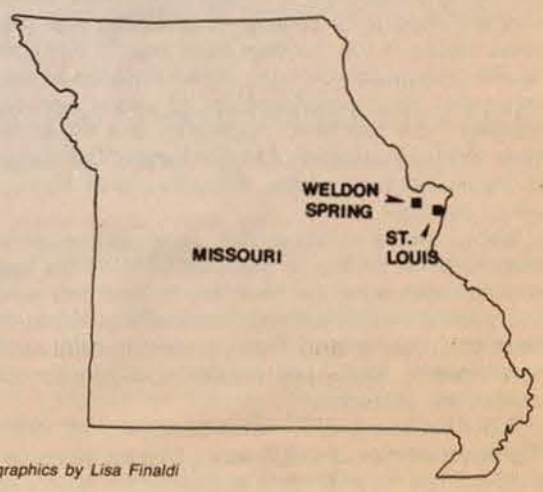
The Weldon Spring facility was designed to accomodate 5,000 tons of uranium materials per year. However, an average of 16,000 tons per year were processed. This overload strained equipment, disposal facilities and maintenance procedures at the plant.

The uranium and thorium bearing wastes from the chemical solvent process used at the Weldon Spring Chemical Plant were initially deposited in two-acre pits which were rapidly filled. A third 8-acre pit was constructed in 1959 and in 1964 a fourth 15-acre pit was excavated. The pits contain 75 tons of thorium and 150 tons of uranium along with the chemical waste from the processing.

Control over the Weldon Spri[illegible] Ch[illegible]mical Plant was transferred to the Departme[illegible] my in 1967. The Army wanted to decontam[illegible] three of the over 40 plant buildings for the production of Agent Orange. Two years and nearly $3 million later, the plant was abandoned because the radioactivity in the buildings could not be reduced to acceptable levels.

Brian Morris, a health physicist with the Dept. of the Army, has stated repeatedly that no contaminants are migrating from the site. However, contaminated soil leaves the site via three surface drainageways.

Byron Morris, a health physicist with the Department of Army has stated repeatedly to the local media that no contaminants are migrating from the site. However, contaminated soil leaves the site via three surface drainageways. Two of these drainageways feed fishing lakes in the Busch Wildlife Area.



graphics by Lisa Finaldi

Hot Spots One area, the North Dumps, is contaminated with levels of U 238 as high as 14% by weight. Run-off from the North Dumps enters a lake in the Busch Wildlife Area some 500 feet to the north. This lake, a popular fishing spot for visitors to the wildlife area, was sampled in 1978. Three of the five sediment samples taken had levels of U 238 between 250 and 290 parts per million (ppm). Fish specimens taken from the lake also exhibited elevated levels of radioactivity .

The third source of off-site contamination is the process sewer outfall. This natural drainageway (creek) is not fenced. It is located in the Weldon Spring Wildlife Area and is traversed by hiking trails. The outfall sewer represents the area of highest off-site contamination. Soil samples taken in 1978 had levels of U 238 as high as 900 ppm.

Another hot spot is the Femme Osage Quarry, controlled by the DOE. It was initially used for the disposal of explosives-contaminated rubble from the demolition of the Ordnance Works. The quarry has received atomic waste from other sites in Missouri and Illinois, including 900 truckloads from the 1967 decontamination attempt at the Weldon Spring Chemical Plant.

According to DOE figures, the quarry contains 56,000 cubic yards of radioactive waste. However, that figure is not an accurate measure of the volume of wastes in the quarry because materials known to have been dumped there are not listed in the DOE breakdown of its contents. The Femme Osage Quarry is composed of fractured limestone and is situated in a bluff adjacent to the county's public water supply well field.

Geologists who have studied the quarry maintain that it does have the potential to contaminate the well field. The quarry wastes are known to be in continuous communication with the local groundwater. The DOE admits that the quarry is a source of embarrassment to them and is a priority for clean-up.

Contaminated Water Supplies S.C.C.A.H.W. has initiated a survey of private water wells in St. Charles County. The survey was originally started to refute the DOE's claim that most wells in the county are drilled to a depth of at least 700 feet and so would not be subject to contamination from the storage site. Although the survey is not complete, it shows that only a small percentage of the wells are over 700 feet deep.

continued on page 8

Resources

New Slide Shows

- **"Hidden Legacy"** A profile of "low-level" nuclear waste dumps. Available immediately.
- **"Decommissioning Nuclear Reactors"** A problem for centuries which uses Indian Point I in NY as a case in point. Discusses generic problems with decommissioning. Available immediately.
- **"Irradiated Fuel Storage and Transport Risks"** Discusses the options for storing irradiated fuel as reactor pools fill up. Available August 1, 1983.

All programs available from the:
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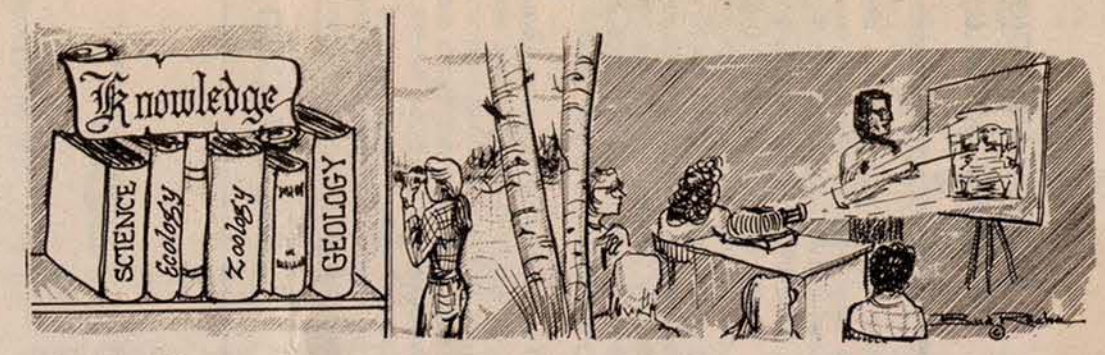
78 Elmwood Avenue
Buffalo, NY 14201
716-884-1000

$20 per week rental
$65 purchase

Programs come with taped, automatic script

Other resources and fact sheets available. Write for a resource sheet.



graphics by Bud Roche

Fear at Work

Fear at Work: Job, Blackmail and the Environment
by Richard Kazis and Richard L. Grossman
Pilgrim Press, 1982, 306 pp. $10.95
Reviewed by Don Longfellow

Fear at Work is a well-documented look at plant closings and layoffs, a book that belongs in the home of every worker in America. This is a detailed study of corporate tactics which attempt to shift the blame for shutdowns and labor reductions from corporations to governmental agencies and environmental organizations.

The focus is on large corporations who have financial and political influence heavily weighed in their favor. They have the ability to extract wage concessions and force workers to take risks with their health and safety by threatening lay-offs. Corporations have also developed, planned and actually staffed many government agencies which were created to regulate them.

With these advantages well established, corporate America is clearly in the driver's seat. *Fear at Work* skillfully leads the reader along a path of business problems, mismanagement, obsolescence and competition; a pathway that ends at the doorstep of American business leaders' decisions. Citing study after study, the authors clear the air as to who is responsible for our econmic woes. Corpoations enjoy the benefits of their decisions; they should also bear the burden.

Concluding that an informed, motivated public is needed to pressure for guarantees of worker's rights, the authors point out that past gains made by the National Labor Relations Board, Occupational Safety and Health Association and the Environmental Protection Agency require constant vigilance. *Fear at Work* stresses the need for continued work between environmental and union activists describing their work as parallel struggles with interdependent goals.

Don Longfellow is a Campaign volunteer in the Buffalo office.

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Compact Roulette

As We Go to Press, We Bring You the Latest News on the Passage of Compact Legislation in the Northeast for Siting Low-Level Waste Dumps.

by Amy Goldsmith

You wouldn't want to be the host of a regional low-level radioactive waste (LLW) disposal site for 40% of the nation's waste. But your state government is willing to play "compact roulette," hoping that the state next door will get stuck with it. Congress has passed the "Low-Level Waste Policy Act of 1980," requiring each of the fifty states to enter into regional compacts or make other provisions for the disposal of LLW. Eleven northeastern states are members of the Coalition of Northeastern Governors (CONEG). In turn, CONEG created the Policy Working Group.

The Policy Working Group wrote the provisions of the Northeast compact. Each of the eleven states has until June 1984 to ratify the compact. The host selection wheel does not begin to spin until at least three states have ratified identical compacts and congressional approval has been obtained. The following is a status report of the compact in the various state legislatures:

CONNECTICUT: During a special session, on June 27 and 28, the legislature overwhelmingly passed the compact without amendents. In the House, Representative Anthony Truglia (D-Stamford) was the only dissenter.

DELAWARE: Delaware produces mostly medical and research wastes which can be stored for decay and may not necessitate the joining of a compact. But, the governor is pro-nuclear. The legislature and he are creating tax breaks and incentives (access to a LLW regional dump) to lure industry into the state. An Advisory Board has recommended that Delaware join the Northeast compact and allocate $70,000 for initial fees. Freida Barryhill, Coalition for Nuclear Power Postponement, is concerned about the limits on liability coverage and the unknown types and volumes of Department of Defense LLW that may go into a regional disposal site. On June 28, the Delaware legislature passed the compact.

MAINE: The compact has not been introduced in the legislature. Maine has decided to weigh the options (small vs. large compact and "going it alone"), based on the economics and the amount of LLW they produce. Recommendations will be made in January, 1984. The session ended in May, 1983.

MARYLAND: On April 8, 1983, the legislature ratified the Northeast compact unamended. House voted 110 to 5; and the Senate voted 40 to 2.

MASSACHUSETTS: During the week of June 6, 1983, Governor Dukakis introduced the Northeast compact without amendments to the legislature. He has expresed concern about due process and protection of state sovereignty, but prefers to wait for the Policy Working Group to reconvene before submitting any changes to the compact. The compact has been referred to the Special Legislative Commission on LLW Management. The Commission has held public hearings and is officially reviewing the compact and to make recommendations to the legislature as a whole. Both environmentalists and generators are members of the Commission. The legislative session is continuous.

NEW HAMPSHIRE: On May 24, 1983, the House struck the compact language from H. Bill 847. It was replaced with an act requiring legislative approval before entering into a compact or agreement for LLW disposal. A House Bill of Intent was also filed which puts pro-nuclear Rep. Arnold Wight and his "Task Force on LLW" out of business. All activities concerning LLW will be transferred to a House Committee, probably State and Federal Relations. A siting bill, 844-FN, will go to interim study. The session ended in June.

NEW JERSEY: For several months, the Senate held up the compact, even though the House had passed it in the Spring. Testimony from the Sierra Club and the NJ Public Interest Research Group helped slow it down. A Citizen Advisory Board was created. During the last week in June, the Senate passed the compact. NJ would like the CONEG Policy Working Group to reconvene to discuss possible amendments to the language.

NEW YORK: Both the conservative Senate and the liberal Assembly have problems with the compact legislation as written. Governor Cuomo's office is currently writing amendments and no action is planned for this session which closed at the end of June. The Senate will hold a special one-day session in July. At that time, the bill may be passed.

Environmentalists and concerned citizens proposed that an inventory of the waste stream in New York be studied according to generator, half-life, and curie content and that alternatives to shallow land burial be reviewed. For a copy of this bill sponsored by Assemblyman Maurice Hinchey and Richard Gottfried and passed 143-0 in the Assembly, please send 50 cents to the Campaign's Buffalo office.

PENNSYLVANIA: The compact has been stopped dead on the governor's desk. He is afraid to send it to the legislature. Several month's ago, he received hard hitting criticism from environmental groups that Pennsylvania was being sold off to industry without any regulations. The Pennsylvania Sierra Club has publically stated that it opposes the compact as it is currently written.

RHODE ISLAND: The compact passed in the House but not in the Senate. The session ended in May.

VERMONT: The compact was introduced as H. 443 by Rep. Mark Landon, but it never recieved a hearing. The legislature has adjourned. The compact will be taken up again in January, 1984.

The environmentalist and anti-nuclear response to all of this has been to create the Northeast Radioactive Waste Network. The Network facilitated the development of a unified regional strategy and serves as a clearinghouse of information. The Network identified five major problems with the compact:

- Host state is selected by a two-thirds vote by a governor appointed regional commission without any override provisions. No analysis has been done to determine if a safe site is available in the Northeast.
- The regional commission requires that all state laws "inconsistent" with the compact must be repealed, overuling states rights and home rule.
- Due process and public participation/decision-making is very limited.
- Host state can easily get stuck with the cleanup bills and liability claims.
- compact lacks any mandate for the reduction of LLW production.

Amy Goldsmith currently runs the Northeast Radioactive Waste Network. She has been active in the passage of Question #3 which requires citizen approval for siting new nuclear reactors and nuclear waste dumps in Massachusetts. Those interested in the Northeast Radioactive Waste Network, please contact P.O. Box 1712, Boston, MA. 02205, (617) 497-8300.

Weldon Spring... *continued from page 6*

In January the DNR announced that five of the public water supplies in the county were out of compliance with Mo. Safe Drinking Water Standards due to excess radioactivity. Geologists with the DNR have concluded that the source of the contamination is uranium deposits in the rock formations under the wells and the DNR has initiated an accelerated monitoring program for the public water supplies.

At the request of S.C.C.A.H.W., the DNR has instituted a ground water monitoring program for the area surrounding the Weldon Spring Chemical Plant. Springs and streams in the vicinity of the plant will be sampled along with waters from private wells. The wells will be chosen by hydrogeologists based on the citizen group's survey.

The DOE's proposal for the site calls for pit #4 to be greatly enlarged. The contaminated buildings and the quarry waste, along with the wastes designated for transport from other sites would be entombed in pit #4. Specific plans on entombment have not been made public.

The organization is adamantly opposed to the wastes being buried on site because of the geologic setting. The group would like to see the wastes stored above ground in a retrievable, environmentally safe manner. This would include excavation of the contaminated soil around the site. While the group has yet to decide what type of storage would be best, they feel that any facility would have to be constructed to withstand earthquakes and tornadoes. The county has experienced both this year.

In a recent interview Lea Keller, an official with the DOE, stated that the Department was no longer considering transferring any wastes to Weldon Spring from out-of-state.

Leann Stevens has two children and lives only four miles from the Weldon Spring nuclear dump. She is an active member of St. Charles Countians Against Hazardous Waste.

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