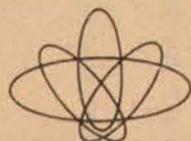
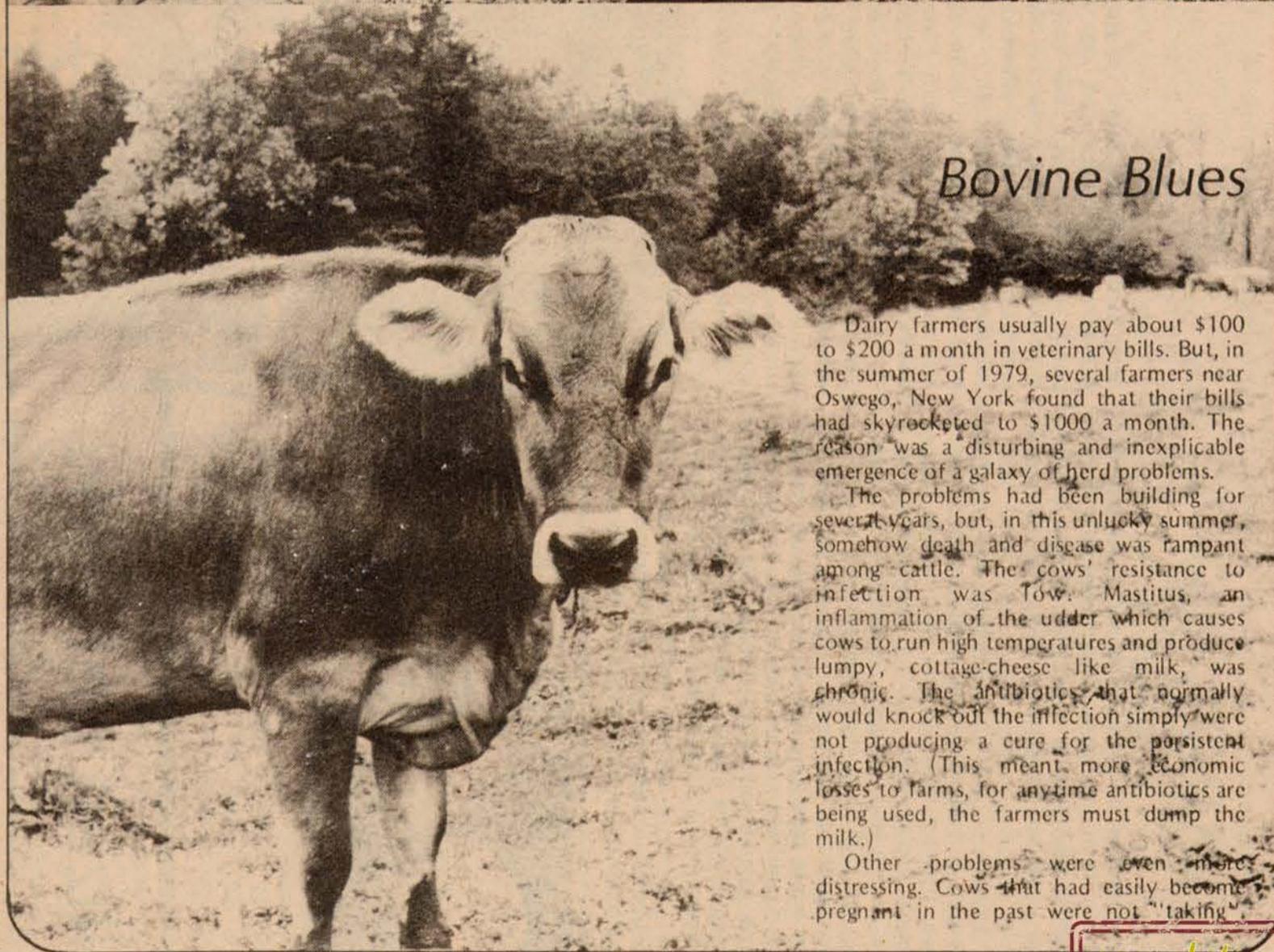
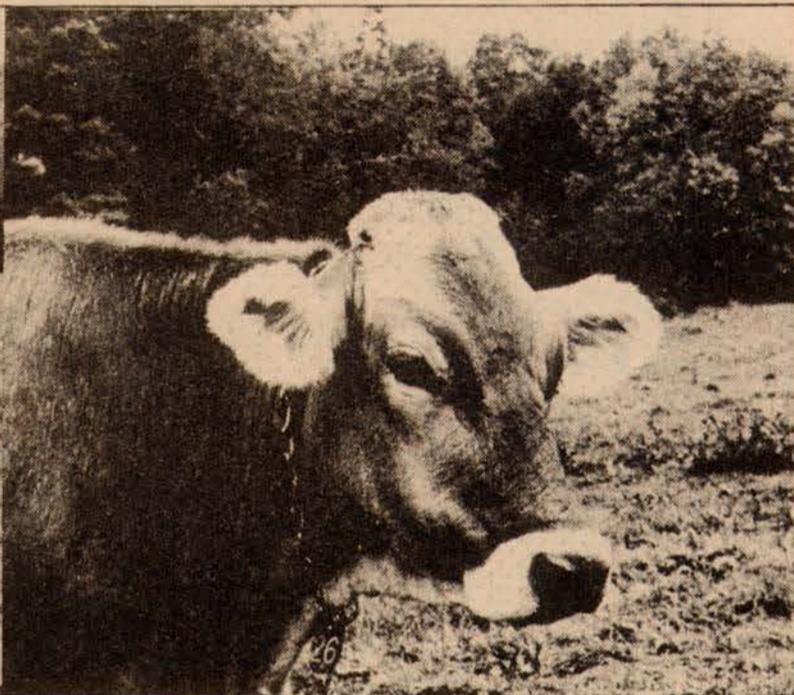
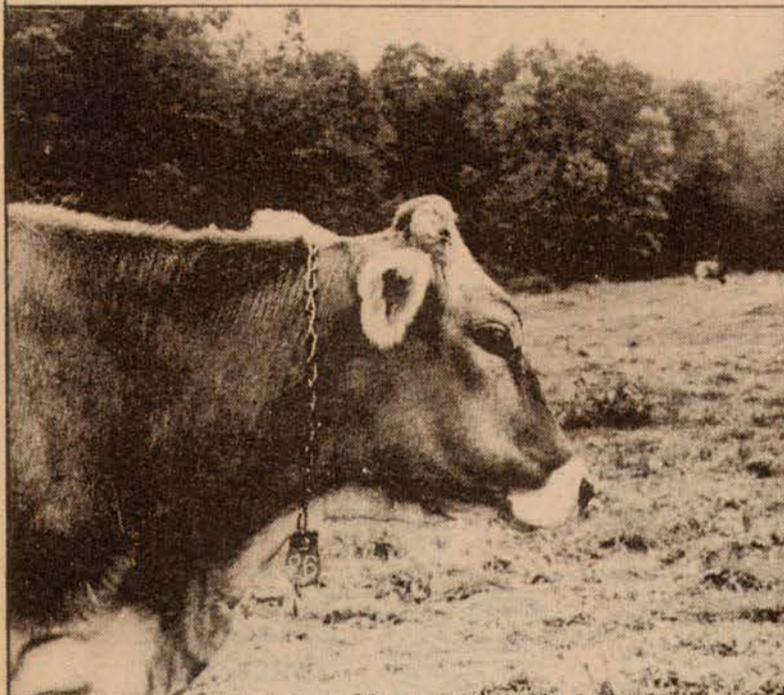


# the Waste Paper



sierra club  
radioactive waste  
campaign

Spring 1980



## *Bovine Blues*

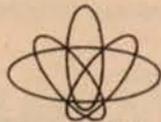
Dairy farmers usually pay about \$100 to \$200 a month in veterinary bills. But, in the summer of 1979, several farmers near Oswego, New York found that their bills had skyrocketed to \$1000 a month. The reason was a disturbing and inexplicable emergence of a galaxy of herd problems.

The problems had been building for several years, but, in this unlucky summer, somehow death and disease was rampant among cattle. The cows' resistance to infection was low. Mastitis, an inflammation of the udder which causes cows to run high temperatures and produce lumpy, cottage-cheese like milk, was chronic. The antibiotics that normally would knock out the infection simply were not producing a cure for the persistent infection. (This meant more economic losses to farms, for anytime antibiotics are being used, the farmers must dump the milk.)

Other problems were even more distressing. Cows that had easily become pregnant in the past were not "taking"

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## Legacy of the Bomb

"As I recall, we must have placed about 60,000 tons of material in the lagoon, altogether. It was a huge undertaking... the job at Canonsburg was probably the worst and sloppiest job I've ever worked on." These were the recent comments of Joseph Swiger, who back in 1965 was project manager for a hazardous dumping operation by Vitro Corporation of America at Canonsburg, Pa., 23 miles southwest of Pittsburgh.

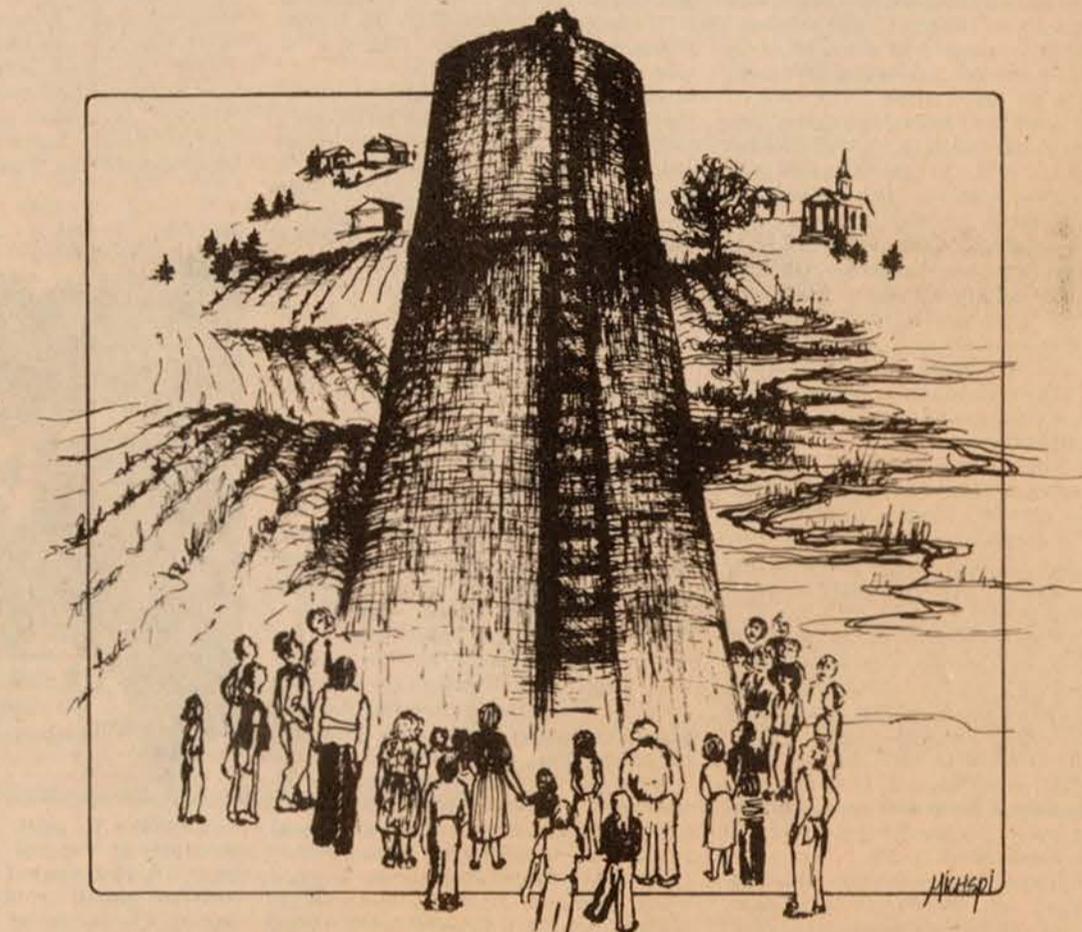
The dumping involved at least 60,000 tons (some reports say 200,000 tons) of radioactive ore left over after processing of uranium for atomic weapons production back in the 1940's. After the dumping, Vitro was given a clean bill of health by the Atomic Energy Commission and absolved of further responsibility. A mere ten years later the legacy of that sloppy dumping has resurfaced.

Buildings, soil and the old lagoon are seriously contaminated. Structures from an industrial park built since the departure of Vitro must be destroyed. Other materials sitting underground and exuding radon, a radioactive gas, must be dug up and put somewhere. And the clean up costs may top \$20 million.

The Canonsburg problem is not an exception. It is typical of over 460 DOE owned sites and about 70 private sites dating back to the U.S.'s early production of the Atom Bomb. In state after state, citizens are waking up to find a long-since forgotten radioactive dump next to schools, adjacent to parks, down the block. In this article, we shall look at three such sites in Lewiston, N.Y., Canonsburg, Pa., and Middlesex, N.J.

All of the sites discussed here played a role in the Manhattan Project, the secret effort to develop the atom bombs that were dropped at Hiroshima and Nagasaki. The ore for that first bomb was brought into the country by a Belgian, Edgar Sengier and stored in a Staten Island warehouse for two years, between 1940 and 1942. Then, the route of the material becomes murky. The ore may have been sent to Middlesex for sorting, then to Canonsburg to be processed or the material may have been sent directly to the Mallinckrodt Chemical Works in St. Louis, Missouri. (See box for our "Hunt the Uranium" competition.) All of the sites received waste from the weapons project.

Each of the three sites discussed here is a classic case of corporate or government irresponsibility with African Metals, Vitro Corp. of America and the Department of the Army, dumping staggering clean-up fees in the laps of unwitting taxpayers, while federal and state officials politely look the other way or actively promote the bailout in special exemptions and back room deals. Each site poses a distinct health hazard to the surrounding communities. And in each instance, no one knows how to



proceed with decontamination or what to do with the radioactive materials, after decontamination. Recent surveys now cast doubt on past decontamination work and question the present safety of the sites.

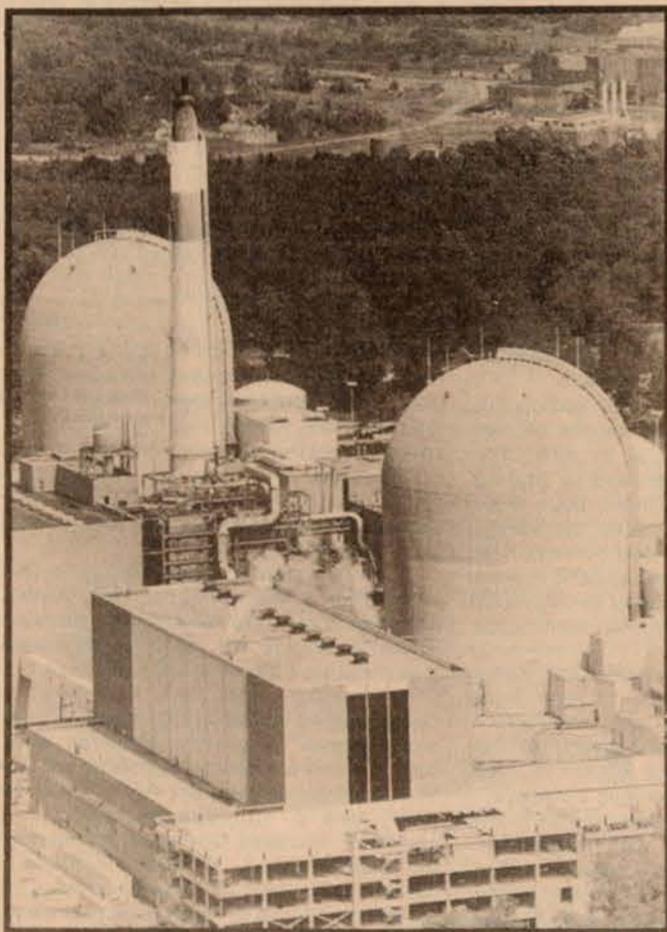
Common to all three sites is the movement off-site of radium, dissolved in water, travelling via nearby streams, drainage ditches and other waterways, and radon gas, travelling by air to nearby communities. Also common to all three sites is the changing land use requirements of the respective areas. Communities grow and change, but the hand of past war efforts is now preventing that natural evolution. The radioactive waste dumps are an obstacle to orderly development. The three sites also demonstrate unconscionable foot dragging by state and federal agencies regarding clean-up and reassurances over and over by DOE officials that there is no health hazard. And each site and its surrounding community is the victim of a new DOE policy - after years of inadequate monitoring, now DOE wants to monitor and monitor, ad infinitum. This

approach conveniently delays the clean-up nobody knows how to perform.

### Lewiston, N.Y.

Starting back in 1944, over 20,000 tons of radioactive uranium ore were unceremoniously dumped in water towers and water reservoirs of an abandoned World War II TNT factory, at a site 8 miles north of Niagara Falls, N.Y. Until local citizens started asking hard questions in 1978, no one had thought about whether the radioactive material, including water soluble radium, might not be migrating off site via the underground drainage pipes and ditches. (Since the site had been originally designed as a factory for explosives, the land was laced with a network of water pipes to assure rapid flushing of water from one end of the plant to another - for rapid dousing of potential fires.) Now, Battelle Memorial Laboratories of Columbus, Ohio is finally looking into this problem - thirty years later.

-Continued on page 6-



—Thomas Buchanan

Controversial Indian Point Reactor in Westchester County, a stone's throw from densely populated New York City.

## TMI: Radioactive Rubble and Rising Water

The news media may have turned their attention to volcanoes erupting and the four year event called the Presidential primaries, but that does not mean all goes well at Three Mile Island. The TMI accident is continuing. And much as Met Ed would like to forget the nightmare of March 28, 1979 when it lost control of its reactor TMI-2, it cannot. Nor can the stockholders and ratepayers of GPU (the parent company of Met Ed), nor the residents of Middletown and Harrisburg. For the TMI-2 reactor, faced with the imminent loss of vital instrumentation, is on the thin edge of the nuclear reaction starting up, according to a recently released NRC study, the "Haller" report.

The TMI cleanup is an example, though an extreme one, of what all commercial-sized reactors will experience at the end of their useful lives. No commercial-sized reactors have yet been retired from service ("decommissioned"), but this year will see the beginnings at Indian Point, TMI-2 and Shippingsport. Once a reactor starts up and the fission process begins, there is no walking away from the radioactive waste problems generated. Spent fuel becomes radioactive and extremely toxic. When a reactor is decommissioned, this "hot" fuel must be removed from the reactor and isolated from the environment for 100,000 years. Low level wastes, consisting of gloves, clothes, filters and resins, must be shipped to radioactive burial grounds which are rapidly reaching capacity. And the reactors themselves - the giant reactor vessels, including the core structure which holds the spent fuel assemblies (the "internals") - become radioactive under the bombardment by neutrons. The extensive piping to the reactor vessel must be cut and the reactor must be sealed for 100 years or more until the

radioactivity within drops to safer working levels. To dismantle a reactor, it would then have to be cut up remotely, under water, and the "hot" pieces placed in an underground repository for the next 500,000 years until the radioactivity decayed to "safe" levels.

The "textbook" procedures must be altered at TMI-2 because of the extensive contamination, the damage within the reactor and the need to rapidly enter the reactor. Met Ed does not have a complete "game plan" because the full extent of the damage within the reactor is not known. Each step will depend on what has been learned in the previous one. According to the NRC (NUREG-0557), the top 4 to 6 feet of the reactor core is strewn with radioactive rubble. Over 90% of the fuel rods have shattered, releasing the radioactive fuel pellets and bits of cladding. This is the rubble scattered throughout the upper part of the reactor core. Additionally, some of the boron neutron-absorbing material may have dissolved and "redistributed in the fashion of resolidified candle wax drippings", fusing much of this rubble together. Further, ten hours into the accident, an internal explosion occurred. Thus, the exact core configuration cannot be known, but it is thought that the radioactive debris is trapped in the core's upper region.

The presence of the rubble has severely restricted the flow of coolant water through the upper portion of the reactor core. The central region of the upper core is "almost entirely blocked to normal coolant flow" (about 99% blockage), while the perimeter of the core is 90% blocked, allowing limited passage of coolant water. Because of this limited cooling and uncertain core geometry (even the exact positioning of the control rods is unknown!), the NRC is concerned about the

-continued on page 4-

# Bovine Blues . . .

—continued from page 1—

The artificial inseminator had to be asked back over and over. Cows that had previously required 1-3 "services" (inseminations) were now requiring 5, 6 and sometimes 8. Evidently the cows' fertility rates had dropped way down. One farmer with a 100-head herd helplessly watched as 17 cows had abortions in 18 months — one or two would have been normal in this time period.

Odd sicknesses cropped up. Calves were born that looked perfect, but that couldn't or wouldn't suck. The calves quickly died of starvation. Autopsies later revealed that some of these animals had been born without esophagi. Calves were delivered with large tumors on the head or with hind quarters so deformed that the calves were unable to stand up. Other newborns had bones that were absurdly brittle. A sharp knock and the bones would fracture in several places simultaneously. Most of the abnormal creatures had to be shot by the depressed farmers.

One farmer told the *Waste Paper*, "I swear some of these calves are being born mentally retarded. Usually, a calf is bright, perky. It dances about. But some of these calves just lie there. They are bored and listless. Once it took us a month to teach the animal to suck."

As if these problems were not enough to discourage the staunchest farmer, the cows also started bearing abnormally large heifers and calves. Normally, a calf would weigh 60 to 70 lbs. and a heifer 100 lbs. Now the calves were born twenty pounds overweight at 90 lbs. and the heifers were an unhealthy 120 to 170 lbs. Often, the mother would not survive the birthing of such an oversized off-spring.

The problem in the Oswego region was not limited to cows. Farmers with goats, sheep and chickens experienced a similar plague of problems. Though there were odd deviations — lambs were born with abnormally small heads, chickens had deformed legs.

At Oswego, in a delayed response to the pleas of the beleaguered farmers, a series of tests have been initiated at Cornell University. Initially, the farmers had the burden of not only paying high veterinarian fees, but also of taking a precious day off from work to cart dead calves the 100 miles down to Cornell University in Ithaca for autopsies. Most farmers, who are among the hardest working folk in the United States, could not afford the time and simply buried the carcasses in nearby fields. Now, Cornell has a pick up service for dead animals.

Everything needs to be examined. Are the barns contaminated? Are there bacterial or viral problems? Is the feed clean? Have metals, toxic chemicals or pesticides gotten into the wells, water supply or feed? Is there leakage from

nearby chemical dumps? Are there airborne pollutants from nearby aluminum plants? Are the farmers using proper management techniques? (This question enrages local farmers who have been successfully running farms for decades.) Or is it low-level radiation from the Niagara Mohawk and PASNY plants located a few miles upwind on Lake Ontario?

It is clear that a definitive answer to these questions will not be forthcoming until detailed and systematic studies are conducted. As yet a systematic study is bogged down in a bureaucratic no-man's land. In a news article, by Sue Reinert of the *Oswego Valley News*, Spring 1980, it was reported that Dr. Donald Lein of Cornell University has been put in charge of a study — but the professor is still awaiting a budget and a go-ahead from the New York State Department of Health regarding what types of studies should be conducted.

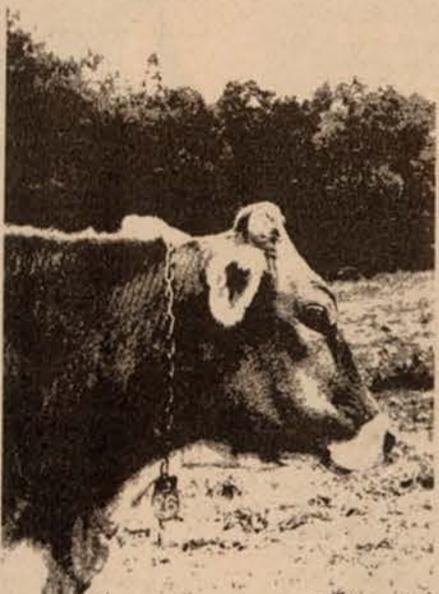
Apparently, officialdom wants all other questions answered first before looking at the possible linkage between high or low level releases of radiation and the farm animal problems. In an earlier piece in Fall, 1979, Reinert reported unusually high concentrations of radioactive cesium in milk from a dairy farmer near Niagara Mohawk's Nine Mile Point reactor. The readings, higher than those ever reported at West Valley, were 50 picocuries of cesium per liter. Special federal guidelines for milk pertain to iodine, radium and strontium, but not cesium.

To date, the utilities say that they do not know where the cesium is coming from, but they have attempted to reassure concerned citizens that the amount is tiny compared to fallout from nuclear weapons testing in the 60's and 70's. Furthermore, Niagara Mohawk's Edward Leach claims that the company would have had to release 10,000 times more Cesium than they currently do, to produce the 50 picocuries per liter figure. The utility has recently hired a consultant to study the problem.

Southwest of Oswego, N.Y., 225 miles, farmers in the fertile Susquehanna Valley south of Harrisburg, Pa. are suffering from remarkably similar problems. According to Jane Lee, whose family has been farming in the region for 200 years, the problems started to appear in 1976, four years after the Three Mile Island No. 1 nuclear power plant had come on line. Ms. Lee has spent hundreds of hours talking to farmers, writing up "depositions" based on these interviews and taking the written statements back to each farmer to be read, approved and signed.

Ms. Lee's survey of farmers encompassed the communities of Etna, Middletown and Lewisburg, all within 5 miles of Three Mile Island. All of the

problems found by Jane emerged in 1977, 78 and 79. She found an abundance of sickening problems: Case No. 1, Steers and cats with malfunctioning hind quarters — the animals hips gave way, were unable to get up. Apparently healthy creatures suddenly sickened and died; Case No. 2 — A high death rate among newborn litters of rabbits with five out of 10 and five out of seven, inexcitably dying; Case No. 3 — Eight of 11 rabbits in one litter deformed. Baby rabbits were born without legs, without ears, or missing hind quarters; Case No. 4 — Steers experiencing problems with weakened easily fractured bones. One steer slips slightly and breaks his hip. "The



damage was so great that the meat was unuseable on that leg." Another steer's hip split as it walked out of the barn. The steer had not slipped or stumbled. When this animal was butchered, it was discovered that the pelvis had cracked. Case No. 5 — Right after the accident at Three Mile Island, perfectly formed, newborn lambs suddenly died. Case No. 6 — In April, 1979, two goat nannies, 26 rabbits and 19 guinea pigs all died.

In the Spring of 1980, several new problems have hit the farmers. One deposition on March 3, 1980 from a local veterinarian, is published here.

### In the Matter of Animal Health (West Side of Three Mile Island)

#### EXPLANATION OF CONDITIONS

Since 1976 I have detected problems with cows, horses, pigs, etc. Some of the animals are blind, others experience multiple fractures in the hip and legs; this is especially prevalent in the ribs. There is also a noticeable increase in arthritis and

muscle problems.

Once the deficiencies take hold, it is difficult to correct. The animals get down and are unable to get back up. They either linger and die or must be destroyed.

I have encountered increases in caesarian deliveries in sows. The normal caesarian rate for sows is one a year. I am now encountering one a week. The area directly affected is the west side of the Susquehanna River and in close proximity to the Three Mile Island area. (Summer of 1979) I am not prepared to say it is radiation. I do not know what the cause is. However, I did request an on-site investigation be made in the area by the Pennsylvania Agriculture Department.

Goats and sheep unable to dilate during labor — must be delivered via caesarian. The normal caesarian rate for goats and sheep is one a year. It's now two a week.

Robert B. Weber, Veterinarian Mechanicsburg, PA

Each of the cases summarized here appeared on a different farm. There were many for which Ms. Lee has "depositions" involving alarming repetitions of the same types of problems. The majority of the interviewed farmers have been in the farming business for many years (35, 50 years) and have never before experienced similar problems.

Just as in the Oswego region, the Three Mile Island farmers are having continuing problems with unusually low fertility rates, and an oddly high abortion rate. And as at Oswego, the political and scientific establishment is denying that there is a significant problem. In May 1979, the Pennsylvania Department of Agriculture has looked at health problems among 8,000 dairy cattle, 1,100 beef cattle, 475 hogs, 100 sheep on 100 farms within 5 miles of the reactor. According to the Department of Agriculture, there were problems on only five farms and those problems were associated with "viral infections, feed problems and nutritional short-comings."

Clearly, the implications of radiation induced animal health problems are too devastating for scientific recognition — as yet. But farmers adjacent to yet another nuclear site, West Valley, N.Y. remember all too well very similar reproduction problems among cattle during the years the West Valley reprocessing facility was in operation. And in part because of that memory those farmers are now circulating a petition opposing the re-opening of West Valley. The 700 names on that petition say more about the reality of significant health impacts on animals than all the glib assurances from federal and state officials about "farm management" and "viral infections". Copies of the West Valley petitions can be obtained from the *Waste Paper*. ☸

# the Waste Paper

## AFR at West Valley?

On April 1, 1980, April Fool's Day, DOE delivered a bombshell to New York State residents. West Valley has been selected by DOE as one of three sites designated for construction of an AFR in the U.S. (An AFR — away-from-reactor storage facility — is a centralized storage pool for spent fuel now piling up at individual reactor sites).

Ever since the fall of 1978, the Radioactive Waste Campaign has been saying that the utilities and DOE wanted West Valley as an AFR. The usual response of politicians confronted by worried constituents has been a bland "there, there don't worry — it will never happen". After the Spring, 1979 media flap over a possible deal between New York State and DOE that involved an AFR at West Valley, in exchange for the clean-up of the high level waste tanks, James Larocca *et al* said "nothing has been agreed to".

At a December 5, 1979 meeting, James Larocca again gave misleading information to New York residents saying, "I am sure you are going to find this hard to believe, but the Federal government has never had anything but a passing interest in using West Valley for the spent fuel program".

In February 1980, after President Carter noted that West Valley was an AFR site, Congressman Lundine tried to smooth constituents ruffled feathers with comments that an AFR at West Valley was a "distant third choice". And again in April the Congressman commented that West Valley as an AFR site is "unlikely."

Either our state representatives and officials are sadly misinformed regarding DOE plans or

citizens are simply being repeatedly lied to by both DOE and elected and appointed officials.

The new DOE report which belies Larocca's alleged "passing interest," on the contrary, shows a strong interest. DOE states that a total of 1500 metric tons of fuel could be stored at the site, if the fuel is packed close together (Currently, there is only space for 85 additional tons). The agency apparently feels that the seismic problems at the site mainly affect the north end of the fuel pool. If less is stored in the north end, then this site will be safe. Of course, this bizarre reasoning does not address what happens if a tremor produces a crack in the fuel pool and the water drains out.

The two other sites identified in the DOE report include Morris, Illinois and Barnwell, South Carolina. The West Valley site would cost approximately \$1 billion to prepare for an AFR, considerably more than the cost of Morris (\$100 million) or of Barnwell (\$350 million). This fact has been used by Congressman Lundine as explanation for his "it will never happen" argument. However, since at the current rate of generation of spent fuel at the U.S. 68 operating reactors, three AFRS will be needed by 1990, even if no other reactors come on line, Lundine's assurance falls apart. Furthermore, since the current stance of Governor Riley of South Carolina is no AFR at Barnwell unless other regions accept their share of the radioactive waste burden, West Valley is needed to assure the South Carolina's support of an AFR program. Given this national pressure, citizens in New York State are going to have to say no much more boldly and clearly. ☸

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Special thanks to Chris Lyons, Bob Fucinato, Jerry Sealy, Bill Sorrell, Dennis Goris, David Currier, and Tom Buchanan. Also much thanks and appreciation to Bill Brickley and University Press for their time and patience in this effort.

1) Have fire departments been trained regarding proper procedures in the event of a spent fuel cask accident? when water should and should not be applied? and for how long? It is quite conceivable that in the event of a cask accident water should be applied immediately to cool down the cask — even if no steam, smoke or fire is present. Have firemen been trained in this type of approach?

2) Does the local police department have on hand enough oxygen masks? who will have the authority at the scene of an accident to determine if the masks are needed or not? have policemen been instructed in the basics of treatment of radiation victims?

3) Who will do radiation monitoring at the scene of the accident? how many geiger counters does the locality have in good working and calibrated condition? at what locations in the city or region are the monitors located? what is the mechanism for assuring speedy transport of the geiger counters to the scene of the accident? who will be on hand to read the monitors — have policemen been trained in this skill? who is the personnel to be reached by phone in the middle of the night?

4) Have hospitals that will have to provide service to radiation victims, conducted radiation alert drills? are staff informed regarding proper decontamination procedures? are extra booties, gloves and protective clothing on hand? are ambulance crews adequately prepared? do they know how to treat radiation victims?

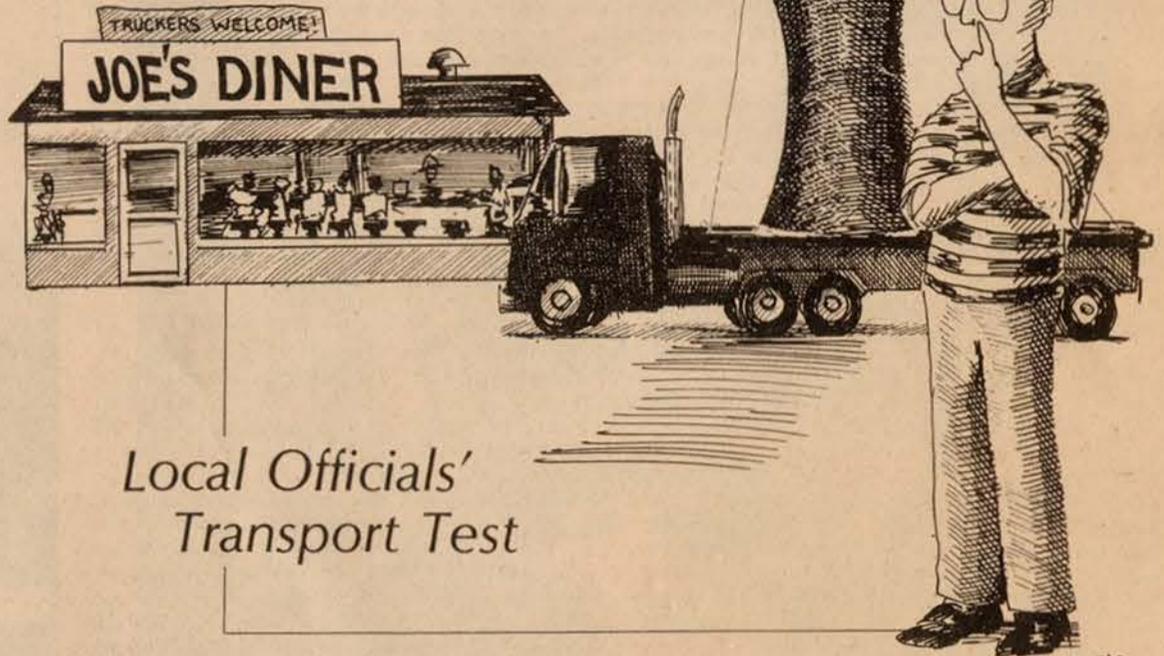
5) How will the populace be informed regarding a radiation emergency? have there been any radiation emergency drills? are there centers to which populations can be evacuated? How do we avoid an alarmed citizenry getting into cars and causing traffic jams that block orderly evacuation?

6) Have health, police, fire department personnel been informed regarding some of the particular problems associated with spent fuel transport? Does this personnel understand that spent fuel casks have valves that can become unseated during a cask accident? (Once this valve is unseated, coolant can leak out of the cask and the spent fuel assemblies could heat up and release radioactive materials to the environment.) Thus even if the cask does not appear to be damaged in an accident, prudence would dictate a radiation survey to be sure that the cask is not leaking. This is one of many special problems associated with spent fuel transport.

7) Has the county or township conducted a survey of bridges? Are there any higher than 30' — the maximum drop for which a spent fuel cask has been tested? what are the tonnage limits on local bridges? The same check should be made for railroad bridges. Has the county surveyed sharp curves, dangerous hills, pot-hole ridden roads, hazardous intersections that federal administrators in Washington, D.C. might not be aware of?

8) Who will pay for increased road maintenance in your county necessitated by traffic of extremely heavy (35 tons) spent fuel trucks over these roads? will this come out of the budget of local counties and municipalities? or will the county be reimbursed by the DOE?

9) What is going to be the added cost to hospitals, fire and police departments to institute the necessary training



### Local Officials' Transport Test

in radiation emergency procedures? is this money in the county budget? if not, can the funds be transferred from another budget item rapidly? in time for the April shipments?

10) Have local hospitals designated specific areas as radiation control areas (this is to avoid paralyzing an entire hospital by moving radiation victims into a special, isolated area)? is this room easily accessible from the ambulance area? does this room have washdown facilities to help decontaminate a patient? has a person been designated to stand at the entrance to the area and be sure doctors and nurses take off contaminated booties and clothing before moving into other areas of the hospital? are "keep out" radiation signs ready for use? are medical staff prepared to administer life saving mechanisms first and worry about contamination later if the patient's survival requires this? (this could mean that a hospital emergency room could be contaminated during treatment of a contaminated patient) are plans in place to decontaminate the emergency room in this eventuality? Who is going to pay the additional costs of these procedures?

11) Who is going to pay for clean up costs in the event of an accident? will the shipper (Canadian government), the carrier (Tri State Motor) or the U.S. DOE? Who will

compensate vineyards for loss of business? property owners for declining property values? Municipalities for a contaminated water supply? who will pay for loss of revenue to tourist attractions experiencing a decline in visitation?

12) Who will pay for loss of freight traffic if a railroad is contaminated? who will pay for decontamination of a fire truck after an accident? who will pay for bridge inspections that are necessary before 35 ton loads come through on a regular basis?

13) Who will pay increased insurance costs for Bridge, Turnpike and Tunnel authorities being used for spent fuel transit? How will this affect highway and bridge tolls, turnpike usage and payback periods on highway construction bonds?

These thirteen questions should be asked and answered before any spent fuel is transported through our communities, past our homes, schools and workplaces.

Note: If you can think of any additional questions that need to be asked local officials — please send these questions to Sierra Club Radioactive Waste Campaign, Box 64, Station G, Buffalo, N.Y. 14213.

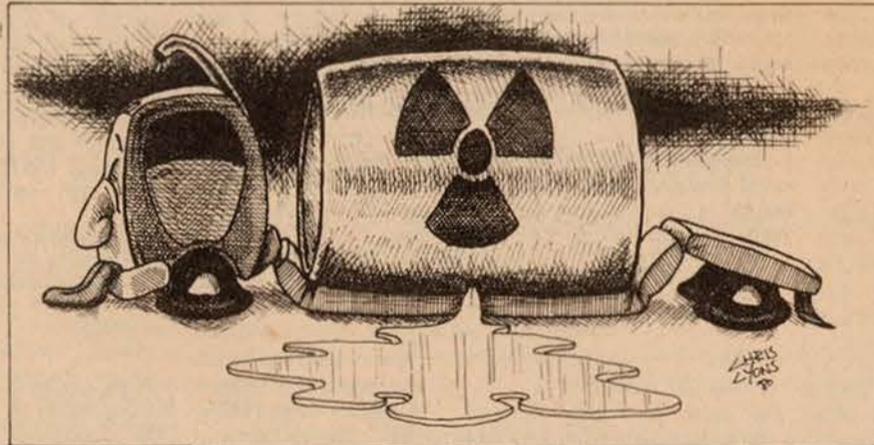
## Obituary of Cask Safety

On March 28, 1979 a cloud of radioactive gases crept across the Pennsylvania countryside from a nuclear reactor with a partially melted core, carrying with it the myth of safe nuclear power. In the wake of that cloud lay an industry on the verge of bankruptcy and a regulatory system in disarray.

Just one day later, another event that went unpublicized may have marked the death of yet another myth: that of "safe" transport of high-level radioactive wastes. For at the same time that a nation's eyes were turned toward Harrisburg, the Nuclear Assurance Corporation (NAC) informed the Nuclear Regulatory Commission (NRC) that the company had discovered spent fuel cask model NRS-4 to be defective. Conceivably, the cask could be breached in an accident. The NFS-4 model has been the most used spent fuel transport cask in the US having been employed by Nuclear Fuel Services, Commonwealth Edison, Maine Yankee Atomic, Wisconsin Electric Power, Rochester Gas and Electric, Jersey Central Power and Light, Duke Power.

Utilities and the nuclear industry had long maintained that the 25 ton truck casks and 75 ton train casks used to carry spent nuclear fuel were virtually indestructible. A dramatic Sandia Laboratories film showed flatbed trucks carrying casks crashing into a concrete wall at 80 mph. In another action shot a locomotive careens into the truck and cask at the same high speed. This film has been used in countless communities to "prove" that communities have nothing to fear when the ultra-hazardous spent fuel travels across their borders, even when the area is heavily populated.

An indication of how hazardous



spent fuel cargo is: if 10% of the cesium 137 in one spent fuel assembly that had cooled 150 days were released, it would equal the amount of cesium released by the Hiroshima bomb. According to Dr. Leonard Solon, Chief of the Bureau of Radiation Control in New York City if 1% of the radioactivity from a spent fuel assembly escaped, there would be 10,000 early deaths.

The revelation of the defective NFS-4 casks punched one large hole in the "safe transport" argument. After all the reassuring rhetoric, these casks had not even been built to the supposedly indestructible standards. As a result of the NAC information, NRC's office of Nuclear Materials Safety and Safeguards released an order prohibiting the further use of the casks. The owners, NAC, NFS, and Duke Power, were ordered to inspect all the casks for warped steel liners. These liners are the first defense against damage and radionuclide releases. The casks use lead and steel to shield the radioactivity and

water to shield the neutron radioactivity.

At that time of the NRC edict there were six of the NFS-4 casks in use and one under construction. (These casks have different serial numbers but all are of the NFS-4 model.) Two were owned by Duke Power (Serial Nos. NAC-1A and NAC-1B), three by NAC (NAC-1C, 1D and 1E) and two by Nuclear Fuel Services (NFS) (NFS-4A and NFS-4B). Duke Power found that cask NAC-1A was defective and NAC reported NAC-1C as also flawed. These two casks were taken out of service permanently. When removed from service the NAC-1A and 1C casks had already been used for a total of 103 spent fuel shipments covering 295,870 miles! NFS's two casks were also removed from service permanently because the company did not bother to report inspection results back to the Government.

In December 1979, the NRC allowed the two remaining casks to return to service, but only with restrictions. The spent fuel carried by these casks is now

allowed a heat output of no more than 2.5 kilowatts. Previously the casks could carry fuel giving off 11.5 kw. The users of the casks are also required to inspect the casks quarterly. Today, the NRC is still not sure whether the NFS-4 cask has been manufactured incorrectly, or whether the basic design is flawed. If the latter is the case all of the other NFS-4 casks may eventually end up warped and prone to greater accident damage.

If the casks were constructed incorrectly in the first place it would be no great surprise. The US Department of Transportation which approve designs for spent fuel casks has only six inspectors to work on all hazardous materials packaging for the entire country.

Even before the NFS-4 revelations in Spring of 1979 doubts had been growing over whether the spent fuel casks were all that accident-proof even if they were built and maintained properly.

The requirements seem very stringent. The sight of a cask surviving an 80 mph accident in the Sandia film can't help but be impressive. But are the tests adequate? Does the crash film really prove what it appears to? The answer to these questions is a strong No.

Contrary to the utility claims that the casks survived an 80 mph impact, the trucks absorbed almost all of the impact. The casks actually received a crash of only 29 mph.

The second problem with the film is that the pictured casks did not contain spent fuel! The heat and pressure given off by hot spent fuel would be working inside to breach a cask. The casks in the Sandia film carried fresh fuel. This is one-millionth as radioactive as its irradiated counterpart.

The third and most telling point is that

— continued on page 4 —

—continued from page 1—

## T.M.I. ...

possibility of re-criticality, i.e., re-start of the fission process. To prevent this from occurring, Met Ed has added boron to the water to absorb neutrons. However, the exact amount of boron is not known with certainty. Boron levels above 3000 ppm seem to have shut off the nuclear reaction, though this level must be continuously maintained.

Certain vital instrumentation to detect criticality and maintain cooling has not been serviced for over a year. This equipment may fail at any time! In particular, only one instrument channel to directly detect neutron levels within the reactor is operating. If this instrument fails, only indirect indicators of re-criticality would be available, the temperature rise of the water coolant or a pressure rise. Added cause for concern is that reactor coolant pipes are submerged within the containment building and important equipment (such as electric motors which would open the drain in the containment building) sits one foot above water that is gradually rising. Fan coolers which have helped cool the containment building have been continuously in use and have not been maintained for over a year. Access to this instrumentation and equipment, and to the reactor itself requires that the radioactive krypton gas within the containment building be removed. Apparently, the destruction of the upper 4 to 6 feet of the fuel assemblies together with the high temperatures caused by radiation of the uncooled spent fuel and oxidation of the zirconium cladding, has caused 57,000 Ci or 40% of the Kr-85 gas in the spent fuel pellets to be released within the containment building. Met Ed and the NRC wish to release the radioactive krypton to the environment where it would cause radiation exposures to the residents of the Middletown/Harrisburg area, and worldwide exposures as well. This has justifiably upset local residents who prefer the alternative of bottling the Kr-85 gas under pressure, rather than releasing it.

In addition to the krypton gas, radioactivity has coated the walls of the containment building, with about 600,000 gallons of radioactive water (500,000 Ci) on the floor. Apparently an unknown quantity of radioactive water has leaked from the TMI plant to the environment causing increased radiation levels in test wells (AP wire, 4/8/80).

An additional 90,000 gallons of radioactive water (40,000 Ci) is contained in the reactor vessel, within the reactor containment building.

The auxiliary building which contains the waste cleanup, ventilation and reactor heat removal systems, holds 400,000 gallons of additional radioactivity which is being processed through the resins of the Epicor-II cleanup system. Only 100,000 gallons have been processed so far this year, the slow pace due to the fact that the cleanup of TMI-2 is fourth on the priority list of GPU. All this radioactivity in the water and air of TMI-2 must be removed and concentrated. Neither Met Ed nor the NRC know where the radioactive waste from this decontamination effort will be disposed of. The continuing availability of the Hanford, Washington dump is "tenuous", and South Carolina has banned the TMI waste.

When the radioactivity levels are reduced to the point where personnel can work in the containment building, the reactor vessel would, theoretically, be opened and the damaged spent fuel removed. This is not expected to take place till the mid 1980's. The cleanup technology will have to be developed as they go. While the nuclear industry is accustomed to

moving spent fuel underwater from the reactor to the on-site spent fuel pool, employing the hook on top of the fuel assembly and an overhead crane, what is to be done with the radioactive rubble which may be fused with the reactor internals? How will it be removed from the reactor? What will be done with it after removal? The NRC considers this "a very interesting technical question", that is to say, the NRC does not know what to do. This question cannot be answered until the NRC and Met Ed view the inside of the reactor (shielded by water, of course). And before that, they must consider the question — how will they open the reactor? The lid of the reactor, through which the control rod extensions penetrate, must be unbolted and lifted off.

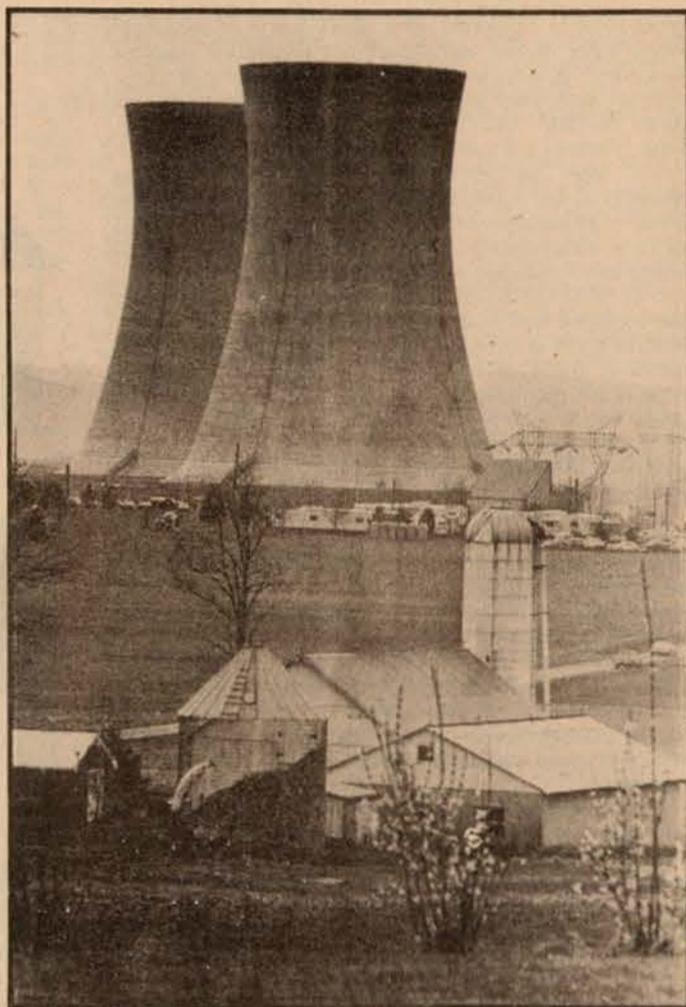
The full financial implications of decommissioning the TMI-2 reactor are staggering. Will the utility Met Ed go bankrupt in the process? Will the banks who control GPU, the parent company of Met Ed, also go bankrupt, or will the Federal government bail out the utility? The NRC is now facing "the possibility the licensee could go bankrupt before the cleanup is finished, an event that may require government intervention to ensure the job is completed." The Haller report recommended that the "NRC and other government agencies begin to plan for this contingency". In one year the utility has spent \$100 million on the preliminary cleanup work, with 1,000 workers on-site. The hardest part of the cleanup work is yet to begin. The NRC Rogovin report estimates that the cleanup costs could rise to \$1.8 billion. This is greater than the TMI-2 construction costs.

In fact, no utilities properly assess and manage funds for decommissioning, whether or not an accident has occurred. Some utilities do not set aside funds for decommissioning at all, necessitating a rate increase from the state utility commission when the reactor is decommissioned. Or, the utility sets up a decommissioning fund "on the books", reinvesting the set-aside capital in other construction projects. These funds, invested in steel and cement, are then not available at decommissioning time; this utility must also request a rate increase. These rate increases are often not factored into the "cheap" cost of generating electricity. Of course, if a reactor operates a mere 3 months, as TMI-2 did, adequate funds clearly cannot be set aside. No reactors have insurance or bonding to handle this eventuality.

A classic example of inadequate decommissioning funds occurred at the now defunct Getty-owned Nuclear Fuel Services plant at West Valley. High level liquid radioactive wastes are stored in tanks and must be removed and solidified. The NRC-estimated costs for this job range up to \$600 million, but NFS has set aside a mere \$5 million. Many of the cleanup problems were not foreseen and the technology was not available when the plant began operation. This technology is still not available 17 years later. Estimates of risk and what is required to protect the public health and safety have changed radically since 1963 when the plant construction began; the plant operated for a mere 6 years.

The financial situation and consequences can be much more serious for the decommissioning of a nuclear reactor. Because of the immense radioactivity which builds up within the reactor vessel over the 30 year projected operating life of a reactor, a "cool down" period of from 100 to 180 years is required before dismantling.

—continued on page 5—



Thomas Buchanan/Spectrum

Three Mile Island cooling towers loom over a pastoral scene.

## Indian Point I Clean Up

Indian Point-1 reactor, shut down October, 1974, due to an inadequate emergency core cooling system, operated for only 12 years. Prompted by a petition of the Union of Concerned Scientists, the NRC has ordered Con Ed to show cause why IP-1 should not be decommissioned. Back in 1974, it was the third oldest commercial-sized reactor (above 150 MW); Dresden-1 and Yankee Rowe were older. At 265 MW, it is a small reactor.

Though it operated for only 12 years, it still contains over 30 times the radioactivity of the Elk River reactor, the experimental reactor which was completely dismantled. Because of these high radioactivity levels, *The Waste Paper* believes that IP-1 will have to be entombed and guarded for 50 years before it is dismantled. IP-1 will first have to be decontaminated by flushing the pipes. These will then be cut, and the reactor vessel and surrounding concrete shield will then be sealed off. In answer to the NRC show cause order, Con Ed will have to present detailed decommissioning plans.

IP-1 electricity has not been cheap. As a hybrid oil/nuclear generating station, both its capital and operating costs have been high. Con Ed will probably request a rate increase for the decom work. Including the funds for decommissioning and the shortening to 12 years of the economic life of the reactor, the effective production costs for IP-1 electricity have come close to \$.06/kwh, outlandishly high even in today's dollars (and even more outlandish in 1974).

A more complete discussion of the IP situation will occur in the next issue of *The Waste Paper*.

## Cask Safety ...

—continued from page 3—

the casks used in the Sandia tests are obsolete. The current generation of casks are significantly different. The IF-100 and 200 casks used in the film have been withdrawn from service. These casks can't pass a half-hour fire test! Newer casks currently travelling through our communities on the other hand don't have the high-impact fins the IF casks did because these fins are hard to wash down. NAC has stated that the newer casks "may not have equivalent resistance to accident damage demonstrated in the tests." Even the National Transportation Safety Board has disavowed the crash test films. In 1979 the Board stated "The motion pictures of the collision tests lend themselves to misrepresentations that the casks are 'safe' when in fact the tests were performed to verify the validity of engineering models that can be applied to the analysis of alternative accident scenarios. It is the misuse of these films to represent that the casks are 'safe' that is objectionable."

The Department of Transportation tests for spent fuel casks include a 30-foot drop onto a hard surface, a 40-inch drop onto a 6" diameter rounded steel rod, exposure to a 1475° fire for thirty minutes and

immersion in water for 8 hours.

While the thirty foot drop certainly shows that the casks are not toys, a 30 foot drop amounts to a speed of 30 mph. Besides, spent fuel shipments could be confronted with worse falls. All of the bridges spanning the Hudson River have stretches that are 50 feet above the water. For six years, spent fuel was routinely transported over a 180 foot high railroad bridge over a slate bottom gorge leading into the West Valley reprocessing facility!

The puncture test represented by the 40" drop onto the spike doesn't come close to the impact of a projectile during an accident or an explosion. Conan Furber of the American Association of railroads humorously pointed out, "A supermarket tomato can pass the 40" drop test."

The weakness of the immersion test stems from its lack of immersing the casks in deep water, where pressures are greater. It is also unclear that a 25 ton cask could be removed in eight hours, particularly if an accident occurred in a remote, rural area.

The test that troubles most people, however, is the half-hour in a 1475° fire. Our highways and railroads are filled with

chemical trucks whose contents can burn at greater than 1475°. Butane burns at 1870°, oxyacetylene at 3300°, propane at close to 4000°. Diesel fuel which will be fueling the cask trucks themselves and is also being used by an increasing number of private vehicles, also burns above 1475°.

Fires have a troublesome habit of going on for much longer than 30 minutes. And in isolated areas fire departments will have trouble getting to the scene of an accident in this time, much less putting out an accident. Furthermore, a rural, or metropolitan, fire department may not have the chemicals on hand needed to put out a fire of this type. In one accident on March 31, 1977, a 29-car train carrying four canisters of uranium hexafluoride derailed near Rockingham, North Carolina sending the canisters tumbling off their cars and into the wreckage. It was 29 minutes before the local fire company even arrived. It was 3 hours and 40 minutes before the first canister was located. In the meantime, various emergency officials obtained conflicting information on how to deal with uranium hexafluoride and whether or not a leak had occurred.

Even more disturbing is that some older casks use lead as part of their shielding. Lead melts at only 620°F. These casks won't even survive a half-hour in a 1475°F without some damage.

If all of these problems were not enough, there is concern that a pressure valve on top of the casks can unseat. Once this valve has unseated, it cannot be resealed. The coolant inside a cask could drain off and an immense release of high radioactivity would occur.

Just as the myth of a "major nuclear accident can never happen" has been dying since Harrisburg so is the myth of the indestructible cask also dying. The question is: must we have a major cask accident to finally bury this myth or will reason prevail before that disaster?

by Warren Liebold and Lindsay Audin

*Biography:* Warren is a member of the Executive Committee of the Atlantic Chapter of the Sierra Club. Lindsay is an engineer; he is a long time researcher and activist on waste transport. He published the *Radioactive Material Transport Intelligence Bulletin*.

Communities with transportation bans, or resolutions opposing the transportation of nuclear wastes through their limits. These communities are within the five state organizing region of the Sierra Club Radioactive Waste Campaign.

New York State Ordinances

New York City Ithaca  
 Jerusalem Yates County  
 Suffolk County Schuyler County  
 Rockland County Geneva  
 Watkins Glen

Resolutions

Rose

New Jersey Ordinances

Bergan County Carteret Borough  
 Middlesex Borough

Resolutions

Cape May County  
 Union County

Note: New Jersey has state laws regulating transport of radioactive waste.

Ohio Ordinances

Shaker Heights Mayfield Vermilion  
 Richmond Heights Mayfield Village Euclid  
 Beachwood Maple Heights Lakewood  
 Brooklyn Garfield Heights Highland Heights  
 Middleburg Heights South Euclid North Olmstead  
 Olmstead Falls University Heights Fairview Park

There are no ordinances or resolutions banning or regulating the transport of radioactive wastes in Pennsylvania at this writing.

Connecticut Ordinances

New London

Note: Connecticut has state laws regulating transport of radioactive waste.

## Bans and Permits



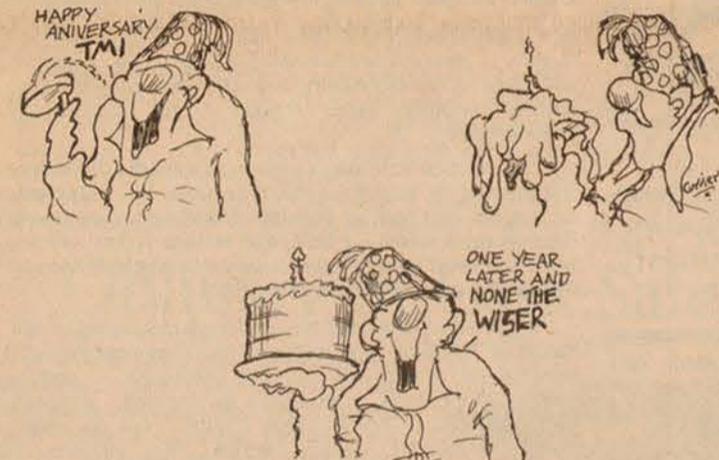
## TMI . . .

After this period, the reactor would then be dismantled underwater with cutting tools and techniques which have still not been developed. The full costs for decommissioning and disposal are very uncertain. The reactor vessel plus internals will remain radioactive and not decay to "safe" levels for about 1/2 million years. The pieces will have to be disposed of somewhere or be watched forever. Funds for decommissioning would have to be set aside for the initial cleanup after the reactor has operated and for subsequent dismantlement and disposal 100 to

180 years thereafter. With inflation and interest rates oscillating between 15% and 20%, a slight miscalculation in decommissioning costs now may mean an economic disaster later. Future generations of ratepayers or taxpayers may make up the difference. If a reactor costs \$2 billion to construct, the decommissioning costs could be 10% (\$200 million) or more. Assuming a low inflation rate of 10%, this \$200 million rises to \$3.5 billion in 30 years, and a staggering \$48 million million 130 years from now when the reactor is dismantled. A slight

miscalculation now may imply a bankruptcy or major rate increase later.

References: NRC Reports to the Commissioners: Rogovin Report and Haller Report (Report of Special Task Force on Three Mile Island Cleanup, Feb. 29, 1980); NUREG-0662, "Environmental Assessment for Decontamination of the TMI-2 Building Atmosphere", March, 1980; NUREG-0557, "Evaluation of Long-Term Post Accident Core Cooling of TMI-2", May, 1979.



Sierra Club Radioactive Waste Campaign  
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 Buffalo, New York 14213  
 (716) 832-9100

Name.....  
 Address.....  
 City..... State..... Zip.....  
 Phone: Work ( ) Home ( )

Please make checks payable to the Atlantic Chapter Radioactive Waste Campaign. Send to the above address.  
 Thank You.

Yes, I would like to subscribe to the *Waste Paper* at the reduced, introductory rate of \$6.00 per year. I am enclosing a check in this amount.

Yes, I would like to volunteer some time for the Radioactive Waste Campaign. I will help with research, clerical, organizing, public speaking (please circle your interest).

Yes, put me on your mailing list.

Yes, I would like to stop radioactive waste. Here is my contribution of \$ \_\_\_\_\_ to the Campaign.

## Winning Hearts and Minds at City Hall

On January 16, 1980, the Rockland County, N.Y. Board of Health restricted nuclear waste transport, effective March 1, through an amendment to the County Sanitary Code. Large radioactive shipments, amounts and isotopes specified, must receive a certificate of Emergency Transport or avoid Rockland. A qualified Health Department employee, currently being hired, will set up the program, advise on issuance of permits, educate law enforcement and emergency personnel, and carry out a program of x-ray machine inspections currently being done by the state. Since faulty x-ray machines may account for much needless radiation and since an understaffed state program cannot do the job on a regular basis, the program benefits Rockland in several ways. Most important in these times of limited budgets, fees collected by the x-ray program, an estimated \$28,500, should pay for the entire program.

About 1 1/2 years elapsed between an initial local press story about radioactive waste transport through Rockland County and adoption of restrictions. Many hurdles arose and a strong case was assembled. For whatever help it may be, here are some of the lessons we learned and how it worked for us.

A major obstacle in Rockland County and elsewhere on radioactive waste transport is the image of nuclear critics. This image fostered by industry and the media, is of emotional, irresponsible persons, afraid of something about which they are ignorant. We disqualify as legitimate critics, we are only demonstrators, youthful or otherwise, in search of a cause. Thus, for citizens seeking transport restrictions, reputations as "anti-nuke" activists may not help. The radioactive waste issue may be seen as just one more tactic to close down reactors rather than the public health and safety issue that it truly is. There is little

question who will win out in credibility with local officials, emergency personnel and others in positions of responsibility and authority: a calm, well-dressed "voice of reason" and reassurance, or someone who is perceived as a member of the anti-nuclear establishment. I am firmly convinced that, except in very rare instances, anything that reminds a decision-making body of "protesters" probably won't help the cause.

An accurate, documented, well-researched position is necessary. It is important to rely on facts, not value judgements, with sources well marked. Use highly accredited sources that will be trusted by those you wish to convince. Unfortunately, this will often exclude anti-nuclear and environmental organizations. My own sources were governmental, Sandia Laboratory studies, NRC. . . Often these government "facts" are misleading. By pointing out some very obvious "fudging" by these sources, we gain credibility.

I also think that wholesale jabs at big business don't help either. In the eyes of quite a few, nuclear opponents are "communist" inspired. If this seems incredible to you, then perhaps you haven't been communicating with a broad cross section of the population.

It is a mistake to put all of our eggs in one basket and try to convince an entire group at one. Small groups and the one-to-one approach is far more effective. People feel less threatened dealing with our side if a meeting is done quietly and not before a large audience and press. While the belief in serious safety hazards of nuclear waste transport doesn't imply an anti-nuclear stance, it may be a difficult position for a pro-nuclear or even an uncommitted person to take. Also remember that the body of information we are presenting may be totally new to others. It needs to be presented respectfully, not with

presumption.

As with any issue, it is important to delay a vote until the necessary supporting votes are lined up. Be sure, if possible, that member(s) of the decision-making body who are promoting radioactive waste safety are respected by the other members and will be listened to. It is also important for us to remember that Boards of Health and Legislatures have many important issues to deal with. We cannot expect them to suddenly be convinced of the paramount importance of this issue over all others. Persevere but don't be abrasive.

Most strong support for restrictions comes from emergency personnel and law enforcement people. These will be the first on the scene of an accident. They are most at risk. As is so often the case, those most at risk in dealing with hazardous materials are often told the least.

There is much more that I could write about our year and a half long struggle. We would like to help others engaging in the same process. If you are seeking your own local restrictions and need help, write the Rockland Citizens for Safe Energy, PO Box 74, New City, New York, 10956. Available from this address is a copy of the Rockland County regulations plus basic information. Send \$1.00 plus a \$.25 stamped, self-addressed business envelope. Also available is an 85 page information package supporting the case for a radioactive waste transport restriction and a verbal presentation for local officials, send \$8.50 for the kit. Make checks payable to Rockland Citizens for Safe Energy.

by Judy Kessler

Biography: Judy is a firm believer in the ability of the individual to affect public policy. She is coordinator of Rockland Citizens for Safe Energy and President of the Rockland Audubon Society, Inc.

# Legacy . . .

— continued from page 1 —

Radon, a radioactive gas associated with increased incidences of lung cancer among uranium miners, is wafting off the site day in and day out. There are several rickety structures with broken windows, leaky wooden shingle roofs and weatherworn clapboard siding that are acting as storage structures for the toxic materials. One 140' high concrete tower is of particular concern to local residents. At the tower's top is a vent through which radon is leaking and will continue to leak for at least 80,000 years.

A recent survey revealed that the radon reading at the tower vent was 117,000 picoCuries per liter. (One picoCurie is one trillionth of a Curie.)

Federal guidelines mandate that radon concentrations at the fenceline should be less than 3 picoCuries per liter. The fenceline is only a few feet from the tower vent. Readings have not yet been taken at this point. A new Batelle Laboratories report calls for the sealing of the vent through which the radon is leaking. But, DOE, which as recently as 1978 categorically denied that there was any opening at the tower's top, now says more studies must be conducted before remedial action is begun.

The monitoring and the studies are a source of rising frustration to local residents. When Joan Gipp, a local Councilwoman first started asking questions about the site in 1978, no systematic air-monitoring had ever been conducted. In the intervening two years, over \$100,000 had been spent on monitoring, including two airplane overflights. But recently, DOE's William Mott, Head of the Division of Environmental Technology, announced that the entire monitoring of the last year had been unreliable — so it will have to be redone. And until it is redone, no remedial action is forthcoming, except for minor band-aid steps.

African Metals, the "mystery" corporate owner of half of the site's materials wants to leave in 1983 when its current lease expires. (The other half of the materials at the site are owned by DOE). African Metals is the subsidiary of a Belgium Company, Societe General de Belgique.

## Canonsburg

While the Lewiston site is in a relatively rural farming area, Canonsburg is plunk in the middle of a residential and commercial development, with much of the processed residue of processed uranium ore buried underneath an industrial park. Back in 1967, the old dumping site was bought by a business man for \$130,000 for an industrial park. Now the businessman is grimly watching his economic investment go down the drain. He has learned that his industrial park is sitting on top of 200,000 tons of radioactive material. All of the 8 buildings may have to be razed — and buried somewhere. But it may take years for the federal government to cough up the estimated \$20 million. In the meantime, the industrial park is fenced off. And residents in the densely populated region (there are 5000 persons within a one square mile perimeter of the site) are beginning to wonder about what effect the radon coming off the site will have upon their families and children.

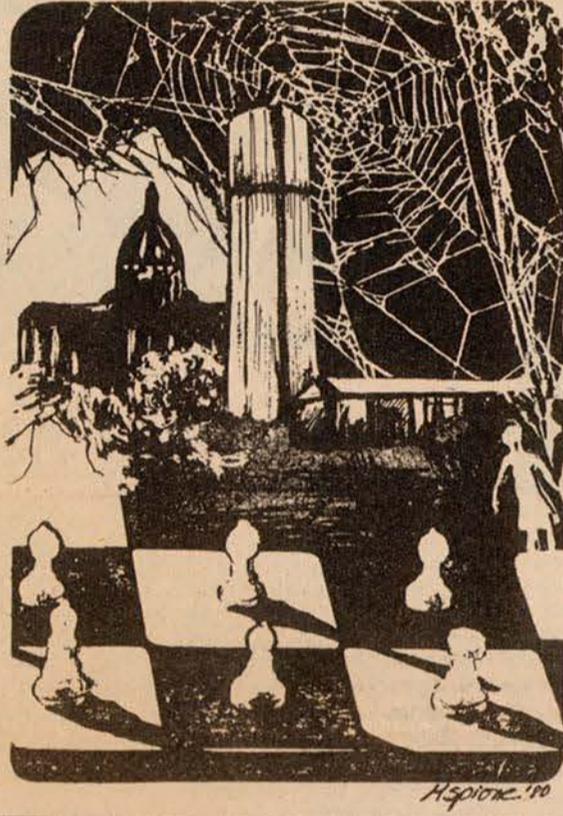
How the 18-acre site became so badly contaminated is a tale of special favors granted to Vitro which, apparently, had friends in high places in 1965. According to documents recently obtained by the *Pittsburgh Press*, under a Freedom of Information Act request, the AEC gave Vitro a special exemption in 1965. This exemption allowed the company to dump material more radioactive than that permitted by the AEC's own regulations, which were not stringent. Burial proceeded in a lagoon adjacent to a nearby stream, and in the floodplain!

According to Swiger, the project manager for the dumping, there was awareness among State Health Department officials that burial in the lagoon was a temporary, unsafe solution.

The lagoon is the most shocking aspect of the Canonsburg situation. It is adjacent to Chartiers Creek which flows into the Ohio River, a source of drinking water for several downstream communities. Levels of radium 3000 times Federal guidelines have been found in the filled-in lagoon's mucky material in a three-acre area. At one location in the old lagoon area contamination extended underneath the surface for 16 feet and readings went as high as 17,000 picoCuries per gram of radium — 1.2 picoCuries per gram is natural background. This mucky area is so contaminated that DOE only took a few readings so as to limit release of contaminants to the surface

Though adjacent to the creek, the mucky material has, apparently, not yet leached into the water. It is only a matter of time. And since the old lagoon lies in the flood-plain, it is possible for a flood to wash out the water-soluble radium and make it accessible to downstream communities. (Authorities assure us that a new flood control project will prevent that eventuality.) Not all of the uranium residues at Canonsburg were poured into the lagoon. Ten thousand tons were taken to a Pennsylvania railroad landfill in Blairsville. This site is also adjacent to a waterway — the Conemaugh River. And this site is also severely contaminated and radioactivity has begun to migrate.

In addition to the lagoon problems, the 1977 DOE survey showed that all buildings on site are highly contaminated. For example, the beta and gamma dose in building no. 1 is up to 36 times the federal guidelines. Even new buildings, built after the Vitro Corporation operated, are now contaminated. Presumably, persons tracked in material or radon gas has moved into the structures through doors and windows. Even the roofs of



"And what compensation will there be for the health and economic impacts . . . on the local communities?"

both old and new buildings are contaminated. And sediment and water in drainage pipes inside buildings, and loading ramps and concrete pads outside the structures are radioactive.

Unfortunately, it must be assumed that off-site property is similarly contaminated and is providing an increased radiation dose to the general population. In fact, the DOE reports show one location downstream with readings at 2000 micro R per hour — 40 times federal guidelines of 50 micro R per hour for unrestricted use.

Though it is not known exactly how much radioactivity lies at the Canonsburg dump (or the other dumps mentioned in this article), it is clear that a prompt Federal clean-up is mandatory. Buildings must be razed. The entire site must be scraped clean and the three-acre lagoon, filled with radioactivity, exhumed. If and when a Federal repository is available the highly toxic material can be transported there. Until then, the bulky material must be stored in air and water-tight containers — so that radon gas cannot migrate off site and radium cannot dissolve and leak off-site.

Middlesex, N.J.

About three hundred miles northeast of the

Canonsburg dump, yet another example of negligent dumping has come back to worry and anger residents and local officials. In the 1940's and 1950's a uranium ore sampling, sorting and storage facility operated in the community of Middlesex, six miles north of New Brunswick. Supposedly, the facility was decontaminated in 1950 and again, in 1967 but . . .

In 1978, the pastor of Our Lady of Mount Virgin Church, adjacent to the old dump, learned that his rectory had higher than normal levels of radiation. A government report has warned the pastor that occupants of the rectory have a "three times greater" risk of getting lung cancer than persons living elsewhere. At about the same time, the city of Middlesex discovered that the municipal dump was radioactively contaminated — apparently materials from the old uranium facility had been dumped along with usual garbage in the city landfill. And the original dump site, itself, once used as a reserve training center for the U.S. Marine Sixth Motor Transport Battalion is also contaminated. The 18 acre facility off Mountain Ave. was certified by the Atomic Energy Commission as "safe" in 1968. A recent DOE survey calls into doubt past decontamination efforts and the present safety of the site. Particularly, serious levels of radioactivity have been found on site especially in the former process building and what is more disturbing along the drainage paths leading off the site and in the floodplain of nearby streams. The creeks draining off the site feed into the Raritan River which flows past Bound Brook, New Brunswick and other New Jersey communities.

According to the DOE study, "South of the site, in and near the drainage area . . . (radium) measurements ranged up to 2401 pCi/g". On some adjacent private lots, levels range up to 63.5 pCi/g over ten times the Environmental Protection Agency recommended limits of 5 pCi/g. As far as one-quarter mile downstream, the radium levels were 208 pCi/g. In addition to these high radium levels, gamma radiation levels, as high as 235 microR per hour were also found. This is 23 times background levels and far above the recommended limits of 50 micro R per hour.

In the process building, measurements of radioactive radon gas ranged up to 17 times greater than background levels, and above the legal limits. Measurements of penetrating gamma radiation varied from 2 to 13 times background levels. The radium concentration in the soil exceeded 100 times the recommended guidelines. The litany of figures goes on and on. Clearly the site needs to be decontaminated. But Middlesex has already been cleaned up twice before. How many decontaminations will

be necessary before the site is really clean? And what will happen to the radioactive rubble? And what compensation will there be for the health, and economic impacts on the nearby church, local residents and downstream communities?

At the Lewiston site, a citizen's Oversight Committee was formed to help guide the clean-up work. This would be a good first step at both Middlesex and Canonsburg. Citizens must watchdog DOE and bulldog federal officials to be sure that more sloppy Canonsburg-type solutions are not perpetuated on future generations.

Again what is needed is exhuming and scraping of soil, razing of buildings and sequestering of the contaminated material in water and air-tight containers — until a permanent federal repository is located, designed, constructed and tested. That "until" will be many decades . . . decades during which the citizens at Canonsburg, Middlesex, Lewiston and countless other contaminated sites should not have to suffer. ☹

## Staten Island U-Hunt

Find the Staten Island "hot" warehouse used to store uranium that was used to produce our first atomic bomb. Of course, the warehouse may have been bulldozed and another structure may be sitting on the hot spot. Reward: One Sierra Club "Your Can't Run from Radioactive Waste" T-Shirt. Identify the route by which the Belgium ore travelled to Chicago for use in the Stagg Athletic Field first self-sustained atomic reaction in 1942. Reward: Same as above (two T-Shirts if the same person wins both competitions.)

## Caravan

Starting sometime in Spring 1980, 10-14 shipments of spent fuel is due to cross New York State on its way to Savannah River, South Carolina. The Lakeshore Alliance is proposing a "mock caravan" through the towns located on the most probable route. The actual route will not be made public, so we have agreed to use the "probable" route within NRC regulations. We are proposing to all interested neighbors and groups that we coordinate this action starting with our Canadian neighbors and crossing at Ogdensburg, N.Y., passing through the north country, onto the lakeshore area, then into the southern tier and possibly down to South Carolina via Pa., Md., Va., N.C., and S.C. Alliances! What do you think?

For further information:  
Julie Kline 315-365-3403

## MEMBERSHIP FORM

### ANNUAL MEMBERSHIPS

Categories	Individual Dues	Joint	Categories	Individual Dues	Joint
Regular	<input type="checkbox"/> \$ 25.00	<input type="checkbox"/> \$ 29.00	Senior (60 and over)	<input type="checkbox"/> \$ 12.00	<input type="checkbox"/> \$ 16.00
Supporting	<input type="checkbox"/> 40.00	<input type="checkbox"/> 44.00	Junior (through 14)	<input type="checkbox"/> 12.00	
Contributing	<input type="checkbox"/> 100.00	<input type="checkbox"/> 104.00	<b>LIFE MEMBERSHIP</b>		
Spouse of Life Member	<input type="checkbox"/> 12.00		Per person	<input type="checkbox"/> 750.00	
Student	<input type="checkbox"/> 12.00	<input type="checkbox"/> 16.00			

Dues include subscription to the Club magazine, SIERRA (\$3.00) and chapter publications (\$1.00).

GIFT MEMBERSHIPS will be announced by a special gift card in your name.  Check here if you would like to be billed for renewal of this gift membership next year.

Enclosed is \$\_\_\_\_\_ Please enter a membership in the category checked above for:

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Mail to:

**Sierra Club**

DEPARTMENT D-79  
P.O. BOX 7959, RINCON ANNEX  
SAN FRANCISCO, CA 94120

# Volker/Walsh Bill

The Department of Energy plans for an AFR at West Valley are a threat to every community in the state through which the intensely toxic spent fuel would move on its way to the old reprocessing building 35 miles south of Buffalo.

One measure of protection available to New York State residents is legislation that would prevent a back room deal between Jim Larocca and James Duncan (Schlesinger's replacement as Secretary of Energy), legislation that would set up a mechanism for citizen in-put into the AFR decision-making process.

After months of discussion — finally, an AFR, or temporary waste repository bill was introduced into the New York State legislature on March 26 by Senator Dale Volker and Assemblyman Daniel Walsh. The bill adds a new article, 18, to the Energy Law. This bill provides for the establishment of a state board on the siting of a temporary nuclear waste repository. The 4-member board, consisting of the Commissioners of Health and Environmental Conservation plus two members

designated by the senate and the assembly will commission studies on a proposed AFR and will hold hearings and public meetings about the proposal. Citizens could cross-examine DOE witnesses. This board, within 18 months of an application, will make a determination as to whether to license the facility. Some of the factors that must be considered are, is the facility "in the public interest" and will the facility "adequately safeguard the health and safety of the state's residents"?

A decision by three of the four members of the board will constitute action by the board. To pay for the board's expenses for studies and public hearings, the party applying for a license to operate the temporary waste repository must pay \$300,000 upon submitting the application.

Article 18 is a significant step in the right direction. It is a precedent setting bill — the first such temporary repository bill to be introduced anywhere in the country. The bill is not as strong as we would like. We are nervous about only three persons being able to make a decision

that will severely have an impact on millions of New Yorkers and we are concerned that two of these three are Carey appointees. But, nevertheless, the bill offers a good mechanism for extensive airing of the public's viewpoint and for media exploration of the issue.

We strongly urge all readers of the *Waste Paper* to promptly sit down and write your New York State Assemblyperson and Senator and ask them to support the temporary repository bill. Send a copy to Speaker of the Assembly, Stanley Fink. If you have any extra energy please call five friends and ask them to do likewise. The bill numbers are S 8664 in the Senate and A 10604 in the Assembly. Current co-sponsors in the Senate are Volker, Ackerman and Bartosiewicz, and in the Assembly Walsh, Fink, Hoyt, Orazio, Koppell, Hinchey, Barbaro, Connor, Engel, Farrell, Goldstein, Gorski, Gottfried, Hirsch, Jacobs, Lentol, McCabe, H. Miller, M. Miller, Newburger, Nicolosi, Nine, Sanders, Schimminger, Seminerio, E. Sullivan, Weinstein, Wilson, Yevoli. If your Senator or Assemblyperson is NOT on this list, be sure to let them know that you notice their absence and expect them to sign on as co-sponsors. Address your letters to New York State Assembly or Senate, Legislative Office Building, Albany, N.Y. 12224.

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## News Flash

Oops. On December 11, 1979 a fuel assembly was dropped at the Pilgrim Nuclear Station in Plymouth, Massachusetts. The assembly was being moved by an overhead crane when it knocked against the edge of the fuel racks, slipped off the lifting hook on the crane and fell on top of the loaded fuel racks. As the assembly fell, it struck the lifting hooks on four spent fuel assemblies. There was "no apparent damage" of the four spent fuel assemblies. Source: Nuclear Regulatory Commission Information Notice No. 80-01, January 4, 1980. (Some accidents will just happen.)

## Citizen network

To help set up a state-wide citizen network on the problems of radioactive waste, we are listing citizens who are active, informed and willing to help plan activities in different regions. If you are bewildered, concerned and angry and want to do something, but don't know what, call your local contact person. If you know of additional contact persons who should be on this list, let us know.

### New York State

**Albany**  
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**Bruce Cronan**  
 SASU  
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**Paul Maggiotto**  
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**Karen Shaw**  
 Knolls Community Action Project  
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**Binghamton**  
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**Bill Griffin**  
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 Mushroom Alliance  
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**Peggy Moran**  
 Geneva Energy Council  
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 Citizens Concerned About  
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**Long Island & New York City Region**  
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**Safe Energy Resource Center**  
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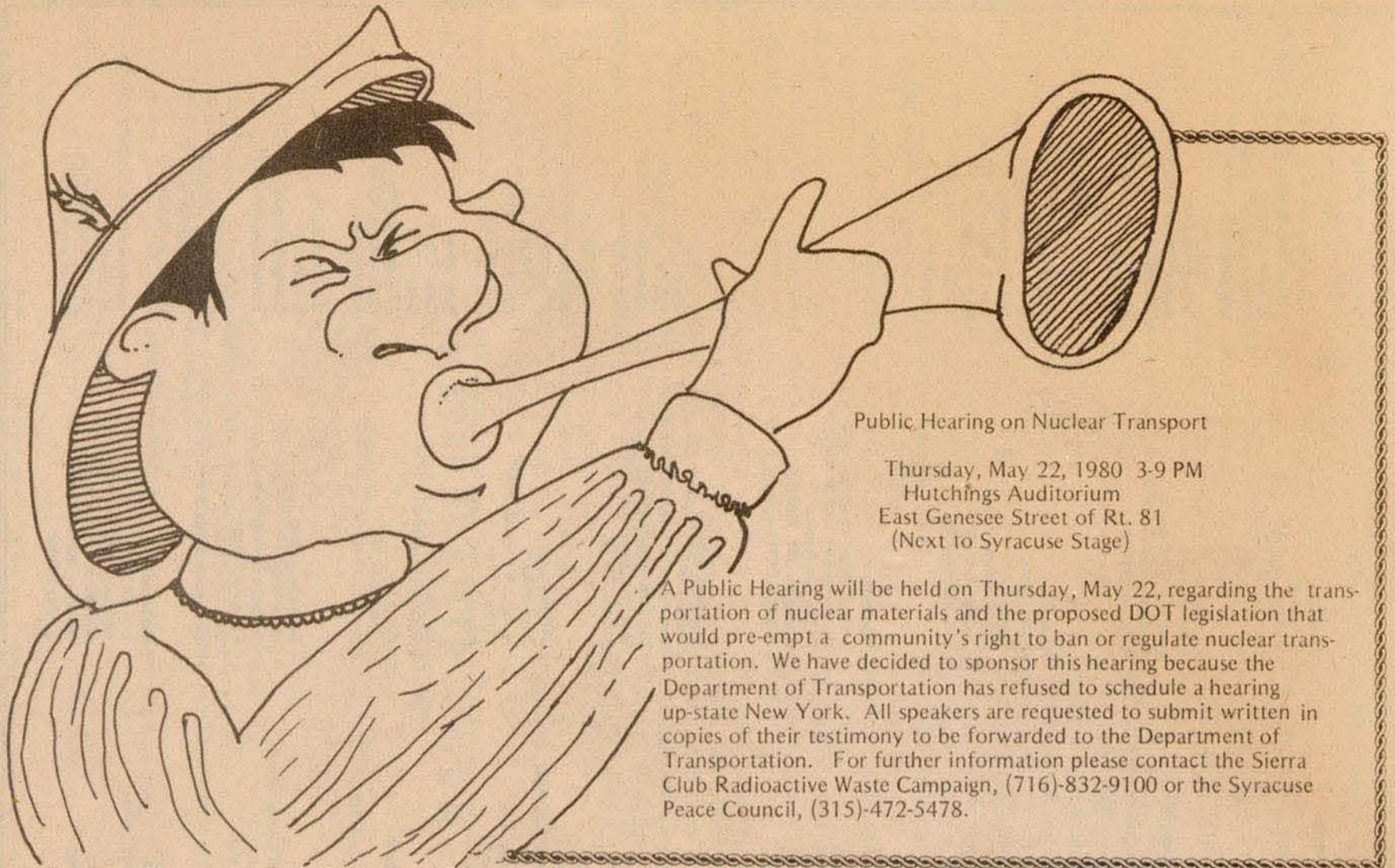
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**John Demlick & Dorothy Eldridge**  
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Public Hearing on Nuclear Transport

Thursday, May 22, 1980 3-9 PM  
 Hutchings Auditorium  
 East Genesee Street of Rt. 81  
 (Next to Syracuse Stage)

A Public Hearing will be held on Thursday, May 22, regarding the transportation of nuclear materials and the proposed DOT legislation that would pre-empt a community's right to ban or regulate nuclear transportation. We have decided to sponsor this hearing because the Department of Transportation has refused to schedule a hearing up-state New York. All speakers are requested to submit written in copies of their testimony to be forwarded to the Department of Transportation. For further information please contact the Sierra Club Radioactive Waste Campaign, (716)-832-9100 or the Syracuse Peace Council, (315)-472-5478.

## Literature available

The literature listed below is available at the price indicated. For large orders contact our office for bulk rates. When mailing, please include \$.28 postage for each item costing \$1 or more. For all materials priced at \$.10, \$.15 postage will suffice. Adjust the amount of postage you send according to the size of your order. If you desire publications, but have no funds, let us know. Arrangements can be made.

*Sierra Club White Paper No. 1: Did the DOE Study Do What It Was Supposed To Do?* An 18-page review of the \$1 million DOE study on West Valley. The paper details the failure of DOE to address Congressional concerns about the site. Send envelope with 28-cent stamp. \$1.00.

*Sierra Club White Paper No. 2: Is Radioactive Waste Clean-Up Technology Available?* A detailed analysis of the status of technology for cleaning up the West Valley radioactive waste dump. Many of the findings are applicable to radioactive waste problems in other states. \$1.00.

*White Paper No. 3: Health Hazards at West Valley.* A must for NY State activists. Give it to your State Legislators and Congressmen. Important information on the health hazards of the high level liquid waste and solid waste burial grounds at West Valley. Will be useful for waste activists all over the country. \$1.00.

*Salt Will Not Work.* The first of several fact sheets providing a brief review of why an increasing number of scientists and informed citizens are concerned about the current DOE promotion of salt as

the favored geologic medium for a permanent federal repository. Includes data from the latest unpublished National Academy of Sciences report. \$.10

*Guidelines for Working with the Religious Community.* Discusses the approach used by the Sierra Club campaign to mobilize the religious community on the issue of radioactive waste. Lists recommended steps for groups planning to work with the church community. \$.10.

*What is Radioactive Waste?* Sierra Club Campaign Brochure. A clear, readable, general introduction for laymen to the problem of radioactive waste in New York State. Excellent for distribution at meetings, conferences, debates. Describes the purposes of the campaign and what citizens can do. \$.10.

*Worker Exposure at West Valley, On the Job at NFS.* Reviews design defects and operator errors at the NFS reprocessing plant. Shows that workers were routinely exposed to high radiation levels. Includes valuable graphs. Invaluable tool for organizing labor and health workers. \$.10.

*Nuclear Transport: Is Your Community Ready?* Just how hazardous is spent fuel? What are the new NRC guidelines for transporting spent fuel? What is the risk to your community? Plus a look at the accident rate. \$.10.

*Radioactive Waste Slide Show.* Finally, the Sierra Club Slide Show on Radioactive Waste is available. Includes review of the nuclear fuel cycle, problems of low level radiation, hazards of transportation, in-depth portrait of West Valley. Excellent for community groups, debates, teach-ins. Available with cassette or keyed, written script. Cost: \$55.00 (sale), easy terms arranged, call us. Rental: \$12.00, including postage.

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