

Waste Not

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"INCINERATOR ASH CAN BE HAZARDOUS TO YOUR HEALTH, particularly if you work in a trash-to-energy plant, according to a three year study by a prominent Central New York toxicologist. Too much garbage is insufficiently burned, leading to a larger concentration of carcinogens and a greater likelihood that toxic heavy metals can be released into the environment, said Donald J. Lisk, director of Cornell University's Toxic Chemical Laboratory. Lisk is still publishing many of his findings, but he said the study, one of (the) most comprehensive examinations of ash ever undertaken, reveals:

- * **More than one-fifth of the workers tested in seven plants in the United States had unusually high levels of mutagens in their urine, indicating a greater risk of cancer.**
- * **Guinea pigs inhaling fly ash developed lesions and showed increased concentrations of heavy metals.**
- * **Goldfish swimming in ash leachate and mice fed plants grown on a soil-ash mixture also exhibited a high heavy metal content in their tissue.**

Eighteen of the 73 incinerator plants operating in the United States in 1986 each supplied Lisk and other scientists with 15 kilograms of ash. Of these, seven plants - including two in New York state, but not the Oswego County plant in Fulton- responded to the urine survey. Lisk won't release the names of the plants for fear of jeopardizing cooperation in future studies. Workers in Onondaga County's (NY) proposed incinerators would be protected by federal Occupational Safety and Health Administration regulations, said Donald Lawliss, head of the county's solid waste management program. But 20 of the 100 workers in Lisk's survey did not appear to benefit from such protection. Lisk reports they had three to 10 times more mutagens in their urine than a sample of workers from a water-treatment plant. It's unclear if the workers are in danger, Lisk said. A urine test reflects only one day's exposure to carcinogens, so it is difficult to gauge long-term health effects, he said. Blood tests are more accurate, and more expensive. Opponents of incinerators have long described incinerator ash as toxic, but Lisk is no opponent of burning. Indeed, he hopes that more, and larger, incinerators will be built. 'I can't see how you would solve the solid-waste crisis without it,' he said. 'I'm all for incineration. It has just got to be done right.' Thoroughly burned ash can be made into concrete in order to build roads, ceramic in order to make ashtrays, and into glass useful for decorative purposes, said Lisk. But only a third of the 18 plants tested produced such ash, Lisk said. In some samples, as much as three-quarters of the organic matter remained intact, said Lisk, including newspaper pages that could still be read. All of the plants were in operation before 1986, when the study commenced, and some were decades old. But operation, more than age, seemed the major reason that the plants didn't burn well. Operators of plants, both old and new, wanted to avoid smelly trash piling up outside their doors, and apparently 'rammed more trash into the plant' than they could burn. 'It all comes back to the human element,' said Lisk. 'You could put in all the safeguards in the world, but if the guy falls asleep at the switch, what good are they?' Mass-burn plants usually don't burn well, agreed Richard McClimans, a senior research associate in solid waste at the SUNY College of Environmental Science and Forestry, who also experiments with ash. McClimans blamed non-separation of incoming trash for the poor burn." Dr. Joseph Visalli, program manager for municipal waste at the New York State Energy Research and Development Authority and McClimans "agreed with Lisk's conclusion that improper burning leads to a larger concentration of carcinogen compounds, such as dioxins and benzenes. The remaining organics result in more acidic leachate, with a greater likelihood of toxics leaching into the groundwater below, Lisk said..." The Syracuse Post-Standard, NY, August 7, 1989, front page.

1984 FRENCH STUDY REVEALS RESIDENTS CLOSEST TO MUNICIPAL SOLID WASTE INCINERATORS (MSW) PURCHASED MORE PRESCRIPTION MEDICATION FOR RESPIRATORY PROBLEMS. Waste Not telephoned Dr. Lisk and in our conversation Dr. Lisk mentioned the results of a little-known study

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published in a French journal in 1984. Dr. Lisk cited the French study in a paper published in 1988:

"Zmirou et al. (1984) reported a retrospective epidemiologic study of the consumption of medicines for respiratory problems over a 2-year period among residents in a French village at distances of 0.2, 1 and 2 km from a MSW incinerator. The consumption of medicines was determined by examining prescription (social security) forms filed by the residents after each purchase. The preponderance of respiratory medicines (bronchodilators, expectorants, antitussants, etc.) purchased decreased significantly as the distance of the residences from the incinerator increased." Lisk, D., 1988, "Environmental Implications of Incineration of Municipal Solid Waste and Ash Disposal," The Science of the Total Environment, 74, page 57.

The reference to the French study: Zmirou, D., B.Parent and J-L. Potelon, 1984. Etude epidemiologique des effets sur la sante des rejets atmospheriques d'une usine d'incineration de dechets industriels et menagers. Rev. Epidemiol. Sante Publique, 32: 391-397.

EDITORIAL: IT'S TIME TO COLLECT THE DATA

Undoubtedly, the industry's response to the French study cited above is that it is an old report, published in 1984, and since then the technology has improved. **Waste Not's** response is that in 1984 communities in the U.S.A. were being sold trash incinerators on the basis of the fact they had run in Europe without causing any health or environmental problems. Clearly, this was not the case. This report underlies the danger of relying on a **lack** of scientific information to argue the safety of the technology. A lack of scientific information may simply mean that the correct studies were not done or were too difficult to do. Closer to home, it also argues that regulatory officials and promoters of incinerators should be less cavalier in their dismissal of citizens complaints about respiratory problems as being "anecdotal" and not "scientific." In the absence of elegant studies, such as the French report, from our regulatory agencies, we should accept residents statements about health effects until they are proved inaccurate. Not the other way around. There have been many reports from residents living near trash incinerators in the U.S. complaining of increases in respiratory ailments since the plants went on line. These include:

Windham, CT	125 tpd mass-burn	Consumat	on line, 1981
Saugus, MA	1,200 tpd mass-burn	Wheelabrator	" 1978
Biddeford, ME	600 tpd RDF	K.T.I.	" 1988
Cuba, NY	120 tpd mass-burn	R.W. Taylor Steel Co.	" 1983
Oswego, NY	200 tpd mass-burn	Consumat	" 1986

Is it too much to hope that the state agencies that were set up to protect the health of their residents could investigate this matter in a serious scientific fashion? Moreover, in the light of the recent report that two incinerators in Holland have been closed down (see **Waste Not #61**) because of high dioxin levels in locally produced milk and meat, shouldn't our Departments of Agriculture be investigating the impact of currently operating incinerators on agriculture? Or put another way, if state agencies are not going to examine the data shouldn't they stop the experiment?

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