

Rachel's Environment & Health News

#479 - Nationwide Dioxin Campaign

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New evidence of dioxin's ability to cause cancer in humans has come to light[1] just as environmental justice activists across the U.S. are planning a major campaign to attack dioxin at its sources. The campaign is holding a 3-day strategy session in Baton Rouge, Louisiana, March 15- 17. (All citizen activists are welcome; to register, phone Jim Warren in North Carolina: (919) 774-9566; THE LAST DAY TO REGISTER IS MARCH 5.) The dioxin campaign puts the grass-roots environmental community squarely "in the face" of the biggest polluters in the nation, and it creates a "line in the sand"--a challenge to the old conservative wing of the environmental community, which to some extent has made its peace with the dioxin polluters.[2]

"We know that we are up against huge corporate power, but tackling the misuse of corporate power is what the 21st century is going to be about," says Ellen Connett, one of the leaders of the new grass-roots campaign, and editor of the indispensable weekly, WASTE NOT [phone: (315) 379-9200].

The well-know grass-roots leader, Lois Gibbs of the Citizens Clearinghouse for Hazardous Waste [phone (703) 237-2249], has just published an excellent book on dioxin[3] --the best we've ever seen on the subject --which describes the dioxin problem in the first half, and then lays out various campaign techniques that citizens could use to end the poisoning. Gibbs's book is technically sound, yet easily understandable by non-experts. It describes dioxin, where it comes from, and how it poisons people and wildlife. It tells the whole complicated dioxin story, yet is very readable. Furthermore, it is the best "organizing manual" for citizens we have ever seen. Gibbs's book seems likely to become the "bible" for dioxin campaigners.

Gibbs sees the dioxin problem as a failure of self-government, a failure of people to control corporations: "We can't shut down the sources of dioxin without finding the courage to change the way government works," she says. "We have to explore how people became powerless as the corporations became powerful. We have to figure out how to speak honestly and act collectively to rebuild our democracy."

The rebuilding of democracy is what separates the grass-roots environmental movement from the old conservative "enviros." The old-style enviros don't see democracy as an important issue--perhaps because to do so implies a direct challenge to corporate influence over our media, our elections, our courts, our schools, and our legislatures. For example, the Environmental Defense Fund (EDF) has refused to endorse campaign finance reform to get the corrupting influence of private money out of our elections. The grass-roots movement, on the other hand, believes democracy is THE fundamental environmental issue. "Without democracy there can be no justice, and without justice there is no way to protect human health or the environment," says Connie Tucker, of the Southern Organizing Committee in Atlanta [(404) 755-2855], another important participant among many in the Baton Rouge conference.

New Evidence of Dioxin's Toxicity to Humans

A new study published in December found a dose-dependent increase in risk of cancer and heart disease among a group of 1189 workers at a pesticide manufacturing plant in Hamburg, Germany who were exposed to dioxins during the period 1952 to 1984.[1] The study group included every worker employed for three months or longer at the plant from 1952 until it shut down in 1984. The workers were followed through the end of 1992.

Exposure to dioxins was evaluated to see if dioxins were related to particular causes of death. Deaths among the pesticide workers were compared to deaths among a control group consisting of 2528 non-dioxin-exposed workers at a gas supply company located in the same region of Germany.

The pesticide workers had produced phenoxy herbicides [examples: 2,4-D, 2,4,5-T, and silvex], chlorophenols, and other herbicides and insecticides known to be contaminated with dioxins and furans. [Dioxins and furans are a family of 210 unwanted byproducts (75 dioxins, and 135 furans) from certain chemical reactions in the production of phenoxy herbicides. Dioxins may be produced by other chemical reactions as well, including metal smelting, and the incineration of solid and medical wastes. TCDD, or 2,3,7,8-tetrachlorodibenzo-P-dioxin, is the most toxic of the dioxin family.]

The study found, among dioxin-exposed workers, an increase in all deaths, an increase in cancer deaths, and an increase in deaths due to ischemic heart disease, compared to same-aged individuals in the control group. [Ischemic heart disease refers to a narrowing of the arteries with consequent reduction of blood flow. If blood flow to the heart muscle is reduced, a heart attack can result.] The disease-related deaths increased with the dose of dioxin to which the workers were exposed: greater dioxin exposure was related to higher death rates.

The study found that pesticide workers with the highest dioxin exposures faced more than three times the risk of dying from cancer, and 2.5 times the risk of dying from ischemic heart disease, compared to workers of similar ages from a nearby gas plant.

The study examined the mortality [death] experience of workers during the 40-year period from 1952 to 1992.

The study grouped the 1189 workers according to their degree of dioxin exposure. Dioxin exposure was calculated by measuring dioxin in the blood of 190 workers, or 16% of the exposed group. As the authors themselves say, "The major strength of the present study is the availability of a quantitative measure of exposure, which allows a direct estimate of dose-response relations."

The study evaluated several factors that could have biased the results. For example, they ruled out possible bias due to smoking because the group of pesticide workers and the control group both contained about the same proportion of smokers.

They evaluated and discussed possible effects due to exposures to chemicals besides dioxins. They could not rule out possible bias from exposure of the pesticide workers to cancer-causing chemicals besides dioxins.

The authors conclude that the results of this study "support the hypothesis of a dose-related effect of PCDD/F [dioxins and furans] on cancer and ischemic heart disease mortality."

The finding of elevated cancer deaths among dioxin-exposed workers is not a new finding. Three previous studies[4,5,6] have reported cancer increases among dioxin-exposed workers.

However, this new study is particularly interesting because it is based on actual measurements of dioxin levels in the blood of a sample of workers. Previous studies have estimated dioxin exposures instead of measuring them. The measurement of dioxin exposures allowed this study to look for a dose-response relationship, and such a relationship was found. Most people are familiar with the concept of dose-response; think of the effects from drinking one, two, or three glasses of wine. In general, greater dose leads to greater response. Finding greater numbers of cancers associated with larger doses of dioxin provides strong evidence of a cause-and-effect relationship between dioxin exposure and cancer in humans.

The finding of increased heart disease among dioxin-exposed workers is somewhat more surprising. Previous studies of this effect have been inconclusive; some studies of dioxin-exposed populations have reported increased heart disease, and other studies have reported no such increases. However, these previous studies

have not been able to establish a dose-response relationship, as the present study has done.

In the present study, the dose-response relationship was clear. Because dioxin exposures were measured, and not merely estimated, in this study, these results should be given more weight than previous studies.

In studies of people exposed to dioxin after a chemical accident at a Hoffman-LaRoche pesticide factory in Seveso, Italy in 1976, it was noted that excessive numbers of people died of heart attacks. The authors of the Seveso study attributed these deaths to "stress from the accident." Now there is reason to ask whether these Seveso deaths were possibly caused, not by stress, but by exposure to dioxins released during the accident.

In sum, this is an important study that makes a unique contribution to our understanding of the relationship of dioxins to human health.

The strategy conference in Baton Rouge will focus on 9 distinct targets and strategies for getting dioxin out of the environment: (1) the paper and pulp industry; (2) getting organochlorines out of manufacturing and cleaning; (3) stopping all forms of incineration; (4) phasing out all uses of PVC (polyvinyl chloride); (5) creating scientific SWAT teams to help communities; (6) linking dioxin to health; (7) getting dioxin out of our food; (8) developing tools to help poisoned communities; and (9) communicating dioxin issues to the public and the media.

See you in Baton Rouge March 15.

--Peter Montague

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[1] Dieter Flesch-Janys and others, "Exposure to Polychlorinated Dioxins and Furans (PCDD/F) and Mortality in a Cohort of Workers from a Herbicide-producing Plant in Hamburg, Federal Republic of Germany." AMERICAN JOURNAL OF EPIDEMIOLOGY Vol. 142, No. 11 (December 1, 1995), pgs. 1165-1175.

[2] See, for example, the recent report by the Environmental Defense Fund (EDF) and its corporate partners, Johnson & Johnson, McDonald's, the Prudential Insurance Company, and Time, Inc.: PAPER TASK FORCE RECOMMENDATIONS FOR PURCHASING AND USING ENVIRONMENTALLY PREFERABLE PAPER, available for \$25.00 from EDF; telephone (212) 505-2100.

[3] Lois Gibbs, DYING FROM DIOXIN (Boston: South End Press, 1995); \$20.00 from South End Press: (617) 266-0629. Those wanting even more technical detail about the consequences of dioxin production will need to get Arnold Schechter, editor, DIOXINS AND HEALTH (New York: Plenum Press, 1994).

[4] Marilyn Fingerhut, W.E. Halperin, D.A. Marlow, and others. "Cancer Mortality in Workers Exposed to 2,3,7,8-tetrachlorodibenzo-P-dioxin." NEW ENGLAND JOURNAL OF MEDICINE Vol. 199 (1991), pgs. 212-218.

[5] A. Zober and others. "Thirty-Four year mortality follow-up of BASF employees exposed to 2,3,7,8-tetrachlorodibenzo-P-dioxin after the 1953 accident." INTERNATIONAL ARCHIVES OF OCCUPATIONAL AND ENVIRONMENTAL HEALTH Vol. 62 (1990), pgs. 139-157.

[6] A. Manz, J. Berger, J.H. Dwyer, and others. "Cancer mortality among workers in a chemical plant contaminated with dioxin." THE LANCET Vol. 338 (1991), pgs. 959-964.

Descriptor terms: dioxin; conferences; campaigns; strategies; corporations; lois gibbs; jim warren; nc warn; edf; soc; connie tucker; germany; occupational safety and health; cancer; heart disease; chlorophenols; pesticides; 2,4,5-t; 2,4-d; silvex; pcdfs; seveso, italy; italy; hoffman-laroche; baton rouge, la; la;