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RACHEL'S HAZARDOUS WASTE NEWS #312

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News and resources for environmental justice.

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NEW EPA MEMO SAYS ALL HAZARDOUS WASTE INCINERATORS FAIL TO MEET REGULATIONS

An internal memo sent to all 10 regional offices of EPA [U.S. Environmental Protection Agency] by Sylvia Lowrance, EPA Director of Solid Waste, confirms that hazardous waste incinerators cannot meet EPA requirements for near-total destruction of hazardous wastes. (See [RHWN #280](#).)

EPA's incinerator regulations require 99.99 percent destruction of all hazardous wastes and 99.9999 percent destruction of especially-hazardous wastes such as PCBs and dioxins. The Lowrance memo dated Sept. 22, 1992, and interviews with Sonya Sasseville of Ms. Lowrance's staff, confirm that the agency possessed scientific information as early as 1984 showing that hazardous waste incinerators cannot destroy some of the most dangerous wastes as completely as the regulations require.

EPA possessed this information but chose to ignore it when hazardous waste incinerator regulations were established for dioxin in 1985.

These new revelations cast doubt on the safety of all hazardous waste incinerators, and could conceivably lead to charges of criminal wrongdoing by some EPA officials. The agency has been touting incineration as "safe" for more than a decade. When asked, agency officials define "safe" as "in compliance with all regulations." In sum, the agency established regulations in 1985 knowing no incinerator could comply, and now the agency's own logic forces the conclusion that no hazardous waste incinerator can be operated safely. It would appear to expose the agency to liability claims by anyone believing they have been harmed by incinerator emissions.

EPA's acknowledgement of its malfeasance surfaced during an incinerator battle in Jacksonville, Arkansas. For the past decade Arkansas Governor Bill Clinton and the citizens of Jacksonville, have been battling each other over the Governor's plan to burn dioxin-contaminated chemical warfare agents

in a residential neighborhood of Jacksonville. (See [RHWN #311](#).) EPA officials in Region 6 (Dallas, Texas) supported the Governor's plan.

The Jacksonville wastes contain an estimated 75 pounds (34 kilograms) of pure dioxin, a poison that kills laboratory animals such as guinea pigs exposed to only a few micrograms, making it one of the most powerful poisons ever found. From 1988 onward, federal and state environmental officials in Jacksonville said publicly on numerous occasions that an incinerator could destroy dioxin with 99.9999 percent efficiency, thus eliminating all health threats to the surrounding community. The Lowrance memo makes it clear that Region 6 EPA officials were either lying or were kept ignorant by officials at EPA headquarters in Washington who knew the truth.

EPA's regulatory failure was discovered when an independent researcher, chemist Pat Costner of Greenpeace, analyzed government data from the Jacksonville incinerator as it was being tested before startup. In early 1992, Costner analyzed government data collected during an October, 1991, trial burn in Jacksonville. Her analysis revealed that instead of 99.9999 percent ("six nines") destruction, the Jacksonville incinerator had achieved only 99.96 percent destruction of dioxin. Federal and state officials confirmed her analysis. At that rate the Jacksonville incinerator would release 400 times as much dioxin as the regulations say it should.

How the Regulations Work

EPA's hazardous waste regulations require the owner/operator of a new incinerator to select several POHCs (principal organic hazardous constituents)--chemicals to be destroyed. The selected POHCs must be harder to burn than dioxin. The POHCs are "surrogates" for dioxin--they "stand for" dioxin or "represent" dioxin during the test. During a "trial burn," the POHC surrogates are fed into the incinerator in nearly pure form under ideal laboratory conditions, and the incinerator's ability to destroy them is measured. If a destruction/removal efficiency (DRE) of 99.9999 percent is achieved with the POHCs, then EPA allows the owner/operator to assume that 99.9999 percent of dioxin will also have been destroyed. It is this assumption that EPA has known since 1984 is false.

The trial burn procedure was followed precisely in the Jacksonville case, with one exception. The owner/operator inadvertently burned some actual dioxin along with the POHCs during the trial burn and dutifully reported the DRE for the POHCs, but did not analyze the data to establish a DRE for dioxin. Costner did the calculation for dioxin and revealed that dioxin was not destroyed with an efficiency anywhere near six nines.

Since Region 6 officials had been promising for several years that the Jacksonville incinerator would destroy dioxin with six nines efficiency, Costner's analysis made them look like fools or liars or both. Region 6 called headquarters for guidance and on September 22, Sylvia Lowrance sent out a memo telling regional EPA offices how to handle this embarrassing situation.

The Lowrance memo says, in part, "The low dioxin DRE in this recent [Jacksonville] case was

consistent with our current body of incinerator performance data, which show a very clear trend of decreasing DRE for hazardous constituents with decreasing incoming concentration of the constituents in the waste feed. (That is, the lower the constituent concentration in the waste, the lower the DRE.) The data show that a properly operating incinerator, which reached 99.99% DRE (four nines) on higher concentrations of POHCs, will often achieve less than four nines when the concentration of a POHC (principal organic hazardous constituent) in the waste is less than 1000 ppm [parts per million]. At this time we have not established a definitive scientific explanation for this phenomenon," the memo says.

The Lowrance memo goes on to point out that, in establishing regulations for incineration of dioxin-contaminated wastes, in 1985, EPA relied on risk assessments in which the agency assumed that 99.9999 percent destruction was routinely achieved. "For this reason, the risk assessment calculations performed in the course of the rulemaking may not be representative in some cases," the Lowrance memo says. In sum, the entire superstructure of regulations created for dioxin incineration in 1985 was based on assumptions that the agency knew at the time were false. Indeed, in an internal EPA memo dated October 24, 1985, Robert A. Olexsey, who was at the time an employee of EPA's Hazardous Waste Environmental Research Laboratory, wrote "We have a problem with the 'surrogate POHC' approach for the determination of the dioxin destruction efficiency. In our incinerator and boiler field tests, we found a consistent relationship.... In essence, across the entire test program, POHC DRE increased with increasing POHC concentration in the feed. If this relationship holds for dioxin (we see no reason why it would not), reporting the DRE for the dioxin material as being identical to that of the higher concentration surrogate will result in overstating the DRE for the dioxin waste." Olexsey went on to recommend that dioxin itself be measured during incinerator tests, to check the efficiency of destruction, rather than testing a POHC and assuming that it revealed something about dioxin. Olexsey's advice was not followed.

During 1984-1985, John C. Kramlich of the Energy and Environmental Research Corporation (Irvine, Cal.) completed a contract study for EPA, analyzing the failure of hazardous waste incinerators to destroy wastes. EPA did not publish the Kramlich study until 1989. Kramlich wrote, "[Our] results indicate that current technology has difficulty meeting the licensing regulations when the waste represents less than 1000 ppm [parts per million] of the feed stream. This finding has significance with respect to waste streams contaminated by low concentrations of extremely hazardous materials (e.g. dioxin or chlorophenol contaminated pesticides)." [\[1\]](#)

EPA's data reveal that all incinerators fail in the same way, but the public health hazard seems especially great at sites burning wood-preservative wastes, pesticides, PCBs, pulp and paper mill sludges, or dioxins. All contaminated-soil incinerators, all Superfund cleanup incinerators, and all of the Army's proposed chemical weapons incinerators are also cast into doubt by EPA's recent admissions. Furthermore, all of the agency's risk assessments and rulemakings regarding hazardous waste incinerators are now known to have been based on false assumptions. In short, the entire regulatory structure intended to guarantee the protection of public health and safety from hazardous waste incinerators has now been thrown into grave question.

--Peter Montague, Ph.D.

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[1] John C. Kramlich and others, EXPERIMENTAL INVESTIGATION OF CRITICAL FUNDAMENTAL ISSUES IN HAZARDOUS WASTE INCINERATION (Springfield, VA: National Technical Information Service [NTIS], September, 1989.) This is EPA document No. EPA/600/2-[89/048] available from NTIS for \$26.00; phone (800) 553-6847 and request NTIS document No. PB90-108507. See pgs. 5-1, 5-2.

Descriptor terms: hazardous waste incineration; epa; waste disposal technologies; waste treatment technologies; dre; regulations; jacksonville; ar; studies; sylvia lowrance; dioxin; health;

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