

## Rachel's Environment & Health News

### #237 - Study Of Hazardous Waste Incinerators Reveals 'Widespread Deficiencies' -- EPA

June 11, 1991

In 1990, 700,000 U.S. companies created 380 million tons of legally-hazardous waste. Of this, 285 million tons (75 percent) was land-disposed, 28.6 million tons (7.5 percent) was incinerated, 13 percent was treated physically or chemically to detoxify it, and 7.2 percent was recycled.[1] Of these technologies, recycling is limited because there just aren't many wastes that are suitable as a raw material for some other industrial process; the future of land disposal is limited because both EPA and--more importantly--the general public recognize that land disposal pollutes land and its associated waters; physical-chemical processing requires innovative thought and can be expensive. This leaves incineration as the growth industry and, in fact, incineration is expected to increase at an astonishing 17.8% yearly throughout the '90s.[2]

The growth of incineration is definitely something to be concerned about. From the toxic emissions revealed last week (RHWN #236) for a typical 35,000-ton-per-year incinerator, we can calculate that, nationally, incinerators are today putting 835 million pounds of raw, unburned hazardous wastes directly into the environment (75.9 million pounds from the stack, 75.9 million pounds from spills and leaks, and 683 million pounds discarded with the scrubber water). Many of these wastes are going into the air where people can breathe them directly. Eventually they all become available to enter food chains.

Metals emitted today from existing incinerators total 2.2 billion pounds each year from the stack, 1.85 billion pounds discarded with scrubber water, and another 7.3 billion pounds discarded with the ash. One year's worth of ash weighs 68.3 billion pounds.

Total products of incomplete combustion (PICS) being emitted from stacks today equal 7.5 billion pounds. PICs are new chemicals created inside the incinerator; many of them are more toxic, more long-lived, and more likely to enter food chains than are the raw wastes from which the PICs are derived.

Last week we gave a "best estimate" of the quantities of unburned wastes--7000 pounds of raw hazardous waste emitted each year from the stack of a typical 35,000-ton-per-year incinerator. This estimate assumes that the incinerator operates perfectly every minute of every day for 20 years. What is the actual record of performance of hazardous waste incinerators?

A joint task force of the federal Occupational Safety and Health Administration (OSHA) and U.S. Environmental Protection Agency (EPA) conducted 62 unannounced inspections at 29 hazardous waste incinerators during 1990. Sixty-nine percent of the inspections resulted in citations for violations. The task force report, issued May 23, 1991, describes 320 OSHA violations (214 of which were "serious," meaning "violations for which there is a substantial probability that death or serious physical injury [to a worker] could result from the existing condition") and 75 violations of EPA regulations. In addition to the 75 violations, EPA inspectors noted "a significant number of emergency waste feed cut-offs and emergency by-pass openings." What are these?

A hazardous waste incinerator is set up to burn wastes continuously. Wastes enter the combustion chamber through a pipe or a conveyor. One batch of waste enters the chamber; right behind it comes another batch of different wastes; behind that is a third batch, and so forth. As each new batch of waste enters the combustion chamber, the machine has to be adjusted manually (or by a computer) to do the best job possible of destroying the waste. If conditions in the combustion chamber are not adjusted properly for the waste that is entering (or is about to enter), the operator (or a computer) is supposed to cut off the waste feed (stop the incoming flow). When the flow in the pipe stops,

this is evidence that something is out of adjustment. The machine is not being operated as well as it could be.

Sixty-six percent (19 of the 29 incinerators) experienced waste-feed

cutoffs during a 30-day period monitored by EPA during 1990. One large incinerator (with four burning units) experienced 13,325 waste feed cutoffs--more than 13,000 instances in which the machine was badly out of adjustment in one 30-day period. Other incinerators experienced 1800 cutoffs, 1386 cutoffs, 943 cutoffs, 900 cutoffs, and so forth.

EPA says it does not know what the effects of waste-feed cutoffs might be on emissions from the incinerator. "...[T]o better understand the actual circumstances and impact of activating waste-feed cutoffs, the Agency [EPA] will incorporate this issue into its continuing research program for hazardous waste combustion," the task force report says. Meanwhile, we must conclude, the operators of the vast majority of hazardous waste incinerators checked by EPA are conducting their own research on this matter, using local people as guinea pigs.

The second item that EPA discovered in its surprise inspections was excessive need for the "bypass" or "dump stack" as it is known in the trade. The "dump stack" is a emergency smoke stack that bypasses the air pollution control equipment. It is "intended to prevent... possible explosions from excessive pressure in the combustion unit." EPA says further that "it is also intended to protect the air pollution control equipment when the exit gas temperature is too high." Using the dump stack is strong evidence that pressures or temperatures (or both) inside the combustion chamber have gotten dangerously high. Compared to excessive use of the waste-feed cut-off, "The use of emergency bypasses is of more serious concern to EPA because it results in direct venting to the air of emissions that normally are subject to air pollution control devices," the task force says.

How often was the "dump stack" opened at the 29 incinerators EPA inspected? Nine of the 29 incinerators (31%) used their dump stacks during a 6-month period in 1990. The worst offender (the big 4-unit incinerator) opened its dump stack 867 times in six months; next worst opened it 91 times, next worst opened it 47 times, and on down the list. Emissions from dump stacks are not included in any of the estimates we presented last week--so for 30% of all incinerators, we can safely assume, the emission estimates we gave last week are too low. Thus our cumulative total emissions, given above, are also too low.

Since it is clear that hazardous waste incineration emits large quantities of toxins directly into the environment, why is it such an attractive technology to industry (and to its partners-in-progress at EPA)? Three reasons: (a) you can legally send anything and everything to an incinerator, whether it can be burned or not, which relieves waste producers of the need for thought; (b) incineration is generally affordable; and (c) once you send your waste to an incinerator, you're not only rid of the waste, you're rid of the liability as well: the only thing that can be traced is the incinerator ash and the incinerator company owns that--not the customers of the incinerator company. This is probably the most attractive feature of incineration-- it breaks the chain of liability for the polluter.

What's the answer? Don't let industry site any more incinerators. California hasn't been able to site a new incinerator for 5 years, so state officials got 12 major industries to sign a pact agreeing to reduce their wastes 50% within 2 years. Stopping up the toilet really does work.[4] Citizen pressure is the key.

--Peter Montague

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[1] "US hazwaste market to double by 1995?" HAZNEWS No. 37 (April, 1991), pgs. 12-13, quoting a new report entitled A COMPETITIVE ANALYSIS OF HAZARDOUS WASTE MANAGEMENT (Cleveland Heights, Oh: Leading Edge Reports [12417 Cedar Rd., Suite 29, Cleveland Heights, Oh 44106; phone

(216) 791-5500], 1991. The new report is priced at \$1950.00.."

[2] HAZNEWS, cited above.

[3] Gerard F. Scannell [of OSHA] and Don R. Clay [of EPA], TASK FORCE REPORT ON COMPLIANCE WITH ON-SITE HEALTH AND SAFETY REQUIREMENTS AT HAZARDOUS WASTE INCINERATORS (Washington, DC: OSHA and EPA, 1991). 31 pages. To get a copy, contact Don R. Clay, EPA, Office of Solid Waste and Emergency Response, Washington, DC 20460; phone (202) 382-4610. If you can't get this report from EPA, for \$12 (copying and postage) we can mail you a copy.

[4] Pat Costner and Joe Thornton, PLAYING WITH FIRE; HAZARDOUS WASTE INCINERATION (Washington, DC: Greenpeace, 1991), pg. 7. Available to activists for \$10 and to industry for \$100 from Greenpeace, 1436 U St., NW, Washington, DC 20009.

Descriptor terms: incineration; hazardous materials; recycling; waste disposal technologies; water pollution; scrubbers; end-of-pipe treatments; osha; violations; monitoring; emissions;