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#282 - Radioactive Waste Problems Get Worse
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Hazardous waste incineration got another black eye during a recent Congressional hearing. It seems that for a decade—perhaps longer—hazardous waste incinerators have been illegally burning radioactive wastes shipped to them illegally by the federal Department of Energy (DOE), the agency responsible for managing the nation's atomic bomb factories.

It wasn't even the government that initially discovered this embarrassment. Journalist Peter Shinkle began a series of articles May 6, 1991, in the BATON ROUGE [LOUISIANA] TIMES about DOE's illegal operation of incinerators, which were found to be illegally burning radioactive wastes. Shinkle's articles led first to a DOE investigation and later, on February 20, 1992, to a public hearing held by California Congressman George Miller and the House Committee on Interior and Insular Affairs.

Leo P. Duffy, a DOE assistant secretary, testified February 20 that between 1984 and 1991 some 113,000 cubic yards of radioactive wastes (about 200 boxcar-loads weighing 7000 tons) were shipped illegally to eleven chemical waste disposal facilities (incinerators and dumps): Aptus in Coffeetowne, Kansas (1.6 million lb.); Chem Waste in Emelle, Alabama (4.2 million pounds); Chem Waste in Chicago (1.1 million lb.); Chem Waste in Sulphur, Louisiana (19,400 lb.); CECOS in Cincinnati, Ohio (133,000 lb.); ENSCO in El Dorado, Arkansas (3.6 million pounds); GSX (now Laidlaw) in Reidsville, North Carolina (18,766 lb.); LWD in Calvert City, Kentucky (86,440 lb.); Rollins in Baton Rouge, Louisiana (2.4 million lb.); Rollins in Deer Park, Texas (896,511 lb.); and SD Myers in Talmadge, Ohio (18,143 lb.). Duffy testified that 25 DOE sites had shipped illegal radioactive wastes and another 11 highly-suspect DOE sites remain to be checked. DOE hasn't had time to check the records from these additional sites because they have only known about the problem for nine months, he said. Duffy said, in all, perhaps 150 incinerators, landfills, fuel blending operations, recyclers and other waste facilities had accepted wastes from DOE but, so far, DOE has only confirmed that illegal RADIOACTIVE wastes went to 11 or 12 of them. DOE is continuing to investigate itself and its contractors, and Duffy promised to tell all as soon as all is known.

At the hearing February 20, various waste companies sent top officials to testify. George VanderVelde, vice president of science and technology for Chemical Waste Management (Chem Waste) said his company has an extensive in-depth state-of-the-art program for analyzing incoming wastes for radioactivity and, he testified, "We have no indication that we received any undetected radioactive substances from DOE facilities."

The credibility of VanderVelde's testimony was undercut somewhat by subsequent testimony from Illinois Attorney General Roland W. Burris, who presented an in-depth analysis from a Chem Waste employee dated February 6, 1992--two weeks before the hearing--saying that Chem Waste's Chicago incinerator was at that time holding 97 drums of illegal radioactive waste they had received a year earlier from DOE. Testimony indicated that Chem Waste had been unable to burn these particular illegal radioactive wastes because its incinerator had been shut down by an explosion in early 1991.

Martin Marietta Energy Systems--the company that operates the Oak Ridge National Laboratory (Oak Ridge, Tennessee), the Paducah Gaseous Diffusion Plant (Paducah, Kentucky), and the Portsmouth Gaseous Diffusion Plant (Portsmouth, Ohio)—sent its president, Clyde Hopkins, to testify that his employees had been illegally shipping radioactive wastes to waste disposers like Rollins and Chem Waste for years. He said his employees used white-out illegally to delete information from shipping manifests indicating that the wastes were radioactive because they believed "national security considerations" required them to. He said enemies of the United States might glean valuable information about U.S. atomic weapons by studying the wastes his staff had been shipping illegally to Chem Waste and Rollins and the others. He testified that his staff had been shipping uranium-238, uranium-235, technetium-99 mixed in with chemical wastes. Additional information attached to his testimony indicated Martin Marietta had reason to believe iodine-129, neptunium-237, and thorium-232 were also being shipped off-site to various incinerators and landfills. (It is worth noting that the federal air pollution standard for thorium-232 is now five times stricter than the standard for plutonium-239, so tiny amounts of such wastes are dangerous.)

C. Randolph Warner, Jr., chairman of ENSCO, a major waste incinerator company in Arkansas, which burned nearly 4 million pounds of DOE's illegal radioactive wastes during the 1980s, testified there was no problem. All the wastes his company burned were safe, he said, including the illegal radioactive ones.

The total radioactivity shipped illegally by DOE was 1/10th of a Curie, he DOE testified, and they trotted out a risk assessment to show that, on average, probably no one would have been harmed by dumping such small amounts of radioactivity into the environment. This is the old averaging trick, commonly used in risk assessments. Unfortunately, in the real world individuals don't get exposed in an "average" way. Many may not be exposed at all; a few may be exposed a great deal; the average exposure remains low but those few people are in danger. It's like the fellow said: if all the air were removed from this room for 10 minutes, the average amount of air during the year would hardly change at all, but we would all be dead.

The problem of radioactive waste gets worse every time anyone looks. April 9, Ohio's Senator John Glenn (Senate Committee on Governmental Affairs) held a public hearing to announce that a draft study by U.S. Environmental Protection Agency (EPA) has identified a minimum of 45,361 potentially radioactively contaminated sites across the U.S. Every state has some. Colorado tops the list with 7,060 sites; Vermont has only 36. This includes every place EPA could figure out where radioactivity has ever been present. Not all these sites are contaminated in a serious way but most are and will require cleanup. Just the DOE's 108 facilities--many of which are large, complex, and badly contaminated--are presently estimated to cost $160 billion to clean up over the next 30 years. This estimate is almost certainly low.

In addition to the 45,361 potentially contaminated sites--some 15 or 20 thousand of which may actually require cleanup--there are another 1.5 million oil and gas wells where, it was discovered last year, radioactive radium-226 and radium-228 have been brought to the surface along with oil and gas. The insides of oil extraction pipes are coated with a "scale" containing radium up to 100,000 times higher than natural background levels. In addition, much radioactivity from oil and gas wells has been dumped into shallow pits. In some cases, oil companies have donated old oil pipes to schools and municipalities, which have made jungle gyms, swing sets and parking lot barriers out of them. If old oil pipes are recycled, along with their radioactivity, the radioactivity will be incorporated into new metal products.

At Senator Glenn's hearing April 9, Dan Reicher from Natural Resources Defense Council (NRDC) noted that the government has never taken official notice of the radioactivity measurable in ash produced by burning coal. There are some 52,400 coal-burning power plants and industrial units, all of which are producing an ash elevated in radioactivity a few times higher than natural background levels.

EPA Deputy Assistant Administrator Michael Shapiro testified April 9 that 1.1 billion tons of NORM (naturally occurring radioactive material) wastes are produced each year by mineral processing, coal power production, oil and gas exploration and production, geothermal energy production, phosphorus and fertilizer production, and water treatment. Such wastes are entirely
Then there is wood ash, which, it was announced last year, is radioactive as well. During the 1950s and 1960s, the United States tested atomic bombs above-ground in Nevada. The resulting radioactive fallout swept eastward, blowin' on the wind. The radioactive strontium and cesium settled out onto the ground and, as time passed, migrated into the soil. A-bomb enthusiasts assumed, optimistically, that it had gone away.

In 1989, Stewart A. Farber, who manages environmental monitoring for the Yankee Atomic Electric Company in Bolton, Massachusetts, wondered if radioactive strontium and cesium from bomb fallout had been taken up by tree roots.[1] On a whim he took some ash from his home fireplace and tested it in his lab. It was about 100 times more radioactive than any other environmental sample he had ever checked. Now two years later, Farber has checked 47 samples gathered by 16 scientists in 14 states and he says wood ash "is a major source of radioactivity released into the environment." Only wood ash from California (upwind of the Nevada test site) seems free of radioactive fallout.

Industrial wood burning produces an estimated 900,000 tons of ash each year; residential and utility wood burning generate another 543,000 tons. Many companies recycle their wood ash into fertilizer.

Farber says current regulations require wastes from a nuclear power plant to be disposed of as radioactive wastes if they contain one percent as much radioactivity as is found in wood ash from New England.

Radioactivity is widely acknowledged to cause inheritable genetic changes, immune system damage, reproductive damage, developmental disorders, and cancer. It is also widely acknowledged that the only truly safe dose of radiation is zero.

From the viewpoint of radioactive contamination alone, it makes sense to begin phasing out petroleum, uranium, and coal. And for similar reasons, presented earlier (see RHWN #225, #263, #264), it would be smart to phase out chlorine, too.

Phase out or ban petroleum, uranium, chlorine and coal. That simple, far-reaching formula would keep 90% of contemporary environmental problems from getting worse.

--Peter Montague