

Rachel's Environment & Health News

#560 - A New U.S. Waste Strategy Emerges, Part 1

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A new strategy for disposal of hazardous materials is emerging in the U.S. After years of unsuccessful efforts to gain public acceptance of waste disposal in the oceans, in landfills, and in incinerators, frustrated environmental officials at the federal and state levels now advocate spreading hazardous materials onto and into the land, essentially dispersing dangerous toxins into the environment, leaving no fingerprints.

Typical projects include these:

** For several years, New Jersey Department of Environmental Protection (DEP) has been using monies earmarked for "recycling" to run experiments placing toxic incinerator ash in road beds. In June of 1996, the research entered the real world when toxic ash from the Warren County, N.J., municipal trash incinerator was mixed with asphalt and spread onto the streets of Elizabeth, N.J., a major city. The "ash recycling" operation took place in the dead of night, but local activists managed to videotape it.[1] New Jersey DEP officials defended the operation, saying it was completely safe and exempt from all state and federal waste management laws because it was termed "recycling." [2]

** The phosphate fertilizer industry is lobbying U.S. Environmental Protection Agency (EPA) for permission to spread radioactively-contaminated phosphogypsum onto roadbeds, or to use it as a fertilizer. Phosphogypsum is a waste product of phosphate mining, principally in Florida. By the year 2000, some 870 million cubic meters (30.7 billion cubic feet) of radioactive phosphogypsum waste will be piled up, awaiting disposition. Phosphogypsum contains 30 picoCuries of radium per gram. Radium has a half-life of 1600 years. The phosphate fertilizer industry proposes to hide this radioactive material beneath roadways. The amount of phosphogypsum available in the year 2000 would require 1.3 million kilometers (807,000 miles) of highway --about one-fifth of all the roadways under state and federal control in the U.S. Radioactive waste consultant Marvin Resnikoff says such a program would be a "major public health disaster" because it could cause thousands of cancers among unsuspecting citizens.[3]

** U.S. EPA is actively promoting the "beneficial use" of sewage sludge contaminated with industrial toxins. "Beneficial use" includes ploughing contaminated sludge into soil as fertilizer for crops intended for animal feed and for human food. Many such projects are under way across the country, to the dismay of local citizens concerned about the accumulation of toxic materials in the nation's agricultural soils.

In 1990, EPA wrote, "The Agency will continue to enthusiastically promote and encourage the recovery and reuse of sludge wherever its safe environmental use is possible." [4, pgs.47254-47255] To assure the public that almost any sewage sludge poured on crops is "safe," EPA has made exceptionally creative use of risk assessment.

Sewage sludge is the mud-like material that remains after bacteria have digested the human wastes that flow from your toilet into your local sewage treatment plant. If human wastes were the only thing entering the sewage treatment plant, then sewage sludge would contain only nutrients and should undoubtedly be returned to the land.

Unfortunately, most sewage treatment plants receive industrial toxic wastes, which are then mixed with the human wastes, creating a pernicious mixture of nutrients and industrial poisons. Furthermore, many American cities have sewage systems that mix storm water runoff with the regular sewage; every time a rain storm scours these cities' streets, additional toxins are added to the sewage sludge.

U.S. industry currently uses roughly 70,000 different chemicals. Any of these may be found in sewage sludge, depending upon what chemicals local industries and households are using. In 1988, EPA sampled sludge from 180 sewage treatment plants, but they only looked for 409 chemicals, without sampling for the roughly 69,600

others that they might have looked for. The "detection limits" for many organic chemicals were set so high that few were detected even though many were doubtless present.[5] Of the original 409, EPA narrowed the list to only 28, which were labeled "of concern," ignoring the other 381. From that list of 28, EPA then picked 10 metals that they would regulate: arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc.

Sewage sludge regulations --known as the Clean Water Act Part 503 regulations --were published in the FEDERAL REGISTER February 19, 1993. [6] The regulations were based on a "comprehensive" [4, pg.47252] risk assessment of a "highly exposed individual." [4, pg.47249] In other words, EPA asked how much of each of the 10 pollutants a highly-exposed individual would be exposed to in various scenarios. If their risk assessment showed that this individual would not be harmed by a particular level of pollutants, EPA declared that level safe.

There are several serious flaws in such a procedure. First, no risk assessment is ever "comprehensive" (especially not one based on only 10 out of 70,000 possible chemicals) and to label it such is misleading. Tomorrow's science will very likely prove today's science wrong, so no risk assessment is ever "comprehensive." Secondly, EPA assumed that the "highly exposed individual" did not have any other exposures to toxins besides the exposures created by the sewage sludge. Clearly, this is a false assumption because each of us is exposed to tobacco smoke, automobile exhaust, pharmaceutical preparations, pesticides, and a host of other pollutants in our daily air, water, and food.

Third, and most importantly, concern for the "highly exposed individual" omits the major category of dangers inherent in "beneficial use" of sewage sludge: the slow but steady buildup of toxins in soils and in food-chains that begin in the soils (such as earthworms or insects to birds).[7] As Robert Goodland of the World Bank and waste consultant Abby Rockefeller have recently written, "Land application [of sludge] was implemented in Sweden in the early 1980s with disastrous results, which to date the U.S. EPA seems to be ignoring. Such a practice must lead to accumulation in living tissues of heavy metals and persistent organic chemicals: first they accumulate in the soil, then in decomposer microbes and soil-conditioning invertebrates. Other life forms are damaged as thousands of non-biocompatible substances move up the food chain. The toxic effect on crops, as well as on the consumers of such crops, is buying risks for the future." [8] It has been shown, for example, that sewage sludge applied to soils can increase the dioxin intake of humans eating beef (or cow's milk) produced from those soils.[9]

The fundamental problem with sewage sludge is that its four main categories of potential pollutants --nutrients, pathogens, toxic organics, and heavy metals --behave differently and cannot all be managed by any single kind of treatment.[8] The goal of "safe management" of such a complex toxic mixture simply cannot be met at any reasonable cost. Ploughing it into cropland doesn't change that fact.

** In Pennsylvania, state environmental officials are promoting the "beneficial use" of coal ash and incinerator ash as a soil amendment, to rehabilitate coal mines and strip-mined lands.[10] A private firm, Beneficial Ash Management, in Morrisdale, Pa., reportedly supplies the ash, which it gets from "power plants, mid-sized industries, and paper manufacturers." Professor Barry Sheetz of Pennsylvania State University, funded by U.S. EPA, is providing the engineering know-how to harden the toxic ash into a cement-like material, which is then placed in mines and onto strip-mined land. The cement-like material is then covered with "synthetic soil" and left. Professor Sheetz says he hopes this provides a permanent solution to the problem of acid mine drainage. More likely, it promises to provide a cheap, permanent solution for toxic wastes generated by coal-burning power plants and incinerators as far flung as the American Ref-Fuel incinerator in Essex County, N.J.; International

Paper Company's plants in Erie, and Lock Haven, Pa.; and the Tobyhanna (Pa.) Army Depot, saving each of these facilities large sums of money that would otherwise be spent on toxic waste disposal, and absolving them of liability because their wastes will never again be identifiable or traceable.

** In Washington state, the SEATTLE TIMES recently published a series titled "Fear in the Fields," which documented the disposal, nationwide, of industrial wastes on farmers' fields as "fertilizer." The TIMES reported, "Manufacturing industries are disposing of hazardous wastes by turning them into fertilizer to spread around farms. And they're doing it legally...."

The TIMES gave this typical example:

"A dark powder from two Oregon steel mills is poured from rail cars into the top of silos attached to Bay Zinc Co. under a federal permit to store hazardous waste. "The powder, a toxic by-product of the steel making process is taken out of the bottom of the silos as a raw material for fertilizer.

"When it goes into our silo, it's a hazardous waste," said Bay Zinc President Dick Camp. "When it comes out of the silo, it's no longer regulated. The exact same material. Don't ask me why. That's the wisdom of the EPA." [11]

--Peter Montague (National Writers Union, UAW Local 1981/AFL-CIO)

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[1] Sandy Lovell, "Environmentalists fume as incinerator ash pavers strike in the dead of night," NEWARK STAR-LEDGER June 21, 1996, pg. 39.

[2] Maryann Spoto, "Judge delays ruling on paving Elizabeth roads with incinerator ash," NEWARK STAR-LEDGER June 15, 1996, pg. 13.

[3] Garry Lenton, "Runoff from old coal mines pollutes state's streams; 2 PSU [Pennsylvania State University] Professors create remedy to help separate rainwater, shafts," HARRISBURG PATRIOT April 21, 1997, pg. A3. [4] Environmental Protection Agency, "40 CFR Part 503; National Sewage Sludge Survey; Availability of Information and Data, and Anticipated Impacts on Proposed Regulations; Proposed Rule," FEDERAL REGISTER November 9, 1990, pgs. 47210-47283.

[5] R.D. Kuchenrither and S.I. McMillan, "Preview Analysis of National Sludge Survey," BIOCYCLE (July 1990), pgs. 60-62.

[6] The "Part 503" sewage sludge regulations are available on diskette from the National Technical Information Service [NTIS]; telephone 1- 800-553-6847; purchase item No. PB93-500478INC; price: \$60.00.

[7] See, for example, J.G. Babish and others, ORGANIC TOXICANTS AND PATHOGENS IN SEWAGE SLUDGE AND THEIR ENVIRONMENTAL EFFECTS [Special Report No. 42] (Ithaca, N.Y.: Cornell University, 1981). And see Thomas S. Davis and others, "Uptake of Polychlorobiphenyls Present in Trace Amounts from Dried Municipal Sewage Sludge Through an Old Field Ecosystem," BULLETIN OF ENVIRONMENTAL CONTAMINATION AND TOXICOLOGY Vol. 27 (1981), pgs. 689-694.

[8] Robert Goodland and Abby Rockefeller, "What is Environmental Sustainability in Sanitation?" IETC'S INSIGHT [newsletter of the United Nations Environment Programme, International Environmental Technology Centre] Summer, 1996), pgs. 5-8. The

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[9] Simon R. Wild and others, "The Influence of Sewage Sludge Applications to Agricultural Land on Human Exposure to Polychlorinated Dibenzo-P-dioxins (PCDDs) and -Furans (PCDFs)," ENVIRONMENTAL POLLUTION Vol. 83 (1994), pgs. 357-369. And see: Michael S. McLachlan and others, "A Study of the Influence of Sewage Sludge Fertilization on the Concentrations of PCDD/F and PCB in Soil and Milk," ENVIRONMENTAL POLLUTION Vol. 85 (1994), pgs. 337-343.

[10] Personal communication with Marvin Resnikoff, Radioactive Waste Management Associates, New York, New York; phone: (212) 620-0526.

[11] Duff Wilson, "Fear in the fields; how hazardous waste becomes fertilizer," SEATTLE TIMES July 3, 1997, pgs. A1, A10.

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