Rachel's Environment & Health News
#172 - Superfund Part 5: Some Keys To A Successful Cleanup
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Continuing our series on Superfund cleanups. Page numbers in our text refer to pages in the latest report from Congress's Office of Technology Assessment (OTA), COMING CLEAN, cited in our last paragraph, below.

During the long process of cleaning up a contaminated site, government and the polluters will make many choices that will affect the quality of the final result. Often they make choices that are not in your best interests and are illegal, so you must watchdog every decision. To be effective, you need to know how the Superfund process works (we reviewed it in RHWN #160). The RIFS (remedial investigation, feasibility study) is the place where the government (or the polluter, when the polluter is selected to do the RIFS, which is more often than not--see RHWN #166) gets to describe the problem and the range of possible solutions. The final decision (formally contained in the ROD, or record of decision) is limited to alternatives that were presented in the RIFS, so the RIFS is key. The RIFS not only defines the problem but it also defines the range of possible solutions.

Here are some points that may help you get what you want from the RIFS and ROD:

Cost effectiveness should guide cleanup

What does cost effectiveness mean? The principle of cost-effectiveness means that you first select the level of environmental and health protection to be achieved; then, afterward, you select the lowestcost alternative that is able to provide that level of protection. Using cost-effectiveness to guide a cleanup means that cost alone is never supposed to control Superfund cleanup decisions.

Cost-effectiveness analysis and cost-benefit analysis are not the same thing. The SARA law (the federal Superfund amendments of 1986) required EPA (U.S. Environmental Protection Agency) to use cost-effectiveness analysis, but EPA has often substituted cost-benefit analysis (pgs. 65- 67; be sure to read footnote 64 on pg. 65). This is wrong and illegal, yet EPA persists in doing it.

What's the difference between the two?

Cost-benefit analysis measures the costs of a project and the benefits of the project, compares the two and decides which is greater. The greater of the two determines whether the project goes forward or not. This technique was first developed by the Army Corps of Engineers to evaluate dams. To make comparison easy, everything is reduced to dollars. Using this technique, it is easy to show that incineration is expensive, landfilling is cheap, therefore landfilling is a "better" alternative at a Superfund site, according to the principles of cost- benefit analysis. The SARA law specifically says the EPA should not make this kind of comparison for Superfund cleanups, but EPA continues to make such comparisons routinely.

Cost-effectiveness analysis, on the other hand, requires the agency to establish health and environmental goals, then to select the technology that meets those goals by the cheapest means. If incineration and landfilling could achieve identical health and environmental goals, and if incineration were more expensive, then cost-effectiveness analysis would dictate the selection of landfilling. But landfilling and incineration do not give equivalent levels of health and environmental safety because one is a permanent cleanup measure (incineration) and the other is temporary (landfilling). Therefore the two technologies do not provide the same level of protection and they cannot be compared using cost-effectiveness analysis.

How clean is clean?

It has become standard within the EPA to consider a cancer risk of one in a million as being "acceptable." The question, "How clean is clean?" is often answered by performing a risk assessment on a few key chemicals, called "indicator chemicals"; if the risk of them causing cancer is one-in-a-million (10-6) or less, this is deemed "clean enough."

However, there are instances in which the agency uses a cancer risk of one in one hundred thousand (10-5) or even one in ten thousand (10-4) to define "acceptable risk."

Be sure you are aware what level of risk is being used to decide how clean is clean enough. Also, be aware that the "indicator chemicals" may not represent the full range of hazards actually present in the chemicals at the site. For example, a recent risk assessment for Love Canal was done using seven "indicator chemicals" but there are more than 200 chemicals buried in the Love Canal dump, so the seven chemicals obviously can't truly represent the full hazard.

Make EPA give you evidence of what levels of contamination (and risk) have been deemed acceptable at other sites with similar chemicals, what cleanup levels have been set elsewhere to define "how clean is clean." [You can find limited information about other sites in Are We Cleaning Up?, cited in our last paragraph (below), but EPA officials should have, or be able to get for you, information about all other sites.]

Watch out for risk assessment

Risk assessment is a technique used by government and by polluters to reach a quantitative (numerical) estimate of the likelihood that you will be harmed by exposure to chemicals at the site (after it is cleaned up). Unfortunately, the people who do risk assessments often fail to tell you how little they actually know about the ability of chemicals to harm humans and the environment. Getting risk assessors to talk about the unknowns is as important as their discussion of the knowns. Here are a few points to remember:

a) A risk assessment should consider damage to creatures besides humans. Although humans are generally the most sensitive species, there are some creatures that are more sensitive than humans. These other creatures need to be protected as well as humans do, since the environment consists of interdependencies and interconnections that give every creature a role to play in supporting life.

b) To be useful, a risk assessment needs to consider human diseases besides cancer, including (1) reproductive problems [inheritable genetic changes, birth defects, low sperm count, inability to conceive, spontaneous abortion, low birth weight, and so forth], (2) developmental disorders, (3) nervous system effects, and (4) damage to the immune system. For example, a chemical exposure that caused rashes in 20% of children, or caused pain in the joints of 20% of elderly people would create a social disaster, yet would not be recognized by a "standard" risk assessment focused only on cancer.

c) To be useful, a risk assessment needs to be explicit about the unknowns, the gaps in available information, and the assumptions that are used to fill those gaps. This can be the most valuable service a risk assessment provides, because when you look for information about most chemicals and their effects on human and animal reproduction, their effects on human and animal development, their effects on human and animal nervous systems, and their effects on human and animal immune systems--you generally find that the unknowns are much larger than the knowns. Thus a good risk assessment can show us how ignorant we are about most aspects of most chemicals, and can give us good reason to question whether the proposed level of "clean" is clean enough.

Get: U.S. Congress, Office of Technology Assessment, CLEANING UP: SUPERFUND'S PROBLEMS CAN BE SOLVED (Washington, DC: U.S. Government Printing Office, 1989). Available for $10 from U.S. Government Printing Office, Washington, DC 20402-9325; request GPO stock No. 052-003-01166- 2. Phone (202) 783-3238. Charge it to Visa, Mastercard or Choice.

And: U.S. Congress, Office of Technology Assessment. ARE WE CLEANING UP? 10 SUPERFUND CASE STUDIES--SPECIAL REPORT [OTA-ITE-362] (Washington, DC: U.S. Government Printing Office, June 1988); available for $3.75 from U.S. Government Printing Office, Washington, DC 20402- 9325; phone (202) 783-3238; request GPO stock number 052-00301122-1.

--Peter Montague

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