Letters

Hazardous Waste Sites

In his editorial "Cleaning hazardous waste sites" (1 Dec., p. 1097), Philip H. Abelson states that more than 31,000 inactive or abandoned hazardous waste sites have been identified, but that only 1224 have been placed on the National Priorities List (NPL). Sites are placed on the NPL primarily on the basis of their score on the Hazard Ranking System (HRS), a numerically based system designed to evaluate the relative risks posed by a site to human health or the environment. The vast majority of the 31,000 identified sites have already been assessed, and most have been deemed not appropriate for inclusion on the NPL. After initial studies, the Environmental Protection Agency (EPA) has determined that no further action by the federal government is required at 17,000 of these sites. Roughly 11,000 additional sites have been initially assessed or studied, but further study is required. The true problem potential of all sites is assessed within 1 year of their identification.

While remedial action has been initiated at only about 250 of the 1224 NPL sites (261 as of 30 September 1989), removal action has been taken at 300 NPL sites in order to address immediate or near-term risks. The vast majority of the remaining sites are in the investigation phase of the remedial process. In order to ensure that those sites that have not yet entered the federal cleanup process are in fact safe, EPA has recently completed a field assessment at every such site. EPA is in the process of taking an additional 25 removal actions at NPL sites in this fiscal year to ensure that sites are safe while awaiting remedial action. This does not include the 200 emergency response actions we conduct each year.

Although EPA's progress in implementing the Superfund program has not met the expectations of Congress or the public, the pace of site remediation has accelerated significantly in recent years: remedial actions have been initiated at 261 sites; an additional 109 sites have reached the remedial design stage; and remedy decisions have recently been made at another 76 sites after completion of detailed site studies. It is important to realize that 61% of the remedy decisions, 74% of the designs, and 70% of the construction starts (remedial actions) have been accomplished since the October 1986 enactment of the Superfund Amendments and Reauthorization Act.

A reference to EPA Administrator William K. Reilly's evaluation of this program, (*1*) suggests that EPA plans to provide money to private firms for cleaning up their hazardous waste sites. The relevant recommendation from that study calls for EPA to work aggressively to seek to have private parties provide their own funds for site cleanups. This "enforcement first" policy will help ensure that limited federal funds are stretched as far as possible in cleaning up sites. To help attain more private party cleanups through enforcement actions, increased EPA staffing levels have been approved.

Finally, with reference to the editorial's discussion of the role of the Department of Energy (DOE) in the nation's hazardous waste cleanup program, EPA recognizes the significant proportion of the problem that must be addressed by DOE. Given the massive task ahead, EPA is encouraged by DOE's greatly increased attention to this area under Secretary James D. Watkins. However, the editorial seems to suggest that DOE is in a better position to address the national problem of hazardous waste sites than is EPA; we do not believe that to be the case. Our track record in recent years shows significant progress in addressing the hazardous waste problems at NPL sites. We intend to continue this momentum until the task of cleaning up Superfund sites is completed. We will continue to emphasize aggressive enforcement, control acute threats immediately, address the worst sites first, and carefully monitor and maintain sites over the long term as we carry out our mandate to protect human health and the environment.

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REFERENCES

1. W. K. Reilly, "A management review of the Superfund program" (Environmental Protection Agency, Washington, DC, 1989).

Low-Dose Radiation Exposure

We wish to clarify what may have been a widespread misunderstanding about severe mental retardation as an effect of low-dose ionizing radiation. The National Research Council issued a press release and held a press conference at the time it published the report of its Committee on the Biological Effects of Ionizing Radiation (BEIR V). On the basis of the press release, newspapers and telecasts informed the public that low-dose radiation exposure at 8 to 15 weeks of gestational age can cause mental retardation. Actually, the committee's statistical analysis of a linear model pertaining to severe mental retardation suggested "that a threshold may exist at 0.2–0.4 Gy [gray] (20–40 rad)" (*1*). The accompanying graph in the report showed little, if any, increase in retardation among persons who received less than 0.50 to 0.99 Gy (50 to 99 rad) as compared with controls.

The press release, under the heading "Mental retardation effects" was concerned, not with mental retardation as it is usually understood, but with reduction of IQ test scores and with the school performance of children in the first grade who had been exposed in utero to the atomic bomb in Japan. The estimated IQ loss was 21 to 29 points per gray, or 0.2 to 0.3 IQ points per rad. Rarely does a fetus receive more than 1 rad from diagnostic examination of the mothers abdomen during pregnancy (*2*).

The news reports contributed to an unjustified fear of essential radiological studies during pregnancy. No measurable impairment of brain function is to be expected from prenatal exposure to doses as low as those received from diagnostic x-rays.

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REFERENCES

1. Committee on the Biological Effects of Ionizing Radiations, *Health Effects of Exposure to Low Levels of Ionizing Radiation* (National Academy Press, Washington, DC, 1990), pp. 355–359.
2. *Exposure of the U.S. Population from Diagnostic Medical Radiation*, (National Council on Radiation Protection and Measurements, Bethesda, MD, 1989), report 100, fig. 3.1; J. G. Kereiakes and M. Rosenstein, *Handbook of Radiation Doses in Nuclear Medicine and Diagnostic X-Ray*, (CRC Press, Boca Raton, FL, 1980), table 102.

Eliot Marshall's article "Academy panel raises radiation risk estimates" (News & Comment, 5 Jan. p. 22) contains misstatements about me and about BEIR III. Since I take the view that radiation risks at doses of less than 0.1 gray (10 rads) are unknown, I have never declared or considered them to be "negligible." The number of dissidents in the BEIR III committee was larger than six, although it was never clear how many there were. I do not remember who first proposed a lower dose limit for risk estimates, but it was not I. I do remember that the committee was unanimous on that matter.