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## Letters

### Radiation: Risks and regs

No one denies that hazardous radioactive wastes need to be treated with respect. But the mere tag "radioactive" does not indicate that a substance is hazardous. Naturally occurring radioactive material (NORM) is in the environment around us each day ("NORM: The New Hot Wastes," SN: 10/26/91, p.264). Human beings evolved in the presence of such radioactivity. Indeed, there is evidence that too little radiation can adversely affect human health, just as too much can.

One of the tenets of science is to measure before forming opinions. Your article is woefully lacking in measurements. Example: "The NORM-tainted fencing and soccer goalpost here emit low but measurable levels of radiation."

My body "emits low but measurable levels of radiation." So do the bricks in homes. What are the levels? That's a key fact necessary to understand the situation.

Another tenet of science: Compare measure-

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Cover: During the Vietnam war, the U.S. military sprayed millions of gallons of Agent Orange defoliant over the southeast Asian countryside and dioxin became a persistent part of that environment and its food chain. The Vietnamese are now among the most heavily exposed people on Earth. Breast-feeding infants receive particularly high doses of dioxin, which concentrates in human milk. (Photo: Arnold J. Schechter)



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ments to what you know. How about listing the radiation received in a year of playing soccer on that "tainted" field, compared with: a year of living in Denver (cosmic radiation, plus uranium/thorium in rocks); a year of living in eastern Pennsylvania (ground radon); a year of sleeping with one's spouse (carbon-14 decay); a year downwind of a coal-fired power plant (multiple radionuclides in ash); and a year working as an X-ray technician.

Given those data, your readers can decide whether NORM justifies "a comprehensive federal policy with supporting regulation."

Stephen Fleming  
Franklin, Tenn.

*We never meant to suggest that soccer goalposts emitting "measurable" radiation represent a hazard to young athletes. Indeed, as we noted in the article, the State of Louisiana has deemed that such recycled pipes don't constitute a health hazard — so long as their ends are sealed shut to prevent the inhalation of any scaly particles that come loose. The pipe essentially shields the public, so that externally measured radiation*

*typically runs only to 25 to 50 microrems per hour ( $\mu\text{r/hr}$ ). However, inhalation of the scale inside such pipes — emitting hundreds of thousands of  $\mu\text{r/hr}$  — could pose a hazard. And according to L. Hall Bohlinger of Louisiana's Department of Environmental Quality, "even at [external readings of] 25  $\mu\text{r/hr}$ , [the radiation associated with that pipe scale] is much higher than you'd want to fall out on the ground."*

*Your comments on comparing NORM-contaminated pipes with other ubiquitous sources of low-level radiation appear to miss the point of the regulators quoted in our article. The regulators did not conclude that very low levels of radioactivity necessarily pose a health threat. Rather, they argued that it's inconsistent to let one industry treat its NORM-tainted wastes like common commercial refuse while requiring another industry (e.g., electric utilities) to pay the high costs of monitoring and managing similarly low-level wastes as federally regulated "radioactive wastes." The state officials merely ask for uniformity in the regulations and legal liabilities borne by all industries generating low-level wastes.*

— J. Raloff

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