

activity of 48 microbecquerels per cubic meter." According to the Environmental Protection Agency, however, "Based on a national residential radon survey completed in 1991, the average indoor radon level is 1.3 picocuries per liter (pCi/L) in the United States."¹

Given that $1 \text{ Ci} = 3.7 \times 10^{10} \text{ Bq}$ and that $1 \text{ L} = 0.001 \text{ m}^3$, the average level of $1.3 \text{ pCi/L} = 1.3 \times 10^{12} \text{ Ci/L} = 0.048 \text{ Bq/L} = 0.048 \text{ Bq}/(0.001 \text{ m}^3) = 48 \text{ Bq/m}^3$. (The easiest way to remember the conversion is to keep in mind that $1 \text{ pCi/L} = 37 \text{ Bq/m}^3$.)

Accordingly, we have a rather conspicuous difference between Day and the EPA of six orders of magnitude.

Accurate unit conversion from traditional systems to the modernized and internationally accepted metric system known as the *Système International d'Unités* (SI for short) is still a problem in the US, and mistakes like this one regarding radon levels can be very dangerous, considering the sensitivity of the subject. The ongoing discussion of the overestimation or underestimation of the danger of ionizing radiation, and of the validity of the linear no-threshold hypothesis is followed closely by the public, environmental groups, and the press, and any reporting error can cause unnecessary excitement, especially if it appears in a reputable publication.

The critical importance of using units of measure (traditional or SI) properly was brought home to all of us recently, when NASA admitted that the cause of the loss of the \$100 million-plus Mars Climate Orbiter in space in late September had been a failure to convert flight data from traditional to metric units.

Reference

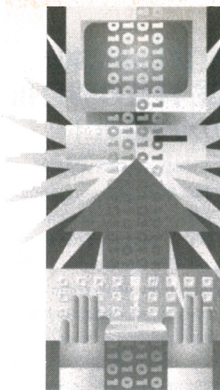
1. Environmental Protection Agency, Office of Air and Radiation, *A Citizen's Guide to Radon*, 2nd ed., EPA document #402-K92-001, Washington, DC (1992). See summary of document at <http://www.epa.gov/iaq/radon/pubs/citguide.html>.

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Correction

September, page 54—In the physics olympiad story, the second problem in the theory exam (third paragraph) was misstated; it should have read "... the period of oscillation of a magnetic needle in a field due to the current in a V-shaped wire, and the angle of the V required to distinguish between two theories." ■



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