

## EUROPE FEATURES

### Chernobyl's real toll

By Richard L. Garwin

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YORKTOWN HEIGHTS, NY, United States (UPI) -- The headline of The New York Times Sept. 8 editorial, 'Chernobyl's Reduced Impact,' indicated that the consequences of Chernobyl are now understood to be substantially less serious than previously estimated.

Unfortunately, although The New York Times is sometimes alert for spin and deception, the writer missed this one, long in the making. The text of the editorial in fact quotes the deceptive report accurately, in indicating that the 4,000 expected deaths are among the radiation workers and those most highly exposed. But the report and the editorial (and particularly the headline) ignored the much larger impact on the less heavily exposed population, which I have long estimated as 20,000 additional deaths from cancer.

The report from the Chernobyl Forum has much interesting summary material with which I agree, as indicated by the first sentence in the following paragraph taken from my book with Georges Charpak, 'Megawatts and Megatons,' published in 2001 and 2002, referring to UNSCEAR (the U.N. Scientific Committee on the Effects of Atomic Radiation) and 'Sv' (the abbreviation for 'sievert' -- a unit of human exposure to X-rays or other ionizing radiation).

We have seen that widespread disease attributed to the Chernobyl disaster could not in fact have been caused by radiation. On the other hand, the nuclear industry's reluctance to take seriously the 24,000 cancer deaths that we expect as a result of Chernobyl is reminiscent of the tobacco firms in their ludicrous and deceptive charade of maintaining, until 1997, that nicotine was not addictive.

The nuclear industry and official bodies would benefit from honesty in this matter. For example, in UNSCEAR 1993 (p. 23) we find this candid statement regarding Chernobyl: 'The collective effective dose committed by this accident is estimated to have been about 600,000 man-Sv.' But in UNSCEAR 2000 there is no overall collective dose estimated -- only (vol. II, p. 486) that the 'estimated lifetime effective dose' for Belarus, the Russian Federation, and Ukraine totals about 60,000 man-Sv. Ignoring the dose to the rest of the world is not progress.

Similar analysis is contained in our book just published Oct. 6, 2005, in French, 'De Tchernobyl en tchernobyls,' (p. 251).

A long-awaited report from the National Academy of Sciences' Board on the Effects of Ionizing Radiation, BEIR VII has been available at [www.nap.edu](http://www.nap.edu) since July, 2005. The BEIR VII report judges that each dose of whole-body radiation causes a lethal cancer at the rate of 0.04 cancer deaths per Sv of exposure.

Specifically (p. 15 of BEIR VII at [nap.edu/books/030909156X/html/15.html](http://nap.edu/books/030909156X/html/15.html)) reads '... we predict that approximately one individual in 1000 would develop cancer from an exposure to 0.01 Sv. As another example, approximately one individual in 100 persons would be expected to develop cancer from a lifetime (70 years) exposure to low-LET natural 'background' radiation (that) excludes radon and other high LET radiation. Because of limitations in the data used to develop risk models, risk estimates are uncertain, and estimates that are a factor of two or three larger or smaller cannot be excluded.'

Some argue that such small doses, if not strictly zero, are de minimus and should not be taken into account. I can give an example. If I take one cent from each of the 300 million Americans, it can hardly be imagined that this would affect the standard of living, but I would as a result gain \$3 million. I would be highly motivated to do that. And if I could do it, so would many others, and how much would be left of our incomes?<!--page-->

A radiation dose of 600,000 person sieverts, corresponding to 24,000 expected deaths might be figured to cause damage to the overall population at the rate of \$1 million per premature death, or perhaps \$24 billion. And although it is impossible to identify these 24,000 among the many tens of millions of people who would die from similar cancers from natural causes over the same period, those deaths are nevertheless a

consequence of the radiation release. In order to minimize such accidents, the principle of 'polluter pays' is quite reasonable.

In any case, the current Chernobyl Forum report totally ignores this dose without even making the argument that its consequences are zero or should be neglected.

As a physicist long involved with nuclear weapons and nuclear power, I can only speculate why the organizations of the Chernobyl Forum found common cause in putting the 600,000 person-Sv radiation dose into the memory hole.

With the United States about to assume much of the burden of the consequences of Katrina, some of these influences are particularly poignant. Russia, Belarus, and Ukraine may well feel that they are suffering an undue burden in supporting the Chernobyl 'victims,' when there are many other individuals and causes equally deserving of public support in their countries. The nuclear power industry would be much encouraged if a \$24 billion liability were somehow written down to \$4 billion not only for this event but for future accidents.

My own view is that the industry should face honestly and objectively these potential costs associated with their technology, and make the argument, which I support, that the overall benefits to society and to the environment of nuclear power outweigh even the consequences of Chernobyl.

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