construction sites. The agency made 64,000 inspections in 1982, down by about 1,000 from 1980. Construction site inspections, however, were up from 28,000 to 31,000.

President Reagan's OSHA may not have broken much ground, Wines notes, but it probably hasn't lost much. Since the agency was created in 1970, job-related deaths have declined slowly, but workdays lost due to injury or illness have increased. That trend has not changed.

Fusion Energy: False Promise?

"The Trouble with Fusion" by Lawrence M. Lidsky, in *Technology Review* (Oct. 1983), Room 10-140, Massachusetts Institute of Technology, Cambridge, Mass. 02139.

For several decades, scientists have touted fusion as the great energy hope of the 21st century. And generating electricity through fusion is scientifically feasible, writes Lidsky, an MIT nuclear engineer. But utility companies won't want to buy fusion reactors.

Experimental reactors are now under construction in the United States (at Princeton), Japan, Western Europe, and the Soviet Union. Physicists are concentrating on the fusion of deuterium and tritium ("D-T fusion"), two forms of hydrogen that are abundant in seawater. It promises cheap, safe, virtually unlimited power—one cubic meter of seawater would yield as much energy as 2,000 barrels of oil.

In a fusion reactor, the hydrogen atoms would be heated to 150,000,000 degrees Celsius, held in a vacuum "bottle" created by super-magnets cooled nearly to "absolute zero" (-273 degrees Celsius). The fusion of the atoms' nuclei would release neutrons, which would bombard and heat containment walls within the reactor. The heat would be used to create steam to drive electricity-generating turbines.

Such a reactor, Lidsky suggests, would be a "large, complex, expensive, unreliable source of power." Within its walls would be some of the highest temperatures attainable on Earth and some of the lowest; the relatively heavy high-energy neutrons used in bombardment would quickly erode the reactor's core. Although a fusion reactor would be much safer than today's fission models—a "meltdown" would be impossible—its complex machinery would be subject to frequent minor but debilitating breakdowns.

Scientists have ignored these practical problems. Engineers and utility executives cannot, says Lidsky. By the 21st century, improved fission reactors will almost certainly be more attractive than the fusion alternative. Not that Lidsky favors abandoning fusion research. He argues that in the race to get quick results (and win government research grants), his colleagues have slighted a promising alternative. Fusion using lithium or boron might be simpler than D-T fusion, and it would produce heat without the need for troublesome neutrons.

That kind of research is a "high-risk, high-gain" proposition with a far-distant payoff. But if it works, Lidsky believes, it will deliver what D-T research once promised: inexpensive, plentiful energy supplies.