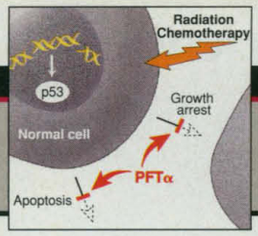

1651 Sparing healthy cells in cancer treatment

LEAD STORY 1654 A view from the top at NIH

1658 Shaky first step on the cosmic distance ladder

where the atoms—also fermions—pair up to create what's known as a superfluid. Physicists hope that if a fermionic atomic vapor can be cooled to still lower temperatures, the atoms will pair up to form a kind of atomic superconductor. But it won't be easy, Jin says, given the challenge of cooling fermions. "The possibility of getting pairs would be quite fabulous," adds Kleppner, "but it is not something you can do immediately." **–DAVID VOSS**

LASER PHYSICS

DOE Slams Livermore For Hiding NIF Problems

Halfway through its construction, the world's largest laser faces management turmoil and technical problems. Department of Energy (DOE) Secretary Bill Richardson last week ordered a major shake-up at the National Ignition Facility (NIF), a $1.2 billion device to simulate nuclear explosions and probe the practicality of fusion energy. Richardson said he was "gravely disappointed" to learn that officials at Lawrence Livermore National Laboratory in California, which manages the project, had failed to inform him of impending cost overruns and delays. The criticism, accompanied by a financial penalty assessed on the University of California, which runs the lab, comes on the heels of the sudden resignation of NIF's chief after it was revealed that he had improperly claimed to hold a doctoral degree.

Less than beaming. DOE criticizes Livermore's oversight of NIF, whose target capsule is shown under construction.

The tardy warning of NIF's woes, described in an internal report submitted shortly before Richardson made his 3 September announcement, "deeply disturbed" him, he said. NIF officials had assured him as recently as June that the project was "on cost and on schedule," he noted: "Clearly, we have had a major management surprise in our quest for a quantum-leap program for laser physics."

DOE has spent nearly $800 million on the stadium-sized NIF complex, which was originally due to be finished in 2003. Its 192 laser beams are supposed to ignite a tiny capsule of deuterium-tritium fuel in experiments designed to replicate the reactions that occur in exploding nuclear weapons. While many arms control experts say NIF is needed to ensure the safety and reliability of the U.S. nuclear stockpile now that the government has stopped underground tests, critics have challenged its feasibility and DOE's cost estimates (*Science*, 18 July 1997, p. 304).

Eleven scientific and management reviews over the last half-decade have concluded that the project is on solid technical and financial footing. In late March, for instance, a consulting firm carrying out a congressionally mandated review found "no major areas of concern" and concluded that NIF was "well-planned, documented, and managed." But last week, lab officials held a special meeting to look into problems that had been rumored for months.

"Denial of these kinds of problems is unacceptable," Richardson said, noting that he had asked Livermore officials to "take action against any personnel who kept these issues from the [DOE]." His six-point reform plan also stripped the lab of major construction responsibilities, ordering that "major assembly and integration" be "contracted out to the best in industry." In addition, Richardson will withhold "at least" $2 million of a $5.6 million management payment to the University of California, which manages Livermore.

Richardson plans to name an independent panel to get NIF "back on track." Although he said its problems are primarily managerial, "not technological—the underlying science of the NIF remains sound"—Livermore sources have identified at least one technical glitch. They say that dust particles in the building holding the lasers, which include hundreds of specialized lenses and windows, could undermine scientific measurements. "There has been a realization that they may have to make [the building] cleaner," says one academic familiar with the situation. "The intensity of the light is so strong that even specks of dust can burn up and damage the optics by etching or pitting them." The problem poses an unwelcome choice for NIF planners, he says: Spend more to make the building cleaner, or accept a device that may operate less efficiently and require expensive maintenance later.

How much it will cost to solve this and other problems remains unclear. Although some observers say the overrun could be $300 million, DOE sources suggest it will be less. Whatever the cost, Richardson said DOE will not ask Congress for additional funding but instead will divert money from existing DOE and Livermore budgets. Although that approach will be unpopular with researchers whose programs are affected, it should help mute criticism in Congress, which has so far supported DOE's $254 million NIF request for next year.

Still, lawmakers are unlikely to let these events go unnoticed. At a minimum, says one House aide, the overruns could prompt an audit by the General Accounting Office, Congress's investigative arm. Other staffers are pushing Livermore officials to explain what happened to NIF chief Michael Campbell, who stepped down on 25 August after an anonymous whistleblower informed Livermore brass that Campbell had never finished his Ph.D. dissertation despite claiming to hold a doctoral degree from Princeton University. Indeed, says one aide, Richardson's displeasure may be just the first of a series of new problems facing NIF. **–DAVID MALAKOFF**

THE OZONE LAYER

Burnt by the Sun Down Under

When it's winter in the north and summer in the south, many cold-weary tourists from Europe and North America flock to New Zealand for its wild backcountry and radiant sunshine. They may be getting more than they bargained for.

On page 1709, scientists at the National Institute of Water and Atmospheric Re-

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