Weapons Reactor Restart Set Back

The Department of Energy's (DOE) plan for restarting one of three production reactors next summer at its weapons materials complex at Savannah River, South Carolina, could be in trouble. Disclosures of new cracks in cooling pipes involving two reactors and a negative report by a safety advisory committee are the latest factors undermining the department's effort to resume making tritium for nuclear warheads.

Energy Secretary John Herrington received a critical report on 15 December from John Ahearne, chairman of the department's Advisory Committee on Nuclear Facility Safety, that cited broad concerns about the department's safety philosophy. Ahearne said that DOE's recently outlined plans to make management improvements, enhance reactor operator training, and intensify visual inspections of reactor equipment generally were not adequate to resume operation of the K, L, and P reactors, which have been shut down since June.

The report also questioned DOE's plan to restart the K reactor in mid-1989 without first using ultrasonic testing to detect cracks in the reactor vessel. The method already is used for inspecting coolant pipes. This "omission," Ahearne said, " . . . should be explained and justified."

The New York Times reported that ultrasonic testing revealed a crack in a 4-inch auxiliary cooling line that feeds heavy water to lithium control-rod assemblies in the K reactor. The pipe was not leaking. This method also was used in detecting cracks at the weld point of a support bracket for a 6-foot section of a 30-year-old reactor coolant pipe that was replaced a year ago on a sister plant at Savannah River, the L reactor. Cracking at these pipe-brace locations has not been seen before in the Savannah River reactors. Du Pont, which operates the complex for DOE, plans to replace the affected section of 30-year-old auxiliary cooling pipe in the K reactor—a process that should take just a few days.

The safety panel would like the department to use ultrasonic testing of the reactor vessels to detect cracks before any plant is restarted. Du Pont is expected to have remote-controlled equipment to survey reactor vessels in 6 months and knowledgeable researchers say the safety checks could be completed faster if the reactors are not operating. Du Pont has relied to a large extent over the years on visual inspections to detect cracks in reactor vessels and pipes. In recent years, however, it has increasingly used ultrasonic testing to check for cracking in pipes, which typically occurs at weld joints.

Even if cracks are found in the reactor vessel, that may not stop the department from restarting one or more plants. Cracking due to defects in materials, says Roger D. Rollins, chief of the reactor branch at Savannah River, is not likely to grow more than one-tenth of an inch a year. The mere existence of a crack in the vessel wall would not necessarily require that the reactor be shut down, Rollins adds, because cracks in the type of stainless steel used in the vessel advance slowly. DOE currently is tracking 680 cracks in plumbing in all three reactors. Affected pipe sections are replaced when cracks exceed set standards.

DOE, however, may have no choice but to delay the restart of tritium production at the K reactor. The Natural Resources Defense Council (NRDC), the Energy Research Foundation, and Greenpeace, U.S.A. filed a law suit in the U.S. District Court for the District of Columbia to prevent the department from restarting the K reactor until it completes an environmental impact statement. The groups contend that the restart of the facility is subject to the National Environmental Policy Act, which requires that the risks of any major federal action be examined before it is implemented.

Tom Cochran, a senior attorney with NRDC who analyzes nuclear weapons programs, estimates that DOE has sufficient stocks of tritium to get by about 2 years before the department would "have to start cannibalizing weapons." Tritium, which is used to boost the explosive yield in warheads, must be replenished periodically because it has a half-life of 5 years.

Cochran also called on the Reagan Administration to make public a report that is to be sent this month to the House Armed Services Committees on the retirement and modernization of the government's nuclear weapons production facilities. The "2010 Report," was expected to be classified in its entirety by the National Security Council.

■ MARK CRAWFORD

Hughes, GM Battle Over Stock Value

Irving Shapiro is madder than hell and isn't going to take it any more. In an unusual public display of pique, Shapiro, former chief of DuPont and a trustee of the Howard Hughes Medical Institute (HHMI) lambasted General Motors for attempts to renegotiate the sales price of Hughes Aircraft, which HHMI sold to the big auto maker in 1985 (*Science*, 21 June 1985, p. 1414).

At the time, the medical institute got $2.7 billion from GM, plus 50 million shares of a newly created GM "H" for Hughes stock that GM guaranteed to value at $30 a share at the end of 1989. If the market value was lower than that, GM would be obligated to write HHMI a check for the difference. At present, the H shares are valued at about $27 each, which means GM would owe the medical institute about $300 million. Hughes, meanwhile, would retain the stock for possible future sale.

Now, HHMI and GM are fighting over the terms of the guarantee and over a penalty that the government assessed against Hughes Aircraft shortly after GM bought it. The penalty, alleged to be about $200 million, was over a Navy contract that went awry. GM apparently wants to get part of its money back. In an interview with the Los Angeles *Times*, Shapiro called GM's efforts to get a rebate "silly" and "unseemly." He accused GM of trying to "nibble away" at the medical institute's resources and called the $200 million in dispute "less than petty cash," for General Motors.

According to a joint statement issued several days after Shapiro's salvo, the auto giant and the world's largest medical philanthropy say they are hoping to reach a "fair solution" to their economic differences.

The present strength of HHMI, with earnings of some $240 million, is not at issue. But future growth could be compromised—depending on the outcome of the current turbulent negotiations.

■ BARBARA J. CULLITON

European Space Science

The member states of the European Space Agency formally agreed last week to increase spending on the agency's space science program, named Horizon 2000, by 15% over the next 3 years. The decision was made possible by an announcement by the British government that it is lifting its opposition to any increase in funding on European space science programs. The British National Space Agency said that the decision to go along with the increase had been taken "in recognition of the strength of feeling within the rest of ESA" on the issue. However, Britain has managed in return to obtain support from the other 12 members of ESA for a full-scale independent review of the Horizon 2000 program at a later date.

■ DAVID DICKSON