NRC Relents on Salem, Clears Plant for Restart

Several weeks ago the Nuclear Regulatory Commission (NRC) delayed the restart of the Salem-1 nuclear reactor in order to devise an appropriate penalty for the sloppy management found there. On 26 April, the NRC relented. It ruled 4 to 1 that the owner—Public Service Electric and Gas of New Jersey—could turn the plant on again as soon as the NRC staff gives its approval. Commissioner Victor Gilinsky was the sole dissenter, voicing doubts about the adequacy of changes that have been made since a safety system failed in February (*Science*, 29 April, p. 484).

The vote brought relief to the company, which has been losing over $330,000 a day during the shutdown. The commissioners said earlier that they wanted to be certain that managerial problems had been corrected before the reactor went back into service. That controversial decision has now been tossed to the staff, which is expected to clear the plant for start-up in the first week of May. No fine has yet been imposed.—**ELIOT MARSHALL**

Astronomers Ponder a Catch-22

Ground-based astronomers, although blessed this year with a 26 percent increase in the National Science Foundation's (NSF's) budget request, are still struggling to keep a major component of their science from being lost in a uniquely Washingtonian Catch-22. Moreover, they are trying to do it without undermining their own credibility. The quandary was illustrated in late April at a meeting of the NSF's Astronomy Advisory Committee.

Astronomers have won praise from the Administration for sorting out their own priorities, in particular through the publication last year of the "Field Committee" report from the National Academy of Sciences (*Science*, 16 April 1982, p. 282). "The report outlined a program [for the 1980's] that is affordable, coherent, and strongly supported by the entire community," says NSF director Edward Knapp. "The report can be linked directly to the good treatment that astronomy has received in fiscal 1984. I wish everybody would do this."

Unfortunately, the Field report has a gap: astronomy at millimeter wavelengths, a portion of the spectrum that is crucial to the study of cold, dense interstellar gas in the galaxy's star-forming regions (*Science*, 5 February 1982, p. 647). In making their recommendations, the Field committee members explicitly assumed that the NSF would soon be filling that gap with its oft-proposed and oft-delayed 25-meter, millimeter-wave telescope. They were wrong.

Last spring, after more than half a decade of postponements for budgetary reasons, the 25-meter instrument was dropped from consideration for the last time. Technology was passing it by, the Europeans and Japanese had already built rival instruments, and it seemed senseless to spend tens of millions of dollars on an obsolete facility. Yet it meant that U.S. astronomers would be shut out of a field they had pioneered.

Last week, then, the NSF's astronomy advisory committee put forth its answer: the United States should leapfrog the competition by building an advanced, millimeter-wave interferometer, a coordinated array of radio dishes capable of much higher resolution than any single dish. The proposal was passed on to the NSF as a formal recommendation.

The problem, of course, lies in selling the array to Congress and the Administration without undermining the Field report. That document was supposed to represent the astronomical community's consensus on priorities. Yet, one year later, here they come with something new.

Alan H. Barrett of the Massachusetts Institute of Technology, who chaired the NSF's subcommittee on millimeter and submillimeter astronomy, sees little problem: "The Field committee was very clear about its assumptions [on the 25-meter telescope]," he says.

Nonetheless, the NSF committee was careful to emphasize the need for conceptual *studies* of the new array, not immediate construction. "They realize that this will have to get in line," says Peter B. Boyce, executive director of the American Astronomical Society. Ahead of it at the NSF are such Field Committee priorities as the Very Long Baseline Array, a continent-spanning network of conventional radio telescopes; the millimeter-wave array may not be built until 1990.

Inescapably this new array will siphon money away from other projects. "Yes, this will make it very hard to build all the things that the Field Committee recommended," sighs Boyce. "But that was going to be hard anyway."—**M. MITCHELL WALDROP**

The Breeder: Selling the Unsalable?

Supporters of the Clinch River Breeder Reactor lost a test vote on 26 April when the House Science and Technology Committee decided 24 to 16 to eliminate federal support for the project in the 1984 budget. This decision stays in force until Congress approves a new financing plan. It came as an amendment to the Department of Energy budget sponsored by Representatives Claudine Schneider (R–R.I.) and George Brown (D–Calif.), the latter a one-time fan of the breeder.

The vote has no immediate impact, because it applies to spending that will take place after September. Authority to spend the funds may be granted later, by any of a variety of legislative actions. However, it signals that Congress will not accept the existing breeder funding scheme (*Science*, 1 April, p. 38) and may insist on a larger contribution from private industry.

In another setback for the breeder, the Tennessee Valley Authority (TVA) declared that it has no interest in buying the plant or its electrical output. The TVA made this clear in a hearing on 20 April sponsored by a conservative opponent of the breeder, Senator Gordon Humphrey (R–N.H.). The breeder's supporters have argued that the plant will begin to pay for itself with the sale of electricity 5 years after construction is complete, and this claim is a crucial part of the plan to attract more private funds into the project. Humphrey wanted to know who is likely to buy the electricity, and he called on TVA because it has an exclusive option to buy the plant.

General Manager W. F. Willis testified that a realistic assessment of power demand shows that "TVA may not need to build additional generating capacity until well after the year 2000. Actual loads are likely to be closer to the low forecast than the high forecast. . . . In light of this, TVA is in no position to buy some or all of the Clinch River plant's capacity." Willis said that TVA might be willing to run the plant or transmit its power to other customers—for a fee, of course.

William Chandler of the Environmental Policy Institute said that the breeder and its output may be unsalable. He cited a 1982 Congressional Research Service study indicating that the southeastern region (which the breeder would supply) is likely to have an extra margin of generating capacity amounting to 35 percent in 1990 and 26 percent in 1995. A 20 percent margin is considered adequate to meet sudden demand peaks. In this glutted environment, Chandler said, the breeder is likely to be a weak competitor. It will be a less reliable and more expensive source of power than conventional plants nearby.

The absurd conclusion, according to Senator Humphrey's staff, is that it may be necessary to subsidize the breeder's commercial operation in order to make the plant pay for itself in the free market. This symbolic form of private financing might cost more than a straightforward federal grant.

—ELIOT MARSHALL

Landsat Agonistes (Continued)

Landsat 4, already hampered by the failure of one set of antennas, now faces a progressive deterioration in its power supply: the electrical connections to its solar panels appear to be working loose as the spacecraft repeatedly heats up in the sun and cools in the earth's shadow.

So far, the problem only affects two of Landsat's four solar panels, and one of those still provides partial power; however, operators have already noted warning signs in the final two panels.

In the meantime, there is enough power remaining to operate the spacecraft's one operational instrument, the multispectral scanner. Landsat's experimental instrument, an advanced scanner known as the Thematic Mapper, has not been an issue since February, when there was a failure in the antenna that beams its data to the ground.

However, Landsat 4 does carry another set of antennas that can route the Thematic Mapper data through the Tracking and Data Relay Satellite (TDRS) launched by the space shuttle Challenger in April. When and if NASA ever gets the luckless TDRS into its proper orbit (*Science*, 29 April, p. 484), the Landsat team will have to start making trade-offs between the two instruments.

—M. MITCHELL WALDROP

Formaldehyde Ban Is Overturned

When the Consumer Product Safety Commission last year banned the use of urea formaldehyde foam insulation, the action seemed to be based on solid scientific evidence. But in March, a U.S. Court of Appeals overturned the ban. It ruled that the commission had failed to provide "substantial evidence" that formaldehyde posed an unreasonable health risk. The court's decision appears to demand an inordinate amount of proof to regulate a potentially harmful substance. The commission will appeal the ruling by 5 May.

To the surprise of industry and others, the Fifth Circuit Appeals Court in New Orleans delved deeply into the scientific issues, rather than faulting the ban on procedural grounds. The panel of three judges said in its decision that the commission failed to demonstrate that formaldehyde leaching from insulation would create an unreasonable risk of cancer or cause acute health effects.

An official at the commission argues that the court made serious scientific errors. For example, the judges ruled that the commission's reliance on 240 rats in a single industry-sponsored study was "not good science . . . to make precise estimates of cancer risk." In fact, the use of hundreds of animals at a single exposure level is a large enough sample to determine risk. In another instance, the court said that findings of a second study at New York University did not support the industry study. The court, however, did not compare the animals at the same stage in the two experiments. If the right comparison had been made, according to the commission official, the studies would have shown similar risk estimates.

David Vladeck, a lawyer at Public Citizen Litigation Group, which petitioned the court in the case, says that the commission could have strengthened its case considerably by using more recent data from the industry study, which showed an even greater potential cancer risk. He says, "The commission did not do a good job on the case."

Vladeck says that the court's ruling does not bode well for the regulation of formaldehyde and other substances. Other federal agencies are considering the regulation of formaldehyde, but the court's ruling may "provide them with an excuse to further bury the matter," he says. Jacqueline Warren, an attorney for the Natural Resources Defense Council, comments that the court "seems to be saying that quantitative risk assessment is not valid." She asserts that the court appears to be requiring a standard of proof tantamount to a body count.

A significant factor in the court challenge to the ban was that the Formaldehyde Institute was successful in having the case heard in the Fifth Circuit, which frequently rules in favor of industry. When the ban went into effect at noon on 2 April 1982, lawyers for the industry and Public Citizens were poised at courthouses in Washington, D.C., and New Orleans in a race to file first and challenge the ban. Public Citizen sought to block the industry's suit and filed in Washington on the premise that it wanted the ban broadened. The D.C. circuit court is known to be more sympathetic and knowledgeable about scientific issues.

Public Citizen lost the race by 10 seconds. It clocked in at 10 seconds past noon, according to a court clerk's reading of a wall clock. A clerk in the Fifth Circuit marked the industry's petition 12 noon because the office did not have a clock with a second hand sweep. Perhaps these races to the courthouse should be refereed by the National Bureau of Standards.

—MARJORIE SUN