lemma, he adds, is to file an appraisal that neither praises nor condemns the work.

Such ambiguous and anonymous appraisals were common under the old system. But the new rules make appraisers accountable for the verdicts they render. The consequences for knowingly giving a stamp of approval to substandard work will range from demotion to legal liability for resulting damages or losses.

Other changes in the procedures are expected to make the appraisals more rigorous. These include the requirement that scientists submitting research results for appraisal submit lab records. The SSTC says that a lighter workload should also allow appraisers to examine materials more critically and, thus, render more accurate judgments.

The change has been well received by scientists, who believe it was long overdue. "Most working scientists believe the whole appraisal system is nonsense," says one Shanghai-based physicist. "If you've got results, then you go ahead and commercialize them. If it sells in the marketplace, that means it's good work. If it doesn't, that means it isn't," he said.

–Ted Plakfer

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DEFENSE DEPARTMENT

Services Target Labs to Save Money

The Department of Energy's (DOE's) three big weapons labs have been in the spotlight in the past few years as they struggle to find a niche in the post–Cold War world. But an even bigger upheaval has been taking place largely out of the public eye in the complex of R&D centers run by the Department of Defense (DOD).

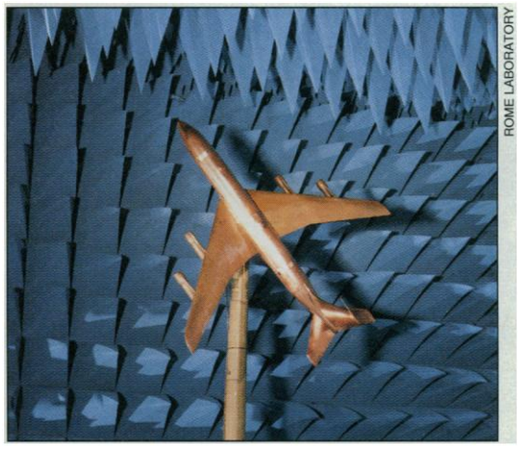
With more than 80 laboratories, DOD runs the government's largest R&D enterprise. But a shrinking defense budget will mean fewer military bases, and that, in turn, will result in the closure or consolidation of almost two dozen labs, say defense officials, who outlined their plans last week to the President's Committee of Advisers on Science and Technology (PCAST). Navy researchers will be hardest hit, facing the loss of about 3000 jobs in coming years.

The DOD laboratory shake-up is being orchestrated by the Base Closure and Realignment Commission, set up by Congress to make politically difficult choices about reducing the size of the military after the collapse of the Soviet Union. Its next round of formal recommendations—based largely on a recently completed DOD study—are scheduled to go to President Bill Clinton on 1 July. If Clinton accepts the commission's findings, the only way Congress can block them is to reject the entire package.

The defense labs, typically sited on military bases, perform mostly applied research and technology on weapons systems. The Army has 28 labs, the Air Force 23, and the Navy 30, in addition to five university labs (see p. 33). The Defense Department also operates 21 major range and test facilities and funds a dozen government-owned but privately operated labs. Under the base closure commission rules, DOD must begin closing bases within 2 years and complete the process within 6 years.

While DOD's plan may save money, some PCAST members are worried that the military's approach could lower the overall quality of the work force. "It's a recipe for disaster," says Shirley Malcom, director of education programs at the American Association for the Advancement of Science (which publishes *Science*). "You are going to lose your scientists but keep your bureaucrats," adds Dynamac Corp. Chair Diana MacArthur. DOD officials say they don't disagree, but they are stuck with a civil service system that favors workers with more tenure.

The heaviest blow is likely to fall on scientists and engineers working for the Navy, which has decided to close rather than consolidate lab work. Officials hope to save more than $2 billion in the next 2 decades. Under the current plan, the Naval Research Laboratory in Washington—the Navy's only formal, large-scale lab—would come through relatively unscathed, losing only the lab's underwater sound detachment in Orlando, Florida. But three parts of the Naval Air Warfare Center—in Indianapolis; Lakehurst, New Jersey; and Warminster, Pennsylvania—that conduct research will be shut down, along with the Surface Warfare Center in Annapolis and White Oak, Maryland, and in Louisville, Kentucky. The Navy also intends to complete closure of the Naval Undersea Warfare Center in New London, Connecticut. All three perform a wide range of naval research.



ROME LABORATORY

Final flight. Scientists at Rome Lab, facing consolidation, measure electromagnetic effects on air frames.

Also hard-hit will be medical research labs. Among those slated for closure are the Navy Medical Research Institute in Bethesda, Maryland; the Biodynamics Laboratory in New Orleans; and the Health Research Center and Personnel Research and Development Center in San Diego. The total number of personnel reductions in the Navy as a result of the closures should total about 3000, says Craig Dorman, deputy chief of the Pentagon's lab management office.

Army labs would take a relatively minor hit, according to Dorman. The service intends to close its Aviation and Troop Command in St. Louis, which conducts aeronautics research, and create a new Aviation and Missile Command at Redstone Arsenal in Huntsville, Alabama. That and other smaller consolidations will save up to $500 million over a 20-year period, he said.

The Air Force plans to close Brooks Air Force Base in San Antonio and transfer its Human Systems Center there to Wright-Patterson Air Force Base in Dayton, Ohio. The center conducts research into pilot selection and training, as well as the interface between humans and cockpit equipment. Almost half of the 3600 people at Brooks are scientists and engineers.

Rome Laboratory at Griffiss Air Force Base in Utica, New York, would be transferred to Hanscom Air Force Base in New Bedford, Massachusetts, and Fort Monmouth, New Jersey, Army Base. The 825-person lab, two thirds of whom are scientists and engineers, performs a variety of command, control, communications, and intelligence work, and less than a quarter of the staff is likely to gain a transfer, says Rome spokesperson Francis Crumb. The Air Force estimates that the consolidations will save $200 million over 20 years, according to Dorman.

In the meantime, the Office of Science and Technology Policy (OSTP) is hoping this month to give the president a summary of individual reviews of the network of labs run by DOD, DOE, and the National Aeronautics and Space Administration. Kitty Gilman, the OSTP official handling the effort, declined to provide details of her report but said last week that all the reviewers share a belief that "the lab systems are oversized." And Dorman said the current consolidation plan is not likely to be the final blow. "I think we'll have to go through this kind of thing again," he said.

–Andrew Lawler