Court Hears Suit on Biowarfare Laboratory

At a recent hearing, the Defense Department offered a new justification for a sophisticated biological warfare laboratory

Last fall, when the Defense Department sought to obtain emergency funds to construct a sophisticated new laboratory for biological warfare tests, it described the project in a series of letters and official statements as "vital to our national security." It characterized the need for the laboratory as "urgent" and said that a negative vote would "adversely affect the defense posture" of the United States, because of increased Soviet biowarfare research. Duly impressed, a handful of congressmen authorized its construction on a crash basis, despite some opposition from prominent micro- and molecular biologists.

In recent weeks, however, a substantially different picture of the laboratory and the government's need for it has emerged in the context of a lawsuit filed in federal court. Instead of arguing that the laboratory is needed to support an expanded test program, the Defense Department has stated in court documents that no changes are contemplated in its present laboratory work. The Pentagon has also acknowledged that there is at present no need for a laboratory as sophisticated as that approved by Congress, and that it actually is being constructed "in anticipation of requirements which may never materialize."

These statements are intended to persuade U.S. District Court Judge Joyce Hens Green that the laboratory, to be constructed at Dugway Proving Ground in a remote area of Utah, will have no significant impact on the environment, and therefore that no detailed impact statement need be prepared. Gene LaRocque, a retired Navy admiral who directs the Washington-based Center for Defense Information, and Jeremy Rifkin, a longtime activist on genetic engineering issues, believe that such a statement should be prepared, and so they brought suit against the government late last year (*Science*, 8 February, p. 614).

At a court hearing on 26 April, the government's attorney, Gary Randall, emphasized repeatedly that no change is contemplated in Dugway's existing laboratory work, which is aimed at the development of sensors, equipment, and clothing needed for protection against biological attack. The biological agents to be used in the new lab are the "conventional threat agents identified by past studies . . . and by the intelligence community," the government said in a brief environmental assessment. These include such bacteria as *Francisella tularensis* and *Bacillus anthracis*; such rickettsia as *Coxiella burneti*; such viruses as Venezuelan equine encephalomyelitis; and such toxins as tricothecene mycotoxins, staphylococcal enterotoxin B, and *Bacillus anthracis* toxin.

None of these agents requires a level of biological containment greater than that available to the Defense Department at the existing Dugway laboratory, Randall stated—a level known as Biosafety Level 3, or BL3. The new laboratory is to be designed for containment at the highest level, known as BL4, solely because it will provide extra protection for laboratory workers and avert any delay if testing at that level becomes necessary in the future, he said.

> The Pentagon is constructing the lab "in anticipation of requirements which may never materialize."

The driving factor, in short, is not that a BL4 laboratory is actually needed, but that someday its absence might be "adverse to our defensive posture." An aide to Senator Jim Sasser (D–Tenn.), a ranking member of the Senate subcommittee on military construction, said that this admission reinforces his view that "the aerosol test facility is unnecessary at this time and is extraneous to any clearly identified defensive test package." Sasser had tried to defeat the proposal last year, but was outvoted.

Although no work with genetically altered materials "is projected" for the new lab, according to court documents submitted by the Defense Department, it has not been ruled out. "Testing of aerosols of pathogens derived from recombinant DNA methodology is not precluded if a need should arise in the interest of national defense," the government states. Only at this point will an environmental analysis covering such work "be done and documentation prepared and published (subject to security status)," said Amoretta Hoeber, a senior Army official responsible for biological warfare policy and oversight, in a court affidavit.

Edward Lee Rogers, Rifkin's attorney, argued at the hearing that such recombinant DNA research is inevitable and that its risks must be publicly assessed before the laboratory is built. Both he and David Dubnau, a molecular biologist at New York University who testified on Rifkin's behalf, noted that the National Institutes of Health (NIH) guidelines for BL4 laboratories caution against the creation of aerosols. But W. Emmett Barkley, director of the division of safety at NIH, countered in an affidavit for the government that such aerosols can never be entirely avoided and that the safety record of a similar Defense Department lab at Fort Detrick, Maryland, is "excellent" despite routine experimentation with aerosols.

Much of the debate at the hearing focused on whether the Defense Department had adequately considered building a less sophisticated laboratory in which experiments could be conducted with attenuated or nonpathogenic biological "simulants." Robert Sinsheimer, a molecular biologist who is chancellor of the University of California at Santa Cruz, said in an affidavit that the Defense Department had failed to describe any experiments for which simulants were unavailable. Both Dubnau and Richard Novick, a microbiologist who directs the Public Health Research Institute in New York, testified that simulants were not only widely available for testing but actually preferable to pathogens in preparing an effective defense because they can stand in for numerous potential biowarfare agents.

The Defense Department maintains, however, that tests involving actual pathogens are necessary to ensure the effectiveness of equipment in battlefield conditions. Gary Resnick, a laboratory manager at Dugway, testified that although most existing tests are performed with simulants, only one has been fully "validated" by exhaustive comparison tests. (A "validated" simulant is one that replicates *every* characteristic of a microorganism, he explained later.) The Pentagon's position was supported by Barkley, who stated that simulants "cannot be relied upon to obtain valid information" in aerobiological studies, and by Calvin McLaughlin, a biochemist at

the University of California-Irvine, who stated that there was in any event a "very low" probability of accurately simulating toxins.

Rifkin, Dubnau, and Novick also asserted that those tests in which a simulant cannot be used—such as tests of infectivity, lethality, and symptomatology—are unnecessary, if the government's true goal is to develop defensive, not offensive, equipment. But the Defense Department argued that such tests are needed to calibrate defensive sensors and to avert needless efforts to rid a battlefield of organisms with low persistence.

Finally, Rifkin and his witnesses suggested that the entire test program was of questionable merit, because of the virtually limitless menu of pathogens available to a potential enemy, and the technical difficulty of developing accurate sensors. "An enemy could, almost on a monthly basis, vary existing pathogens, rendering defensive measures useless," Dubnau stated, particularly if recombinant DNA technology is employed. The Defense Department acknowledged that "operational tests have shown that protective gear is often damaged during routine military operations," but concluded that "whether defense is impossible remains to be shown."

A decision in the case is expected in the next few weeks.

—R. JEFFREY SMITH

Soviet Biowarfare Efforts Cited by Pentagon

The Administration has argued that a new test laboratory is needed in part to counteract an expanded biological warfare program in the Soviet Union. For example, in a letter to Senator Jim Sasser (D–Tenn.) last year, Secretary of Defense Caspar Weinberger said, "We continue to obtain new evidence that the Soviet Union has maintained its offensive biological warfare program and that it is exploring genetic engineering to expand their program's scope. Consequently, it is essential and urgent that we develop and field adequate biological and toxin protection." A stronger claim that the Soviets have actually violated a 1972 treaty banning biological weapons development has been made for the last 2 years by President Reagan.

Administration officials say that the bulk of the evidence to support these claims is highly classified, because it comes from defectors and other human intelligence sources. Very little detailed evidence has therefore been made public, and as a result the claims have been greeted with some skepticism within the scientific community. Last year at the AAAS annual meeting, for example, the claims were vigorously disputed by several academic experts (*Science*, 15 June 1984, p.1215).

Virtually all of the information that the Administration can point to openly indicates that the Soviet Union is conducting biological weapons research, which can be interpreted as either defensive or offensive. For example, Amoretta Hoeber, a deputy assistant secretary of the Army, says in an affidavit in the suit brought by activist Jeremy Rifkin that "we know the Soviets are actively engaged in research and development of toxins as weapons, as well as researching other biological materials." But the same allegation could potentially be made about the United States, which has research underway on the militarily useful characteristics of both toxins and biological agents—all under the rubric of "threat assessment," needed for the legal development of defensive materials.

Perhaps the strongest public evidence behind the Reagan Administration's allegation is the 1979 outbreak of anthrax in Sverdlovsk, near a restricted Soviet military research center. "It was a troublesome event that has never been satisfactorily explained," says Spurgeon Keeny, Jr., who served as deputy director of Arms Control and Disarmament Agency when the incident took place, and now heads the Washington-based Arms Control Association. "They have essentially stonewalled, and made no serious attempt to document and explain it."

All the Soviets have said thus far is that anthrax is endemic in the surrounding region, and that human contamination was caused by exposure to diseased meat, wool, and hides. Intelligence information collected by the United States suggests, however, that the disease was pulmonary anthrax, not the type caused by digestive or dermal exposure. "It is still conceivable that the Soviets are right," Keeny says, "but they have essentially supplied no supporting evidence." Although some stockpiling of the bacteria is permitted for defensive research, the magnitude of the outbreak was considered far too great to be caused by a legitimate supply.

More recently, various Administration officials have pointed to the evidence in a book entitled *Breaking with Moscow*, by Arkady Shevchenko, a defector who was once a senior aide to Soviet Foreign Minister Andrei Gromyko. Shevchenko alleges that "the U.S.S.R. has . . . continued to increase and expand its sophisticated chemical and biological weapons production programs" since 1972, when it signed the treaty. But others from the intelligence community discount his allegation because Shevchenko was not in a position to obtain first hand information.

Elsewhere in the Administration, there appears to be no uniform view about the Soviet program. In a report on Soviet treaty violations issued in February, for example, the Administration said that new data "confirm and strengthen the conclusion of the January 1984 report that the Soviet Union has maintained an offensive biological warfare program." At the AAAS meeting, however, John Birkner of the Defense Intelligence Agency acknowledged that the January 1984 claim was no more than a working "hypothesis," and that "the U.S. government admits to not knowing if the hypothesis is true."

With regard to the use of genetic engineering in biological warfare programs, the Pentagon notes in documents prepared for the federal district court that the "availability of bio-engineered pathogens and their products as agents of biological warfare is probably still several years away." The difficulty is that what each side pursues for biowarfare defense looks to the other like offensive weapons development. Asked how the Administration would regard evidence that the Soviets were about to construct a sophisticated new laboratory for classified "defensive" research, Robert Dean, deputy director of the State Department's Bureau of Politico-Military Affairs, says that "this would be of great concern."—**R.J.S.**