Universities Denounce DOE's Secrecy Rules

They are joined by a broad array of critics in claiming that proposed regulations infringe academic freedom and citizens' rights

A proposal by the Department of Energy (DOE) to block public access to some types of unclassified nuclear information has provoked a sharp reaction from a broad array of critics, including universities and library associations. The proposal, made public last April in the form of draft regulations (*Science*, 3 June, p. 1021), could seriously hamper research and teaching, play havoc with the operation of academic libraries, and infringe citizens' rights to know what the government is doing, the critics contend.

Those who drafted the regulations say they are intended simply to stop sensitive information about nuclear weapons from getting into the hands of terrorists. But the critics claim that the proposal would give DOE officials such sweeping powers that they could withhold just about any information they want, including material in reports already on library shelves and incorporated into teaching materials. The universities also complain that DOE is effectively putting them in the position of policing access to supposedly public documents, a position that is anathema to an academic institution.

DOE officials insist they are trying to throw a cloak over just a small fraction of the department's work. At a public hearing in Washington, D.C., on 16 August, F. Charles Gilbert, deputy assistant secretary for nuclear materials, claimed that much of the disquiet stems from a misreading of the proposal. DOE, he said, wants to restrict just a narrow band of information—such as the design of defense plants, security systems, and weapons components—that could aid a terrorist in acquiring weapons-grade material and turning it into a nuclear explosive.

"We are especially sensitive to the important issues of academic freedom and the free exchange of ideas," Gilbert said. As evidence of DOE's reasonableness, he cited the fact that in the first 6 months of 1983 the department used its existing authority "sparingly" by denying public access to parts of 39 unclassified documents. In any case, Gilbert argued, Congress (in an amendment to the Atomic Energy Act) directed DOE to restrict access to some types of information that might be useful to terrorists, and the department is thus merely carrying out the law of the land.

But a string of witnesses at the hearing argued that the draft regulations go well beyond the congressional mandate by giving DOE virtually unlimited power to determine what to restrict. In particular, the proposal states, "Nothing in these regulations precludes the Secretary [of Energy] from designating information not specified in these regulations as [restricted]." At another point, nuclear material is defined to include "any . . . material that the Secretary determines to be nuclear material."

The draft regulations also suggest that some information from the early days of atomic energy that has long been declassified might now have to be restricted. When it was declassified, "acts of violence [by terrorists] were a relatively infrequent occurrence and . . . nuclear proliferation was not a serious threat," the draft regulations state. Access to declassified information should thus be reviewed in the light of "the increased incidence of terrorist-inspired violence worldwide."

> Nuclear material is "any . . . material that the Secretary determines to be nuclear material."

The draft regulations are not specific on what types of declassified information might be bothersome, however, and that could pose a problem for the universities. Sheldon Steinbach, general counsel to the American Council on Education, who represented several higher education groups at the hearing, noted that the provision "is so inclusive as to permit application to all those basic and advanced courses in fields of physics, electrical engineering, materials science and the like that teach the basic information discovered and classified before the early 1950's and since declassified. Indeed, the language might be read to reach political science courses that include material on arms control."

The regulations would restrict access to this vaguely defined sensitive information to U.S. citizens who have "an established 'need-to-know' for the information in the performance of official duties." Release of sensitive information would have to be approved by DOE, and unauthorized disclosure could bring a fine of up to $100,000.

All this puts librarians in a particularly invidious position. Because the regulations are so vague, it is difficult to tell exactly what information DOE wants to restrict. According to Sandra Peterson, a librarian at the College of William and Mary, who spoke at the hearings for the American Library Association, 35 academic libraries have collections of DOE documents amounting to more than 300,000 microfiche. Do librarians have to check with DOE every time a researcher requests a document that may contain sensitive information? Not only would such a procedure be cumbersome and time-consuming, but it would also be antithetical to the operation of an academic institution, she pointed out.

Even before the hearings, the proposed regulations attracted an impressive array of critics, including environmentalists, who worried that they could be used to shut off information vital to litigation against DOE programs; the Oil, Chemical, and Atomic Workers' Union, and the United Steelworkers, which argued that they may reduce the amount of health and safety information available to workers at atomic plants; the governors of Colorado and Nevada, who expressed concern that the regulations could hamper state efforts to reduce radiation exposures; and the American Civil Liberties Union, which argued that the proposals were so sweeping that they would infringe citizens rights to information affecting their health and welfare.

All these groups, together with several universities, submitted written comments to DOE. They were joined by 18 members of Congress who sent a letter to DOE accusing the department of trying "to give itself sweeping powers to withhold a whole new category of information."

Under this verbal battering, DOE officials have indicated a willingness to move a little way to accommodate the critics. Gilbert said, for example, that the final regulations may be more specific about what information should be restricted, and he said that DOE would try to reduce their impact on nongovernmental libraries. But Gilbert made it

clear that DOE will not withdraw the regulations entirely, as many of the critics have urged. Restrictions are needed, he said, because of the widespread incidence of terrorist-related violence.

This rationale drew a sharp response from Allan Adler, speaking for the American Civil Liberties Union. Arguing that DOE's regulations should be seen in the context of other Reagan Administration attempts to restrict access to information, Adler argued that the Administration's "obsession with purported activities of foreign agents and lurking terrorist threats continues to push it toward increasingly dubious practices of information control."

DOE is planning to hold a public hearing in Chicago in late September, and will then begin the process of drafting the final rules.—**COLIN NORMAN**

Columbia Awarded Biotechnology Patent

Columbia University has been assigned the ownership of a patent covering genetic engineering techniques that might become widely used in the biotechnology industry. The patent covers both the procedures for moving genes into cultured mammalian cells and the products that result from such procedures. It is based on the research of Richard Axel of Columbia College of Physicians and Surgeons and his collaborators Saul Silverstein and Michael Wigler, who is now at Cold Spring Harbor Laboratory.

Although it is too soon to estimate the likely commercial success of the patent, the procedures developed by Axel and his colleagues are being used extensively in basic research. Mammalian cells may also have some advantages over microbes—now the favored host cells for gene-engineering—for synthesizing useful proteins on a commercial scale. Though microbes are generally easier and cheaper to grow, they frequently do not secrete protein products into the growth medium, thus necessitating sometimes expensive recovery procedures. Mammalian cells also may be better suited than microbes to produce certain complex proteins. "Large companies with huge facilities for animal cell culture" already exist, Axel says. For them, the inherent advantages in the mammalian-based genetic technology might outweigh any alternatives.

Ida Nathan

Richard Axel

Has several other patents pending.

The patent, which contains 73 claims, is the first granted of several that Axel and his various collaborators have pending. This patent* describes a process called cotransformation whereby two or more unrelated genes are moved simultaneously and integrated stably into mammalian cells growing in vitro. One of those genes serves to improve the chances for accompanying genes, whatever they happen to code for, to move successfully into the recipient cells, according to Axel, who notes that this research appeared in the scientific literature 3 years ago.

There are a number of strategies for synthesizing useful proteins in mammalian cells, each with its own advantages. The principal alternative to cotransformation is to use viral genes to bring other genes into cells. Its main disadvantage is the inevitable presence of those viral genes, which in some instances carry oncogenic (malignant) potential into cells. Axel's procedure avoids this risk. Moreover, he says, the use of cotransformation may broaden the choice of host cells and facilitate the playing of "genetic tricks" in which a desired gene can be amplified a thousandfold or more. Some of those tricks as well as procedures for controlling cotransformed genes are described in applications still pending before the Patent Office, he says.

Because this research was performed at Columbia, Axel and his colleagues have assigned full ownership rights to the university. The office of science and technology at Columbia is planning to offer this know-how to industrial partners on a nonexclusive basis, according to William Ragan, who heads the office.

The granting of such a broad patent to Axel and his collaborators could be a sign that the Patent Office will not become overly strict in judging applications in the genetic engineering field. Observers have speculated that the delay of Stanford University's patent application—which covers products resulting from recombinant DNA–based procedures undertaken in microorganisms—is, in part, due to the broad nature of its claims. That patent application is based on methods developed by Stanley Cohen of Stanford and Herbert Boyer of the University of California, San Francisco. Though a patent was granted for the processes they described, an application covering products resulting from the technique has been pending for several years.

The Columbia University patenting experience thus is different from Stanford's. "We captured both in one," exults Columbia's Ragan, referring to the process and product claims embodied in the Axel patent. Another difference is that Columbia has sought patent protection for these cotransformation procedures outside the United States. Stanford sacrificed such protection because Cohen and Boyer disclosed their techniques before applying for patents in Europe and Japan. (The U.S. Patent Office permits a 1-year grace period after public disclosure before disqualifying an application.)

At Columbia, inventors are assigned a portion of net royalty income that might result from licensing agreements, according to Ragan. The normal policy calls for net revenues to be apportioned to the inventors, to the inventors' labs (or some other inventor-designated fund within the university), and to the university's general revenues. The formula for this distribution varies, depending on the amount of the net income from royalties, but it is intended to provide both a direct incentive to the researchers and a means "to plow money back into the research area," Ragan says.—**JEFFREY L. FOX**

*U.S. patent 4,399,216.