own schedule, we just won't discuss it."

Such are the uncertainties that follow a new technology. The importance of this dispute lies not in its outcome but in the fact that every utility confronting the question of wind must face similar uncertainties and, once a decision to pursue the technology has been made, the possibility of outside criticism. The increasing confidence of the nation's utilities is at present unproved, since none has operated a windmill before; most are operating on the principle that to be unproved is not necessarily to be unfounded.

It is exactly such risk-taking that the government has sought to encourage. The House bill foresees an end to most federal involvement by 1988. Asked if it is realistic to think that the federal program will have all but ended by then, Divone says, "I hope so. I hope to be doing something else by then." Surely this has to be the rarest boast in Washington.

—R. JEFFREY SMITH

OSHA Develops New Cancer Policy

Scientists lose their plea for exemption, but the rules are more flexible than initially proposed.

Exposure to cancer-causing chemicals on the job will come under more earnest regulation under rules proposed on 22 January by the Occupational Safety and Health Administration (OSHA). Chemicals commonly used in research laboratories as reactants and solvents are among those likely to be more swiftly regulated.

The rules follow 2 years of formal hearings, in which numerous government, academic, and industrial experts on carcinogenesis played a part. The agency has termed it potentially "the most important single proceeding OSHA has ever had or will ever conduct in the future in this area."

The rules do not specifically regulate any workplace carcinogen, but establish instead a streamlined set of procedures and scientific assumptions under which all future workplace carcinogens will be controlled. As such, the proposal reflects the agency's desire to act more quickly on an estimated 500 carcinogens to which workers are exposed annually, by placing itself on firmer legal ground. In the past the agency's regulations have been repeatedly snarled in time-consuming lawsuits from affected industries, resulting in the regulation of only 18 workplace carcinogens in the 9 years OSHA has been in existence. OSHA administrator Eula Bingham predicts, albeit hesitatingly, that the new policy will enable the agency to increase its annual average from two to ten.

Bingham, a toxicologist, explains that "one of the major factors inhibiting the issuance of regulations . . . has been the need to cover the same ground in each and every rulemaking proceeding. We found ourselves debating the same questions of appropriate testing and interpretation for each carcinogen we investigated." The purpose of setting a carcinogen policy, then, was to define in a legal setting precisely where the scientific consensus on carcinogen detection and control lies. "This is an effort not to argue about certain scientific issues every day, unless there are new scientific discoveries," Bingham says.

The principles incorporated in the agency's rules are similar to but more explicit than those which guide other federal health regulators. The rules presume, for example, the predictive validity of animal tests and high test dosages; they take as evidence of potential carcinogenicity positive epidemiological data in humans, or positive test results in a single animal species plus additional corroborating evidence (such as suggestive data in another species, a short-term bioassay, and evidence of tumors at the injection or implantation site). Test results are considered positive if there is an increase in benign or malignant tumors, or a substantial decrease in the normal latency period.

Chemicals meeting this qualification will be regulated at the "lowest feasible level," a term that manifestly includes the economic costs of compliance; if substitutes exist, the substance might be banned. Suspected carcinogens that fall short of this qualification may still be regulated, but less stringently.

The rules differ significantly from OSHA's initial proposal in 1977. Then, the agency planned that classification as a potential carcinogen would trigger specific regulatory actions within a set timetable, including a specific combination of engineering controls and work practices designed to reduce exposure (*Science*, 3

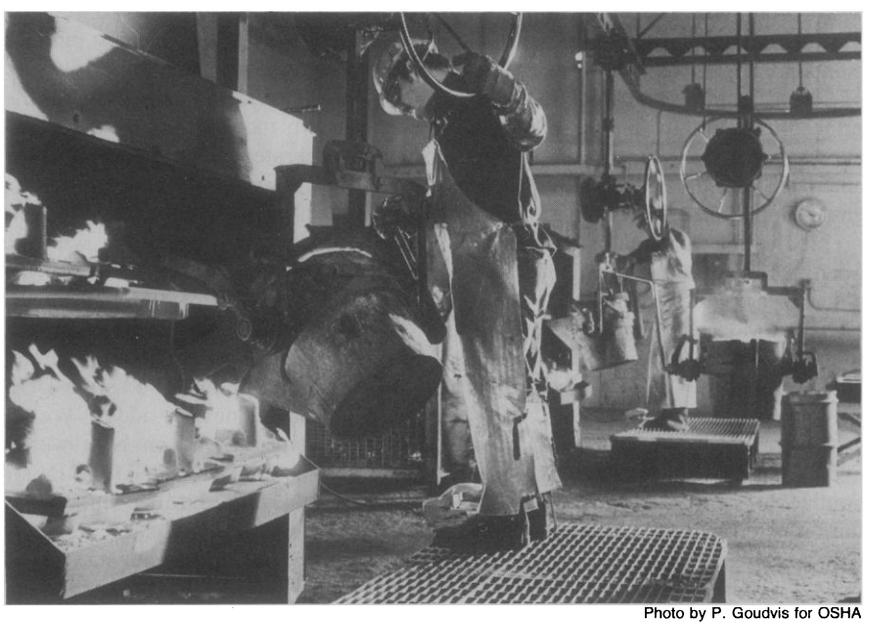

Photo by P. Goudvis for OSHA

Foundry workers are among those who may be exposed to toxic or carcinogenic fumes.

0036-8075/80/0215-0742$00.50/0

November 1978). Reacting to vigorous chemical industry opposition, the agency's rules are now considerably more flexible, with more issues—such as specific work practices—set aside for hearings on individual chemicals.

OSHA officials find room inside this flexibility to be at least partly accommodating to the complaints of academic scientists that the new rules will obstruct their work by imposing needless costs and bureaucratic procedures. As expected (*Science*, 5 January 1979), OSHA rebuffed the researchers' pleas for a blanket exemption from the rules, and went so far as to claim that very few of the scientists' claims "were supported by any specific actual documentation or proof." Still, the agency says it "is sympathetic to the special circumstances of research laboratories" and will consider partial modifications or exemptions for laboratories during the standard setting process for each regulated chemical. The agency also seems to have patched up its jurisdictional dispute with the National Institutes of Health (NIH), and promises to consult the voluntary guidelines developed recently by NIH for laboratory use. No mention is made in the OSHA policy of the forthcoming study of laboratory safety by the National Academy of Sciences.

The OSHA policy has already drawn lawsuits from a labor union and the chemical industry, which will probably delay its effective date of 22 April. The AFL-CIO is seeking reinstatement of the provisions in OSHA's original proposal that automatically triggered regulatory action once a potential carcinogen has been classified as such. The union is concerned that in the absence of such a prod the agency will find an excuse to delay the setting of standards, much as it does now in the union's eyes.

The American Industrial Health Council, a corporate consortium formed specifically to fight the OSHA policy, is suing on behalf of the chemical industry. The group protests OSHA's refusal to permit nongovernmental scientists on a standard-setting advisory panel appointed at the discretion of the administrator. It also wants the agency to place greater faith in epidemiological studies that produce negative results. OSHA maintains that such studies are so insensitive that carcinogens are easily missed, and therefore, that few studies would qualify as authoritatively negative.

The biggest uncertainty of all this, in addition to the outcome of these lawsuits, is how much time and effort OSHA has saved itself by adopting the uniform rules. In adding to the rules' flexibility, the agency has reduced its arbitrariness, but also compromised its efficiency. The adoption of this policy is really only the beginning, and nearly everything depends on the follow-through.

—R. JEFFREY SMITH

Ski Trips Cost Researcher His Job

Criminal conviction has also led to an attack on his research into the health effects of toxic chemicals

No one has to tell James R. Allen that toying with travel vouchers does not pay.

What started as a $900 dip into his government grant to pay for a couple of ski trips has ended in a criminal conviction, 6 months probation, a fine of $4000, resignation from the University of Wisconsin–Madison this coming June, and an attempt to discredit a fair portion of his life's research.

"I have shamed my family, my university, and my state," he told a U.S. district court judge before he was sentenced on 27 November. "I am seeing some of the things I most cherish gradually disappear before my eyes."

Allen, 52, a pathologist at the UW Medical School, is internationally known for his studies on the health effects of TCDD (2,3,7,8-tetrachlorodibenzo-*p*-dioxin). This highly toxic chemical is a contaminant of the Agent Orange defoliant used in Vietnam, of the chemical cloud that descended on Seveso, Italy, and of the common herbicides 2,4,5-T and silvex.

What makes his recent conviction especially unfortunate in the eyes of many is the fact that the Environmental Protection Agency (EPA) is soon to hold cancellation hearings on the controversial herbicides, and Allen is a key EPA witness. Fighting the proposed ban is Dow Chemical, one of the major producers of 2,4,5-T and of the chemical components of silvex. Dow is now working overtime to discredit Allen's TCDD research, lawyers for Dow recently telling the EPA administrative judge that Allen's "overall credibility and integrity is suspect in light of his recent criminal conviction."

The fact that the conviction and EPA hearing fall so close together has led some zealous environmentalists to conclude that the persons who originally blew the whistle on Allen were in cahoots with the pesticide industry. The villains in this scenario include an assistant in Allen's laboratory and Senator William Proxmire (D-Wis.), who has received two dozen bitter letters and phone calls blaming him for Allen's misfortunes. These allegations seem to be based more on the need to find a scapegoat in what is clearly an unfortunate situation than on the facts. Allen himself denies any knowledge of mudslinging by Dow, and the particulars of the case make collusion by industry unlikely.

The story began to unfold in the fall of 1978, when a woman who worked as Allen's assistant in his 30-person laboratory wrote a letter to the UW personnel office charging that he had repeatedly violated federal grant regulations. A UW committee investigated the charges, decided they had validity, and passed the complaint to UW Medical School dean Arnold Brown. In a 2 November 1978 letter, Brown told the committee that Allen had denied most of the charges when he asked Allen about them, and that the other charges seemed to stem from a misunderstanding of the federal guidelines. "While I am fully satisfied by the explanation offered by Dr. Allen," he wrote, "I recognize that you may not be. Should you wish to pursue this matter further, it would be necessary for Dr. Allen, [the former worker], and myself to get together to discuss the problems that she described."

0036-8075/80/0215-0743$00.50/0