According to a budget official who requested anonymity, OSHA's risk assessment for the short-term limit was based on the unrealistic assumption that workers would be exposed to peak levels of 10 ppm 15 minutes per day, 5 days a week, for 45 years. "Risk assessment involves realistic exposures and OSHA made no exposure estimates," said the official.

According to an OSHA report, available evidence indicates that two or more peak exposures per day "are common" and that employees could be exposed "to several hundred ppm over very short periods of time" despite a long-term limit of 1 ppm. Martin Fell, an agency analyst, argues that even if a small number of people are exposed, the chemical is sufficiently hazardous to be of concern.

DeMuth also criticized OSHA's reliance on three studies of workers, saying that all of them "have major flaws and provide no support" for the short-term limit. One study, published in the *British Medical Journal*, suggested that an increased number of spontaneous abortions were associated with pregnant women receiving single, daily 20-minute exposures on the job at concentrations of 5 to 20 ppm. DeMuth, along with the Ethylene Oxide Industry Council and the Health Industry Manufacturers Association, contended that the study is unreliable because of bias introduced in the questioning of subjects and in their selection.

OSHA rejected this complaint, citing comments from the study's lead author, Kari Hemminki of the Finnish government's Institute of Occupational Health, and Jennie Kline of Columbia University. Hemminki examined three types of sterilants—ethylene oxide, formaldehyde, and glutaraldehyde—and their possible effects on women employees. Hemminki's data were based on interviews and the discharge records of more than 1000 women in a 1979 survey of all the hospitals in Finland. Given that the employees were subjected to any one of the three chemicals, Hemminki said that selection bias could not account for the correlation between spontaneous abortions and ethylene oxide alone. Kline also downplayed any recall bias, noting that the information derived from interviews was "consistent" with the discharge records.

DeMuth also faulted two studies which indicated that short-term exposure may be associated with chromosomal effects. In one study, 14 hospital workers were exposed to an average of 19 ppm for 15 minutes from 6 to 120 times during a 6-month period. Results showed that an increased number of genetic aberrations called sister chromatid exchanges were related to exposure. A study by Johnson & Johnson of its own employees produced similar results and, as a consequence, the company instituted a 10 ppm short-term exposure limit and supported OSHA's efforts to establish an identical standard.

DeMuth argued that the sister chromatid exchanges "should not be the basis of regulation" because they have not yet been linked to adverse health effects. Health scientists, such as Landrigan and OSHA director of risk assessment Robert Beliles, concede that it is unclear whether the effect can be characterized as adverse but consider these changes worrisome. Landrigan said in a paper published in the current issue of the *American Journal of Industrial Medicine* that an increasing amount of data suggests a link between chromosomal damage and human cancer and that the findings deserve "careful consideration."

OSHA officials are puzzled by the strong reaction to the agency's proposal by the White House budget office and industry groups. According to agency estimates, a two-track standard with short- and long-term limits would cost industry $35.5 million a year, with the bulk of the expense due to compliance with the long-term standard. Said one OSHA official, "This is a cheap regulation."

Staff members speculate that the agency was an easy target because OSHA has been without a leader. OSHA chief Thorne Auchter stepped down this spring and his successor, Robert A. Rowland, was only appointed in mid-July. Although Auchter was a champion of deregulation, he did fight for standards that made their way through agency review, according to an attorney at Public Citizen.

OSHA still plans to try to salvage the short-term limit and is taking some steps to respond to the charges made by the budget office. It has sent out copies for peer review of its analysis that describes the scientific evidence to support a short-term standard. The report initially was distributed to members of OSHA's advisory board, an oversight panel comprised of scientists and non-scientists, and several groups that have a vested interest in the outcome, such as labor and industry groups. After staff complaints, top officials also sent the report to heads of government health agencies, including the National Cancer Institute and the National Institute of Environmental Health Sciences. "The siege isn't over yet," Beliles says.

—MARJORIE SUN

House Prepares to Slash Synthetic Fuels Agency

Opposition to the Synthetic Fuels Corporation (SFC), a speck on the horizon a year ago, may soon decimate the agency's budget and strip it of authority to back new projects. In an unusual repudiation of the Democratic leadership, the House voted on 25 July by a large margin (261 to 148) to override a rule that would have blocked an anti-synfuels amendment to the Department of the Interior appropriation, scheduled for consideration on 31 July.

As a result, the House will get to vote on a budget-slashing proposal put forward by Representatives Howard Wolpe (D–Mich.), Mike Synar (D–Okla.), and Silvio Conte (R–Mass.). Their amendment would cut $10 billion from the unspent $13.2 billion appropriated for the SFC. The Senate has not taken any action as yet. However, because the White House has proposed cutting the SFC budget by $9 billion (*Science*, 1 June, p. 964), the Senate is likely to go along with a reduction if the House votes for it.

The SFC was created in 1980 under the Carter Administration and given more than $13 billion to be used in subsidizing new energy plants. The goal was to accelerate the development of a new domestic oil and gas industry that would exploit coal, oil shale, tar sands, and other indigenous resources. Special emphasis was to be placed on liquid fuels to decrease U.S. dependence on oil imported from the volatile Persian Gulf.

Proponents of the SFC said the undertaking would cost the taxpayers little or nothing because the price of oil was expected to be high enough, and the cost of synfuels low enough, that the government would not have to pay out cash to honor its price-support pledges.

This scenario began to lose credibility when demand for oil sagged in 1981 and prices fell. Recently, on 22 July, Representative Synar released a report by the General Accounting Office estimating that in 1989 the actual difference between the price of oil and promised price supports for one synfuel project (Union Oil phase II) could be $48 per barrel.

Fiscal conservatives joined with en-

vironmentalists to lobby for a curtailment of the program, reviving the coalition that took the Clinch River breeder reactor off the budget in 1983. At first the lobby made little headway. But then the SFC leadership seemed to stumble earlier this year, choosing a new president who shortly afterwards resigned because of business conflicts. At that point the budget office at the White House made ready to foreclose on the SFC.

Nevertheless, as Robert Roach of the Environmental Policy Institute, one of the SFC's steady adversaries, points out: "They have already committed $3.1 billion for synfuels, and the bill leaves $3.3 billion still in the SFC. It's hard to say that spending $6.4 billion is killing the program."

—ELIOT MARSHALL

EPA to Repair Leaks in Leaded Gasoline Rules

Conceding that attempts to cut back the use of leaded gasoline have failed, William Ruckelshaus, head of the Environmental Protection Agency (EPA), disclosed a new plan on 30 July for sharply curtailing the use of lead in motor fuel. Two options are being considered, Ruckelshaus said: one that would result in a 91 percent reduction in leaded gasoline by 1 January 1986, and a slower approach that would phase in controls to achieve the same goal by 1988. In addition, the government may decide to impose an outright ban on leaded gasoline in 1995, by which time substitutes will be available for the small number of engines and cars (mainly pre-1971) that depend on lead as a valve lubricant.

Ruckelshaus pointed out that developing embryos as well as young children appear to be threatened by airborne lead. "The capacity of lead to impair the physical and mental health of our children, particularly those who live in the inner city, has been well documented," he said, adding that new data suggest that adverse effects "may occur at much lower levels than heretofore considered safe." He described the correlation between the lead found in human blood and lead used in gasoline as a "one-to-one relationship," the "very rare" and conclusive sort of evidence that makes regulators feel comfortable that the controls they seek are justified.

Eleven years ago, EPA ordered a slow "phasedown" of leaded gasoline. It was moving gradually to a conclusion when the Reagan Administration took office in 1981. Under the leadership of Anne Burford, the agency held up the rules and considered removing all controls on lead. After receiving sharp criticism from the public health community, EPA changed course in 1982 and proposed a complex new phasedown plan that set the maximum lead content in gasoline at 1.10 grams per gallon. The agency also allowed refiners to meet the standard by averaging their leaded and unleaded output.

It misfired. According to Ruckelshaus, EPA badly underestimated the amount of fuel cheating—using leaded gasoline in cars designed to take unleaded—that would occur. The present EPA estimate is that 67 percent more lead is being used than the agency had anticipated, or 35.7 billion grams per year rather than 21.4 billion. If it is not checked, misfueling could triple by 1990, accounting for 40 percent of the demand for leaded gasoline.

Illicit fuel switching has had a doubly harmful impact, according to EPA. In addition to putting lead into the atmosphere, it destroys catalytic converters on auto tail pipes, multiplying by a factor of 2 to 8 the output of hydrocarbons, carbon monoxide, and nitrogen oxide.

Ruckelshaus proposes ending the allowance given to refiners in 1982 that permits them to average their leaded gasoline output. And he would lower the maximum lead content from 1.10 grams to 0.10 gram per gallon by 1986. Hearings on the plan are to be held on 30 and 31 August.

—ELIOT MARSHALL

U.S.–Poland Exchanges Remain Uncertain

Whether the release of political prisoners in Poland will lead rapidly to the reinstatement of scientific exchange programs between that country and the United States remains uncertain. Exchange programs between the two countries were suspended a little more than 2 years ago when martial law was in effect in Poland and a U.S. embassy official in Warsaw was expelled from the country.

On 21 July, the Polish government approved and began to implement a plan for general amnesty for virtually all its political prisoners. Prominent among them are several scientists who have been deeply involved in the Solidarity movement and with a predecessor group known as KOR (*Science*, 13 Jan., p. 145). President Reagan has said that freeing such prisoners was a necessary step before he would consider lifting any of the U.S. sanctions against Poland. Officials at the State Department suggest that the current delay, for what seems like a certain move to reinstate the scientific exchange programs, is due to an internal debate at the White House over what other sanctions should be lifted.—JEFFREY L. FOX

Comings and Goings

Two federal agencies recently acquired controversial new chiefs. President Reagan on 3 July appointed **Donald Ian MacDonald** as director of the Alcohol, Drug Abuse, and Mental Health Administration and on 23 July named **Robert A. Rowland** as head of the Labor Department's Occupational Safety and Health Administration. Critics have argued that neither appointee has administrative experience in government or the expertise required for the posts. MacDonald is a Florida pediatrician best known for his crusade against adolescent drug abuse. Rowland, a lawyer, managed Reagan's 1980 election campaign in Texas. The appointments are likely to go unchallenged on Capitol Hill, however, because they were made while Congress was away on recess. By law, this means that the appointees are not required to be confirmed by the Senate until the next session of Congress begins.

Dominick P. Purpura, who in June announced his intention to step down as dean of Stanford University School of Medicine, has landed another deanship, this one at Albert Einstein College of Medicine. Purpura takes office on 1 September.

—MARJORIE SUN