# William Anders: A New Regulator Enters a Critical Situation

William A. Anders, the chairman of the recently created Nuclear Regulatory Commission, slumped into a chair in his ample but Spartanly furnished office, hugged both arms to his sides, and said with a grin, "I've had Ralph Nader chewing on one arm today and the industry chewing on the other. I guess that means we're impartial."

Achieving impartiality, and projecting that image to the public, is one of the foremost objectives of the new commission, now 3 months old. The NRC was formed mainly from the regulatory arm of the old Atomic Energy Commission while the much larger remainder of the AEC staff went on to become the core of the new Energy Research and Development Administration (ERDA). One major objective of this separation, of course, was to rid the government's administration of nuclear energy of its nagging appearance of a conflict of interest between development and regulation. The separation has come at an especially difficult time, for civilian nuclear power is being battered by both severe economic problems and the attacks of an increasingly well organized national coalition of critics (*Science*, 21 March). The new regulatory commission, as an independent agency, now becomes the potential—but still unproved—arbiter in one of the longest, most complicated and emotionally charged technological debates of the postwar era.

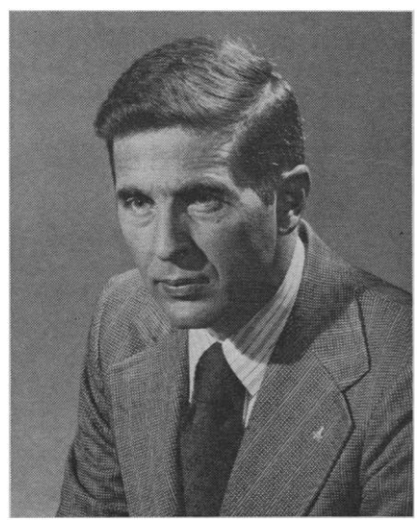
Anders, a former Apollo astronaut (he was among the first crew to fly around the moon in 1968), was the only one of the five AEC commissioners to be retained in the new regime. Although he comes to the NRC with a reputation as something of a technocrat, he nevertheless disavows blind faith in technology and acknowledges that nuclear power does raise some serious social questions. Anders sees the establishment of the new commission as a precious opportunity for a fresh start in the great debate over nuclear power. To capitalize on this opportunity, he says, means building a reputation for the new agency of fairness, prudence, and neutrality.

"We're the referee, there'll be no pompons in our hands," says Anders, a compact, energetic man seemingly never at a loss for a lively metaphor. "How are people going to know we're regulating in the public interest? The AEC told them it was and people didn't believe them."

During its last few years, the AEC strived for more of an arm's-length relationship with the industry it had nurtured since the 1950's. But the AEC remained burdened with the conflicting roles of developer and regulator, and sometimes, Anders said in a recent interview, "it was hard to remember which hat you were wearing."

The regulatory side of the AEC did go a long way toward opening up its decision-making processes to public scrutiny and participation, but the thinking and the voting of the five commissioners themselves remained shrouded in secrecy and the subject of suspicion.

How does the new commission propose to shed the image of the old one? What will be its relationship with ERDA? What kind of relationship is the NRC seeking with nuclear critics and the industry? Anders touched on these questions in a recent conversation, although he avoided committing himself and his new agency on policy questions.



*William A. Anders*

One important difference in style of operation, he said, is that the NRC will let the public know how individual commissioners vote in formal meetings. Anders said he also favors more public "rule-making" hearings to air policy issues. Beyond this, he intends to move away from the rigid system of policy assignments that characterized the AEC in its last years.

"The AEC operated as a 'lead commissioner' system, where commissioners kind of turned into assistant secretaries for this and that, and it didn't work very well. . . .

"I'm trying to establish a more collegial group here, as opposed to five people running off and doing their own thing. Obviously we can't go around like a boy scout patrol, each equally involved in everything. There will be a commissioner more informed than I am about safety—at least I hope he is—and we have people familiar with safeguards, international aspects, and administrative law. But the point is that we want to bring things back to the whole commission on a rather quick basis."

Besides Anders, the new regulatory commission consists of Richard T. Kennedy, a retired Army colonel and former deputy to Henry Kissinger for National Security Council planning; Victor Gilinsky, most recently head of physical sciences at RAND and a regulatory consultant to the AEC; Edward A. Mason, former chairman of nuclear engineering at the Massachusetts Institute of Technology; and Marcus A. Rowden, the last general counsel of the AEC.

As for his own experience, Anders has a master's degree in nuclear engineering and once ran a nuclear power system R&D program at the Air Force Weapons Laboratory. As did other astronauts, Anders took a hand in managing Gemini and Apollo spacecraft design. After leaving the space agency in 1969, Anders headed the small National Aeronautics and Space Council, an advisory unit attached to the Vice President's office. When President Nixon abolished the council as part of his general dismantling of the science advisory apparatus, Anders was appointed to the AEC in 1973.

During his 2 years with the AEC he spent much of his time as a "managerial troubleshooter" for R & D programs, especially the problem-ridden breeder program. Partly as a result

of Anders' probing, cost estimates for various parts of the program have been revised rapidly upward.

Anders is frank about his lack of experience in regulatory matters—"You're talking to a 5-week expert," he said at one point—but an agency with a $200 million budget, 2000 employees, and an arduous licensing process to administer no doubt has ample need for Anders' managerial experience.

Unlike the regulatory branch of the AEC from which it sprang, the NRC has its own safety and security research programs, thus finally relieving the regulators from having to beg and borrow technical backup from the development side of the AEC. This dependence was a source of bitter feelings in the nuclear safety research program and led to serious friction between some of the national laboratories and AEC headquarters (*Science*, 1, 8, 15, and 22 September 1972).

Although the NRC inherited safety and safeguard research programs from the AEC, the new agency's research duties were carefully circumscribed by Congress so as to include only "confirmatory" work on existing technology —that is, to confirm (or presumably also to refute) industry's claims that its safety and security systems will work as advertised. As Anders notes, "We are not in the business of designing new safety widgets."

He is concerned, however, that no one else in government is in the widget business either.

In a speech to the Atomic Industrial Forum last October, just after his nomination to the NRC, Anders urged that ERDA consider starting up engineering development programs aimed at improving existing reactor technology. This idea ran directly counter to the AEC's philosophy of making the industry stand on its own. But Anders argued that other governments (notably of Japan and Western European countries) were providing a great deal of "product improvement" assistance and that, as a result, U.S. reactor manufacturers were facing increasingly stiff competition in world markets.

Help of this sort from the federal government had a precedent in the aircraft industry, Anders said, and he contended that engineering aid for improving the safety and reliability of nuclear power systems would also be in the public interest. "We cannot test or inspect safety into a poor product," Anders said last October, and he seems no less convinced of it now. There are some indications that Robert C. Seamans, Jr., the ERDA administrator, will take Anders' suggestion.

Aside from research, the NRC and ERDA have yet to define precise boundaries of authority between themselves, especially in the controversial area of establishing and enforcing safeguards against theft of nuclear bomb material. One politically sensitive question that may have to be settled by Congress is whether the State Department, ERDA, or the NRC will have the final say in approving export

## Geological Survey Faulted

This month's booby prize for ethical awareness goes to the U.S. Geological Survey, one-fifth of whose top-echelon employees, according to the General Accounting Office (GAO) of Congress, hold securities in oil, gas, and mining companies in violation of federal conflict of interest laws and regulations.

No names are named, and no evidence is cited that anyone in the Survey actually used his or her position for ill-gotten gain. But, in a cover letter accompanying a 3 March report, the GAO says its review of the Survey's personnel files "disclosed that its system for avoiding financial conflicts of interest is not working."

On the face of it, that would seem to be an understatement. About 4 percent, or 215, of the Survey's professional employees are required to file financial disclosure statements under federal regulations written in 1965. Survey officials apparently complied faithfully with this rule but not with the 1879 Organic Act which established the Survey—and which says in part that employees "shall have no personal or private interests in the lands or mineral wealth of the region under survey. . . ." (The Survey's operating manual interprets this stricture as applying nationwide to all Survey employees and consultants.)

Nevertheless, the GAO found that personnel files of 42 employees and 7 of 17 consultants examined "showed financial interests that violated the Organic Act or raised conflict of interest possibilities."

Citing several examples that "raised serious questions of conflict," the GAO said it had found:

► A supervisory mining engineer who has owned stock since 1968 in 7 mining companies, 3 of them in the United States.

► An "administrative geologist" who owned stock in 12 companies with oil or mining interests.

► A petroleum engineer who received retirement income from, and owned 496 shares of stock in, the Atlantic Richfield Company.

► A supervisory petroleum engineer, empowered to suspend oil company operations on federal lands, who, since 1971, has owned stock in Mobil Oil, Standard Oil of California, and Exxon.

In addition, the GAO said it had found 7 employees with interests in 11 foreign oil or mining companies, a potential source of conflict because the Survey administers the EROS natural resources exploration program which is based on satellite photos of foreign countries. Domestic conflicts arise in part because the Survey is responsible for classifying federal lands according to lease value of oil, gas, and minerals; supervising petroleum and mining operations on federal land, Indian land, and offshore; and setting oil and gas production rates on the outer continental shelf and collecting royalties based on these rates.

For all of this, the GAO said, "it is imperative that the highest standards of ethical conduct be maintained by USGS employees."

The GAO's review was prompted by Representative John E. Moss (D–Calif.), who last August requested a study of 49 federal agencies, including the Survey. In January, Survey director Vincent E. McKelvey reportedly ordered employees to divest themselves of questionable securities within 90 days. Moss has been bruiting about the possibility of prosecutions, but a crash course in sensitivity training might be more in order.—R.G.

licenses for nuclear reactors, fuel facilities, and the fuel itself. Anders' personal view is that the United States has been a bit too generous in spreading around its nuclear know-how, but his concern seems related more to protecting the industry's competitive position than to problems of weapons proliferation.

In spite of his expressed concern for the nuclear industry's economic health, Anders quite firmly maintains that, as a regulator, he does not exclude from the realm of possibility drastic restraints on the development of nuclear power if such restraints should prove necessary. Asked whether he saw his mission as one of ensuring that nuclear technology was developed as safely and cleanly as possible, he said he did not. "Nuclear power will have to meet the requirements of public health, and that's it. There's a distinction there."

As if to demonstrate that it could be tough, the NRC, in its first such action, issued shutdown and inspection orders to 23 boiling-water reactor plants in late January after five hairline cracks were found in two pipes of one plant. The cracks, in one of two emergency core cooling systems of a Commonwealth Edison plant near Chicago, seemed to pose no immediate danger. But, on the chance that they might indicate a larger generic problem, the NRC ordered all similar plants to look for cracks. (Fourteen of the 23 plants were actually running at the time, producing 7000 megawatts or about 1.4 percent of the nation's electricity.)

"When an issue is not clear," Anders explained to the congressional Joint Committee on Atomic Energy last month, "our approach will be one of prudence."

(Inspection at 21 of the plants thus far have found no cracking, but a sixth crack has turned up in the Commonwealth Edison plant, Dresden II. Significantly, the identical problem has been found in a General Electric boiling-water reactor in Japan, a discovery that makes the shutdown order seem all the more prudent in retrospect.)

Although the NRC has a quasi-judicial function, Anders seems inclined not to remain above the fray, but to establish communications with both sides in the nuclear debate.

"If people from the industry want to see me, talk about what's bugging them, that's okay [although with NRC counsel and a stenographer present]. Critics, too. I'll talk with anyone, their place or mine, as long as the argument is on the issues, not personalities, and as long as it's rational. If I find they're twisting things out of context, they'll have to go somewhere else.

"There are some tough questions to be addressed that would give pause to anyone with a social conscience," Anders concludes, "and we can't regulate in a vacuum."—ROBERT GILLETTE

# Fetal Research (III): The Impact of a Massachusetts Law

*Boston, Massachusetts.* The relatively new statute regulating experimentation on human fetuses in this state has had a powerful and, its sponsors insist, unintended effect on fetal research. Representative William Delahunt says that the statute was meant to be a "moderate and enlightened" law. But as far as the scientific community is concerned, the law amounts to a virtual ban on fetal studies.

The impact of the statute, which became law on 26 June, 1974, was the subject of a recent hearing before a newly formed state commission* created to advise the legislature about actions affecting science. After a day of testimony it was clear that scientists do not understand the law, that they are deeply afraid of it, and that even research which is perfectly legal is being stopped because of that fear. There was a lot of talk about the "chilling effect" three events in Boston have had on research. There was the passage of the law, a criminal statute. There was the manslaughter conviction of Boston City Hospital (BCH) physician Kenneth C. Edelin (*Science*, 7 March). And there is the upcoming trial of four other BCH scientists who have been indicted for grave-robbing in connection with their fetal research (*Science*, 1 November 1974). When Neil Chayet, one of the attorneys for the defense in the grave-robbing case, testified in an angry voice that it is no wonder research is being stopped, because "Boston this year is not a normal environment," no one on the commission took issue with him.

**In light of the fact that several states have recently adopted laws regulating fetal research, *Science* decided to closely follow the developments of one of them—the Massachusetts statute. Articles in the 24 January and 7 February issues traced the social and political origins of the law and the path it took from its inception to passage in its present form.**

The words of several speakers revealed the scope of the confusion that exists about the law. Jane DesForges, a physician at Tufts Medical School–New England Medical Center, inquired about genetic counseling. She said it was not clear to her whether it would be legal to perform amniocentesis on a woman who might decide to have an abortion if she learned the baby she was carrying was genetically defective. She was assured by commission chairman James Smith, a Boston College law professor who drafted the statute, that amniocentesis is allowed under the circumstances she described because it is a "diagnostic," not "experimental," procedure, but there is little doubt that the research community would like that position put in writing in a revised law.

Perhaps the most ironic example of the effect of confusion about the law lies in the fact that the two Harvard researchers who fought hardest (and thought they partially succeeded) to get the legislature to pass a scientifically acceptable bill have themselves been seriously hurt by it.

David G. Nathan and Frederic D.

* The commission includes researchers, practicing physicians, and lawyers, chosen in part because they represent both sides of the "right-to-life" issue.