Renovating Rocky Flats

Recent developments, including the resignation of its manager and the announcement of a $150 million modernization program, spell major changes for the Rocky Flats plutonium weapons plant near Denver. This plant has been a long-time target of local criticism (see *Science*, 5 November 1971).

At the same Denver press conference on 6 December where AEC Chairman James R. Schlesinger made the now-famous remark that the AEC had a "moral responsibility" to Grand Junction, Colorado, homeowners whose houses were built on uranium tailings, he also announced AEC plans to modernize many of the buildings at Rocky Flats. Production of plutonium bomb triggers at Rocky Flats—which is operated by the Dow Chemical Company for AEC—has increased with the establishment of the multiple independent reentry vehicle (MIRV) program. Nevertheless, the 20-year-old plant has often been criticized as being unsafe for both Denver area residents and plant workers.

The primary purpose of the modernization will be to reduce risk of workers' exposure to plutonium—a bona fide carcinogen in dogs and a potential carcinogen in man. Refurbishments will include: "hot cells," or shielded areas where remote control handling techniques are used; additional floor space to reduce crowding of men, equipment, and radioactive materials; and inert gassing of glove boxes to replace oxygen, thus minimizing possible spread of fires. Worker safety has been an issue at Rocky Flats ever since the plant suffered a $45 million fire on 11 May 1969 which AEC officials have admitted was a near catastrophe.

In a related development, the general manager of Rocky Flats, Lloyd Joshel, has announced his retirement. He is 57. He will be replaced by a man from the Dow home office in Midland, Michigan, James H. Hanes. Joshel held the top job at Rocky Flats at the time of several troublesome incidents, including the discovery of leaks of plutonium particles to nearby soils, the 1969 fire, worker strikes, and a continuous hailstorm of adverse publicity. Dow is at present negotiating the renewal of their fixed-fee contract to operate the plant for the AEC, and there has been some speculation that Joshel's retirement is related to AEC pressure for better management at Rocky Flats. Asked at his press conference whether the change of command reflected AEC dissatisfaction with safety precautions at Rocky Flats, Chairman Schlesinger declined to comment directly. He simply said that Dow contract negotiations were under way, and that discussions with contractors involve "getting the best possible management."

Finally, using Rocky Flats as an example, the Environmental Protection Agency in Washington last week called on the AEC to submit guidelines for siting and design criteria for all plutonium handling facilities.

In a commentary released last week on the AEC's draft environmental impact statement for its new plutonium recovery facility at Rocky Flats, the EPA called for much more detailed information. On the basis of the AEC statement, EPA said, "it is not possible . . . to arrive at definitive conclusions regarding the environmental impact of the proposed facility."

EPA noted that the AEC had referred to "guidelines for plutonium processing facilities," but tersely added, "We would appreciate an opportunity to review those guidelines." Rocky Flats is now one of a very few installations that handle plutonium, but the AEC plans a large increase in the number of plutonium handling plants when the fast breeder reactor program becomes a main source of national energy in the 1990's.

EPA also criticized the AEC for inaccurate statements and statistics on plant wastes and other features. For example, it noted that the AEC claimed that the distance from Rocky Flats to downtown Denver was 23 miles. EPA noted that this was the driving distance on local highways, not the 15.8 mile air route which—presumably—radioactive particles escaping from the plant might actually take.—D.S.

government appointed as director of its premier technological institute a man who had previously been a primary school carpentry teacher, Uldaricio Acoste. By all accounts, he is still somewhat confused by his new job, and visitors are tactfully passed on to his deputy, sub-director José Valenzuela.

Valenzuela, a cheerful, bearded man, does his best to explain what INTECH is all about. He sees it as an interface between the productive system, represented by CORFO, and the science and technology system, represented by CONICYT, the state planning agency for science and technology. "Chile's productive needs are determined by the basic needs of the community," says Valenzuela, "and technology, in turn, has to reflect those basic needs. We're not interested in technology for its own sake." He divides INTECH's functions into three areas: education, by which he means the training of research workers; "technological implementation," which means introducing new technology into Chile, usually from abroad; and information. In addition, INTECH is responsible for part of the national information system CONICYT is putting together.

Valenzuela believes that it is important for Chile to be selective about the technologies it adopts, because in the long run they may determine social values and the shape of society—as the automobile has in the United States, for example. At INTECH there are groups working on food technology, plastics and polymers, mechanical and industrial design, the metallurgy of copper, dehydration of vegetables, and the refrigeration of mollusks. Patents have been taken out for a method of leaching copper from ores, as well as for the dehydration and refrigeration projects.

Laboratories at INTECH are well designed and equipped, although things may be more difficult from this year on, now that the annual dollar budget (previously worth $200,000) has been stopped. Dollars are in such short supply that nobody is being allowed any this year, which may make it difficult to buy new equipment.

Chile has a number of other institutes, some of which derive directly from aid received from the U.N. agencies. Although INTECH itself is small ("Either we grow quickly to 200 people or we continue to be inefficient," Valenzuela admits cheerfully), most of the others are smaller. The only one that is bigger is the well-equipped agricul-