

and granite, at least some of them would be expected to prove usable. Two of the six repositories proposed could accommodate all of the commercial wastes to be generated by the year 2000. And, for some years after a particular repository has been opened, the wastes committed to it could be retrieved if trouble should develop.

The same redundancy of approach is to be followed with respect to the development of technologies for the solidification of high-level liquid wastes. Initial demonstration of these and other relevant technologies—such as those for reducing the volume of transuranic wastes—is scheduled to be completed in 1978. This may be ambitious, however. An NRC study of management alternatives for the now-defunct Nuclear Fuel Services reprocessing operation at West Valley, New York, found that to develop an operational process for vitrifying (converting to glass) the 600,000 gallons of neutralized high-level wastes now in tank storage there would take 14 years.

Besides hedging against unexpected geologic or technical problems, the ERDA plan for multiple repository sites has been designed to assure the various states that no one of them will be asked to take all of the nation's high-level and transuranic wastes in its own backyard. Nevertheless, trouble arose late last spring in northern Michigan when word spread that ERDA was about to begin exploratory drilling in Alpena County.

The trade magazine *Nucleonics Week* had reported: "Union Carbide [the ERDA contractor in charge of the commercial waste program] is moving into the final stages of its waste isolation site-selection program with the salina basin [salt deposit] in Michigan and the [gulf state] salt domes leading the list." A Union Carbide official was quoted as saying that Alpena and two neighboring counties had been singled out for intensive investigation. Subsequently, the Michigan press was full of stories quoting various local officials and citizens who wanted ERDA to stay out of Michigan. And, as the result of questions raised by Representative Philip E. Ruppe, the Republican congressman for Alpena County and most of the remainder of northern Michigan, ERDA gave up its plans for exploratory field work in that region, at least temporarily.

Meanwhile, the pressure on ERDA to make good on its repository plan, with no more failures or delays, was mounting sharply. Although California voters last June rejected the nuclear ballot initiative that would ultimately have shut down all nuclear power plants in the absence of a

Ousted Seamans No Fan of Schlesinger

Robert C. Seamans, Jr., the soft-spoken, gentlemanly head of the Energy Research and Development Administration (ERDA) since it was created in 1974, is leaving his job, miffed at the way he was dumped by the Carter Administration and harboring less-than-enthusiastic thoughts about Carter's energy czar, James R. Schlesinger.

Seamans, 58, whose long career in Washington includes stints as deputy director of the National Aeronautics and Space Administration, Secretary of the Air Force, and president of the National Academy of Engineering, let it be known some time ago that he was willing to stay on as head of ERDA until the Carter Administration gets its energy plans sorted out. He reasoned that, with a massive reorganization of energy agencies in the works, it would make sense for him to stay and provide some continuity during the changeover period.

Those thoughts were communicated to a few colleagues, congressmen, and journalists. But when Seamans tried to get an appointment with Schlesinger a few weeks before Inauguration Day to explore the new Administration's thinking, he was unable to do so. That, as any student of bureaucratic power games knows, should have been the tip-off. Then, during inauguration week, Seamans says he "heard indirectly" (through whom, he won't say) that he didn't fit into the Administration's long-term plans but could stay on a few more weeks if he wanted.

Feeling a bit miffed at the way his dismissal was being handled, Seamans sent Schlesinger a note on 18 January announcing that he was resigning effective 20 January—Inauguration Day—but would be willing to help out in some capacity if Schlesinger desired. Finally, on 19 January, the two men held a telephone conversation and Schlesinger asked Seamans to serve as a "consultant" for a while, a designation that let Seamans clear off his desk, kept his security clearances alive, and enabled him to put the finishing touches on a new planning document.

The indirect nature of his dismissal left the usually mild Seamans angry, according to some of his acquaintances. Seamans is circumspect about discussing his departure with reporters but it seems clear that he has no great admiration for Schlesinger and that this feeling existed even before he was dumped out of his job at ERDA. This is apparent less in what he says about Schlesinger—indeed, he never says anything explicitly derogatory—than in a general lack of enthusiasm about Schlesinger. At a breakfast meeting with reporters on 22 December, Seamans described Schlesinger as a man of analytic bent who thinks in global terms but who is often "Delphic," puffing his pipe and leaving his listeners unsure just where he stands on an issue. Beyond that lukewarm evaluation, Seamans would not go, despite repeated pressing by the reporters.

In a recent valedictory interview with *Science*, Seamans again said Schlesinger has "great mental capacities," as well as "a lot of experience." But when asked if he thought Schlesinger was a good choice to fill the Carter Administration's top energy post, Seamans simply said, "I hope he'll succeed. He's got to prove himself." Seamans said that the energy area is very different from the agencies that Schlesinger formerly headed—the Defense Department, the Central Intelligence Agency, and the Atomic Energy Commission—because those agencies were ongoing enterprises "where the whole thing doesn't evaporate if the top guy doesn't do very much." But in the energy area, Seamans said, new Administrative structures must be carved out, people have to be motivated, and great political savvy is required to get Congress, the Executive Branch, and numerous disputing groups to cooperate in solving the energy crisis. "History will show what his [Schlesinger's] capabilities are in this area," says Seamans, as he prepares to return to private life, undecided about what he will do or where he will live.—P.M.B.



Robert C. Seamans, Jr.