

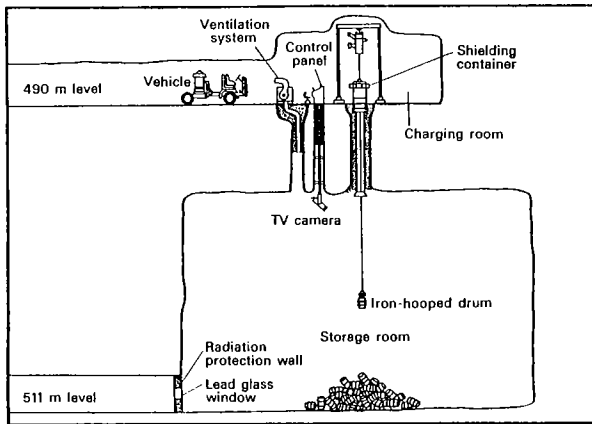
RESOURCES & ENVIRONMENT

Safe Haven for Nuclear Waste?

"The Asse Salt Mine: The World's Only Test Facility for the Disposal of Radioactive Waste" by Carsten Salander, Reinhard Proske, and Egon Albrecht, in *Interdisciplinary Science Reviews* (Dec. 1980), Heyden & Son, Ltd., Spectrum House, Hillview Gardens, London NW4 25Q, United Kingdom.

In the United States, the nuclear industry and the federal government entomb sealed barrels of radioactive wastes in empty Western deserts. But smaller, more crowded European countries enjoy no similar option. In West Germany, however, researchers report that they have found a safe haven—underground salt formations.

Created by the evaporation of prehistoric oceans, Germany's underground salt formations (similar to many found around the world) are often more than 3,000 feet thick. According to the authors, all West German technicians, thousands of feet of rock overlie the salt, packing it so tightly that it has become plasticized, impregnable to ground water. (In most underground rock formations, circulating ground water can carry buried radioactive particles to the soil, lakes, and rivers above.) These salt formations appear to be chemically and physically stable—they



West German scientists safely stored nuclear wastes in salt mine chambers like this one for more than 10 years.

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have, after all, survived 200 million years of geologic upheaval. Moreover, large cavities can be carved in them without fear of collapse. Rock salt is thermally conductive and can dissipate the heat (as much as 900°F) generated by the purest "high level" radioactive wastes.

From 1967 until the late 1970s, the West German nuclear industry ran tests in the abandoned Asse salt mine, located near Braunschweig, in northern Germany. The mine contains 131 chambers with a total volume of more than 12 million cubic feet. Its 13 levels are located

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roughly 1,600 to 2,500 feet below the surface. Some 141,000 drums holding 200 liters of low-level waste and 1,300 drums of intermediate-level waste were safely lodged there for more than 10 years.

Bonn views the construction of a national fuel disposal center in Lower Saxony as the next step in its waste management program. The system will consist of a reprocessing plant to produce fuel-grade uranium from spent nuclear fuel, located above a salt mine, which will be used for storage of unrecoverable wastes. But protests by West Germany's powerful antinuclear lobbies have forced Bonn to delay a final decision on the center until the mid-1980s.

LBJ as Conservationist

"The Final Act of America's Greatest Conservation President" by John P. Crevelli, in *Prologue* (Winter 1980), Cashier, National Archives (GSA), Washington, D.C. 20408.

For adding 44 sites to the National Park Service and nearly five million acres to federal recreation areas, Lyndon Johnson has been called America's greatest conservation President. But late in his term, LBJ refused a chance to clinch the title, argues Crevelli, a historian at Santa Rosa (Calif.) Junior College.

LBJ felt duty-bound to leave future generations "a glimpse of the world as God really made it." But the man who drafted the conservation proposals of his administration was Interior Secretary Stewart Udall. In July 1968, four months after Johnson renounced a second term, Udall presented his most grandiose scheme: setting aside seven tracts of federal land totaling 7.6 million acres as new or enlarged "national monuments," using the Antiquities Act of 1906. The sites, which amounted to a 25 percent increase in national park land, included Mount McKinley, Alaska, and the Sonoran Desert in Arizona.

Citing more modest apportionments by past Chief Executives as precedent—e.g., Teddy Roosevelt's claim to the Grand Canyon—and stroking Johnson's ego ("if Herbert Hoover could put in four million acres, I think seven million is about right for Lyndon Johnson"), Udall got a tentative go-ahead on December 11. But LBJ worried about the legality. Little of the land had the scientific or historical value specified by the Antiquities Act. Much of it possibly contained oil or minerals. The amount made him hesitant, as did his policy of avoiding decisions that would bind the incoming Nixon administration. But Johnson's prime worry was Congress. He feared that a legislative rebuff as he left office would damage his reputation as a "doer" in domestic affairs.

At the last possible moment, on the morning of Inauguration Day, LBJ chose to declare only 300,000 acres as national monument lands. Johnson, Crevelli contends, realized that his neglect of tried and true methods of congressional consensus-building had led to political disaster over Vietnam, and he had grown gun-shy. Udall's seven million acres were just "too large even for a Lyndon Johnson to swallow."