fill material beneath homes or other buildings. It was recently reported with no little alarm, for example, that in the sleeping quarters of Salt Lake City's Fire Station No. 1, which was built on tailings some 20 years ago, the exposure to radon daughters is seven times greater than that allowed for uranium miners.

In view of such hazards, it is not surprising that Congress is finally moving to take remedial action, both with respect to eliminating (or otherwise dealing with) piles at inactive sites such as the one in Salt Lake City and to making sure that the hazards associated with present and future uranium milling operations are kept to an acceptable minimum.

The Senate passed a bill in mid-September to reinforce the NRC's authority to regulate tailings disposal (over the past 2 years the agency has been making actual and prospective licenses under its purview adopt improved disposal practices). Also, under this bill states that have opted to license uranium mills themselves would have to follow standards at least as stringent as those of the NRC.

This latter guarantee is significant because the NRC has felt legally inhibited (unjustifiably so, the Council on Environmental Quality believes) from insisting that these states meet its substantive and procedural standards. Some states have not required even newly licensed uranium mills to adopt plans to isolate their tailings from the environment by means such as surface burial.

New Mexico, which produces nearly half of the yellowcake extracted from U.S. ores, is a case in point, although its licensing policies are now becoming more demanding. Indeed, a comparison of some of New Mexico's past licensing actions with the NRC's reveals startling and ironic disparities.

For instance, a few years ago the state allowed the United Nuclear Corporation to adopt a tailings disposal plan for its mill at Church Rock which is no great improvement on the environmentally unacceptable disposal practices of the past. Yet about the same time, the NRC, in a proceeding involving another company's license application for a mill in Wyoming (where all mills are licensed by the commission), obtained a commitment to a surface burial plan that represented a marked advance.

The House of Representatives is expected, as of this writing, to take up shortly a tailings disposal bill which its Interior and Commerce committees have

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Nitrosamines Found in NIH-Approved Animal Feed

A group of scientists at a Waltham, Massachusetts, instrument firm has developed evidence that a laboratory animal feed recommended by the National Institutes of Health (NIH) for use in testing for suspect carcinogens may be contaminated with a significant amount of nitrosamines, which are themselves carcinogens. The findings raise the obvious possibility that, in animal tests with a suspect carcinogen, a heightened incidence of cancer in the test groups may in fact be due to the NIH feed and not to the suspect material.

The scientists—four from the Thermo Electron Corporation in Waltham and one from the Massachusetts Institute of Technology—also detected nitrosamine contamination in concentrations above 1 part per billion (ppb) in seven other commonly used animal feeds they tested.

Most of the amounts were small—less than 3 ppb—but the highest contamination level of all—52 ppb—was found in the NIH open formula rat and mouse ration. Developed several years ago as the ideal diet for small rodents in carcinogen bioassays, the NIH formula has been urged on most NIH contractors by federal officials, and is considered to be widely used.

Joseph Knapka, the NIH official who developed the feed, told *Science* that he is concerned about the finding and intends to analyze other samples to determine if the problem is widespread. The scientists, who detected the contamination with a device they developed several years ago that is exquisitely sensitive to the presence of nitrosamines (*Science*, 23 January 1976), found lower but significant concentrations in other samples.

In response to a reporter's questions, officials at the National Cancer Institute (NCI) were quick to point out that the NIH feed has not been used in any of the NCI carcinogen bioassays now under way. Elizabeth Weisburger, head of the NCI Carcinogen Metabolism and Toxicology Branch, also said that presumably a control group of test animals on the same feed would also experience a heightened incidence of cancer: "As long as the test group is compared with the control group, there is no cause for concern."

Several of the Thermo Electron scientists, however, expressed concern that the nitrosamine feed contaminant could interact with the test substance to produce a synergistic effect. "The test group could have more cancers if the suspect carcinogen was only a promoter and the feed was the initiator," said Gordon Edwards, a toxicologist. He added that he and his group were not certain that the level of contamination they detected was enough to have this effect, but suggested that "feeds should be screened for nitrosamine in future bioassays, particularly when the test substance is fed to rodents in low doses."

Under NIH specifications, the feed, which contains 13 major ingredients plus vitamins and minerals to ensure a normally healthy laboratory rat and mouse population, is already screened for 14 contaminants. Edwards and his colleagues suspect that the source of the nitrosamine contamination is the 10 percent content of fish meal. Dimethyl amine, a precursor of nitrosamine, is a product of spoiled fish. "We suspect that a 15th screen will soon be added to the list," said Edwards.

DOE Appointment Prompts Environmental Heat

When Department of Energy (DOE) Secretary James Schlesinger appointed Ruth Clusen to the post of DOE assistant secretary for environment on 13 September, he immediately acquired the good will of the heretofore combative environmental constituents of that office. Clusen, 56, had just completed 4 years as president of the League of Women Voters, and considers herself "strongly identified with environmental goals."

Just as quickly, however, some of that good will evaporated when Clusen appointed her predecessor in the post, James Liverman, as her deputy, apparently at the request of higher officials in the department. Several environmental groups, including the Natural Resources Defense Council, the Environmental Policy Center, and Ralph Nader's Congress-Watch, expressed concern that Liverman was retained and now serves as Clusen's sole deputy. "Liverman didn't really

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approved. Its provisions for strengthening federal and state regulation of tailings disposal are similar to those of the Senate-passed measure.

But, in addition, this bill would have the Department of Energy clean up all of the inactive piles except perhaps for a few for which some company might be made financially responsible. The federal government would pay 90 percent of the total cost, which has been estimated, perhaps optimistically, at about $140 million; the states in which the piles are found would pay the other 10 percent.

The milling companies that created the piles will, it seems, not bear any of the cost of the cleanup. The rationale here is that the companies were operating under "cost-plus" contracts with the AEC that did not require or provide money for any better means of tailings disposal. In light of the AEC's failures in this regard, the states that have the piles argue that the federal government should foot the entire bill for the cleanup, and a tailings bill recently reported out of committee in the Senate so provides.

Most of the 20-odd inactive piles are fairly remote from cities and towns, but several are not. The exceptions include the pile in Salt Lake City and two in Colorado, at Grand Junction and Durango.

The Salt Lake City pile is expected to receive priority attention. The numerous options studied for dealing with this pile range in price from as little as $550,000 to more than $30 million. The less expensive options would all leave the pile in place, although some would provide for a covering of dirt and vegetation.

Utah health officials are insisting on removal by rail of the pile and 2 feet of radium-contaminated earth beneath it to a remote desert site 90 miles west of Salt Lake City, where all of the material would be placed in a natural depression and covered over. In their view, such removal is the only remedy because, they say, to reduce the radon emanations from the pile to near background levels would require capping the entire 128-acre site with a 22- to 30-foot layer of soil or an 8-foot layer of cement.

The task that awaits at Salt Lake City tells something about the size and difficulty of the tailings cleanup overall. Actually, the Salt Lake City pile is small compared to certain of the other inactive ones, and is but a tenth the size of Kerr-McGee's giant active pile in New Mexico. Although the Kerr-McGee site is 15 miles or so from the nearest town, this 23-million-ton pile, along with a half-doz-

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try to represent environmentalists or ascertain the environmental viewpoint," says one public-interest lobbyist.

This concern was voiced prior to Clusen's swearing-in. In response to it, Clusen obtained an understanding with DOE officials that she would have a free hand in the selection of her deputies, according to several sources. Once in the post, however, the understanding was changed to mean that she would hire James Liverman and one other deputy, whom she has yet to name.

Liverman, a biochemist, had been acting assistant secretary since October 1977, when DOE was formed from the Energy Research and Development Administration, where he had the same post. Previously, he had been the general manager for biomedical research at the Atomic Energy Commission (AEC), and it was there that he became involved in the controversy that remains the major sticking point between him and environmental groups throughout Washington. Specifically, Liverman was a principal figure in the cancellation of an AEC contract with University of Pittsburgh epidemiologist Thomas Mancuso on the effects of exposure to low-level radiation at a nuclear power plant in Hanford, Washington. The study was canceled abruptly in 1974, allegedly because it showed a significant incidence of cancer among workers at the plant exposed to levels of radiation 10 to 20 times below the federal standard. Liverman has said he acted in good faith but may have erred in judgment in ordering the cancellation.

One effect of the controversy over the cancellation, which is currently under investigation by the General Accounting Office and the AAAS, may be the removal by Congress of DOE's authority to conduct radiation research through the department that Clusen now heads.

Clusen has tried to assure outsiders that Liverman will have only administrative and not policy responsibilities in her office, which altogether is responsible for a $300 million budget and more than 300 employees (both are small by DOE standards). Clusen said she intends to more often seek the views of outsiders and to "be a strong voice to the department on environmental concerns here."

Moss Announces Retirement

Among the 31 members of the House of Representatives who have announced their retirement this year is California Democrat John E. Moss, 63, who for the last 20 years has been one of the most vigorous congressional advocates of the public's right to government information and of congressional oversight.

Moss was the principal author of the Freedom of Information Act, which he describes as "taking 15 years to pass" and which will undoubtedly be his greatest legacy. He also sponsored a half dozen major bills in the area of consumer protection, includng the act establishing the Consumer Product Safety Commission. But his major strength was in the area of regulatory and bureaucratic oversight from his base as chairman of an oversight and investigations subcommittee. Through hearings, he publicized dozens of issues of concern to consumers, including TRIS-treated sleepwear, Firestone 500 tires, and the incidence of unnecessary surgery.

Typically, Moss used the hearing process to excoriate bureaucratic malingerers; witnesses who appeared before him were warned that his procedure was to start early, stay late, and be extremely tough. An oft-told story about him is the occasion when he was hearing testimony in the U.S. embassy in a Latin American country on waste in the U. S. foreign aid program. In the midst of the proceedings, in a crowded room wth poor air-conditioning, the power failed and the lights went out, and everyone expected to go home. Out of the darkness, says one of Moss's staff aides, came the congressman's voice: "Mr. Ambassador, will you please bring in some candles?"

With such diligence that he has at times been described by colleagues as self-righteous, or a headline-hunter, Moss was able to kill through oversight hearings plans in the 1960's for a federal network of computers and spur federal agencies to enforce conflict-of-interest regulations for their employees. In 1976, his subcommittee produced a 400-page tome on the functioning of nine major regulatory agencies in Washington, appraising each according to its public responsiveness and recommending dozens of reforms.

Moss's decision to retire came largely as the result of declining health, due in large part to an auto accident last year.

—R. Jeffrey Smith