Energy department X-rays skeletons in Cold War closet

Washington. The US Department of Energy (DoE) last week released final estimates of the number of radiation experiments carried out on humans by the department and its predecessors, including the Atomic Energy Commission, after the Second World War. The figures are the outcome of a controversial 18-month investigation involving the study of around 3.2 million cubic feet of archives from the Cold War era.

The DoE search is part of a government-wide investigation ordered by President Bill Clinton that also involves the Department of Health and Human Services, the Pentagon, the Central Intelligence Agency and other agencies. Clinton has also set up a panel of outside scientists, ethicists and physicians to advise the interagency committee that is coordinating the investigation.

The multimillion dollar study was initiated after media reports on such experiments triggered a public outcry. The study has been criticized by officials from other agencies, who fear it has unnecessarily alarmed the public and wasted valuable government resources (see *Nature* 368, 781; 1994).

The DoE estimates that 435 such experiments were carried out on around 16,000 subjects between 1946 and 1974. Ninety-five per cent of the studies involved either biomedical research or testing of diagnostic techniques; only around 20 experiments involved study of the biological effects of radiation. The department has made the list of experiments, including 250,000 pages of scanned historical documents, available on

the Internet at <http://www.ohre.doe.gov>.

The total number of experiments carried out by all government agencies over the same period is already estimated at more than 4,000, says Steve Klaidman, a spokesman for the panel advising the investigation. Very few could have caused "demonstrable harm" to subjects, but "very substantial numbers" raise the sort of ethical questions that have brought the issue to public and congressional attention. Subjects were sometimes not informed of the nature of experiments, while others involved prisoners, mentally retarded children and pregnant women. The advisory panel will decide whether the experiments violated the practices of informed consent at the time. While the issue of state compensations remains under discussion, legal proceedings have already been filed by research subjects.

But Geoffrey See, a spokesman for the Washington-based Task Force on Radiation and Human Rights, a victims' rights organization, points out that similar cases, such as those brought by nuclear bomb test veterans, have been unsuccessful in the past. The law tends to protect the government in areas of national policy, he says.

But in its draft report, the advisory panel recommends the government deliver "a personal, individualized apology and provide financial compensation" in very few cases, for example where subjects "both suffered physical injury and were deceived as to the benefit of the procedure". The final report will be published next month. **Tony Reichhardt**

Nuclear bomb site may go solar

Boston. The US nuclear weapons testing site in the state of Nevada is one of five candidates being considered for a "Solar Enterprise Zone" by the Corporation for Solar Technology and Renewable Resources (CSTRR), which is based in Las Vegas.

CSTRR received US\$3 million seed money from the Department of Energy (DoE) this summer to build a 100 MW solar power station in the state. Creation of big plants, the government hopes, may help make electricity from solar plants competitive with that from other sources.

The sunny DoE test site is a leading candidate for the plant. But CSTRR — which says it could generate 10,000 MW using just 7 per cent of the vast test site — will not make its final choice until January.

Underground explosions in Nevada ceased in 1992, when President George Bush introduced a moratorium on testing. The site is now on standby, ready to resume testing at two years' notice. Meanwhile, a

defence authorization bill has called for studies of alternative uses of the facility.

At the peak of nuclear testing, the site had a workforce of 10,000, but this has fallen by about half. The DoE grant, which will cover CSTRR's operating costs for two years, came from funds aimed at re-employing staff made redundant at the site.

The \$3-million grant is tiny, both in terms of total US spending on renewable energy and of the sums allocated to reconverting staff employed in the weapons programme. It is also small compared with the total cost of the solar plant, which has been estimated at about \$150 million. Rose McKinney-James, CSTRR's interim president is, however, confident that it can raise the needed capital. "Our non-profit tax status will help us with bond financing," says McKinney-James, who, as head of Nevada's Business and Industry Department, has close ties with corporate interests throughout the state. Steve Nadis

Low-flying biologists set to become endangered species

Washington. The US National Biological Service (NBS), which is deeply unpopular with many conservative Republicans in the US Congress, has won a stay of execution in the Senate.

But NBS faces further curbs on its activities from legislators concerned that government-sponsored biological research will cause new restrictions on property owners.

NBS received a budget of \$146 million for next year from the Senate committee that handles appropriations for its parent agency, the Department of the Interior. Although this is less than the \$173 million it requested, it is much better than the \$112 million granted in the House of Representatives, which also tried to abolish NBS by transferring its operations to the US Geological Survey.

The Senate-approved budget, say NBS officials, will be enough to maintain the agency's field centres and major programmes.

But the Senate also passed an eleventh-hour amendment by Senator Kay Bailey Hutchison (Republican, Texas) that will require NBS scientists to obtain written permission for aerial surveys of private property.

Property owners in Texas had complained about NBS-funded planes flying over their land, explained Hutchison. The House has already obliged NBS researchers to obtain written permission from landowners before working on private property, while volunteers must be properly trained and have their work verified.

If the amendment becomes law, it will end "important NBS and joint State, Federal and private partnership research efforts", NBS said in a statement.

Aerial surveys are used, for example, to provide the estimates of waterfowl populations for setting federal hunting limits. NBS says that it hopes the bill's wording can be changed to exempt most forms of aerial survey.

Still in doubt, however, is whether aerial surveys would be allowed to be used to continue verifying remote-sensing data gathered by satellite within Gap Analysis, an NBS-led programme to map biological resources across the US.

Hampering such research may not perturb Hutchison. She has also sponsored legislation calling for a moratorium on the listing of new species under the Endangered Species Act, and is concerned that aerial data gathered without the consent of property-owners might eventually result in their land being listed as a protected habitat. **Tony Reichhardt**