Doctored Report Revives Debate on 1957 Mishap

A desire to defend the image of Britain's young nuclear industry may have prompted the government's decision to censor a 1957 report on the West's worst nuclear accident

London

WHEN the team trying to extinguish the fire that broke out in Britain's plutonium production plant at Windscale on 10 October 1957 considered the last-ditch remedy of flooding the burning core, it was given the dramatic warning that such a move "might ignite the whole pile," according to the official inquiry subsequently carried out for the government of the day.

But when the inquiry's report was published in what then Prime Minister Harold Macmillan described as a "less technical version," it merely said that the team had been told of the danger that further releases of Wigner energy caused by the use of water might "add to the total heat of the pile."

The maneuver was eventually successful in putting out a fire that had raged out of control for almost 2 days in an air-cooled graphite reactor, which had since 1950 been producing most of the plutonium used in Britain's first nuclear weapons.

At the time, the existence of a major threat to the public had been acknowledged primarily through the widely publicized decision to destroy all milk coming from an area of 200 square miles around the plant because of contamination with radioactive iodine. However, it now appears that the public was given little indication, either during the emergency or in the published report, of the confusion of the fire-fighting arrangements or the full danger that the fire presented.

No mention is made in the report published in 1957 of the temperatures reached in the pile—1300°C at one point—or of the flames that were seen, according to the original version, "feathering out of the back of the pile." And much of the description has been omitted of the various unsuccessful attempts made to put out the fire before this was finally achieved by flooding it with water.

"If you read the blow-by-blow account in the [original] report, you get a great feeling of suspense and anxiety, a feeling that the people there were living through a very severe crisis," says Lorna Arnold, a historian currently working at the United Kingdom Atomic Energy Authority (UKAEA) on a history of Britain's nuclear power program. In contrast, the version published in 1957 "is fairly bland."

A comparison between the two versions of the report has become possible for the first time following the release last month of the full text of the official inquiry under a rule that allows all Cabinet papers to be kept confidential for a minimum of 30 years. The inquiry was headed by Sir William Penney, director of the Atomic Weapons Research Establishment at Aldermaston.

The release of the Penney Report has revived an intense debate in Britain over what is generally acknowledged to have been the West's biggest nuclear accident—and could easily have turned into a major disaster. Indeed, the revelation that Prime Minister Harold Macmillan personally intervened to block the publication of the report has given rise to widespread accusations in the British press of a "cover-up," designed to preserve confidence in the British nuclear establishment.

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Transatlantic linkage. *President Eisenhower promised to support legislation that would permit U.S. nuclear information to be shared with Britain; Macmillan feared that publication of the full Windscale report might sink its chances.*

Officials with the UKAEA have been quick to counter the cover-up charge. They point out that even the sanitized version of the report, which was published by the government as a White Paper, provides a technically accurate picture of the events leading up to the fire. The accident began when a faulty maneuver by an operator carrying out a controlled release of Wigner energy caused one of the uranium fuel cartridges in the pile to split and its contents to oxidize.

Furthermore, the details of the fire and its aftermath—especially the discharge into the atmosphere of 20,000 curies of radioactive iodine-131—have been described in more than 70 scientific papers, and many important innovations in the organization of Britain's nuclear industry, including the setting up of an independent Nuclear Installations Inspectorate, were prompted by the accident.

"A new safety culture was born out of the Windscale fire which highlighted faults that have been corrected, making nuclear power operations safe and effective," John Collier, current chairman of the UKAEA, said last month shortly after the Cabinet documents were released. "We learned important lessons from the 1957 fire, and these have been taken up by the industry worldwide."

Officials at the nuclear agency also point out that, although the Penney Report made some highly critical comments on the way that the UKAEA was run—for example stating that the Windscale organization was "not strong enough to carry the heavy responsibilities at present laid upon it"—the board of the agency at the time did not oppose the report's full publication when it was submitted to the Cabinet Office.

The availability of the long-secret report (Macmillan is said to have required all but a few of the 50 original copies to be destroyed) has given rise to speculation about the reason behind the Prime Minister's decision, as recorded in the minutes of the Cabinet meeting on 6 November, that "it would not be in the public interest to publish it."

One important factor appears to have been a desire on Macmillan's part not to jeopardize the chances of obtaining from the Eisenhower Administration an exemption from the Atomic Energy Act of 1946 (the McMahon Act), which forbade U.S. scientists and engineers to exchange nuclear information with any other country—including its wartime ally, Britain.

Macmillan had just returned from a 3-day meeting with President Dwight D. Eisenhower, in which the President had promised to support efforts in Congress to obtain such an exemption. Critics were arguing that a

recent run of spy cases in Britain had cast doubts on the ability of British security agencies to keep hold of its nuclear secrets.

"Macmillan thought that full publication would support the antiamendment lobby in the U.S.," Lord Plowden, who at the time was chairman of the UKAEA, said in an interview with *Science*. "It was a political judgment; seeing the amendment passed mattered a great deal to him, and it was probably a correct political judgment at the time."

Uncertainty remains, however, over precisely what it was that Macmillan wanted to keep secret. Some suggest that it was technical data given in the report—and omitted from the published version—of the rate of operation of the Windscale plant. The Soviet Union might have been able to use these data to calculate the amount of plutonium produced since the reactor began operating in 1950.

Macmillan himself, in his preface to the published version, gave his reason for suppressing the original report as being that it was a "technical document dealing with the design and operation of a defence installation" which "also presupposes considerable knowledge of the technology of this particular pile."

Others, however, have pointed out that the Ministry of Defence had, in common with the UKAEA, not raised any objections to the full publication of the report. In contrast, one member of the board of the UKAEA had warned of the danger that the report would be "quoted out of context and misused in other ways by hostile critics."

Furthermore, many of the changes are not of a technical nature but appear to have been made to reduce the emphasis given to management deficiencies. Thus, where the original report points out that there was "nothing in the nature of a Pile Operating Manual" to which the physicist whose faulty manipulations caused the fire might have been able to refer—an omission which it describes as "a serious defect"—the published report merely states that the physicist "had no Operating Manual," with no further comment.

Did Macmillan require the tone of the report to be changed so as not to throw excessive doubts on the competence of Britain's nuclear authorities, both in the United States (where it could have had an impact on the Congressional debate), and in Britain (where the nuclear weapons program was already under attack by the Campaign for Nuclear Disarmament)? Such a hypothesis is strengthened by a memorandum to Macmillan from the then Minister of Power and Supply, Lord Mills—also released last month under the 30-year rule—saying that under no account should the Penney Report be published in full.

"My personal guess is that Mills feared publication would turn public opinion against the civilian nuclear program," says Arnold, the UKAEA historian. She points out that Britain's first nuclear power station at Calder Hall had been opened by the Queen only 1 year previously, and that subsequent assurances (published in the White Paper) that a similar accident could not happen in the Magnox gas graphite reactors "were taken completely without question."

The full truth behind the doctoring of the Penney Report, however, may have to wait another 20 years, because documents considered particularly sensitive can be withheld in Britain for up to 50 years. Among those still being kept confidential are the detailed statements that were made by witnesses to the inquiry.

"But the documents already available show the contradiction that can exist between private knowledge of an issue and the public presentation of that knowledge," says Brian Wynne of the School of Independent Studies at the University of Lancaster.

Wynne and others argue that the White Paper seems to have been written in a form designed to allay public fears about nuclear power. A separate report by a committee set up by the Medical Research Council to examine the health effects of the fire, which was also published in the White Paper, concluded that "it is in the highest degree unlikely that any harm has been done to the health of anybody in the course of this incident."

Today, Britain's National Radiological Protection Board is more cautious. It has admitted that "up to 33" people may have developed cancer as a result of the accident—mainly due to exposure to the isotope polonium-210 which is not mentioned even in the Penney Report. The board adds that this is an upper estimate. ■

DAVID DICKSON

Science Lobbying Groups Formed

Two new lobbying groups are forming in Washington to fight for increased funding for basic research and space exploration.

"The Coalition for Budget Function 250" boasts a name that may not mean much to people outside Washington. The title refers to the federal budget account that funds the National Aeronautics and Space Administration (NASA), the National Science Foundation (NSF), and general science programs at the Department of Energy (DOE).

This new lobby includes university organizations such as the Association of American Universities (AAU); scientific bodies like the American Physical Society; and professional groups and members of the business sector. Ed Furtek of the University of California, who is coordinating the coalition, says the purpose is "not to identify or select research priorities, but to work in support of responsible and productive levels of research and development funding."

What that really means is that the coalition wants to build a following for NASA, NSF, and DOE that is as strong as that generated by the organizations that lobby each year for the National Institutes of Health and education budgets. The aim, says Furtek, "is to expand the size of the pie."

Function 250 was held to $10.9 billion in fiscal year 1988, a level that was insufficient to fully fund NASA's request for the space station (*Science*, 8 January, p. 134) or to boost research spending much at NSF. The Administration had requested $11.5 billion for Function 250 in 1988 and is expected to ask for close to $14 billion in FY 1989.

The second group, the Coalition for National Science Funding, will focus primarily on the on the needs of NSF. AAU vice president Jack Crowley, who is chairing the steering committee, says the group is likely to have a broad-based membership that will include the university sector, engineering societies, and industrial organizations. The coalition plans to outline its goals in the next few weeks.

Both groups have their work cut out for them. President Reagan's FY 1989 budget is expected to contain strong funding increases for science. But, last year's budget summit calls for holding increases in discretionary spending accounts, which include virtually all federal R&D programs, to $148 billion—just $3 billion above 1988's level. The two groups' first task is to convince the House and Senate budget committees to provide function 250 with a hefty allocation that appropriations committees can work from.

While two new science lobbying groups are gearing up, a third, the 7-year-old National Coalition for Science & Technology, is closing down. Philip Speser, who directed the grassroots organization, says that when it comes to lobbying for general science it appears that the organization must be based on institutional membership, rather than on individual members. ■ **MARK CRAWFORD**