Lawrence Berkeley laboratory

SDI brings back old problem

Berkeley, California

THE steep decline in federal support for magnetic fusion research and the concurrent growth in the Strategic Defense Initiative (SDI) budget are posing hard questions at Lawrence Berkeley Laboratory (LBL). Administrators and staff are having to confront again a question many thought had been settled in the early 1970s, when the laboratory's remaining classified research projects were either wound down or transferred to Lawrence Livermore Laboratory, 40 miles away.

Should LBL pursue weapons-related research for the Department of Defense that might, if successful, end up being classified? Recent hard-fought negotiations over publication restrictions on strategic defence research at LBL have now thrown the issue into new relief.

The ability of the national laboratories to set their own policies on classified research was challenged last summer, when the Department of Energy proposed (*Federal Register*, 26 August, p.34662) that they should agree to accept defence work, whether classified or not. That proposal was withdrawn after strong opposition from virtually all quarters, and led LBL director David Shirley to issue a clarifying statement last November to the effect that research at LBL could be "freely communicated to the scientific and technical community". Occasional use of laboratory facilities for classified work by investigators from other institutions would need case-by-case approval in advance by the director.

Similar questions have now been raised

by research, supported by the SDI organization, into neutral-particle beam accelerators and high-current beam instability. The "very objectionable" restrictions on publication originally proposed by the SDI organization have been "fought very hard", according to LBL's general counsel Aleetha Owens. But the fighting is apparently not yet over.

The neutral beam research includes theoretical and experimental work on the development of hydrogen-ion accelerators, and was until recently supported by the Department of Energy's magnetic fusion programme; neutral beams formed by neutralizing hydrogen ions might be a means of heating plasmas to achieve conditions required for fusion. But the magnetic fusion budget at LBL has fallen from around \$6 million to \$2 million in the past two years, and substantial layoffs were likely without an alternative source of funds.

After what sounds like much heart-searching, investigators in LBL's accelerator and fusion research division decided last year to make two applications for SDI funds. A third proposal, for a radio frequency quadrupole accelerator to operate at extremely low temperatures in outer space, was vetoed by the division on the grounds that it had no feasible non-military justification. The result of the applications submitted was a contract for the work on neutral particle beams worth \$2.2 million in the current year, with another \$600,000 for theoretical studies of instabilities in high current beams. SDI also supports work at LBL on infrared sensors.

Laboratory staff say they have been left in no doubt that SDI research results must now be submitted for pre-publication review to ensure that classified information is not disclosed, although the research itself will not be secret. This apparently represents a change of policy by the SDI organization, which insisted last year that there should be no such restrictions on earlier particle beam work. A statement dated 14 February 1986 and signed by James Huggins of the US Army's Strategic Defense Command now circulating among LBL staff says that, following pre-publication review, "any information deemed classified shall not be published".

Staff see Huggins' declaration as drawing a "mighty fine line" between classified and unclassified research. Huggins also states that new interviews and press releases on neutral particle beam work will require advance review for classification and that information that is "non-releasable based on the Militarily Critical Technologies List" shall be revised in consultations with the author.

Owens says she doubts that pre-publica-

tion review would be used to classify LBL research retroactively, but sceptics point to the free electron laser as an example of LBL research that was classified and moved to Livermore when it became militarily important. Although the SDI money at LBL is already flowing for the neutral beam and beam instability research, the official LBL line is that the publication conditions of the contract have still not been settled. Huggins' state-

ment is described as an interdepartmental agreement between the Departments of Defense and Energy which has still not been agreed by the director of LBL.

A further complication is that the University of California, which manages LBL, has endorsed the "no classified research" policy and would take a keen interest in any erosion of that position.

Another concern, according to Jay Marx, assistant director of the accelerator and fusion research division, is the feeling in the division that SDI funds should not exceed 10 per cent of the division's budget because "frankly we're worried about the volatility of the funding". Director Shirley adds that if the laboratory is to undertake a multi-million dollar project, it should have confidence that support will continue for a substantial period, say ten years. But SDI is hoping to achieve breakthroughs by the early 1990s and "that is not research".

There is a conspicuous absence of security controls at LBL; all buildings are open, and visitors can enter the site without so much as a name check by hopping on a shuttle bus at the University of California's Berkeley campus, just a mile down Cyclotron Road. Researchers say they value the unrestricted exchange of ideas with university faculty and others, and are wary of the change in atmosphere that security restrictions would bring about.

Thus James Symons, head of LBL's nuclear chemistry division, says "most people much prefer the present system and hope we can keep it that way". Symons is clearly speaking for the majority in saying that he would react "very strongly and very negatively" to the imposition of restrictions on what he could publish. But the alternative, at least for some researchers, seems to be no research at all. Some might say the objectors had better decide whether they want to have their cake or eat it.

Tim Beardsley

UK flood channel

THE UK Science and Engineering Research Council has this week opened a new flood channel facility built at a cost of £0.75 million at Hydraulics Research Limited, Wallingford. The facility is designed to investigate the interaction between flow in a river channel and over a flood plain; it is 56 m long and 10 m wide, with a discharge capacity of up to $1.1 \text{ m}^3 \text{ s}^{-1}$. □