Congress. Says GAO, "We are concerned that large investments may be made in accelerator projects that ultimately may not be approved by the Congress for construction."

Martha O. Hesse, assistant secretary for management and administration at DOE, replied to GAO's draft report with a 58-page list of exceptions to its conclusions.

Because DOE strongly objects to many of the agency's findings, GAO recommends that the House and Senate Appropriations committees specify in forthcoming fiscal year 1987 funding bills that DOE must provide deeper explanations of accelerator research and project initiatives. Requested a year ago by Senator Bennett Johnston (D–LA), ranking minority member of the Senate Appropriations subcommittee on energy and water development, the report may well force DOE to spell out costs in more detail. In an atmosphere of tight budgets, House and Senate congressional aides note, Congress is going to be wary of embracing a project like the SSC without a firm understanding of its true cost and potential technical pitfalls. ■ **MARK CRAWFORD**

Space Science Board Endorses Conventional Rockets for Science Missions

The National Research Council's Space Science Board has endorsed a growing sentiment within the space community that conventional rockets, not the space shuttle, should be the primary means for launching unmanned payloads.

"We are calling for a drastic change in policy that would once more make expendable launch vehicles the primary system for launching scientific spacecraft," said board chairman Thomas M. Donahue of the University of Michigan in a press conference on 21 April.

"We are most emphatically not taking a position against people in space," he added. "Most of us [in the scientific community] believe that there are functions that people in orbit perform well in support of science and application missions, such as materials processing, life sciences, and retrieving, servicing, and refurbishing orbiting spacecraft." However, trying to use the space shuttle as a general-purpose launch system mixes the objectives of the manned and unmanned elements of the space program in ways that reduce the effectiveness of both of them.

Even before the explosion of the Challenger, said Donahue, the decision of the National Aeronautics and Space Administration (NASA) to phase out expendable launchers in favor of the shuttle had a devastating effect on space science. A gap of nearly a decade had already opened between the launch of the Voyager spacecraft aboard a Titan-Centaur rocket, in 1977, and the scheduled launch of comparable missions such as Galileo, Ulysses, and the Hubble Space Telescope aboard the shuttle this year. After the accident these missions have now been delayed at least another 18 months, as NASA struggles to bring the shuttle back to flight status.

Of the seven major unmanned science missions that had been scheduled for launch aboard the shuttle during the next 2 years, said Donahue, all but one—the space telescope—could in principle be launched on existing Titan, Atlas, and Delta rockets. Thus, he said, the Space Science Board urges that a high priority be given to reassessing the proper balance of the manned and unmanned space program, and that scientific payloads be placed on expendable rockets whenever possible.

The board was not unmindful of the cost of such a move, Donahue added. Indeed, he said, "We address the question of whether we can do all that the nation's space program should do with the kind of resources that have been available for the last 15 years. We say that it may be impossible, and recommend that the resources needed be provided to do this program right or not at all. Trying to skimp on a highly visible, prestigious activity on the frontier of technology inevitably leads to highly visible and damaging failure." ■

M. MITCHELL WALDROP

MIT's Relationship With DOD Lab Criticized

A faculty committee at the Massachusetts Institute of Technology recently released a report critical of the university's present relationship with Lincoln Laboratory, a highly respected research center that performs classified work for the Pentagon. In particular, it called for a more balanced program of both military and nonmilitary research at the lab, and criticized the weak interactions of the laboratory's "first-rate" staff with the rest of the campus.

Located in Lexington, 17 miles from MIT's main campus, Lincoln has been managed by the university since 1951, when it was established by the Air Force to develop a system of air defense. Ever since, its staff has endeavored to stay as far out of the public eye as possible, largely due to the sensitive nature of its research assignments. According to the report, at present these include "communications, radar and remote sensing, electronic warfare, signal processing, and physical electronics." Roughly a quarter of its $250-million annual budget apparently now comes from the Pentagon's "Star Wars" missile defense program.

In 1969, the last time a detailed report was prepared on the lab, the faculty was critical of its largely miltary bent and called for both a reduction in lab secrecy and an infusion of new nonmilitary work. To some extent, the new report says, these goals were met a few years later, when nonmilitary work grew to nearly 15% of the lab's budget; since then, this trend has been reversed, and the lab now has only a single large nonmilitary contract (for an air traffic control system), amounting to less than 4% of its budget.

Secrecy continues to hamper campus-laboratory interaction, the report says. "While Lincoln staff members have free access to the whole menu of campus lectures and seminars," for example, most seminars at Lincoln "are either classified or held within classified areas."

The committee apparently took some pains to avoid any direct reference to divestment, the path chosen by MIT after a similar controversy involving the Draper Laboratory, also funded by the military. One difficulty with this solution, as the report notes, is that it would terminate the lab's "substantial" financial contribution to the campus, amounting to roughly $13.5 million a year for overhead expenses.

Another consideration, cited by committee chairman Louis Smullin, a professor in the department of electrical engineering and computer science, is that continuing association with MIT not only lends the laboratory some independence from its corporate sponsor, but also potentially enables the campus to exercise some influence over the direction of its work. Citing an aphorism of former MIT president Jerome Wiesner, Smullin notes that " 'if the military is going to conduct R&D, it should at least be good,' and through our association, we can have a say in that."

So far, the committee has merely called for additional review of the "nature and direction" of the university's future ties to the lab, "taking into account the benefits to Lincoln, to MIT, and to the public." MIT provost Deutch, a longtime member of the Defense Science Board, says that he welcomes this review, but that he already favors closer, not weaker, ties to Lincoln. Divestment, he says, "is not under consideration." ■ **R. JEFFREY SMITH**