

Supercollider site selection moves into final round

- Eight states in, but California out
- Final choice up to Energy Department

Washington

A REPORT released last week by the National Academy of Sciences (NAS) has turned eight states into fervent supporters of high-energy physics. On 30 December, NAS issued its shortlist of the eight best-qualified sites for the Superconducting Super Collider (SSC), the \$4,400-million particle accelerator that high-energy physicists and the Reagan administration would like to build.

The sites chosen, one each in Arizona, Colorado, Illinois, Michigan, New York, North Carolina, Tennessee and Texas, include no surprises, but the omission of California from the list was unexpected and has provoked some tentative dissent.

The Department of Energy (DoE) passed on to NAS 36 site applications satisfying the basic needs for a permanent home for SSC, a proton-proton collider capable of collisions at 40 TeV.

To guide NAS in evaluating the proposals, DoE drew up a list of 19 technical criteria which emphasized geological stability and ease of tunnelling, but included such considerations as regional manpower and housing resources and environmental impact. The academy panel was carefully protected from the inevitable political pressure that will be exerted by competing states. Apart from the international prestige, SSC construction will create thousands of jobs, and be a huge boost for any state's economy.

NAS sent its recommendations to the Department of Energy (DoE) on Christmas Eve, expecting that DoE would take time to verify that its selection criteria had been properly considered before releasing the list to the public in early January. But Energy Secretary John Herrington began calling senior political figures from interested states to tell them the news and one, Senator Phil Gramm (Republican, Texas), called a press conference on 29 December to announce the outcome.

Although the NAS report describes strengths and weaknesses of the eight finalists, it is careful not to choose favourites, and gives no specific reasons why other proposals fell short; failure to get on the best-qualified list is attributed by the panel to a combination of doubts rather than particular faults. This has mystified the Californians, whose site near Stockton was thought by many to be strong.

The criteria used by NAS included a provision that time, money and possible litigation involved in meeting local

environmental statutes were to be considered, but although the California proposal had been marred by such worries, the report says that environmental or site-acquisition problems were not insurmountable for any of the bids. Indeed the panel chose the Rochester (New York) site despite receiving many letters of opposition from local residents.

The eight chosen sites all have good geology, and the final selection will probably be influenced by more qualitative factors, especially those in the vaguely worded category of 'regional resources'.

The Illinois bid proposes to incorporate the existing facility at Fermilab into the SSC. This could lower costs substantially, but how important cost will be in DoE's final decision is far from clear.

DoE is sympathetic to the desire of California SSC supporters, and others, to know why their bids failed, and is looking for ways to reveal more without compromising the NAS panel's private deliberations. And although the California SSC committee has publicly stated its disappointment, it is unlikely to protest too vehemently for fear of upsetting the SSC project.

David Lindley

New CERN head

London

THE next director-general of CERN (the European Organisation for Nuclear Research) is to be Carlo Rubbia, joint winner of the 1984 Nobel prize for physics. Rubbia, 53, starts his five-year term on 1 January 1989. A senior physicist at CERN



since 1961, Rubbia at present spends one semester a year in Cambridge, Massachusetts, where he is Higgins professor of physics at Harvard University. The rest of his time is spent mostly at CERN, where he supervises experiments on the proton-antiproton collider. S.L.H.

Shuttle suffers further setback

Washington

THE latest timetable for putting the space shuttle back on active duty has been scrapped after the discovery of serious damage to a solid-fuel booster that was tested on 23 December. The test was initially judged a success, but closer inspection a few days later revealed that a large section of the flexible seal between the rocket casing and the swivelling nozzle had broken away.

The National Aeronautics and Space Administration (NASA) announced on 29 December an indefinite delay to the proposed June 1988 shuttle launch, and until the new problem has been analysed no one is guessing when the shuttle will leave the ground.

Although the joint between the nozzle and the casing was not that blamed for the Challenger accident, engineers at NASA and Morton-Thiokol, where the booster is manufactured, had recognized it as a potential weak spot and had redesigned it. In the latest test, the first full test of the new joint, the nozzle was swivelled to simulate extreme flight conditions.

According to some preliminary reports, the failure of the seal occurred in the last few seconds of the test firing, when the nozzle was moved to the maximum allowed extent, but the design should nevertheless have accommodated the movement. In the best case, the failure will turn out to be the result of a manufacturing flaw, when there might have to be more tests than planned, but the shuttle could still be flown later this summer. In the worst case, if fundamental design problems turn up, the postponement could stretch into next year.

Engineers from both NASA and Morton-Thiokol will study the shell of the motor, and hope to have dismantled the failed joint in a matter of days. But until their analysis yields specific pointers to the cause of the failure, NASA will make no comment on the future schedule of testing and eventual flight of the shuttle.

David Lindley & Joseph Palca

The education bill: reform or otherwise?

A SEMINAR on the implications of the Education Reform Bill organized by *Nature* will be held in London on the afternoon of 19 January. The principal speaker will be Sir Mark Richmond, Vice-Chancellor of the University of Manchester and Chairman of the Committee of Vice-Chancellors and Principals. Those wishing to attend should apply for tickets and further information to Mary Sheehan (01-836 6633 extension 2223). □