

is taking steps to unblock the restraint on the LEP reconnaissance gallery, which depends on whether the gallery is a temporary or a permanent construction. If it is temporary, the law under which permission was originally granted is appropriate; if permanent — as Agena successfully argued — it is not. The ministry is attempting on the one hand to argue that the gallery is, after all, temporary and on the other to get approval through a different law. **Robert Walgate**

Particle physics

Director resigns

Washington

Dr George Vineyard, director of the Brookhaven National Laboratory on Long Island, New York State, announced last week that he is stepping down in order to return to full-time research. His resignation has been accepted "with regret" by the board of trustees of Associated Universities Inc., the consortium of nine universities which operates the Brookhaven Laboratory for the US Department of Energy. In a statement issued after the board's meeting last Monday, Dr Vineyard said that after nine years as director of Brookhaven, where he has been since 1954, "this appeared to be a good time to make the move".

His resignation has, however, inevitably been linked to growing speculation that the Reagan Administration is contemplating cutting funds for further development work on Brookhaven's planned 400 × 400 GeV intersecting storage accelerator (ISABELLE) which is facing delays and cost over-runs.

Uncertainty over the fate of ISABELLE has been growing ever since the laboratory encountered serious difficulties in developing the superconducting magnets, 1,100 of which will be required to complete the accelerator's two-mile circumference ring (*Nature* 286, 435; 1980).

Brookhaven now says that the problems with the magnets seem to have been solved with a new design, but the delays have inevitably resulted in cost over-runs. The bill for ISABELLE is now put at \$500 million, compared with an original estimate of \$420 million, and completion is now expected in 1988 rather than 1986.

Given the intense competition from the new proton-antiproton collider under construction at CERN in Geneva, which is now likely to beat ISABELLE to one of its principal goals, the discovery of weak vector bosons, those responsible for ISABELLE face a daunting task in maintaining political support for their machine.

Dr Vineyard denies that his resignation has anything to do with the problems with ISABELLE, pointing out that the accelerator has "turned the corner by overcoming technical difficulties with the

superconducting magnets". He says that other research at the laboratory is in a healthy state, and that the new national synchrotron light source is about to go into operation.

The Reagan Administration has, however, been making lukewarm noises about continued support. A meeting between the High Energy Physics Advisory Panel and the National Science Foundation next month is likely to discuss options. One is a scaled-down design, using superconducting magnets which have already been constructed at the Fermi National Laboratory but produce a slightly lower field that would mean a lower luminosity. Another is to scrap ISABELLE altogether. The Administration is awaiting the outcome of this meeting before deciding whether to go on as planned, or adopt one of these alternatives.

David Dickson

Incoherent scatter radar

Auroral visions

A new high-power radar facility, designed to study the Earth's upper atmosphere and magnetosphere at auroral latitudes, was inaugurated by the King of Sweden on 26 August. The £13 million radar's operation will be supervised by the European Incoherent Scatter Association (EISCAT) whose headquarters are in Kiruna, Sweden. The director of the association is Tor Hagfors.

The member countries of EISCAT are West Germany, France, the United Kingdom (each contributing 25 per cent to the capital and running costs), Sweden, Norway (both 10 per cent) and Finland (5 per cent). Half the working time of the facility will be spent collecting data for common use. For the remainder, each country will have control of the facility for a time proportional to its financial contribution.

The radar was originally scheduled to start operation in 1978 but was delayed due to a faulty klystron — a vital transmitter component which turned out to be more difficult to develop than expected. The delay must have proved particularly frustrating to those itching to make their reputations with the new facility, but EISCAT's twenty or so staff have spent the time making astronomical observations with the receivers and developing computer software.

The facility consists of two radar systems, one operating at VHF (224 MHz) which is expected to be ready by next year, and a tristatic UHF (933 MHz) system with a transmitter/receiver at Tromsø, Norway, and receivers at Kiruna and Sodankyla, Finland. The UHF system has already produced its first crop of data. The combined systems will be able to monitor the atmosphere from 50 to 3,000 km.

The incoherent scatter technique, which EISCAT's radar utilizes, exploits the fact

Deadline missed

Legislation to bring Britain into line with the European Commission's directive on the notification of new chemicals will not now be enacted before the 18 September deadline. The Health and Safety Executive acknowledged this week that too many problems still remain to be ironed out. And in any case, Parliament will not reconvene until October.

The executive is not, however, worried that the commission will take proceedings against the United Kingdom — the United Kingdom is not the only laggard. One source of confusion is that the European directive requires the compliance not merely of governments but of other corporate bodies, including commercial companies, which may find that after 18 September they are bound by the directive.

The commission is planning to publish in the near future an inventory of all chemicals at present manufactured and sold in Europe. Companies will have nine months from the date of publication to tell the commission of substances not on the list. After that, new substances will have to be tested (toxicologically and otherwise) in accordance with the directive. Until then, however, the British and other European parliaments will have a breathing space in which to find time to comply.

Judy Redfearn

that radio waves can be scattered off individual electrons and off density variations caused by plasma waves in the ionosphere. This region of the atmosphere, which is ionized by solar and cosmic radiation, extends upwards from 50 km or so. The spectrum of backscattered radio pulses can be analysed to reveal a surprisingly large number of atmospheric parameters such as electron and ion densities, ion composition, electric fields, neutral and ionized wind velocities and temperatures.

Several incoherent scatter facilities have been constructed in the past, the most powerful being at Arecibo in Puerto Rico. Only one has operated at auroral latitudes, that at Chatanika in Alaska, which is itself to be moved to Greenland to allow more effective collaboration with EISCAT. The auroral zone is particularly important to those interested in solar-terrestrial relations because it is here that those relations are most manifest. For example, charged particles ejected from the Sun during solar disturbances can be trapped in the Earth's magnetosphere and may eventually spiral down the Earth's magnetic field lines to precipitate into the auroral upper atmosphere, causing heating and intense electric currents. EISCAT's sensitive radar should allow a detailed picture of such events to be developed, particularly when used in conjunction with other ground, rocket and satellite based experiments.

Philip Campbell