NATIONAL LABS

DOE Panel Slams Reactor Management

For the second time in less than a year, the Department of Energy's (DOE's) management of its research reactors is under attack. This time the reactor in the spotlight is the High Flux Isotope Reactor (HFIR) facility at Tennessee's Oak Ridge National Laboratory. *Science* has obtained a copy of an unusually blunt report by an expert panel that blames poor communications and faulty lines of authority for problems that led to closure of the facility in January. It warns that future disruptions are possible unless DOE takes quick action.

HFIR, which produces neutrons for research in materials science and biology as well as isotopes for medical and industrial use, was slated for a restart this month after authorities shut it down on 5 January following a series of mishaps going back to last summer (*Science*, 6 March, p. 1444). A long-planned inspection extended the closure to nearly 3 months. Researchers reacted with alarm because DOE's only other neutron-producing reactor, at Brookhaven National Laboratory in Upton, New York, is out of service indefinitely due to a tritium leak—a debacle that DOE officials also blame on poor communication and muddled lines of authority.

Oak Ridge had already done an independent study of HFIR's problems, which concluded that the mishaps were the result of too much focus on paperwork and a lack of rigor. The lab reassigned the research reactor director and is paying more attention to day-to-day operations. Meanwhile, DOE assembled its own team to review HFIR operations, led by Richard Nolan of the department's operations office in Oakland, California. It declares that current management practices are "unacceptable and must be improved" to avoid "jeopardiz[ing] current and future HFIR missions."

Although Lockheed Martin runs Oak Ridge, the reactor itself is managed by DOE's nuclear energy office in Washington and a site office in Oak Ridge, and its bills are paid by DOE's Office of Energy Research (OER). Nolan's report concludes that these components don't get along. "Communication between all the parties is inadequate and ineffective," the report states. There's a "significant lack of trust and respect" among the parties, he says, leading to "high levels of frustration" and a lack of teamwork.

In particular, the reactor's operators often clash with its scientific users on such issues as scheduling maintenance. "Reactor operators did not appreciate the impact of their work on [research]," says Iran Thomas, materials sciences chief in the basic energy sciences division of OER. Operators insist that they are misunderstood, too. "[We're] really sorry at times that scientists can't conduct experiments, but we're not going to violate our safety criteria," says one. The problems are made worse, the report states, because officials in Washington have kept DOE's Oak Ridge office effectively out of the loop and have failed to give Lockheed Martin a reason to improve its performance.

These combined tensions "may directly contribute to a lack of focus on operations in the facility," the report states, which has led to problems ranging from an electrical injury to maintenance snafus with the cooling system. Nolan's team also found that status reports were often "poorly written" and faced an "arduous" approval process, and that a safety analysis study was years overdue. "There was an awful lot of acrimony that played out in paperwork that prevented people from walking the floor and running the reactor," says Nolan. "If you fight over your relationship, you are not attending to the real issues."

Nolan, Thomas, and other DOE officials say better communication rather than a major restructuring is sufficient to solve the problems. "The offices responsible for funding and operating the reactor are within 100 yards of each other," says Thomas. "We talk daily." But the hard part, he says, will be to "give a consistent message to the lab" about how to run the reactor.

It may be even harder to apply the lessons to other DOE facilities. DOE officials hope to do this as part of a plan that responds to the criticism in the Nolan report. The report is expected to be completed early this month.

–Andrew Lawler

PARTICLE PHYSICS

Asia Takes a Team Approach

TSUKUBA, JAPAN—The countries ranged from India to Japan, and the facilities from synchrotron light sources to heavy-ion machines for medicine to linear colliders for fundamental physics. But the 400 scientists and engineers from 15 countries who met here last week for the first Asian Particle Accelerator Conference had a common mission: pooling their expertise and resources in search of new knowledge and applications in physics, materials science, and biomedical research.

Organizers hope to make this conference the Asian counterpart to long-standing accelerator conferences in North America and Europe. "Now it's time to have an Asian one," says Hirotaka Sugawara, a major organizer of the new conference and director-general of Japan's High-Energy Accelerator Research Organization (KEK), the former National Laboratory for High-Energy Physics.

The Asian investment in accelerators has reached the point at which every country can benefit from regional cooperation, say organizers of the conference, which grew out of a bilateral China-Japan agreement. Japan already has several world-class facilities, while Korea, China, and Taiwan have each brought major new synchrotron radiation light sources on line within the last 5 years. China also has the Beijing Electron Positron Collider and the Heavy Ion Research Facility in Lanzhou. By 2000, Thailand hopes to be operating its own 1-billion-electron-volt (GeV) synchrotron radiation light source, the Siam Photon Project, while India's Center for Advanced Technology in Indore is building the 2-GeV Indus-2 synchrotron radiation source. There are also plans (see table) for even more ambitious projects if and when the region overcomes its current economic difficulties.

The participants acknowledge that, outside Japan, their facilities are not pushing the

ACCELERATING INTO THE NEXT CENTURY

	Name/Location	Description	Cost	Status
JAPAN	RI Beam Factory at RIKEN	Heavy-ion accelerator to study radioactive isotopes	$560 million	1st phase under way, completion in 2004
JAPAN	Japan Hadron Project at KEK	Proton synchrotron for kaons and neutrino oscillation	$700 million	Decision due in 1998; to finish 2004 or later
JAPAN	Neutron Science Project, JAERI	Linear accelerator for transmuting nuclear waste	To be determined	R&D funded; target start in 2001
CHINA	Tau-Charm Factory at IHEP in Beijing	Double-ring collider to study tau, charmed particles	To be determined	Feasibility studies completed
CHINA	Shanghai Synchrotron Radiation Facility	Soft x-ray, high UV light source	$100 million	Pending approval, target finish in 2003
KOREA	Multipurpose Accelerator Complex	Proton accelerator for transmuting waste, energy production	To be determined	R&D phase through 2002; target finish in 2006

SOURCE: CONFERENCE PRESENTATIONS