

# Plans for Russian uranium payments stir fears of nuclear proliferation

**Paris.** Russia may provide highly enriched uranium (HEU) to two research reactors in France as its subscription fee to research programmes at the two centres, according to an agreement on nuclear materials reached last month by France and the Russian ministry of atomic energy.

But groups supporting nonproliferation claim that the plan flies in the face of international efforts to reduce civilian commerce in weapons-grade nuclear material, and would increase the risk of such material falling into terrorist hands.

Final details have yet to be agreed. But as part of the agreement, Russia would supply HEU to the Orphée reactor, which is owned by the French Atomic Energy Commission (CEA), and the 58.3-MW reactor at the Institut Laue-Langevin (ILL) in Grenoble — the world's most powerful neutron source (see *Nature* 379, 284; 1996).

ILL is owned by France and Germany — each pay annual subscriptions of around FF100 million (US\$20 million) — and the United Kingdom, which pays about FF67 million. The reactor also has three 'scientific members', Austria, Spain and Switzerland, which contribute a total of around FF20 million annually.

Under the proposed agreement, Russia would also be given the status of scientific member, according to Reinhard Scherm, director of ILL, who says that Russian membership will provide an important scientific boost to ILL's activities. Russia would pay its fee in HEU; the precise amount of HEU involved in the deal has not been disclosed, but ILL consumes around 45 kg a year.

ILL has been seeking new partners since the United Kingdom reduced its annual subscription from a third to a quarter in 1992, forcing ILL to reduce the number of its beamlines and to make 80 of its 500 staff redundant. It is now actively wooing Italy, according to Scherm.

But the prospect that Russia will pay for its membership in HEU has provoked fierce protests. Paul Leventhal, president of the Nuclear Control Institute (NCI) — a lobby group based in Washington DC — describes the proposal as a "direct assault" on the 1978 international agreement on Reduced Enrichment for Research and Test Reactors (RERTR). This is aimed at phasing out the use of HEU in research reactors, given the danger that the fuel could be used to make nuclear weapons.

The United States has reinforced the RERTR programme by banning the export of HEU to reactors that could be converted

to light-enriched (non-weapons grade) uranium (LEU) but have declined to do so, and also allowing exports to other reactors only on condition that they convert to LEU as soon as is feasible (see *Nature* 369, 89; 1994). This policy has led to a reduction in annual US exports of HEU from more than a tonne in the 1970s to zero.

As a result, nearly all research reactors in Europe and the United States have either converted to LEU or are in the process of doing so. A handful of reactors that could use existing LEU fuels have refused to convert, however, and about a dozen have not converted because suitable LEU fuel substitutes have not yet been developed.

Leventhal argues that if Russia is allowed to provide Europe with HEU, the US ban on HEU exports would no longer be an effective incentive to force research reactors to convert to LEU — until now, the United States had been the almost exclusive supplier of HEU. In a bid to discourage Russia from exporting HEU, US agencies have also begun buying up HEU extracted from Russian warheads and diluting it to LEU.

Russian exports of HEU to Europe

would undermine many of the gains made under the RERTR programme, says Leventhal. Such exports would, for example, enable construction of the controversial FRM-II research reactor outside Munich in Germany (see *Nature* 379, 284; 1996), which would be the first HEU-fuelled research reactor to be built — outside Libya and China — since the establishment of the RERTR programme. And Russian commerce in HEU would defeat longer-term plans to encourage research reactors in Russia and China to convert to LEU.

Attempts to persuade Germany not to use HEU in the FRM-II would be "compromised" if France imports Russian HEU, argues Mycle Schneider of the Paris-based energy and environmental consultancy WISE. "The French deal sets a very bad precedent that goes against all attempts to get rid of civil HEU," he says.

Indeed, Russia is already negotiating the supply of HEU to research reactors in the United Kingdom, Germany, Belgium and the Netherlands, according to Euratom (the European Atomic Energy Community), although formal agreements have not yet ►

## UK observatories look to private sector

London. **The British government has announced that private-sector organizations will be invited to bid for the services provided by its 'Royal Observatories', made up of telescopes on Hawaii and the Canary Islands, and instrumentation development and control activities at the Royal Greenwich Observatory in Cambridge and the Royal Observatory Edinburgh.**

**The intention is to make more efficient use of the observatories' annual budget of £15 million (US\$10 million), in line with recommendations put forward by the Particle Physics and Astronomy Research Council (PPARC), their legal owner.**

**PPARC has welcomed the announcement and intends to use any savings or additional income from potential new observatory activity to help fund long-term scientific projects.**

**But the decision has been criticized by at least one major trade union. Tony**

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**Bell, a negotiator with the Institute of Professionals, Managers and Specialists (IPMS), says that private-sector management of the observatories is not the solution to what he describes as "inadequate funding" for PPARC.**

**He warns that the move will sound "the death knell" for the Edinburgh and Cambridge organizations, both of which support the Isaac Newton Group of telescopes at La Palma in the Canary Islands (above), and the Joint Astronomy Centre on Hawaii. Ehsan Masood**