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NUCLEAR PHYSICS

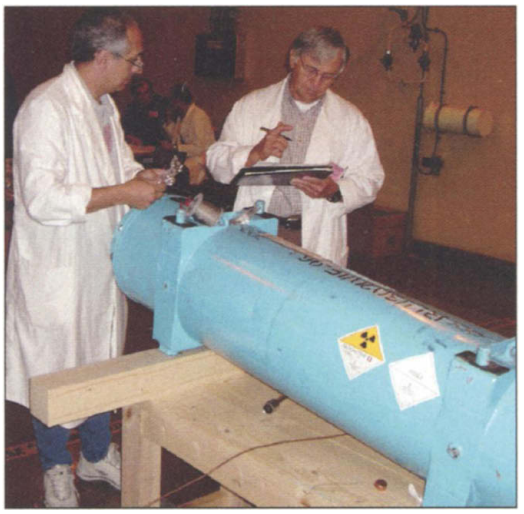
Belgrade Lab Sets New Course After Top-Secret Uranium Grab

CAMBRIDGE, U.K.—Last week's cloak-and-dagger operation to remove weapons-grade uranium from a physics institute in Yugoslavia has allowed nuclear nonproliferation experts to breathe a little easier. But it has complicated life for the Vinča Institute of Nuclear Sciences in Belgrade, which is scrambling to find work for its scientists and to lend a hand in the country's revitalization. The surprise raid pulled the rug out from under an international research collaboration aimed at easing the country's reliance on coal. In a separate development, however, the institute also got a boost this week: final approval of a multimillion-dollar project to produce medical isotopes for the country's health care system.

Vinča was once a bastion of topflight nuclear research (*Science*, 27 October 2000, p. 690). Although its research reactor has been dormant since 1984, Vinča has maintained a cache of 5000 fuel rods of highly enriched uranium (HEU). That fuel, according to the U.S. State Department, would have provided enough material to make two nuclear bombs. So on 22 August, U.S. and Russian experts, with Belgrade's help, entered the plant, scooped up the 48 kilograms of unused fuel, and flew the material to a processing plant in Russia, where it will be blended down for use in civilian power plants. The operation eliminated what State Department spokesperson Philip Reeker labeled "one of the U.S. government's highest priority nuclear proliferation threats."

U.S. fears about the uranium's fate had crested during NATO's bombing of Yugoslav troops in Kosovo in spring 1999, when Slobodan Milosevic was still in power. "I thought, 'My gosh, we don't know what Milosevic might do with the highly enriched uranium,' " says Matthew Bunn of Harvard University's Belfer Center for Science and International Affairs, who at the time was leading a secret study for the Clinton Administration on the security of Russia's nuclear materials. Bunn and others feared that Milosevic might sell the material to a country like Iraq. After the 11 September attacks, concern shifted to a terrorist raid on the lightly guarded storage area.

The precision strike—kept secret from everyone at Vinča except its director—went off smoothly but claimed a civilian nuclear power project as an unintended casualty. Vinča researchers had hoped to use 10 kilograms of the HEU for a tabletop "subcritical assembly" experiment in which the uranium would be irradiated with protons from the institute's cyclotron. The solid state physics experiment would have simulated conditions in a light water nuclear reactor.



Sealing things up. Inspectors check seals on HEU fuel containers before they are flown out of Belgrade.

Yugoslavia does not have nuclear power, but experts have been pondering its development in view of the uncertain future of Kosovo and its tremendous coal reserves, says Vinča's Nebojsa Neskovic. His group was going to tap expertise from a team at Brookhaven National Laboratory in Upton, New York. "I don't know what they're planning to do now," says Brookhaven team leader Hiroshi Takahashi. In principle, Takahashi says, the experiments could run on low-enriched uranium—fuel containing less than 20% uranium-235. (Vinča's erstwhile HEU is 80% uranium-235.) But Vinča doesn't have any of this nonweapons-grade fuel. "I would hope that the U.S. can help with this," says Bunn.

Although the reactor-simulation experiments have been sidetracked, the prospects are looking brighter for many Vinča scientists. The Italian government has agreed to give roughly $2 million to upgrade Vinča's TESLA cyclotron facility so it can produce fluorine-18. The radioisotope, with a half-life of 110 minutes, will be used for positron emission tomography (PET) scanning in local medical clinics. If the Serbian government comes through with promised matching funds, Vinča should be producing fluorine-18 by early 2005. "The idea is to have something concrete for the community as soon as possible," says Neskovic, director of the TESLA Scientific Center, who notes that the government is planning to purchase the country's first PET-scanning machines by the time the isotopes are available.

Vinča also hopes to launch a basic research program on nuclear science and biomedicine. Its request for $2.65 million for further TESLA upgrades will be discussed in December at a UNESCO-sponsored meeting in Paris. And next month it expects to ink an R&D agreement with Ion Beam Applications, a particle accelerator company in Louvain-la-Neuve, Belgium, for work on next-generation medical radioisotopes such as terbium-149 for treating leukemia.

"TESLA will be an impressive research facility," Bunn predicts. The HEU commandos might even have helped, he notes, by removing the long shadow over its research program. **–RICHARD STONE**

ENVIRONMENTAL HEALTH

Critics See a Tilt in a CDC Science Panel

The shakeup of a key science panel at the Centers for Disease Control and Prevention (CDC) in Atlanta has angered environmental health advocates. Critics say that the Bush Administration is tilting the CDC advisory group toward industry, but a spokesperson for the parent agency, the Department of Health and Human Services (HHS), says the housecleaning is routine.

What's not in dispute is the change in the makeup of the advisory committee to the director of CDC's National Center for Envi-

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