technology, it was just seven pages long, with three of those pages comprising biographies of the reviewers, said James Acton of the Carnegie Endowment for International Peace. GEH hasn't made the report public because it contains proprietary information, said Ruth Ravitz Smith, who heads government relations for the company. But she said the independent review concluded that a commercial SILEX facility will pose no greater proliferation risk than does a gas-centrifuge enrichment plant. The company's assessment also concluded that the technology is well beyond the technical capabilities of nations that are aspiring to build nuclear weapons.

That didn't satisfy Acton, who recounted how Abdul Qadeer Khan had replicated the centrifuge technology from the Netherlands, and how that led to Pakistan's acquiring nuclear weapons capability. Khan's plant of 3000 centrifuges was less than 1/100 the size of today's commercial enrichment plants.

A long-term problem

According to Acton, a proliferation review should have to consider the possibility that a nation could build a much smaller laser isotope-separation facility than the commercial-scale 600 000-square-foot facility GEH intends to build in Wilmington, North Carolina. Although the company insists that everyone with knowledge of the process is properly cleared, Acton noted that "the challenge is to stop a leakage over the decades" of plant operation. He added that even if information about the technology doesn't leak out, other states are likely to attempt to replicate it, by the GEH process or some other way. Another unknown, said Acton, is how easily the SILEX process could produce highly enriched weapons-grade uranium. Smith said the Wilmington plant would have controls in place to ensure that material is not enriched to more than 8% ^{235}U.

According to Slakey, the APS petition drew 2386 responses in favor and one, from the Nuclear Energy Institute, opposed. He said the NRC can draw from other agencies, notably the Department of Energy, for the expertise necessary to assess a proliferation review.

The carbon dioxide lasers used in the SILEX process are easily acquired, said Slakey. More difficult to obtain are the high-vacuum components, which, he said, only "half a dozen" manufacturers in the world can produce.

Smith said the company has taken no position with regard to the APS petition. But she insisted that the development and deployment of SILEX has significant barriers to proliferation. Said Smith, "Every step of the way is being coordinated with an interagency group."

David Kramer

High school students compete in Estonia

Attila Szabó of Hungary was the top scorer in this year's International Physics Olympiad, which was held in Estonia in July. The 378 high school competitors represented 80 countries; 45 participants from 21 countries won gold medals. The teams from China and Taiwan were the only ones to have all five members win gold.

The US team earned three gold medals and two silvers. Golds went to Eric Schneider and Kevin Zhou, who attend high school together in Lincroft, New Jersey, and Allan Sadun of Austin, Texas. Jeffrey Yan of Palo Alto, California, and Jeffrey Cai of Basking Ridge, New Jersey, took home silvers. Schneider also won a special prize for having the best solution to one of the theoretical problems. The US team was sponsored by the American Institute of Physics and its member societies, with the American Association of Physics Teachers hosting and coaching, and by the University of Maryland's physics department and Joint Quantum Institute.

In the experimental part of the competition, students measured the magnetic permeability of water and the shape of the water's surface, and they deduced the nonlinear electronic components in a black box. The theoretical problems challenged students to calculate various quantities about ballistics, air flow around a wing, magnetic straws, and star formation. The theoretical problems were the hardest they've been in a decade, says US team coach Paul Stanley. "They spread out the highest performers. And they were fun."

For the first time, the competition was split across two cities, with competitors on the university campus in Tartu, about 200 km from the coaches and observers, who were in the capital city of Tallinn. That made it easier to separate the coaches, who knew the problems and answers, from the students, who didn't. And scanning and emailing the finished tests streamlined the grading process, Stanley says.

Next year's Olympiad will be held in Copenhagen.

Toni Feder

PAUL STANLEY

MERILY SALURA

Physics Olympiad participants roam the 14th-century ruins of Rakvere castle (below) during a break from tests. US gold medalist Eric Schneider (above) got a friendly nudge from one of the graders to practice his penmanship.