

“highly unfortunate and totally unjustified personal attack on a Senate-confirmed official in my office,” Marburger said. “The attack appears to be based on a lack of understanding of the function of my office and the qualities that are required to perform them properly. Given the ease with which this ignorance could have been rectified, it is inexcusable.”

Many members of the scientific community wondered how Marburger could defend Bush’s science policy. Neal Lane, President Bill Clinton’s science adviser and a former director of

NSF, said Marburger has “done a good job of explaining the administration’s position on the issues we raised in the statement. He has no choice but to defend the administration’s actions.” Lane, one of the signatories of the statement accompanying the UCS report, said that the administration’s response “does raise some questions that will need further investigation. On the most serious matters, however, I did not see anything new in the administration’s response.”

**Jim Dawson
Paul Guinnessy**

Yucca Mountain Workers Exposed to Dangerous Dust

Digging techniques designed to protect the “scientific integrity” of a test tunnel at the US Department of Energy’s Yucca Mountain project exposed more than a thousand workers to dangerous silica dust between 1992 and 1996, according to a DOE safety official. As many as 1500 workers may have been exposed to the dust, which can cause silicosis, a progressive and potentially fatal lung disease.

The problem first came to light last September when a former worker at Yucca Mountain told DOE’s Office of the Inspector General that workers had been overexposed to silica dust during mining operations in the early to mid-1990s. An investigation found that for several years after digging began on the five-mile-long test tunnel, water suppression of dust was not routinely used. According to Gene Runkle, a safety official with DOE’s

Office of Civilian Radioactive Waste Management (OCRWM), “to ensure scientific integrity of the tests that would be performed there,” the suppression technique was not used.

Moisture is a critical issue in Yucca Mountain, which is slated to become the federal government’s permanent repository for tens of thousands of tons of high-level radioactive nuclear waste. Pending approval from the Nuclear Regulatory Commission—DOE plans to submit its license application in December—Yucca Mountain could begin to receive waste in 2010. Standards call for the waste to be isolated from the surrounding environment for at least 10 000 years—and that requires, among other things, an extremely dry facility.

Former employees have also claimed, and DOE officials have conceded, that tunnel workers weren’t re-

quired by the DOE mining contractor to wear respirators or even facemasks during the first several years of tunneling. After a 1996 safety review by OCRWM, respirators were made mandatory and ventilation was significantly improved in the tunnel, according to testimony Runkle gave at a recent hearing of the Senate Subcommittee on Energy and Water Development held in Las Vegas, Nevada. Runkle also said that a protection program established in 1998 has actively monitored workers and discovered only two confirmed cases of silicosis.

Gene Griego, the former tunnel worker who first alerted DOE to the problem, contends that there are scores of people affected by silicosis. He has filed a class-action lawsuit against the DOE contractors who oversaw the early tunneling.

DOE officials responded in January to complaints about the silica overexposure by setting up a medical screening program, which is run by the University of Cincinnati under the direction of OCRWM. Letters have been mailed to about 2400 current and former employees informing them of the program. Yucca Mountain workers who might have been exposed to high levels of silica dust and other potentially toxic materials are offered free silicosis screening. As of late March, 300 people had responded to the letter.

Senator Harry Reid (D-NV), a staunch opponent of the Yucca Mountain project since its inception in 1987, is highly critical of DOE’s handling of the silicosis issue. In announcing the Senate hearing in Las Vegas, Reid said DOE “sent workers into that mountain knowing full well of the presence of silica and knowing full well that exposure to silica can cause death.” He added that DOE knew the exposure was “100% preventable, but did nothing that would have protected these workers. At best, DOE’s actions are negligent and at worst criminal, and I intend to use this hearing to get to the bottom of this.” Reid is particularly passionate about the issue because, according to his staff, his father was a miner who suffered from silicosis.

At one point during the hearing, Reid interrupted Runkle and said, “DOE ignored the threat. What has taken place here is just absolutely wrong.”

Runkle later said project administrators were trying to “balance opera-

Early tunnel workers at Yucca Mountain are at risk of developing silicosis.



DEPARTMENT OF ENERGY

tions and the safety requirements at the time. There were safety processes in place and they were taken into account."

Reid has promised the former workers that his office will closely monitor the safety and screening programs

at the mountain. Meanwhile, a DOE staff member said, a departmental investigation is under way into allegations that air monitoring numbers were altered by project managers in the mid-1990s to cover up the extent of the dust problem. **Jim Dawson**

ous nature of the place's water and drainage infrastructure," says Frank Calaprice, the Princeton University physicist who leads US participation in Borexino. "All that will get fixed. In a certain sense, even though the incident created many problems, it's all for the good."

But while the measures at Gran Sasso may be good news for Borexino and other experiments, they're bad news for GNO. The detector that played a key role in confirming the deficit in solar neutrinos got the ax. The main reason, says Gran Sasso Director Eugenio Coccia, is that fixing one particular leak requires dismantling a tank containing 100 tons of gallium chloride solution. Moreover, running both GNO and Borexino might exceed new limits on the total amount of dangerous chemicals allowed in the lab. "GNO has already obtained the main results of its physics program. Borexino is an experiment that should start," says Coccia. "Under normal conditions," adds Iarocci, "there would have been no problem in extending GNO's activity. But given the situation, INFN decided the experiment should be concluded."

Not surprisingly, GNO scientists take a different view. As Till Kirsten

On the Mend, Gran Sasso Sacrifices Low-Energy Neutrino Observatory

The Gallium Neutrino Observatory (GNO) is the price that Italy's underground lab is paying to get back on its feet after a small chemical spill nearly two years ago.

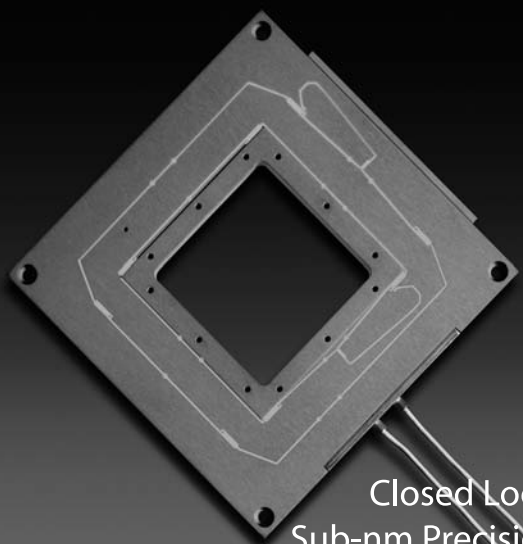
The spill—about 50 liters of scintillator from a test facility for Borexino, an experiment that will study neutrinos from beryllium-7 interactions in the Sun—opened the door to broad safety investigations at Gran Sasso National Laboratory. The investigation found that leaks could contaminate local drinking water. An ensuing precautionary ban on liquids crippled the lab (see PHYSICS TODAY, August 2003, page 25).

Early this year, the ban on water and cryogenic fluids was lifted. But before authorizing the use of toxic

chemicals, a government-appointed investigator is requiring that the water system be repaired and the lab's experimental halls be sealed and outfitted with their own drainage systems. "This is an extreme extra containment," says Enzo Iarocci, president of Italy's National Institute for Nuclear Physics (INFN), which oversees Gran Sasso. "It's a simple concept—just a giant tray underneath each experiment."

The INFN is shelling out €15 million (roughly \$18.3 million) for the modifications to the lab, and the Italian government will pay an additional €6 million for the repairs to the water system. Both projects are expected to be completed in about six months. "Our little spill revealed the precari-

Nanopositioning Systems



Closed Loop
Sub-nm Precision
Custom Solutions

www.madcitylabs.com

+1 608 298-0855

sales@madcitylabs.com

MAD CITY LABS, INC.

RGA+Ion Gauge+Pirani
Residual Gas Analyzer Plus.....

Extorr



- *Three gauges on a single probe with a 2 3/4" flange.
- *A small, powerful control package drives the probe.
- *RS232 connection to your computer.
- *Complete operation under Extorr windows software.
- *Immediate startup using the built-in Pirani gauge.
- *Automatic ion gauge operation.
- *Automatic residual gas analyzer operation.
- *Continuous monitoring protects the filament.
- *All is recorded. All is protected. All is monitored.
- *Autoranging, high stability, and high sensitivity.

Three gauges in one extraordinary package.
Extorr is an outstanding vacuum measurement value.

100 amu for \$3450 (U.S. list)

Extorr Inc.
307 Columbia Road
New Kensington, PA 15068
Tel 724-337-3000 Fax 724-337-8322

Our Website is
www.extorr.com