

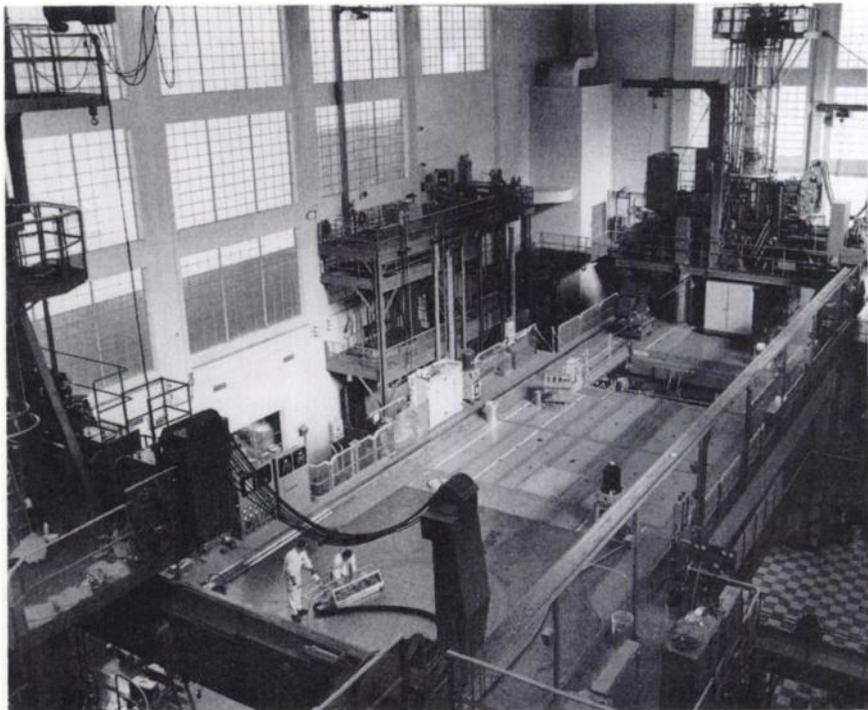
THREATENED REACTOR WORKER STRIKE STARTLES NUCLEAR MEDICINE PROFESSION

A STRIKE BY CANADIAN reactor workers that would have paralyzed clinical nuclear medicine in several countries was narrowly averted on July 21, but still sent shock waves through the nuclear medicine industry, which depends on nuclear reactors operated by Atomic Energy of Canada, Ltd. for molybdenum-99 and other crucial radioisotopes. AECL and union officials reached a settlement only hours before reactor operators were set to walk out.

The incident could help nuclear medicine physicians and scientists in their efforts to convince the U.S. government and private-sector radiopharmaceutical manufacturers to develop additional sources of radioisotopes. During the AECL incident, a congressional committee finally released a long-awaited report by the General Accounting Office, which catalogues the woes of the Energy Department's troubled isotope supply business (see story on p. 22N).

Clinical nuclear medicine relies heavily on the ^{99}Mo radioisotope, which is used to make technetium- $^{99\text{m}}$. Over 90% of all nuclear imaging procedures each year use $^{99\text{m}}\text{Tc}$. Nuclear physicians employ $^{99\text{m}}\text{Tc}$ radiopharmaceuticals to diagnose ailments in an estimated 35,000 patients each day in the U.S. alone. Without the isotope, doctors would have no option but to submit these patients to alternative tests that in many cases are clearly less sensitive and accurate. Within one week of a work stoppage at AECL, the supply of new generators to American and Japanese hospitals would be severed. Patient care with $^{99\text{m}}\text{Tc}$ tracers would stop in another week, when existing hospital generators decayed.

The threat posed by the strike was amplified by the near-monopoly that exists in the world market for ^{99}Mo .



Inside the reactor facility at Chalk River, Ontario, where AECL produces most of the world's supply of molybdenum-99.

The government-owned AECL operates reactors in Chalk River, Ontario and supplies, through a private-sector Canadian company, close to 100% of the demand for ^{99}Mo in North America and Japan, and 70%-80% of the world demand. AECL provides ^{99}Mo to Nordion International, a privately held company in Ontario that processes and sells the isotope to other companies that make generators.

The reliance on a single supplier of ^{99}Mo has led to alarming situations more than once. AECL was forced to halt production for almost two days in January 1991 due to the discovery of a leaking coolant pipe at the facility's main production reactor. Nuclear medicine held its breath once again during a strike at Nordion in October 1991. Fortunately, company managers were able to process

radioisotope products for the duration of that walkout, earning Nordion much praise but nevertheless leaving nuclear medicine professionals clamoring for a second source.

The immediate threat of the most recent crisis is now over—representatives of the Chalk River Nuclear Power Operators Local 3600 of the Canadian Union of Public Employees agreed to a three-year contract with modest wage increases and other concessions and union members ratified the contract on July 27.

But the 150 reactor operators at Chalk River were ready to walk out on July 21. Canada's Ministry of Labor, unable to mediate a settlement, cleared the way for a strike on July 14 and set in motion a flurry of activity in the industry and high levels of the Canadian and U.S. governments.

Within three days, the presidents of The Society of Nuclear Medicine and the American College of Nuclear Physicians sent urgent pleas to the Canadian and U.S. officials. The European Association of Nuclear Medicine followed suit. The big three radiopharmaceutical makers, DuPont Merck Pharmaceutical Co., Medi-Physics, Inc., and Mallinckrodt Medical sent communiques to the Canadian Ministry of Labor and AECL, the Canadian embassies in the U.S. and Japan, and to the White House and Congress. What effect the nuclear medicine industry and profession had on discussions between AECL and the union is difficult to weigh. The radiopharmaceutical firms claim that their efforts helped the parties to settle their differences. When asked if the health care issue proved decisive in the negotiations, AECL's director of public affairs, John MacPherson, said that medical isotope supply "is only a minor part of our operations" compared to nuclear power research and development. The strike would have stopped nuclear fuel production at AECL, as well as isotope production, chemical processing, and research at AECL's tandem superconducting cyclotron.

Recognizing the threat to medicine, the U.S. Government mulled the possibility of authorizing the shipment of highly enriched uranium from the U.S. to Indonesia, one of the few countries in the world that runs reactors to produce ^{99}Mo . *Newsline* obtained a letter to the State Department from Canadian embassy officials, who were instructed to determine whether the U.S. government "could contemplate an emergency supply of highly enriched uranium to Indonesia as a contingency against termination of production and supply of critical . . . medical isotope feedstock."

The high-level correspondence explained that Nordion had found suppliers in Belgium and in Indonesia that could supply the Canadian company with enough target material to meet the world demand for ^{99}Mo . The cost and logistics of such a far-flung arrangement would be no small obstacle to overcome, con-

sidering the 66-hour half-life of ^{99}Mo . The likelihood that this plan could have prevented the disruption of health care and damage to the nuclear medicine industry is difficult to determine. The State Department declined to reveal whether it would have approved the shipment, citing a policy against discussing diplomatic correspondence.

Nordion and AECL officials explored the possibility of using a U.S. Department of Energy reactor to irradiate targets for ^{99}Mo production. Industry sources, however, say that reconfiguring the reactor core and setting up transportation would have taken several weeks if not months. The DOE's Office of Isotope Production and Distribution is gearing up to produce ^{99}Mo and other medical radioisotopes at the Los Alamos National Laboratory in New Mexico, but that effort is not slated for full-scale isotope production until next year.

The threatened strike cornered the radiopharmaceutical firms in a difficult position. Over the last year, these firms have held off from making commitments to a U.S. Department of Energy plan to produce ^{99}Mo . The companies have maintained that the DOE's terms were untenable and expressed confidence that AECL and Nordion could adequately supply ^{99}Mo .

The DOE Office of Isotope Production and Distribution called upon the industry to commit to a five-year agreement to buy a certain percentage of ^{99}Mo at a guaranteed price from the DOE. Initially all three companies contributed \$40,000 to the DOE plan, but none have agreed to the purchase commitment. The DOE planned suffered further blows when in October 1991 Mallinckrodt announced plans to produce ^{99}Mo in the Netherlands and then DuPont signed a long-term contract to buy the isotope exclusively from Nordion.

In the wake of the now-resolved labor dispute, it remains unclear how the industry will respond to prevent such threats to isotope supply in the future. Mallinckrodt, DuPont, and Medi-physics prepared a joint statement that said in part that "Our industry will con-

tinue to pursue efforts to assure a reliable supply of radiopharmaceutical products to the nuclear medicine profession. We recognize the need for global cooperation to achieve this goal and have already initiated steps to enable it."

Alan F. Herbert, president of Medi-Physics says, "It's obvious that we need another source of molybdenum-99." He says that the DOE plan "ran out of steam" following the announcements of Mallinckrodt's plan in the Netherlands and DuPont's deal with Nordion. "People want DOE to succeed," he says now, "It comes down to DOE putting together a deliverable product."

Donald E. Erb, director of DOE's Office of Isotope Production and Distribution, says that despite setbacks, he expects test batches of ^{99}Mo to be ready for evaluation in December 1992 and full scale production to begin in the early months of 1993.

Mr. Erb believes that recent events will bolster support for medical isotope production in the DOE. Rep. Mike Synar of Oklahoma who requested the radioisotope study by the GAO said that the threatened disruption of isotope supplies and the results of the report "should wake up policy makers here in Washington to the fact that DOE's isotope program needs to be reexamined."

Grateful that the strike was averted, government affairs staff of The Society of Nuclear Medicine and the American College of Nuclear Physicians see a possible silver lining now that the immediate threat is over. Kristen D.W. Morris, director of government relations says that the GAO report and the stir caused by the averted strike could draw serious attention from lawmakers. As fortune would have it, an ACNP-SNM letter-writing campaign to drum up congressional support for a dedicated facility for accelerator-produced medical radioisotopes reached lawmakers shortly before the strike announcement. Ms. Morris says so far she has received calls from over 40 lawmakers or their staffs enquiring about the isotope supply problems of nuclear medicine.

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