Manfred Buchelt

AECL's Ara Mooradian: It's tough to stuff a nuclear power reactor in an automobile.

arm longer than her right, oversized calf muscles, and eyes on top of her head. (Here Hodgetts remembered a line from Voltaire's Candide: "How wonderful that God designed our feet to fit our shoes!") Don't take square-peg humans and try to hammer them into round holes, was the Foley message. Rather, reshape the holes as squares. One such 'square-peg problem' involved the Ocean Ranger's ballast-control machinery. After the automatic control system failed, workers were forced to deal with a manual backup system with which they were unfamiliar. This ultimately led to the tipping of the rig.

The second major point of the man-machine session was that rig designers do not use technology to its fullest extent. Chairman Gordon MacNabb remarked that there is still no machinery in the drilling process that automatically guards against blowouts, dangerous losses of pressure in the drillhole. MacNabb compared this with the nuclear industry, where safety systems that prevent the meltdown of a reactor core (speciously termed the "China syndrome") are automatic, requiring no human participation. He also cited the space industry, where a launch is so carefully controlled that it can be aborted at the last second. MacNabb attributed this state of affairs in part to the nature of the offshore drilling enterprise, which draws its community from both the marine and petroleum industries. These, said MacNabb, are two very different sectors of the economy. Acceptance of peril is part of a long marine tradition, while the petroleum industry's drilling wing brings with it a feeling of the frontier, where individualism is prized and the feeling is "hands on."

The discussion on how to handle emergencies centred on ways of redesigning lifeboats and other life-saving equipment. Here the search and rescue people were critical of the rig systems, which they said were meant for ships. According to one naval doctor, an expert in cold-water survival, even full-immersion suits are poorly designed for saving lives *(see box)*. This was a key point made in the Hearings' opening address by Gordon Harrison, who felt that his theoretical 'super manager' would have completely rejected the escape and survival system on North Atlantic rigs as largely useless.

To those who felt that science and technology could come up with better designs quickly and cheaply, however, AECL's Mooradian said flatly that this attitude betrayed a misconception of how scientific and technical development proceed. The design of a new lifeboat system, he said, would be no small job: it "would take... several millions of dollars and years of effort." Underscoring the problem of turning a scientific concept into workable technology, Mooradian added: "It's easy enough to build a nuclear power reactor, but a heck of a job to put one in an automobile."

There was straightforward agreement that the current search and rescue systems operated by the Coast Guard and Defence Department were inadequate to handle rig evacuations. But rather than distort the present system, we should add another system especially tailored to the rigs.

Who should regulate offshore drilling? The industries implied it should be left up to them, while government agencies insisted that the responsibility be theirs. But the sides were not that far apart, and appeared to feel that although regulations should not be unnecessarily detailed (a penchant of bureaucratic agencies), some things must still be specified firmly and in great detail. The training of personnel for survival was one example. Gordon MacNabb lamented the absence of formalized qualification requirements for key rig positions; this was, he said, "particularly unfortunate in a country like Canada, with its world leadership in simulation training technology." This in turn opened up the global nature of offshore oil, and the difficulties of regulating design, construction, worker certification, and management procedures in an international industry. In this vein, Dr. Hodgetts worried that the current lack of international agreement would ill-dispose rig operators to voluntarily foot the bill for improved safety.

Reverberating through all these discussions, perhaps even acting as a nexus for the sessions, was the subject of accountability. Dr. Hodgetts observed that many people at the

The Royal Commission on the Ocean Ranger Marine Disaster met last August to hammer out 'acceptable risk' for offshore drilling platforms such as these.