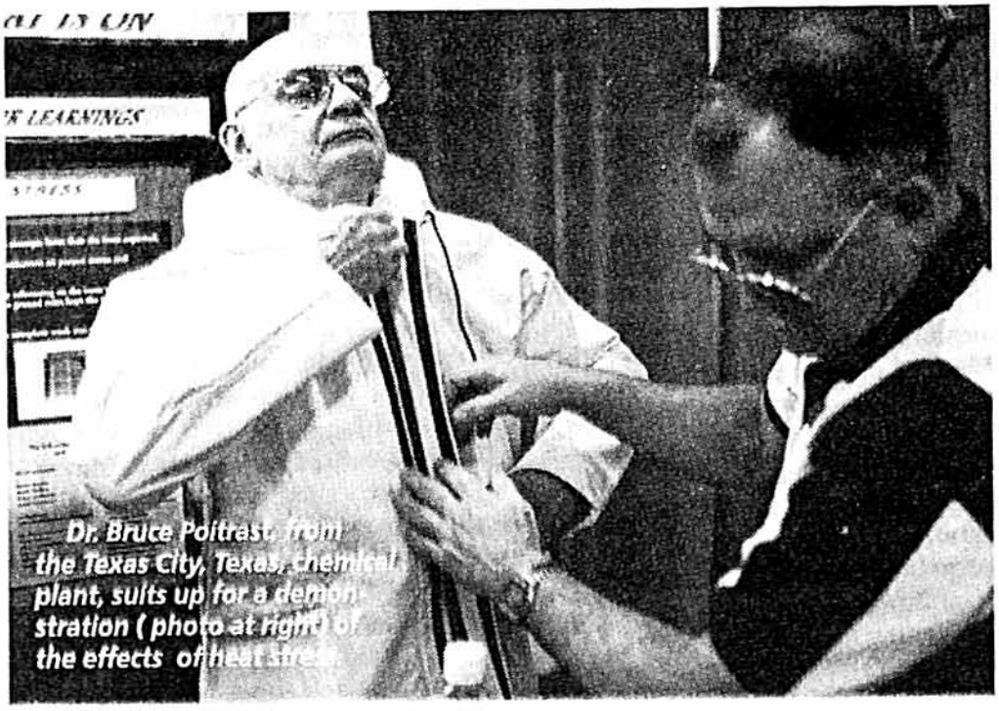
Chemical unit's 'macho image' not too cool in sweltering heat

by Tom LaRocque

CHICAGO—At the Amoco Chemicals Sector's Texas City metaxylene (MX) unit, heat stress wasn't considered a problem—until a sweltering day in July 1995 when two of the unit's operators were overcome by heat exhaustion. Operators typically were required to climb stairs, drag hoses and perform other strenuous tasks in the course of their work.

After that incident, heat stress still wasn't considered a problem, at least by some. "They felt heat stress was part of the job, and handling it was a macho thing," says Chris Jankevicius of Amoco's Environment Health and Safety group, in Houston. Still, for the good of the workforce overall, a multidisciplinary team was formed to investigate.

Seven major contributing factors were identified, according to Jankevicius.



Dr. Bruce Poitrast, from the Texas City, Texas, chemical plant, suits up for a demonstration (photo at right) of the effects of heat stress.

Some came as no surprise, such as time and difficulty of the task. Others were less intuitive. The ergonomic design of the unit was found to contribute heavily to heat stress. "Sometimes operators had to hacksaw off old bolts, rather than being able to use power tools. That increased the amount of work they were doing and the time they were spending in the heat."

Crucial to their efforts was the Amoco Progress Principle of measurement and assessment. The team measured heart rate and skin temperature of 15 to 20 operators. They recommended increased education, reorganized work processes and new engineering controls. Their learnings about ergonomic design will be shared with the designers of new chemical units.

"You need to truly understand your customer's situation before you can help them work through the issues they face," said Jankevicius. That motive is now evident in another product of their work at Texas City's MX unit—an elevator. ◆