

The technician was outside, on the other side of an airlock and around a corner.

Did he feel that instruction and supervision were adequate?

I don't know how much supervision is necessary, but I trusted them. I guess I was too dumb to be frightened. But if I'd known more about what I was getting into I would have been more wary on the job.

After 3 days the company told Whitehead that he'd reached his exposure limit. That was the end of his job.

David Pyles, a former laboratory supervisor at the plant, said that many of the temporary workers were openly disdainful about the hazards of radiation, while others were apprehensive. Still others, he said, seemed simply unalert.

You'd see all these people sitting around the lunchroom—that was the real gravy, getting paid to sit—and you felt that a lot of them shouldn't even be in the plant. They were risking not only their own health, but everyone else's.

Some were really afraid, and they'd ask a lot of questions, I just tried to talk them into going home, but they wanted the money.

Said Michael Lord, a former laboratory technician at the reprocessing plant, "The prevalent feeling was that these people were nuts for going in there and doing what they did."

For an industry that prides itself on being one of the safest and most closely regulated in America—and one that is growing rapidly—continued reliance on temporary workers for the hot and dirty jobs raises questions of the industry's prudence. The AEC's position is that there is nothing inherently unsafe about employing untrained men in a radiation environment if instruction and supervision are adequate. But what assurance is there that brief instructions are understood, that potential dangers are appreciated, that supervision is in fact effective?

Roger Mattson, the AEC's newly appointed assistant director for health and site standards, acknowledges that present regulations do not specify the kind of instruction and supervision transient workers are to have; nor is there a requirement for testing or other means of demonstrating that workers have understood what they have been told.

"The regulations now leave a lot up to the licensee's judgment," Mattson said in a recent conversation. "It has occurred to us that they could be a lot more explicit."

Regulatory officials also say they are concerned about the possibility of workers receiving a full quarterly dose at one plant then picking up still more in the same quarter somewhere else. Robert Alexander, the chief of occupational health standards, says that a review of the AEC's central record files on transient workers shows that only a very few men have actually done this. Even so, Alexander says, "We feel we haven't gone far enough to control this problem."

Four years ago, however, one possible solution to this problem—and to the blurred distinction between nuclear workers and the public—was suggested by the National Council on Radiation Protection and Measurements (NCRP), a leading advisory group on radiation standards since the 1930's.

The NCRP, whose proposal has not been adopted by the AEC, recommended in January of 1971 that persons doing only "occasional radiation work" be given special consideration in radiation protection standards. The NCRP said that persons whose occupational exposure was "truly sporadic"—a description that would fit the vast majority of men who passed through the Buffalo plant—should be limited to the same radiation dose as the general population or one-tenth that of full-fledged nuclear workers.

Recently, the AEC has begun to discourage the industry from spreading the burden of exposure to droves of part-time workers, but this discouragement has taken the form of a "regulatory guide" (issued last April) which is not subject to enforcement. Moreover, the AEC continues to regard anyone who accepts employment "inside the fence" of a nuclear installation as a full-fledged nuclear worker, whether he works for 3 minutes or 3 years.

In the meantime, the Environmental Protection Agency has begun a cautious and methodical review of the basic federal radiation protection guidelines dating back to 1959, under which the AEC still operates. One of the key issues to be examined, says Luis Garcia, the EPA official in charge of the review, "is this dichotomy of occupationally exposed people" recommended by the NCRP. "We will look at [the proposal] in light of its practicality."

Distilled to its essence, the question of transient workers in the nuclear industry becomes one of risk and benefit. Whether a worker receives his quarterly maximum of 3 rems in 3 months or in

3 minutes may make no biological difference. But if, as is generally assumed, every exposure carries some discrete risk of genetic damage or illness, then the full-time worker who earns 3 months pay for 3 months' radiation benefits considerably more than the worker who accepts the same risk—knowingly or not—for half a day's pay.

In some ways the nuclear plant that hires men not for their skills but for their capacity to absorb radiation seems not so very different from the commercial blood bank that pays premium prices for a pint of plasma. Both solicit, and profit from, a small sacrifice. Both raise questions as to the ethics of drawing indiscriminately on the human population as a biological resource.

—ROBERT GILLETTE

RECENT DEATHS

George D. Gammon, 72; retired chairman, neurology department, University of Pennsylvania; 9 May.

Paul E. Guenther, 58; professor of mathematics and statistics, Case Western Reserve University; 28 April.

William Z. Hassid, 76; professor emeritus of biochemistry, University of California, Berkeley; 28 April.

Jack W. Keuffel, 55; professor of physics, University of Utah; 23 May.

Regis J. Leonard, 61; professor of education, School of Education, Fordham University; 26 May.

Walter C. Lowdermilk, 86; professor emeritus of agriculture, Israel Institute of Technology; 6 May.

John H. Mulholland, 73; former professor of surgery, New York University; 6 May.

Philip A. Munz, 82; former professor of botany and horticulture, Graduate School, Claremont College; 13 April.

Hubert J. Sloan, 70; acting deputy vice president for agriculture, forestry, and home economics, University of Minnesota; 1 May.

O. E. Van Alyea, 87; professor emeritus of otolaryngology, University of Illinois; 10 May.

Richard Wagner, 86; professor emeritus of clinical pediatrics, Tufts University; 19 April.

David R. Waldbaum, 37; associate professor of geological and geophysical sciences, Princeton University; 15 April.