

diseases the union members died from and how long they had been working in the industry — he nonetheless argued passionately to anyone who would listen that the existing standards were woefully inadequate. It was impossible to know whether he was right or not since the existing standards — whether measured in particles or fibers — had never been monitored except in the most rudimentary fashion, and for his own insulation workers had never been measured at all.

It was not that an environmental engineer could not enter an asbestos mine or construction site and take a precise asbestos fiber count — many were doing it — but there was no way to compare these exposures with those that existed decades ago when workers experienced the exposures that had led to the fatal diseases of the 1960s. Over dozens of years, gradual improvements in conditions in mines and plants, plus numerous changes in the composition of finished asbestos products and in work practices for handling those products at the job site, had made it essentially impossible to reconstruct the exposures of the past. In short, the only thing Dr. Selikoff had to offer the American public in the 1960s was the awful health experience of the insulation workers and a plea that something be done about it.

Proactive Health Efforts

By the time I became involved in the asbestos controversy in the late 1960s, Johns-Manville had undergone a major transformation as far the health hazards of asbestos were concerned. As the largest of the world's asbestos companies, with both huge mines and numerous manufacturing facilities in North America, J-M had "gotten religion" big time. While not at all convinced that Dr. Selikoff's insulation worker mortality rates were applicable to all elements of the industry, it had the money and manpower to both clean up all its operations to the limits of technical feasibility and to launch itself, or instigate through its numerous trade associations, any number of health studies to determine the extent of the problems.

Through the Quebec Asbestos Mining Association, a huge research project was initiated and funded at McGill University in Montreal to study the mortality of the Quebec asbestos miners. It would not be a repeat of the mid-1950s study that found "no problem," but would, instead be as thorough and as probing an epidemiological study as any industry had ever funded against itself. More importantly, it would be the first major asbestos study to try to identify not only the extent of disease in a segment of the asbestos industry, but also the levels of exposure that resulted in that disease.

The fundamental strategy that J-M adopted to deal with the crisis involved conducting a wide range of both health and technical studies to determine the extent of the problem within its own operations and to develop the technologies neces-

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