KEN MORSE (

DIRECTOR OF INDUSTRIAL HYGIENE AT CORPORATE LEVEL
1952 to 1973

MR. MORSE CIRCULATED 1958 TLVS IN 1959 AND STATED:

The enclosed list of "Threshold Limits" are known under a variety of names, such as "maximum allowable concentrations, "toxic limits", etc. They are not exact delineations between hazardous and no-hazardous conditions, since they are derived from a variety of sources. Some are based upon studies with human subjects, others upon opinions derived by interpolating from animal experimental data, while still others are based merely upon unsupported opinions from industrial medical and hygiene authorities. Therefore, in actual practice, it is important to maintain air concentrations of these gases, vapors, dusts or mists within such levels where possible or protect workers by approved respiratory devices. It is our opinion that short-term exposures also should also should be maintained within such limits where practicable, because of the absence of good data on safe concentrations for preventing acute (sudden) poisoning. This approach is considered to be the best course of action because the human body does not respond in a direct arithmetic relationship with the amount of contaminant in the air. In other words, it would not be prudent to expose an individual for one hour to eight times the values shown in the enclosed table without respiratory protection".

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6. MR. MORSE SPOKE AT THE USS SECOND ADMINISTRATIVE MEDICAL MEETING DECEMBER 1957 AND ADDRESSED THE FOLLOWING:

At 9:00 a.m. Wednesday, December 4, 1957 the meeting reconvened.
Mr. K.M. Morse presented "Environmental Health in the Steel Industry - II," covering the newer knowledge of the effect of industrial dusts on employees' lungs. He stressed the fact that free silica was no longer the only dust to be concerned about, but that any dust in sufficient amounts over sufficient time could impair lung function. Especially a combination of irritant gases, heat and dust is cause for concern. He cited a recent case in which a very reputable chest consultant in Pittsburgh, who has in the past examined many cases at company request, considered that the pulmonary fibrosis and emphysema he found in a soaking-pit crane operator was caused by the combination of dust, heat, and sulfur-dioxide fumes to which he had long been exposed. He described the old and new concepts of the term "pneumoconiosis" and indicated that while silica and asbestos were considered the sole causes in the past, now talc and diatomaceous earth had been added, and Shaver's Disease from the fusion of artificial abrasives, and more recently coal miners' pneumoconiosis.

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7. MR. MORSE SPOKE AT THE USS SEMI-ANNUAL ADMINISTRATIVE MEDICAL MEETING IN JUNE OF 1960. HE DISCUSSED:

The second speaker was K.M.Morse, Director of Industrial Hygiene, U.S. Steel, and the title of his talk was "Measurement of Dusts".

Mr. Morse said there are four major items of concern to the industrial hygienist and the phsycian regarding dust and its effects on the lungs.

1. Chemical composition. In the past, one was concerned almost wholly with silica and asbestos. If these were not present, then the dust was considered merely a nuisance. Although free silica content is still important and silica is the most hazardous of the common industrial dusts, we know that any dust regardless of silica content, in great enough quantities, can overload the defenses of the lungs and cause trouble.

2. Particle size. We are concerned only with those under 5 microns. It is felt that maximum retention of dust in the lung occurs with particle size between 1.5 or 2 microns.

3. Concentration. Maximum Allowable Concentrations (MAC) have been set up by the Conference on Governmental Industrial Hygienists for all the substances commonly met in industry. Some of these have been well substantiated, but some of them are mere guesses. For example, the MAC of 5 million particles per cubic meter of air for silica has been well validated, whereas a commonly accepted MAC of 50 million particles for "nuisance" dusts is not at all well validated. In U.S. Steel, we are aiming below this latter amount and are recommending 20 million as a maximum in any dust situation.

4. Duration of Exposure. In speaking of pulmonary dust diseases, on is speaking of conditions that take twelve to fifteen years to develop.