Good morning!

I want to thank you for the opportunity to speak to you this morning and I must first ask that you excuse me for reading my remarks, but I want to be certain that what I say to you in English is precisely the same as what is contained in the French translation which has been provided to you.

I have been asked to talk about the physiological effects of vinyl chloride and the medical monitoring of personnel with past or current exposures to this monomer. I want, at the very outset, to make a clear distinction between exposures which employees encounter today vis-a-vis the exposures of past years because they are very different.

Historically, the first observed effects of breathing vinyl chloride in high concentrations were lightheadedness, dizziness, incoordination, tremors, and if exposures were high enough and long enough, unconsciousness. Indeed, at one time, vinyl chloride was used briefly as a surgical anesthetic. It provided adequate anesthesia, but was abandoned because it caused disturbances in cardiac rhythm. In past years, it was not a rare occurrence for employees to become unconscious for brief periods as a result of accidental exposure to vinyl chloride in the workplace. Also, many current employees remember instances in earlier years when they became dizzy or semi-intoxicated as a result of breathing vinyl chloride vapors. We know from animal experiments and limited measurements of concentrations in the workplace, that to produce such symptoms, these employees had to be exposed to at least several hundred, and often thousands, of parts per million of vinyl chloride. This is, of course, in sharp contrast to the much lower levels encountered in industry today.

The intoxication-like symptoms produced by breathing vinyl chloride have been known since the earliest days of the industry, but it was not a matter of great concern because employees recovered quickly on removal from exposure with no apparent after effects. It was not until 1959 that the American Conference of Governmental Industrial Hygienists set a 500 ppm limit based on a time weighted average to prevent the symptoms I have just been discussing.

In the very early 1960's, Dow Chemical Company, on the basis of animal work and some very minimal disturbances in liver function in employees exposed to vinyl chloride, recommended a time weighted average exposure of 50 ppm. However, at the time Dow made this recommendation, there was conflicting evidence available from animal work done at Yale University. The American Conference of Governmental Industrial Hygienists, after weighing all of the evidence, retained the 500 ppm level, but changed it from a time weighted average exposure to a ceiling limit in 1963.

The next physiological effect of vinyl chloride to be discovered was the observation, first in Europe and then in North America, that certain employees involved in vinyl chloride polymerization, particularly those who cleaned the reactor vessels, developed an unusual problem with their hands. This was called acroosteolysis. The predominant symptoms of this disease were numbness and tingling of the fingers and an unusual sensitivity to cold. In the more severe cases, there was observed to be some