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were measured during asbestos removal operations. In addition, two workplace protection factor measurements were made for a self-contained breathing apparatus operated in the pressure-demand mode. The operations consisted of asbestos removal from a ceiling (fire proofing) and removal of pipe insulation.

Results of the study showed that all respirators tested reliably provided workplace protection factors of ten or greater except the American Optical (AO) R1050 which reliably provided a protection factor of five or greater (based on the best estimates of the 5th percentile of workplace protection factors). Results for the self-contained breathing apparatus suggest that it may not provide appreciably better protection than the disposable and elastomeric facepiece respirators, though it created a significantly greater safety hazard (i.e., falling due to difficulty balancing the heavy tanks when climbing scaffolding, etc.).

Much of the hearing testimony regarding adequacy of respiratory protection, particularly for disposable respirators, was conjecture. The Du Pont study provides the only data which measures the protection provided by elastomeric and single use half-mask respirators for asbestos exposures in asbestos removal operations. Based on this information, the OSHA standard should permit use of these respirators.

OSHA should adopt a performance-based work practices standard for insulation removal and permit use of elastomeric half-mask and disposable respirators in these operations.

As stated in Du Pont's pre-hearing comments, the company urges OSHA to adopt a flexible, performance based standard which permits the use of respiratory protection to achieve compliance where engineering controls are not feasible, such as in the removal of old asbestos insulation. Even witnesses generally opposed to the use of respirators in workplaces where there is potential for exposure to asbestos agree that there are instances where respirators are the only feasible control measure. At the OSHA hearings on the asbestos proposal the National Institute of Occupational Safety & Health (NIOSH) stated:

"However, prior to the installation of or during the malfunction or maintenance of these engineering controls, for short-term intermittent exposures and

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