

Interoffice Communication

To Dave Kuhn - Houston

From Charles L. Whetstone, M.D. - Ponca City, Oklahoma

Date March 18, 1976

Subject JUSTIFICATION FOR VARIANCE FROM THE REQUIREMENTS OF 29CFR 1910.93Q RE: RESPIRATORY PROTECTION FOR WORK ENVIRONMENTS CONTAMINATED WITH VINYL CHLORIDE

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Medical Division wishes to address itself to the full facemask requirement of the above mentioned standard. Total credence is given to the use of protective respiratory equipment in a VCM contaminated environment. Protection of the individual should be carried out to the fullest extent but to the exclusion of introducing any other safety or health hazards to that employee. Conoco Medical Division at this point takes issue with the requirement of the full facemask. We as a corporation have placed employee safety ahead of operating costs long before a law like OSHA was ever enacted. In keeping with this line of thought it is appropriate to question the justification for a full facemask as opposed to the potential hazards created by its use, when the half facemask can adequately meet the standard.

Points of discussion:

- I. Restricted vision - the use of the full face cannister mask greatly increases the likelihood of injuries doing tasks which require a maximum amount of peripheral vision such as working at elevated positions and operating industrial powered vehicles. This justification is non-technical, simple, and straightforward and needs no definitive elaboration.
- II. Impaired visual acuity - any employee whose vision is impaired for whatever reason can not only be a safety hazard to himself but depending on the nature of the specific operation in question, might be a hazard to numerous other individuals.
 - a) Fogging of the facepiece can occur for numerous reasons.
 - 1) The exhaled breath is quite high in humidity. Variable external climatic conditions and geographic locations can result in repetitive fogging.
 - 2) Sweat may cause fogging of the facepiece or actual optical distortion from the sweat droplets running off the inner portion of the facemask.
 - b) Employees with corrective lenses will demonstrate less than their corrected vision if the vertex distance between the eyes and the lenses is greater than four diopters. The vertex distance must be within two millimeters before and aft to maintain a correct refraction of any refraction over four diopters.

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In addition, any employee with a cylinder refractory correction over one diopter can demonstrate visual distortion if the facemask becomes tilted on the employee's face. Not only is the distortion a problem but systemic systems since as a motion sickness type syndrome may develop if the glasses within the shield are tilted on an individual with more than one diopter correction. Such signs include nausea and/or vomiting, dizziness with or without headache.

Reasonably critical tolerances of corrective lenses must be maintained to avoid refraction distortions. Such tolerances cannot be assured with a full face mask.

- c) Surveys have demonstrated that the incidence of chronic obstructive pulmonary disease in males over the age of 35 runs approximately 32%. The wearer of respirators suffering from chronic cigarette cough, bronchitis, emphysema, and chronic asthma is a reality which must be given consideration. Although these people may have sufficient early disease that would not prohibit their working in such an area, having to cough quite frequently creates practical problems within a full facemask. The employee with a cough or frequent sneezing can either temporarily fog his mask during coughing or permanently spray the inner portion with mucoid or purulent exudate which could temporarily limit vision.

III. Dermatologic problems - sweating is a normal physiologic mechanism for the body to dissipate heat. One of the anatomical body areas where sweat first forms is across the forehead. The wearing of the full facepiece air-purifying device can reasonably be expected to result in increased dermatological problems in and around the vicinity of the eyes because of this phenomena.

The opening of the pores in sweating likewise contributes appreciably to skin sensibility. Numerous individuals have low grade allergies to toiletries, etc. Many allergies are first manifest around the eyes because of the thinness and sensitivity of the skin. Thusly, the introduction of contact allergy or enhancement of existing allergy will result in periorbital annoyances such as itching and blepharospasm which adds to the general distraction and discomfort of an employee. This is not to include in severe cases the compensable lost time from the job until such symptoms subside.

Also, individuals with oily skin who tend to have comedo, blackheads, or pustular formations will have increased dermatologic problems over this area. Some microabrasion and trauma of the skin over the pressure surfaces of the facemask about the forehead is unavoidable. This too can only perpetuate pustular skin disorders.

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In conclusion, it is my firm opinion the many physiological contraindications which have been outlined resulting from the use of the full facemask as opposed to one covering just the mouth and nose justify the sole use of the half face mask. The exposure to vinyl chloride is not increased whatsoever by using the half facemask. Although employees are instructed to leave the exposure area if adjustments need to be made relative to their fresh air equipment, we must be realistic in realizing that when a man is at a critical point of his operation, in all probability he will finish the job and then correct whatever problem exists with his facemask; should this problem be restricted vision, the hazard is quite high and an accident might result. We consider this use of the full facemask in this situation unjustified and in addition it serves as a potential serious safety hazard. May our zeal for good work practices not be bogged down with regulations that create second level hazards.

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