GEN 55 REV 2 15 74

Interoffice Memorandum

(Name and Location)	DATE
As Listed	January 14, 198
FROM (Name and Location)	REFERENCE NO
G. A. Vos	GAV-06-80

Subject: Respiratory Protection and Problems with Facial Hair

The issue of facial hair and its effect on respiratory protection was discussed during the 1979 Chemical Company Plant Industrial Hygiene reviews at each plant. Mr. L. R. Birkner and R. Silverstein in New York are working on a policy concerning this issue.

Attached is a memorandum stating the problem and Mr. Birkner's comments on a solution. As this issue progresses, we will keep you informed.

G. A. Vos

GAV:gl
Attachment

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PLAINTIFF'S EXHIBIT
CEL-176

Interoffice Memorandum

GEN 55 (REV.6/74)

(Name and Location)	R. Silverstein - NYO	DATE 1/2/80
FROM (Name and Location)	L.R. Birkner - NYO	REFERENCE NO. LRB: 80-02

Subject: Respiratory Protection - Facial Hair Policy

I. INTRODUCTION

In order to control employee exposure to chemical substances for which engineering controls are not feasible, or while they are being developed and installed, it may be necessary to use respiratory protective devices. Two basic types of devices may be used: First, atmosphere supplying (including airline equipment an open or closed circuit self contained breathing apparatus) and second, air purifying (chemical cartridge and/or particle filters). A third type called a power air purifying respirator, which is a hybrid of the air-purifying and atmosphere supplying units is also available, however the initial cost of the devices, maintenance complexities and limitations on versatility, place these units out of reach for most applications.

The principle of respirator operation is to seal off the employee from the contaminated environment through a physical barrier, the respirator face-piece and/or by an air curtain. The air curtain operates by having a higher air pressure inside the facepiece than outside, thus assuring that air always flows out of the device preventing inward movement of air contaminants.

II. Respirator Seal

A proper facial seal is necessary to have these devices function effectively. Any facial hair, including a day or two of beard growth will prevent proper facepiece fit (sealing) thus rendering the respiratory protection partially or totally ineffective. In some cases an apparent fit may be achieved over facial hair, however continued fit during a working day or part thereof could not be guaranteed.

III. Air Purifying Respirator (APR) Problem

The principle of operation of the APR requires that contaminated air be drawn through a filtering, sorbing or chemically active bed, during inhalation. The air entering the facepiece is effectively devoid of the specific contaminant. During inhalation a negative pressure is created in the facepiece which would draw contaminated air through a poorly sealed facepiece. Facial hair below the sealing surfaces of the equipment would create such a condition.

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IV. Atmosphere Supplying Devices - Problem

In the case of demand self contained breathing apparatus or airline equipment (these supply air only when inhalation takes place) a negative pressure develops in the facepiece as with air-purifying equipment with the same resulting problems.

Pressure demand self contained or airline equipment would generally protect employees even with a poor fit covered by facial hair. The price to be paid here is the reduced time of protection when bottled air is utilized and the high cost of compressor breathing quality air where an in-plant compressor is used. With pressure demand equipment, excess air to maintain a positive pressure inside the facepiece is not used when an adequate facial-facepiece seal is achieved. Again, such a seal cannot be obtained over facial hair.

It should be noted that where pressure-demand self contained devices are used for emergency escape or rescue, the employee with a beard who wears such equipment becomes a threat to himself and to others since its useable time may be reduced from 30 to 10 minutes.

V. Powered Air Purifying Respirators-of Questionable Value

These devices provide a positive pressure by pumping filtered air, with a battery blower, into the facepiece. Air supply is only limited by filter and battery capacity. With this, respirator facial seal is relatively unimportant. However, because of the drawbacks outlined in Paragraph 1, they may generally not fit our needs.

VI. Solution

Since it will be necessary in many applications to continue to use respirators for employee protection, a policy to exclude employees with facial hair from jobs requiring the use of respiratory protection should be established corporate wide. In the establishment of such a policy, cultural considerations must be reviewed.

I will work with you and the IR organizations to develop such a policy. Please contact me as you need further assistance.

L.R. Birkner

LRB:sl

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