February 7, 2002

The Honorable John E. Potter
Postmaster General and CEO
United States Postal Service
475 L'Enfant Plaza, SW
Washington, DC 20060

Dear Mr. Postmaster General:

In numerous public appearances and statements, you have said that protecting the safety of postal employees is your highest priority. Three months after the anthrax attacks, the Postal Service web site continues to assure workers, "Your safety and health are our foremost concern. We are taking every step possible to protect postal employees against any threat."[1]

There is one important step for worker safety, however, that the Postal Service has yet to take. As I initially wrote you on November 15, 2001, the Postal Service is not providing workers who wear specialized masks with an inexpensive test to make sure the masks fit properly. Called a "fit test," this procedure generally involves a quick spray of a chemical to determine whether its odor leaks around the mask; if there is a leak, then either the mask needs to be adjusted or a different size or type of mask needs to be tried. Fit tests are endorsed by mask manufacturers, the Centers for Disease Control (CDC), the National Institute of Occupational Safety and Health (NIOSH), and the Occupational Safety and Health Administration (OSHA).

In reply to my letter, Ron Henderson, Manager of Health and Resource Management in the Human Resources Department at the Postal Service, told my staff in a briefing in January that the Postal Service had no plans to provide fit tests to postal employees. He said that motivated workers could always obtain fit tests at their own expense. This is an unjustifiable policy. Reasonable measures to protect workers, including fit tests, are the proper responsibility of the Postal Service. Moreover, it does not even appear that workers have been adequately informed about respiratory protection and the need for fit tests. For example, the Postal Service video on masks erroneously gives the impression that holding pressure with one's hand over the mask and

[1]U.S. Postal Service, http://www.usps.com/news/2001/press/serviceupdates.htm (Accessed Jan. 21, 2002).

inhaling is sufficient to assess the function of the mask. This short cut has been evaluated by experts and found to be seven times less effective than a fit test.

I am mystified by how the Postal Service is approaching this issue. Compared to other issues facing the Postal Service, ensuring the correct use of masks should be simple to get right. I was surprised that the Postal Service did not establish the correct policy initially. After I wrote to you on November 15, it took the Postal Service nearly two months to investigate the issue and prepare a response. Yet even then -- after nearly two months in which to consider this simple matter -- the Postal Service continues to be grossly misinformed about something as simple as how an employee should wear a safety mask.

The Importance of Fit Tests

Soon after anthrax was discovered in the U.S. mail, the Postal Service took the responsible precaution of purchasing over 90 million gloves and 5 million specialized masks at a cost of $16.8 million. Most of these masks were of a type called N95 respirator, designed to filter out at least 95% of particles that are 0.3 microns or larger.[2] Anthrax spores are approximately 1 micron in size.[3] While the masks are not foolproof protection during an anthrax attack, their proper use should cut down the number of spores inhaled and reduce the risk of illness and death.

On October 31, CDC formally recommended that postal employees working "with or near machinery capable of generating aerosolized particles, such as electronic mail sorters" be fitted with N95 respirators. A key part of this recommendation was for workers to receive fit tests in order "to ensure that the respirator fits properly."[4] I urged you on November 15 to make these simple procedures available to all interested workers.[5]

Last month, the Postal Service responded to my letter by sending Ron Henderson to brief my staff. Mr. Henderson told my staff that employees interested in obtaining fit tests could do so at their own expense. He said a Postal Service video had taught workers to perform a "fit check," consisting of holding pressure with one's hand over the mask, inhaling, and guessing

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[2]60 Federal Register 30339, 30344 (1995).

[3]Thomas V. Inglesby, Donald A. Henderson, John G. Bartlett, et al., *Anthrax as a Biological Weapon*, Journal of the American Medical Association, 1735-1745 (May 12, 1999).

[4]CDC, *CDC Interim Recommendations for Protecting Workers from Exposure to Bacillus Anthracis in Work Sites Where Mail Is Handled or Processed* (Oct. 31, 2001).

[5]Letter from Henry A. Waxman to John E. Potter (Nov. 15, 2001).

whether the mask made an airtight seal. According to Mr. Henderson, the Postal Service is not aware of any evidence that the fit test procedure recommended by CDC was better than the "fit check" being recommended to postal employees.

This view is misinformed. I am enclosing a 1998 study that the Postal Service could have easily identified. In fact, this study was referenced by the CDC in its mask recommendations of October 31. In this study, NIOSH experts directly compared two methods of assessing N95 respirators: the Postal Service's preferred "fit check" versus the fit test.[6] On average, workers wearing masks after a "fit check" were not protected from 1 out of every 3 particles in the air. By contrast, workers wearing masks that passed a fit test were exposed, on average, to just 1 in every 25 particles. The best protection offered by a "fit check" was exposure to about 1 in every 15 particles, while the best protection offered by a fit test was 1 in every 100 particles. This paper was accompanied by an editorial note, which concluded:

> The findings in this report indicate that **fit testing N95 respirators is essential in programs employing these respirators** and can eliminate poorly fitting respirators, ensuring at least the expected level of protection. . . .**Without fit testing, persons unknowingly may have poor face seals, resulting in excessive leakage and exposure**.[7]

Other research is consistent with these findings.[8] It is no surprise, then, that fit tests are endorsed by CDC, as mentioned above; by mask manufacturers, such as 3M, whose web site states "the wearer must obtain a satisfactory fit as indicated by a . . . fit test";[9] by NIOSH, which wrote my staff that "[t]he effectiveness of a respirator depends on . . . the accuracy of the fit test

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[6]NIOSH, *Laboratory Performance Evaluation of N95 Filtering Facepiece Respirators, 1996*, Morbidity and Mortality Weekly Reports, 1045-1049 (Dec. 11, 2001).

[7]*Laboratory Performance Evaluation of N95 Filtering Facepiece Respirators, 1996,* Morbidity and Mortality Weekly Reports, 1047-1049 (Dec. 11, 2001).

[8]63 Federal Register 1221 (1998) ("Studies show that lack of fit testing results in reduced protection. In a health hazard evaluation [HHE] conducted by NIOSH at a medical center [Ex. 64-56], NIOSH found that workers using disposable respirators were not getting adequate protection because the respirators had not been fit tested. Other HHEs conducted by NIOSH show that workers who used respirators where there was no fit testing suffered adverse health effects resulting from overexposure to airborne contaminants [See HETAs 81-283-1224 and 83-075-1559].").

[9]3M, Information for Employers and Workers Concerned About Anthrax, http://www.3m.com/market/safety/ohes2/printer_friendly/anthrax_notice.html (Accessed January 21, 2002).

used to help insure a good face seal";[10] and by OSHA, which has concluded "poorly fitting facepieces expose workers to contaminants and . . . the use of an effective fit testing protocol is the best way of determining which respirator facepiece is most appropriate for each employee."[11]

It is true that as a matter of law OSHA does not require employers to provide fit tests when mask use is not required. However, as a matter of policy, OSHA encourages these employers to provide fit tests anyway.[12] The agency has further stated: "Respirators that don't seal properly around the face offer only the illusion of protection."[13]

As for the Postal Service's preferred "fit checks," these are considered appropriate by experts for a quick daily check on a mask that has already passed a fit test. OSHA has stated plainly in regulation that "fit checks" are "not substitutes for . . . fit tests."[14]

Misleading Postal Employees

In my letter of November 15, I also expressed my concern that workers who wear masks but who did not obtain fit tests may labor under a false sense of security. A review of the Postal Service's mask training video validates this fear.[15]

According to Mr. Henderson, this short video was played during meetings attended by every postal employee and broadcast 24 hours a day on Postal Service television for several days. In reviewing this video, my staff discovered multiple references to the importance of a correct fit without any discussion or demonstration of the fit test needed to assure such a fit.

In the video, the presenter demonstrates the "fit check," which consists of holding his hand over the mask while applying pressure, inhaling, and guessing whether the seal is airtight. Preceding the demonstration, the presenter says:

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[10]Email communication from NIOSH legislative affairs, (Jan.16, 2002).

[11]63 Federal Register 1221 (1998).

[12]63 Federal Register 1221 (1998) ("Employers who allow employees to voluntarily use respirators need not provide fit testing for those employees, although OSHA encourages them to do so.")

[13]OSHA Technical Manual, (Jan. 20, 1999).

[14]29 CFR 1910.134AppB-1.

[15]U.S. Postal Service, *Proper Use of Respirators and Gloves* (October 2001).

> Now let's take a look at the fitting instructions to be followed each time respirators are worn. This is critical. Not properly fitting the respirator will greatly reduce the effectiveness of this personal protection equipment and not provide intended safety precautions.

Following the demonstration, he says:

> As we have just demonstrated, the most important issue here is that you properly secure the respirator to your face. Following the manufacturer's guidelines and practicing with the respirator, you should be able to have a proper respirator fit.

Undeniably, this video gives the false impression that a "fit check" alone is satisfactory for proper mask function.

I recognize that the video in question was produced quickly and distributed to postal employees before CDC made its recommendations on fit testing to the Postal Service. However, even after CDC made its recommendations, the Postal Service distributed a news release announcing that "[m]asks [are] highly effective at filtering out tiny particles, including anthrax."[16] The release did not mention that fit tests are necessary to obtain the expected results, nor did it mention that the Postal Service was not providing workers with these simple procedures. It is essential to explain the need for fit tests to all employees who might wear masks. Otherwise, the Postal Service will be responsible for promoting a false sense of security.

Conclusion

On the merits of the mask issue, it is clear that the Postal Service needs to alter its policy. The Postal Service needs to ensure that all employees receive comprehensive educational materials about mask use that are consistent with the expert opinions of CDC, NIOSH, and OSHA. In addition, postal employees who work near machinery that can generate aerosolized particles and who want to wear masks for protection should be offered a fit test to ensure their masks are working as intended. Those workers who have problems finding or wearing a mask that fits well (because of facial hair or medical problems) should have the opportunity to recognize this limitation. I would like your assurance that these basic safety precautions will be implemented immediately.

In addition, I would also like your thoughts on the broader issue of confidence in Postal Service decision making on security issues. The Postal Service spent millions of dollars on masks, but failed to establish procedures to ensure their proper use. Indeed, the Postal Service

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[16]U.S. Postal Service, *Masks Highly Effective at Filtering Out Tiny Particles, Including Anthrax* (Nov. 1, 2001).

persisted in its incorrect policy even after receiving my November 15 letter. In legislation that passed at the end of last year, the Postal Service received an additional $500 million to spend on security issues. How can Congress be assured that this money will be spent more intelligently than the funds expended on the masks?

I am a strong supporter of federal funding to ensure the safety of the mail. But support for this funding will erode rapidly if the Postal Service does not demonstrate the expertise and judgment necessary to ensure that the funds are spent effectively.

I request a response to this letter by February 21, 2002.

Sincerely,

Henry A. Waxman
Ranking Minority Member

Enclosure

cc: The Honorable Dan Burton
William Burrus, President, American Postal Workers Union

Respiratory Syncytial Virus — Continued

RSV can be controlled with strict attention to contact-isolation procedures (*6*). Although vaccines are under development, none have been demonstrated to be safe and effective in preventing RSV-associated disease. RSV intravenous immune globulin and a recently licensed, humanized murine anti-RSV monoclonal antibody are available as prophylaxis for serious RSV infections in some high-risk infants and young children (e.g., those born prematurely or with chronic lung disease) (*7*). Ribavirin is the only available antiviral agent for treating RSV infection and may be considered for some patients (*8*).

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Laboratory Performance Evaluation of N95 Filtering Facepiece Respirators, 1996

In 1995, CDC's National Institute for Occupational Safety and Health (NIOSH) introduced a new classification scheme for particulate air-purifying respirators (*1*). Most health-care workers use type N95 half-mask filtering facepiece respirators (i.e., N95 respirators) to prevent occupational transmission of tuberculosis.* As a result, NIOSH received inquiries about how well N95 respirators fit, whether they need to be fit tested, and whether they can be quantitatively fit tested.† In response to these inquiries, NIOSH evaluated the performance of 21 N95 respirator models on a 25-person panel. This report summarizes the results of this evaluation, which indicate that fit

*There are nine classes of filters (three classes of filter efficiency [95%, 99%, and 99.97%] each with three categories of resistance to filter efficiency degradation [N, R, and P]). N-category filters are the least resistant to degradation by oil aerosols. An N95 filter is an N-category filter that is at least 95% efficient.

†Fit testing is a procedure used to evaluate how well a given respirator fits a given person by assessing leakage around the face seal; fit testing can either be qualitative (i.e., relying on a subjective response of the wearer) or quantitative (i.e., using a measurement of actual leakage).

Laboratory Performance Evaluation — Continued

testing is needed to ensure at least the expected level of protection (i.e., the concentration of airborne contaminants inside the respirator is ≤10% of ambient levels).

The panel comprised 15 women and 10 men (all experienced in wearing respirators and fit testing); the distribution of face lengths and face widths approximated that of the general population (*2*). The 21 respirator models were the only respirators commercially available in July 1996, when the evaluation began.

Each respirator model was assessed by 1) the 25-person panel without fit testing and 2) removing from the panel those persons for whom a model failed a surrogate fit test. For each model, total penetration (i.e., direct penetration through the filter and leakage around the face seal[§] combined) was measured with each person on the panel using the TSI 8020 Portacount Plus™[¶], a fit-test instrument that uses ambient air particles as the challenge agent (*3*). In a previous study, fit factors (the reciprocal of face-seal leakage) measured by this instrument correlated with actual exposure (*4*).

For each test, the person donned the respirator and performed a user seal check (i.e., pressure-tightness test, fit check, or negative/positive pressure check) according to the manufacturer's instructions; when respirator models were available in multiple sizes, the size with the best subjective fit was used. Each person then performed a six-exercise** test during which total respirator penetration was measured. These exercises, each lasting approximately 80 seconds, simulate facial movements during normal use and typically are included in fit testing protocols. After removing the respirator, three identical repeat tests were performed. Total penetration was measured during each test; thus, four total penetration measurements were obtained with each respirator for each of the 25 persons.

For each respirator model, the resulting 100 total penetrations were used to calculate the 95th percentile of the total penetration, using the geometric mean (GM) and the geometric standard deviation (GSD) of these measures, as $GM \times GSD^{1.645}$ (*5*). These results summarize the performance of these 21 models without fit testing. Values for the 95th percentile ranged from 6% to 88% total penetration. Five respirator models had 95th percentiles of ≤10% total penetration (Table 1). The computed figure indicates that 95% of wearers of that model can expect a total respirator penetration less than this value and is used to indicate overall respirator performance (*6*).

For each person-respirator model combination, the first total penetration measurement then was used as a surrogate fit test to estimate N95 respirator performance when fit testing is conducted before use. Because fit tests are intended to assess only face-seal leakage, the measured total penetration was adjusted by subtracting the filter penetration,[††] measured separately on each respirator by using the Portacount™ with a specially designed fixture. Each respirator having face-seal leakage >1%[§§] during the first trial was considered to have failed the fit test for that person,

[§] $P_T = P_{fp} + P_{fsl}$, where P_T is the total penetration, P_{fp} is filter penetration, and P_{fsl} is face-seal leakage.

[¶] Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services or CDC.

** Normal breathing, deep breathing, moving head side to side, moving the head up and down, reading a prepared text aloud, and normal breathing.

[††] $P_{fsl} = P_T - P_{fp}$.

[§§] The 1% criterion is the standard value used by the Occupational Safety and Health Administration and the American National Standards Institute to assess face seal leakage and is intended to provide a 10-fold safety factor between laboratory-based assessments of leakage and leakage during actual working conditions (i.e., <1% leakage in the lab should assure <10% leakage in the field).

Laboratory Performance Evaluation — Continued

TABLE 1. Performance testing data for 21 N95 filtering facepiece respirators for 25 persons, 1996

Respirator model	Total penetration* (95th percentile)†	Respirators passing surrogate fit test	
		No. passing	Total penetration* (95th percentile)†
1	6%	14	3%
2	7%	8	2%
3	18%	16	1%
4	88%	4	1%
5	31%	0	NA§
6	11%	15	4%
7	10%	5	2%
8	6%	9	2%
9	18%	0	NA§
10	12%	8	2%
11	33%	3	16%
12	41%	3	3%
13	21%	8	4%
14	26%	0	NA§
15	19%	3	3%
16	13%	9	4%
17	50%	11	1%
18	7%	20	2%
19	32%	3	4%
20	61%	1	2%
21	24%	6	5%
All	**33%**	**146**	**4%**

*Total penetration is the sum of the filter penetration and face seal leakage. For example, a total penetration of 25% corresponds to an exposure equal to 1/4 of the exposure without a respirator. Total penetration is expected to be ≤10% for this class of respirators.

†Ninety-five percent of wearers are expected to have total respirator penetration less than the stated value. For this class of respirators a value of ≤10% is expected.

§This model failed the fit test (i.e., had a first-donning face fit leakage ≤1%) with all 25 persons; therefore, the 95th percentile total penetration could not be computed.

and data for that person's trials were then removed from the data set for that respirator model (*2*). For respirators passing this criterion, total penetrations measured for trials 2, 3, and 4 were used to calculate the 95th percentile of the total penetration. These values summarize the performance of the respirators after a fit test was used to screen out respirators that have face-seal leakage >1% (Table 1). The total penetrations ranged from 1% to 16%. For three models, none of the respirators passed the fit test (i.e., none had a first-donning face fit leakage ≤1%); therefore, the 95th percentile could not be computed. By applying the surrogate fit test, 17 of the 21 models had total penetration values ≤10%, a substantial increase in protection. Many models had a high fit test failure rate; 17 had acceptable fit tests for fewer than half of the panel members (Table 1).

Reported by: Laboratory Investigations Br, Div of Respiratory Disease Studies, National Institute for Occupational Safety and Health, CDC.

Editorial Note: The findings in this report indicate that fit testing N95 respirators is essential in programs employing these respirators and can eliminate poorly fitting

Laboratory Performance Evaluation — Continued

respirators, ensuring at least the expected level of protection. Without surrogate fit testing, average exposure for the 25-person panel was reduced to 33% of the ambient level, which is much less protection than expected of this class of respirators (i.e., exposure reduced to ≤10% of ambient levels). However, when fit tested first, the panel received substantially greater protection than normally expected (the average exposure was reduced to 4% of the ambient level). Without fit testing, persons unknowingly may have poor face seals, resulting in excessive leakage and exposure. For example, the respirators in this study had high fit test failure rates, with 20%–100% of panel members unable to achieve a satisfactory fit with a given respirator model.

The Portacount™ fit test instrument measures the large number (several thousand per cubic centimeter) of small particles present in normal room atmospheres. The instrument counts the number of such particles that penetrate the respirator—either through face-seal leakage or directly through the filter. Previously, this instrument was recommended for use only with high-efficiency respirators that had negligible filter penetration because any particles detected inside the facepiece could be attributed to face-seal leakage. This study tested N95 respirators using the same procedure. However, because N95 filters are not 100% efficient in removing ambient air particles, two additional were steps needed: 1) separate measuring of filter penetration and 2) subtracting this filter penetration (*2*). The technique for quantitatively fit testing N95 respirators in this report is appropriate only for research purposes. The manufacturer has recently developed an accessory to test N95 respirators with the Portacount Plus™; the accessory removes the aerosols in the range that is most penetrating to the respirator filter, so filter penetration is not a concern. The approach used in this study suggests the possibility of commercial adaptation of similar fit test systems, resulting in a second, inexpensive means of quantitative fit testing N95 respirators. The availability of such a fit test system could simplify fit testing and would provide an option to persons responsible for overseeing respirator programs, especially those who already have the basic hardware for quantitative fit testing.

Although some models had (95th percentile) total penetrations ≤10% even without fit testing, these models should be fit tested. The findings in this report indicate that the models evaluated do not provide the expected level of protection for every user. Therefore, even for these models, performing a fit test has value in identifying those wearers having poor fit.

The findings in this study are subject to at least two limitations. First, specific models used do not necessarily represent the models now available; many are no longer marketed in the version tested, and continued product modifications by the respirator manufacturer may affect the fitting characteristics of specific models. Second, some models tested have been replaced with newer versions, and additional models are now available.

The fit test pass/fail level of 1% used in this report typically is recommended by respirator authorities (*7*). This criterion, however, is based on professional judgement. NIOSH will further analyze these data to determine the effect of adjusted pass/fail levels. Such analysis may provide insight into the appropriateness of that pass/fail level.

Laboratory Performance Evaluation — Continued

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Progress Toward Global Measles Control and Regional Elimination, 1990–1997

In 1989, the World Health Assembly resolved to reduce measles morbidity and mortality by 90% and 95%, respectively, by 1995, compared with disease burden during the prevaccine era (*1*). In 1990, the World Summit for Children adopted a goal of vaccinating 90% of children against measles by 2000. Regional measles-elimination goals have been established in the American Region (AMR) by 2000, the European Region (EUR) by 2007, and the Eastern Mediterranean Region (EMR) by 2010. This report updates progress toward global measles control and regional elimination (*2*), and presents measles vaccination coverage and incidence for 1997* and WHO estimates of global measles morbidity and mortality in 1997 compared with the prevaccine era†.

Reported Measles Morbidity and Routine Vaccination Coverage

In 1997, 702,298 cases were reported to WHO, a 48% decline compared with 1990 (*3*). Among the six WHO regions§, the African Region (AFR) reported the highest measles incidence (47.5 per 100,000), and AMR reported the lowest (6.5 per 100,000). However, the 51,915 cases of measles reported from AMR in 1997 represent a 25-fold increase over the record low 2109 cases in 1996 (*2,3*). The increase resulted from a measles outbreak of >42,000 confirmed cases in São Paulo State, Brazil, that spread to other states in Brazil and to other countries in the region (*4,5*).

Vaccination coverage data were based on reports provided by member states to WHO and adjusted for the target population (annual number of infants surviving their

*Reported to the World Health Organization (WHO) as of July 20, 1998.

†Number of measles cases during the prevaccine era was estimated by WHO on a country-by-country basis, and assumed equivalent to 95% of the surviving infants in 1980 for most developing countries, or in 1975 for developed countries. Surviving infants were defined as all live-born infants during a 1-year period minus the number of deaths during the first year of life.

§African, American, Eastern Mediterranean, European, South East Asian, and Western Pacific regions.