



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SEP 27 1978

Mr. Ross Kusian
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Seattle, Washington 98134

Dear Ross:

Thanks for your letter of August 15, 1978 about your RC 2095 DE series of non-NIOSH-MSHA tested and certified air-supplied hoods. After considering the matter carefully I believe that the main reason that the hoods are not generally approved for use is that you do not seem to have completed the necessary steps to have the hoods tested and certified jointly by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA), the agencies to which the Congress has delegated the primary responsibilities for testing and certifying respirators.

Item 5. of your letter's "summary" states: "We have submitted our hood to NIOSH. Approvals can be a year in coming." Our check with Mr. Ronk of the NIOSH Respirator Test and Certification Laboratory indicates that while representatives of your company spoke to them in March, 1978 about submitting the hoods for approval, as of August 23, 1978, the day that we checked, your application for approval was still not completed. Since you have had these hoods for at least two years that I know of, and the application to have them approved is, apparently, still not complete, I believe that the main reason for your delay to date in obtaining approval is obvious and unrelated to how long it will take NIOSH-MSHA to complete the testing and certification after the submission of your application is completed.

I will deal with your comments seriatim. A copy of your letter is enclosed for your convenience in referring to individual items.

1. You characterize the NIOSH-MSHA test schedules as "simple odor tests." Actually, the requirements of the schedule in 30 CFR Part 11 are much more comprehensive and cover a variety of other important items--hoses and couplings, quality of materials, and quality control of the products, to mention a few. While improvements certainly can and should be made in the requirements of 30 CFR Part 11, including quantitative testing, I would have to disagree with you that these requirements are "totally inadequate." That they are not totally inadequate "for nuclear work" has been shown in the testing of approved hoods that was conducted for the

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NRC by the Los Alamos Scientific Laboratory (LASL). These tests provided specific quantitative and other performance information on the capabilities and limitations of these devices. The NRC will continue to take whatever additional actions are necessary to develop the information required for carrying out its regulatory responsibilities in respiratory protection. However, I am not ready to recommend that the NRC become a completely separate approval agency for respirators. If, after exploring the other reasonable avenues for the improvement of the present approval schedules, I should conclude that it were necessary for the NRC to take more independent action in approving respirators, I would not hesitate to recommend such action to the Commission.

2. To my knowledge there are no established standards for air-supplied hoods "specifically for use in nuclear reactor work." While some of the NRC's licensees might find particular features of your hood desirable for use in some work, others might find the same hood inadequate for other uses. Many other manufacturers could probably cite particular features of their equipment that yours does not have and that many licensees might find desirable. One such feature is that many other hoods are NIOSH-MSHA tested and certified. If your equipment and manufacturing procedures are good, they should have no trouble passing the certification tests. I suggest that you obtain your NIOSH-MSHA certification as soon as possible so that our licensees will be able to select your hood for NRC-approved use in their programs.
3. Many NIOSH-MSHA approved hoods will support themselves in an upright position; and they provide various, but adequate, visual fields for the types of work performed. There is probably some advantage in having a wider visual field in some applications. But could the wide visual field be maintained, or the hood even used, in an operation such as welding, for example, that is often performed at nuclear reactors?
4. There does not appear to be a sound technical basis for concluding that your hood provides some special protection that would not be provided by other hoods, as they are normally used, against skin contamination. Where contamination of the skin is a problem, any hood, including yours, would have to be used with a variety of additional anti-contamination equipment, e.g., plastic coverings, coveralls, gloves, shoe covers, tape, etc.
5. All of the approved hoods tested by LASL have passed the NIOSH-MSHA sound-level requirements. The hoods, as tested by LASL, were not tested in exactly the same way as your hood was in the test conducted by EG&G; so there is little basis for direct comparison. If you believe that the NIOSH-MSHA tests should be "more rigorous," then perhaps you should suggest to NIOSH that appropriate changes be made to 30 CFR Part 11.

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- 6.(a) The tests made by EG&G and those made by LASL do not seem comparable on any reasonable basis. Your hood that EG&G tested was not one of those tested by LASL. LASL tested 17 hoods and used from 3 to 7 test subjects to perform from 6 to 12 tests per hood. EG&G tested one hood once on each of 26 test subjects.

There are no standardized anthropometric criteria for the testing of hoods. LASL has more experience in using anthropometrically-sized subjects in the testing of respirators than anyone else that I know of. A complete panel of 25 or more facially-sized subjects is used when testing certain facially tight-fitting respirators. In the testing of other types of respirators, such as hoods, fewer sizes are required and other body-size characteristics are taken into account when necessary. Preliminary testing of hoods at LASL indicated that relatively fewer persons of small-to-large body size were sufficient for such tests.

Since LASL and EG&G made separate and different tests of different equipment and made them for generally different reasons, there appears to be no sound technical basis for concluding that the EG&G tests "...are more representative of the work force," even if one could logically decide what it might mean for a "test" to "represent" a "work force."

- 6.(b)&(c) I have to disagree that the EG&G tests were "virtually identical" to the tests that were performed by LASL. The tests were actually quite different. In addition to the differences that have been mentioned previously in this letter, the EG&G tests were performed with the hood fitted as it would be in full use with extra clothing, "bib" tucked in, etc., whereas the LASL tests were performed with the hoods more loosely gathered, without the effects of extra clothing or other special donning arrangements that would ordinarily be made in actual use. To that extent the LASL tests probably produced a more conservative estimate of the protection provided. Very likely, if your hood were tested by the LASL method, it would not perform as well as it did in the EG&G tests; and if the LASL test included full donning procedures, the hoods tested by LASL would probably perform better, even in the "running-in-place" tests. It seems to me that the two sets of tests are not really comparable.

As to the "running-in-place" tests, I don't know of any practical situations where anyone would be running-in-place while wearing a hood. The tests might have some usefulness as an indication of stability when hoods are worn fully donned; but no one has fully evaluated whether or not such a test is necessary or even useful for testing hoods. I suspect that we might well do without it.

Many of the items in your summary have been covered in the discussion above; my additional comments on particular items are:

1. I wish I could agree with your generalized conclusion about the "superiority" of your hood; however, from an objective review of your presentation and of the available data, I might agree that what you have is a flexible or semi-rigid plastic hood that is similar in many respects to a number of other hoods and that is classifiable as a Type "C" supplied-air respirator that may be tested for certification by NIOSH-MSHA under Subpart "J" of 30 CFR Part 11. It might be considered by some people to be superior in some respects and equal or inferior in other respects to similar respirators.
2. Covered in previous comments.
- 3.&4. Your statements about the applicability of the NRC's regulations concerning respirator approvals are somewhat amiss as to the actual requirements. As Tom Davis explained in his letter to you of August 2, 1978, the regulation contemplates consideration for authorization to utilize non-NIOSH-MSHA tested and certified equipment only when no schedule exists for approval of equipment of that type (e.g., Type "C" supplied-air respirator) or if no equipment of the type has been approved. Since there is a NIOSH-MSHA schedule for testing and certifying the Type "C" equipment in question; and many other pieces of Type "C" equipment are approved, there is no basis for separate approval by the NRC. Perhaps you were misinformed as to what the NRC "has told licensees"; at any rate, for reasons given above, I must disagree with you on what the "data" indicate.
5. Covered in previous comments.
6. The statement might be true, but does not seem particularly pertinent under the circumstances.
- 7.&8. I have to disagree with these statements. The EG&G-tested hood has not been approved by the Department of Energy for use at the Idaho National Engineering Laboratory.
9. As you know, the NRC/AEC has devoted considerable efforts over the past fifteen years or more to the improvement of respiratory protection for workers. The health and safety of workers has been, and continues to be, the uppermost consideration in these efforts, as has, perhaps, been demonstrated by the safety record of the nuclear industry.

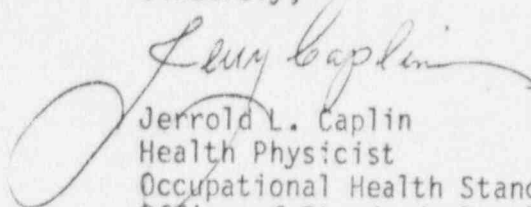
The NRC probably has the best program of occupational respiratory protection among the regulatory agencies. Many features of respiratory protection programs that were introduced by the NRC are now being adapted to more general use by other agencies, public and private. We will continue our efforts to improve our program and to work with other responsible people to improve occupational respiratory protection in the United States. In view of our established record of progress in respiratory protection and of our on-going efforts, I must disagree with your comments, concerning "bureaucratic decisions" that might disregard workers' interests.

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10.&11. It seems that the most obvious recourse that is open to you is the same one that is open to other manufacturers of respirators who have used it, i.e., following the straightforward NIOSH-MSHA procedures for the approval of respirators.

I hope that in the future we will have the opportunity to work together, as we have before, toward improvements in the quality of the respiratory protection that is afforded to this country's workers. I am certainly not satisfied with the status quo, and I doubt that many other people are. Much work remains to be done; and a number of groups such as ANSI, AIHA, ACGIH and ASTM are working on various aspects of current problems. I'm sure that your many years of experience would make you a welcome participant in any of these or other forums where representatives of government, manufacturers of respirators, industrial users, fire and rescue services, organized labor, and others are trying to work together on some of the very difficult problems that must be resolved if we are to provide the best respiratory protection for workers.

Sincerely,



Jerrold L. Caplin
Health Physicist
Occupational Health Standards Branch
Office of Standards Development

Enclosures:

Your letter to me of 8/15/78

Tom Davis' letter to you of 8/2/78

cc: T. Davis, LASL
E. Hyatt, LASL
R. Ronk, NIOSH
R. Schutz, NIOSH
J. Talty, NIOSH
H. Ettinger, LASL
A. Hack, LASL
D. Lillian, DOE
D. Ross, DOE