Duquesne Light Company Beaver Valley Power Station
P.O. Box 4
Shippingport, PA 15077-0004
(412) 393-5255

JOHN D. SIEBER
Vice President - Nuclear Group

December 13, 1991

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Subject: Beaver Valley Power Station, Unit No. 1 and No. 2
BV-1 Docket No. 50-334, License No. DPR-66
BV-2 Docket No. 50-412, License No. NPF-73
Use of the BioPak 240P (TAC #79212, 79213)

This letter is a request for Nuclear Regulatory Commission (NRC) authorization to use the BioPak 240P respirator to provide respiratory protection during fire fighting activities at Beaver Valley Power Station Units 1 and 2. In addition, this letter documents the fit factor value being used to determine the acceptability of fit for this respirator.

The BioPak 240P is a NIOSH approved positive-pressure closed circuit self-contained breathing apparatus which provides breathing gas to the user with an oxygen concentration of greater than 30 percent. Beaver Valley utilizes the BioPak 240P to provide respiratory protection during subatmospheric (normally 9.2-9.5 psia) containment entries. In addition to this use, it is our desire to use the BioPak for respiratory protection if a need arose to fight a fire in the containment building. Our request for such use is based on the fact that NIOSH has not certified the BioPak or any other oxygen enriched (>30%) positive pressure respirator for fire fighting.

Since 10 CFR 20.103(c) requires that a respirator be NIOSH certified prior to a licensee utilizing it and 10 CFR 20.103(f) requires that a NIOSH certified respirator be used for emergency use, any respirator not approved by NIOSH for fire fighting would be unacceptable for this use without specific authorization from the NRC.

We hereby request NRC authorization to use the BioPak in fire fighting activities in accordance with 10 CFR 20.103(e). The basis for this request is a pair of responses issued by OSHA in February of 1990 to inquiries from Mr. Steven H. Weinstein, formerly of Biomarine, Inc. on the use of the BioPak respirator for fire fighting. In these responses, OSHA recognizes the BioPak as being acceptable for fire fighting and in compliance with 29 CFR 1910.156, OSHA's Fire Brigade Standard. Copies of these replies have been attached for your use.

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In addition to the above request, we wish to document the fit factor value being used to determine the acceptability of fit for the BioPak 240P. Respirators like the BioPak are currently the only positive pressure self-contained breathing apparatus that require a quantitative fit test to ensure acceptable facepiece fit. 10 CFR 20, Appendix A, Note 1 requires that for respirators of this type, an individual must obtain a quantitative respirator fit with no more than 0.02 percent leakage (a fit factor of 5000).

Beaver Valley currently uses a fit factor value of 1000 for determining whether an individual has an acceptable fit for the BioPak 240P. The basis for this is an NRC memorandum from LeMoine J. Cunningham, Chief, Operating Reactor Program Branch dated August 29, 1984 (See copy attached). In this memorandum, Mr. Cunningham provides guidance concerning fit testing for BioPak 60P users. The BioPak 60P is a sixty minute version of the BioPak 240P and both use the same facepiece. In this memo, he states that when conducting a fit test for this respirator in the negative pressure mode, the fit factor value of 5000 required by the regulations is too restrictive. He suggested a fit factor acceptance value of 1000 is adequate in distinguishing between a good or a poor fit. It should be noted that while using the acceptable fit factor suggested by Mr. Cunningham, Beaver Valley continues to use the protection factor of 5000 assigned to this type of respirator by 10 CFR 20, Appendix A.

If there are any questions concerning this letter, please contact Mr. Doug Canan at (412) 393-7679.

Sincerely,

J. D. Sieber

Attachments

cc: Mr. J. E. Beall, Sr. Resident Inspector
Mr. T. T. Martin, NRC Region I Administrator
Mr. A. W. DeAgazio, Project Manager
Mr. M. L. Bowling (VEPCO)
Mr. L. J. Cunningham, NRR Radiation Protection Branch
Dr. R. R. Bellamy, NRC Region I
Mr. J. E. Wigginton, NRR Radiation Protection Branch
Mr. J. H. Joyner, NRC Region I

U.S. Department of Labor

Occupational Safety and Health Administration
Washington, D.C. 20210

Reply to the Attention of:

FEB 6 1990

Mr. Steven H. Weinstein
National Sales Manager
Biomarine Inc.
45 Great Valley Parkway
Malvern, Pennsylvania 19355-1393

Dear Mr. Weinstein:

This is in response to your letter of November 27, 1989, addressed to Mr. Glen Gardner, concerning OSHA's position with respect to closed-circuit positive-pressure self-contained breathing apparatus (SCBA) when used in IDLH atmospheres or for interior structural firefighting (i.e., compliance with 29 CFR 1910.156).

Several years ago, as you are aware, OSHA promulgated its standard for fire brigades. During the rulemaking process, the use of positive-pressure closed-circuit SCBA for interior structural firefighting was a major issue, and the subject of much controversy during the comment period and hearings. Based on data contained in the record, OSHA concluded that the use of closed-circuit positive-pressure SCBA is acceptable in meeting 29 CFR 1910.156 if the apparatus is certified by NIOSH as positive-pressure.

OSHA's position has not changed since that time. More recent tests performed by Lawrence Livermore Laboratory support OSHA's earlier conclusion that the use of this type of apparatus for firefighting is acceptable.

Therefore, closed-circuit positive-pressure SCBA, including the Biopak 30, 60, 60p, 240, and 240p, are acceptable to OSHA for use in IDLH atmospheres and are in compliance with the OSHA fire brigade standard (29 CFR 1910.156) if certified by NIOSH as positive-pressure SCBA.

I hope this information will be of assistance to you.

Sincerely,

Glen R. Williamson
Acting Director, Directorate of Safety
Standards Programs

U.S. Department of Labor

Occupational Safety and Health Administration
Washington, D.C. 20210

Reply to the Attention of:

FEB 12 1990

Mr. Steven H. Weinstein
National Sales Manager
Biomarine Inc.
45 Great Valley Parkway
Malvern, Pennsylvania 19355-1393

Dear Mr. Weinstein:

In reference to your telephone conversation with Mr. Glen Gardner of my staff, I would like to clarify the position of the Occupational Safety and Health Administration (OSHA) regarding positive-pressure closed-circuit self-contained breathing apparatus (SCBA) manufactured by Biomarine with respect to meeting OSHA requirements.

The Biopak 30, 60, and 240 are positive-pressure closed-circuit SCBA that were certified by NIOSH before criteria existed for this particular type of SCBA. The Agency recognized, and continues to recognize, these SCBA as being acceptable for fire fighting and as being in compliance with the OSHA fire brigade standard (29 CFR 1910.156). We are also aware that the Biopak 60p and 240p have been certified as positive-pressure SCBA under criteria established by NIOSH for closed-circuit positive-pressure SCBA. OSHA also recognizes these units as being acceptable for fire fighting and as being in compliance with the OSHA fire brigade standard.

I hope this clarifies OSHA's position on this issue.

Sincerely,

Thomas H. Seymour
Deputy Director, Directorate of Safety
Standards Programs

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

AUG 29 1984

MEMORANDUM FOR: Those on Attached List

FROM: LeMoine J. Cunningham, Chief
Section 2, Operating Reactor Programs Branch
Division of Quality Assurance, Safeguards,
and Inspection Programs
Office of Inspection and Enforcement

SUBJECT: UPDATED GUIDANCE ON FIT TESTING OF BIOPAK 60-P RESPIRATOR USERS

This letter provides updated guidance on fit testing of BioPak 60-P respirator users in response to inquiries from licensees and inspectors regarding implementation of previous guidance (memo to L.R. Greger, RIII, from L.J. Cunningham, IE August 8, 1983 - copy enclosed). Licensee and inspectors have inquired as to what constitutes an acceptable method for performing quantitative fitting of the wearers of this apparatus as required in footnote 1, to Appendix A of Part 20; specifically, is it acceptable to check the fit of the device (the face to facepiece sealing capability) by testing the user while the user is wearing just the facepiece equipped with a high efficiency filter supplied by the manufacturer of the device. Previous guidance stated that the wearer must don the entire unit for fit testing since it was felt that fitting the facepiece with a high efficiency filter that is capable of allowing no more than 0.03% leakage would preclude measurement of the required 0.02% leakage or less through the face to facepiece sealing area. However, the 0.03% leakage allowed for high efficiency filters is determined with a more penetrating aerosol (monodispersed) than used in fit testing. Therefore, it is possible to measure the 0.02% leakage accurately with the facepiece equipped with a high efficiency filter (0.02% leakage corresponds to a fit factor of 5000).

Requiring a fit factor of 5000 in the negative pressure air-purifying mode is too restrictive. This approach to fit testing allows no credit for protection provided by the positive pressure inside the facepiece generated by the device in its normal mode of operation. Positive pressure inside the facepiece can compensate for inward leakage of contaminants to some extent by ensuring air circulating through the device is leaked outward instead of leaking contaminants into the worker's breathing zone. However, in this device that protection is obtained at a large cost if the fit is poor and outward leakage is substantial because reduced service life results as outward leakage of air is made up from the small volume of oxygen carried by the user. The volume carried is sufficient to exchange the volume of carbon dioxide released in respiration with compressed oxygen. Carbon dioxide is removed from the circulating air by the sorbent scrubber.

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A hard and fast number that delineates good from poorly fitting respirators is not available. In the opinions of many experts in the field of respiratory protection, 1000 seems to represent a reasonable number for distinguishing between good and poorly fitting respirators. It is recommended that licensees use this number as a guide for determining if an acceptable fit has been achieved with this device.

For those persons that are unable to attain a fit factor of 1000 with just the facepiece in negative pressure mode participation in emergency, potentially IDLH situations should be restricted. This person may experience drastically reduced service time which reduces emergency response capability as well as hindering escape from a potentially life threatening situation.

The intent of the previous guidance was not to verify proper functioning of the entire unit. The operability of the assembled unit is checked after maintenance and before each use. In addition, fit testing of workers wearing the assembled unit in the case of this apparatus was presenting other problems due to the low makeup volume and leakage detection interference from background water vapor droplets and particulates from the carbon dioxide scrubber system.

Based on the interference problem that has been reported and revaluation of the previous guidance it is now recommended that fit testing of wearers of the BioPak 60-P be performed with just the facepiece equipped with a high efficiency filter and that a factor of 1000 be considered an acceptable fit. A recommendation will be made to RES to update Appendix A to include the intent of this interpretation in the next rule change.

If you have any questions regarding this guidance please contact Lynnette Hendricks of my staff (492-9728) or Jim Wigginton, IE (492-4967).

LeMoine J. Cunningham, Chief
Section 2, Operating Reactor Programs Branch
Division of Quality Assurance, Safeguards
and Inspection Programs
Office of Inspection and Enforcement

Enclosure:
Memorandum L.R. Greger frm
L.J. Cunningham dtd. 8/8/84