UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555

May 18, 1989

NRC INFORMATION NOTICE NO. 89-47: POTENTIAL PROBLEMS WITH WORN OR DISTORTED HOSE CLAMPS ON SELF-CONTAINED BREATHING APPARATUS

Addressees:

All holders of operating licenses or construction permits for nuclear power reactors and fuel facilities.

Purpose:

This information notice is being provided to alert addressees to potential problems with worn or distorted hose clamps on self-contained breathing apparatus (SCBA). It is expected that licensees will review the information for applicability to their facilities and consider actions, if appropriate, to preclude use of a potentially defective respirator. However, suggestions contained in this notice do not constitute NRC requirements and, therefore, no specific action or response is required.

Description of Circumstances:

A Department of Health and Human Services "NIOSH Respirator User's Notice" (Attachment 1) described two events in which retaining clamps on the breathing tube of a SCBA failed, causing the tube to separate from the facepiece. These failures led to the death of one wearer and serious injury to another. In both cases, the failure was attributed to worn or deformed clamps that may have resulted from improper maintenance of the units.

Discussion:

Hose clamp failures on SCBAs can result in serious personnel safety hazards. In order to help prevent these failures, it is important that personnel pay particular attention while performing maintenance on the SCBAs. It is important that maintenance personnel perform careful visual inspections of hose clamps to identify worn or deformed ones and, when replacing these defective clamps, adhere strictly to the manufacturer's instructions. Care when disassembling or reassembling breathing tube clamps will also minimize failures.

In the general interest of personnel safety and in order to maintain an adequate emergency response capability, licensees may wish to share this information with other potential SCBA users, such as local fire department personnel. Also, licensees may wish to consider subscribing to the NIOSH service in order

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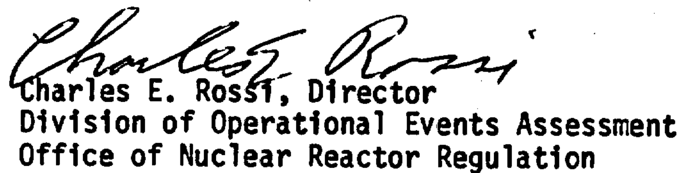
to receive prompt notification of significant problems with respiratory equipment. Licensees can be added to the NIOSH distribution list by writing to Mr. Robert Schutz, Respirator Problem Coordinator of the Division of Safety Research, at the address in the upper right corner of Attachment 1.

No specific action or written response is required by this information notice. If you have any questions about this matter, please contact the technical contact listed below or the Regional Administrator of the appropriate regional office.



Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical Contact: Roger L. Pedersen, NRR
(301) 492-1079

Attachments:
1. NIOSH Users Notice
2. List of Recently Issued NRC Information Notices

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
National Institute for Occupational
Safety and Health – ALOSH
944 Chestnut Ridge Road
Morgantown, WV 26505–2888

NIOSH RESPIRATOR USER'S NOTICE

March 16, 1989

In September, 1988, the National Institute for Occupational Safety and Health (NIOSH) received a fatality report involving a MSHA/NIOSH-certified self-contained breathing apparatus. As indicated in the report, a firefighter failed to exit a training fire in an abandoned building. The Investigation Board reported that the retaining clamp which secured the low pressure breathing tube to the facepiece assembly had opened, allowing the breathing tube to separate from the facepiece. NIOSH examined the apparatus worn by the deceased firefighter and found that the clamp at the facepiece end of the breathing tube was distorted and worn.

During January, 1989, NIOSH was informed of the injury of a firefighter, who reportedly experienced a separation of the breathing tube from his facepiece, because of clamp failure. NIOSH has been advised that in this incident, there may have been use of an unapproved clamp at that point. NIOSH is still investigating this matter.

NIOSH understands that during routine maintenance of self-contained breathing apparatus, some respirator users disassemble the apparatus, including removal of the breathing tube clamps. Frequent removal and replacement of clamps eventually results in their deformation and damage, especially if the proper tool is not used for disassembly and reassembly.

In view of the potential for death or injury of apparatus wearers, who experience separation of self-contained breathing apparatus parts during use in atmospheres immediately dangerous to life and health, NIOSH recommends that special attention be paid to the condition and assembly procedure for clamps on breathing tubes, and elsewhere on the apparatus. The breathing apparatus manufacturer's instructions for removal and replacement of clamps must be closely followed. Maintenance personnel must be alert for and must discard worn and deformed clamps. Such clamps found during maintenance must be replaced with new clamps.

You should bring this matter to the attention of your maintenance personnel. NIOSH requests that further incidents of clamp failure be reported to the apparatus manufacturer, with a copy to NIOSH.

Your assistance in this matter is appreciated.

Sincerely yours,

Thomas R. Bender, M.D., M.P.H.
Director
Division of Safety Research

LIST OF RECENTLY ISSUED
NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
89-46	Confidentiality of Exercise Scenarios	5/11/89	All holders of licenses for fuel cycle facilities and byproduct material licensees having an approved emergency response plan.
89-45	Metalclad, Low-Voltage Power Circuit Breakers Refurbished with Sub-standard Parts	5/8/89	All holders of OLs or CPs for nuclear power reactors.
89-44	Hydrogen Storage on the Roof of the Control Room	4/27/89	All holders of OLs or CPs for nuclear power reactors.
88-82, Supp. 1	Torus Shells with Corrosion and Degraded Coatings in BWR Containments	5/2/89	All holders of OLs or CPs for BWRs.
89-43	Permanent Deformation of Torque Switch Helical Springs in Limitorque SMA-Type Motor Operators	5/1/89	All holders of OLs or CPs for nuclear power reactors.
88-97, Supp. 1	Potentially Substandard Valve Replacement Parts	4/28/89	All holders of OLs or CPs for nuclear power reactors.
89-42	Failure of Rosemount Models 1153 and 1154 Transmitters	4/21/89	All holders of OLs or CPs for nuclear power reactors.
89-41	Operator Response to Pressurization of Low-Pressure Interfacing Systems	4/20/89	All holders of OLs or CPs for nuclear power reactors.
88-75, Supplement 1	Disabling of Diesel Generator Output Circuit Breakers by Anti-Pump Circuitry	4/17/89	All holders of OLs or CPs for nuclear power reactors.

OL = Operating License
CP = Construction Permit

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OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

FIRST CLASS MAIL
POSTAGE & FEES PAID
USNRC

PERMIT No. G-67

to receive prompt notification of significant problems with respiratory equipment. Licensees can be added to the NIOSH distribution list by writing to Mr. Robert Schutz, Respirator Problem Coordinator of the Division of Safety Research, at the address in the upper right corner of Attachment 1.

No specific action or written response is required by this information notice. If you have any questions about this matter, please contact the technical contact listed below or the Regional Administrator of the appropriate regional office.

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Changes to final notice to remove "should" were discussed with C. Berlinger and R. Pedersen. D. Prochnow and J. Cunningham were not in the office when the changes were made. C E Rossi 5/12/89

*Transmitted by memorandum to Charles Rossi from Frank Congel dated 5/1/89
**SEE PREVIOUS CONCURRENCES

	D/DOEA:NRR	*C/OGCB:DOEA:NRR	**RPB:ARM	*IMSB:NMSS
	CERossi	CHBerlinger	TechEd	LCRouse
	05/12/89	05/11/89	05/09/89	05/01/89
**OGCB:DOEA:NRR	*RPB:DREP:NRR	*SC/RPB:DREP:NRR	*C/RPB:DREP:NRR	*D/DREP:NRR
DProchnow	RLPedersen:bt	JEWigginton	LJCunningham	FJCongel
05/09/89	04/20/89	04/21/89	05/01/89	05/01/89

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death of one wearer and serious injury to the other. In both cases the failure was attributed to worn or deformed clamps possibly resulting from improper maintenance of the units.

In the general interest of safety of workers and maintaining an adequate emergency response capability, licensees may wish to share this information with other potential SCBA users, such as local fire departments.

It has been our experience that many licensees still do not regularly receive NIOSH Respiratory User's Notices. By subscribing to this NIOSH service, licensees' could get early warning of significant problems with respiratory equipment. Licensee's can be added to the NIOSH list by writing Robert Schutz, Respirator Problem Coordinator, Division of Safety Research at the address in the upper right corner of the attachment.

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