



News-Letter

WORLD SAFETY ORGANIZATION

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27th Annual WSO International Environmental & Occupational Safety & Health Professional Development Symposium

*"Safety Across Multi-Disciplined Organizations with Global
Lessons to Inspire Local Actions"*



September 28–October 1, 2014
Sheraton Denver Tech Center • Denver, Colorado, USA

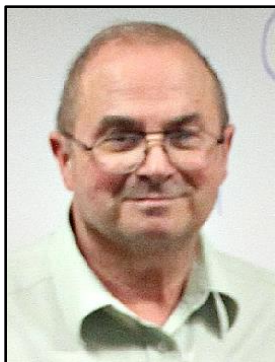
Plans are being made for the next WSO Symposium! More information will come as presenters are confirmed, but make your plans now to attend.

The symposium presentations will focus on multi-disciplined cooperation between different organizations and cross-disciplinary research that addresses safety promotional and/or injury prevention. This important theme of the 2014 symposium is how we learn from each other's experiences in different organizations and countries. The symposium will focus on how to build connections and research partnerships between these different sectors. Recent events highlight some of the challenges facing the industry, such as: the growing concern with government regulations on safety and the environment; the high costs and financial liabilities associated with incidents; the ever-increasing number of road accidents and high fatality rates; the growing concern over security issues in industrial facilities; cyber security and information protection; and the aging infrastructure and its impact on safety.

The annual WSO Awards Banquet will be held in conjunction with the Symposium. Information on nomination procedure is available on the WSO website.

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A Letter from the Chief Executive Officer



With the holiday season in full swing and 2013 coming to a close, I want to thank all our members, National Offices and Chapters for your continued support of the World Safety Organization (WSO). Your involvement in the WSO has helped it grow into a world-class

organization, and it is an honor for me and all of the staff to serve you.

Our organization's 38th anniversary year has been marked by an extraordinary expansion of our reach and influence on a global basis, an accomplishment made possible by your belief in the WSO to make a positive difference. We've met with new potential partners and brought in new members from different places around the world — all of whom share WSO's mission of "Making Safety a Way of Life.... Worldwide."

A major focus throughout the year has been rethinking safety requirements for the 21st century. We've been taking a close look at the economic, social and environmental issues that are changing the business of safety and the environment. And, we've benefited greatly from our members' commitment to volunteerism that — through advisory boards or other ways — is helping our organization adapt and adjust to the changing environment.

In this time of redeveloping established markets and developing emerging ones, WSO's impact has perhaps never held more potential. We're making a difference globally and locally. We're leading change globally with new partners, and new Board members. We've expanded our reach in the environmental arena and in the development of Safety training that will be used throughout the world with the help of our members.

This is the type of on-the-ground impact that provides new insights and perspectives that ultimately lead to better decisions about how our organization will grow. Without question, the impact WSO makes through the United Nations (UN) strengthens the impact we make globally. Our success is measured by what we accomplish city-by-city, region-by-region, and around the world.

What we achieved this year — through initiatives both globally and locally — represents great progress in making WSO matter to more people in more places. In Malaysia and the Philippines we have had safety classes and the graduation of students in the Safety and Environmental field. Our members throughout the world are acting as trainers and are working together to ensure that Safety and Environmental Professionals are being trained to help others become professionals within their professions.

WSO is trusted and respected around the world, thanks to each of you. With your help, we can ensure that as our organization grows, it remains the global voice for responsible safety and environmental information. During this holiday season, please consider **a donation to the charity of your Faith** as part of your giving plans. Your support can help turn big ideas and bold visions into reality.

Best wishes for a healthy, prosperous new year!



Lon S. McDaniel
Chief Executive Officer
World Safety Organization

Portable High Efficiency Air Filtration (PHEAF) Device In-Field Effective Test Methods – An International Perspective



**Robert Brandys, Ph.D., M.P.H.,
P.E., CIH, CSP (Retired)**

A standard has recently been developed for portable high efficiency air filtration (PHEAF) equipment. The standard was developed to address consistent yet troubling issue of particulate leakage from these devices. This conclusion is based on the findings of studies performed over several decades by various researchers. PHEAF equipment includes vertical and horizontal portable air filtration devices (AFD), movable vacuums, handheld vacuums and other filtered suction equipment that are equipped with a high efficiency particulate air (HEPA) filter or an ultra-low penetration air (ULPA) filter. This type of equipment is used for cleaning surfaces, removing dust, dirt, mold, asbestos, lead and other hazardous particulate environmental contaminants.

The standard defines protocols to document that PHEAF equipment does not release significant levels of particulates or odors into the work environment or exhaust discharge areas. Historical research has demonstrated that the filter media itself can fail. However, even when efficient filter media is used, the PHEAF device as a whole (filter and filter housing together) fails at a staggering rate. The authors have carefully researched and demonstrated that there are multiple methods available for demonstrating the effectiveness of PHEAF equipment in the field under real-world conditions. These methods are relatively quick and inexpensive ways to ensure and document the proper capture of hazardous particulate agents.

More than 200 references support the standard's three in-field testing methods to ensure and document the effectiveness of PHEAF equipment. The term "effectiveness" is used to describe the PHEAF equipment testing classes instead of the term

"efficiency." This clarification is made to distinguish between testing the entire device for its operational effectiveness from efficiency testing of just the filter itself.

The PHEAF standard contains five classifications of HEPA and ULPA-filtered equipment ranging from 90% to 99.999% effectiveness. A device with an effectiveness rating under 90% is not deemed to be a PHEAF device. Recommended use scenarios are also provided for each of the five PHEAF equipment classes.

This standard would apply to various PHEAF devices such as those used to clean mold in the healthcare industry to protect immune-compromised

individuals, remove asbestos contamination with vacuums on abatement or O & M projects, and perform lead paint debris cleaning during residential paint disturbance or lead paint removal.

Leakage of PHEAF equipment is due to the penetration of airborne particles through damaged and undamaged filter media, through gaps between the filter and filter housing, and from particulates shedding off of the filter media itself. They identify multiple reasons for the inefficiency of PHEAF devices, such as filters rated for only one particle size

(instead of multiple particle sizes), devices tested at one flow rate but operated at much higher flow rates, improper manufacturing or labeling of filter media and filter housing, and filter media degradation over time. It is for these and other reasons that it is important to conduct periodic testing of PHEAF equipment in the environment and operation conditions for which it is intended to be used.

It is for these and other reasons that it is important to conduct periodic testing of PHEAF equipment in the environment and operation conditions for which it is intended to be used.

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The in-field testing methods defined in the text provide step-by-step protocols for testing HEPA and ULPA-filtered equipment using an aerosol challenge method, laser particle counter method or condensation particle counter method. The first several chapters cite significant historical literature and research which demonstrate that testing of HEPA filters and HEPA-filtered equipment has been a necessary and prudent practice since their development in the early 1940s. The book summarizes more than 50 years of research and testing of HEPA filters and systems by the nuclear power, weapons, electronics, pharmaceutical, healthcare and aerospace industries.

However, the development of the asbestos and lead abatement industries in the 1980s, and the more recent mold remediation industries, has resulted in the widespread use of HEPA-filtered equipment by non-technical or insufficiently-trained personnel. This has resulted in the use of PHEAF equipment with inadequate and improper testing methods to assess the equipment's effectiveness. The text provides readers with an extremely detailed account

of what is already known about the testing, validation and certification of HEPA filter efficiency and testing of PHEAF device effectiveness as a whole. The book's writing style is non-technical, and easily understood by SH&E practitioners. The authors discuss state-of-the-art air testing and evaluation of HEPA- and ULPA-filtered PHEAF devices for the emerging use of nano-sized particles.

This book is a must-read for those who use PHEAF devices to protect workers and the public from the harmful particulates they are trying to control.

Bob Brandys is President of Occupational and Environmental Health Consulting Services, Inc. located in Hinsdale, Illinois. "Dr. Bob," has a Ph.D. in Environmental Safety and Health, a Masters in Public Health, and dual undergraduate degrees in thermo-mechanical engineering and environmental engineering. He is a Registered Professional Engineer, a Certified Industrial Hygienist, a Certified Safety Professional, and a Certified Mold Remediator. He has over 30 years of experience in the safety and environmental field. He was a corporate safety manager for healthcare corporations for 15 years and President of OEHCS since 1984.

Maritime Safety: Safety in a Wet World

Jeff Lewis MS, RSP, CSSM, DMT

Presented at 2013 Symposium / San Diego, CA

Shipyard Environment

Shipbuilding activities are some of the most hazardous shipyard operations. There are multiple types of construction, which may include modular construction, traditional construction (from keel up), and fiberglass/composite material mold construction. Shipbuilding includes constructing, assembling, installing, cleaning, painting, outfitting, and testing. Hazards include exposure to toxic substances, hazardous atmospheres, electrocution, falls, fires, and explosions. These hazards can be eliminated or minimized through use of an effective safety and health program.

Employees working alone are at an increased risk due to their remote location, which may decrease the likelihood of rapid detection or prompt treatment of an injury. Over the past decade there were 18

fatalities ***involving shipyard employees working alone. Of these incidents, 17 workers were not discovered until after they died from their injuries.***

The following are examples of where employees working alone are placed at increased risk:

- An employee working alone on a job task at the far end of a vessel, vessel section, or shipyard;
- An employee working alone in a hold, sonar space, or tank;
- Two employees working on either side of a metal partition;
- One employee performing hot work with a fire watch located on the other side of a bulkhead; or
- An employee working alone in a confined space.

Confined and enclosed space operations have a greater likelihood of causing fatalities, severe

injuries, and illnesses than any other type of shipyard work. Hazards include fires and explosions, falls, and hazardous atmospheres. Because of these hazards, it is important that the shipyard have a Shipyard

Competent Person (SCP) or Marine Chemist evaluate required spaces to ensure safe entry and to maintain safe conditions during work. This industry is unique in that adjacent spaces can be impacted by work taking place next to them; therefore, they may require further evaluation.

Workers must be protected from hazardous energy during the servicing, maintenance, and repair operations that take place on vessels, vessel sections, and at landside operations. The control of hazardous energy must be accomplished through the use of locks and tags-plus applications, employee training, written programs and procedures, and program audits.

Shipbreaking is the process of dismantling an obsolete vessel's structure for scrapping or disposal. Conducted at a pier, drydock, or dismantling slip, it includes a wide range of activities, from removing all gear and equipment to cutting down and recycling the ship's structure. The structural complexity of ships makes shipbreaking a challenging process. It involves many safety, health and environmental issues.

- **Survey and Pre-Planning**

Includes identifying hazardous materials and determining work processes

- **Removing Hazardous Material**

Includes removing items included in the inventory of hazardous materials (such as fuel and cargo residues, insulating materials, preservatives, and paints)

- **Salvaging Equipment, Valuable Materials**

Includes removing items such as machinery, equipment, electronics, wiring, piping, furnishings, and non-ferrous metals

- **Scrapping**

Includes cutting and removing the hull and other structures of the vessel

Barge cleaning can involve many hazards. The most important hazards are to due flammable materials, and inhalation or skin contact from chemical exposures. It is important to address Hazard Communication, personal protective equipment, and

the exposure limits while performing barge-cleaning operations. Many barges that contain chemicals, flammable/combustible liquids, or dry bulk cargoes may require cleaning. There is a special need to clean the barges between transporting different cargoes.

Longshoring and Marine Terminal Operations

The most frequent cause of longshoring fatalities were accidents in which employees were struck by or run over by vehicles such as trucks, front-end loaders, or forklifts. The next most frequent causes of death were by falling or drowning. The remaining fatalities occurred while employees were performing a variety of cargo and material handling activities involving improperly loaded fork lifts, unstable cargo that toppled over, and working below improperly secured loads that fell from cranes.

There are many factors that can contribute to traffic accidents in marine terminals. Oftentimes, accidents are caused by a combination of factors. The following points illustrate common traffic safety problems:

- *Unsafe equipment.* Broken, improperly maintained, or missing safety equipment, such as lights, seat belts, brakes, and horns, can lead to accidents and injuries.
- *Inadequate traffic controls.* Inadequate traffic controls (e.g., lack of proper signage, marking) may lead to accidents.
- *Condition of terminal driving surfaces.* Many marine terminals, particularly larger ones, have paved terminal driving surfaces. Paved surfaces, which are smoother, are desirable because they reduce the potential for vehicle tip overs, cargo and equipment shifting, and operator bouncing and allow for improved road markings (e.g., lane markings). However, smoother driving surfaces also require heightened awareness because they can become slippery when wet and contribute to excessive vehicle speed. Road surfaces need to be maintained properly because, over time, paving material can settle and result in uneven surfaces, potholes and sinkholes that can lead to tip overs or other vehicle accidents.
- *Driving obstacles.* Vessel equipment, stacked materials, containers, and repair crews are some of the driving obstacles that increase the

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- risk of traffic accidents at marine terminals.
- *Weather.* Ice, fog, and rain can create hazardous conditions (e.g., slippery surfaces and poor visibility) in marine terminals. Also, the sun may cause glare on certain types of driving surfaces and vehicle windshields.
- *Inadequate illumination.* Poor lighting, particularly at night, and shadows can make it difficult for drivers to see and avoid pedestrians, hazardous driving surfaces, and other obstacles.
- *Welding.* Welding flashes can distract vehicle and crane operators.
- *Unsafe vehicle operation.* Factors such as improperly loaded equipment, speed, and distractions (e.g., cell phones) can contribute to traffic accidents.
- *Improper parking.* Hazards can be created by improper parking of personal or company-provided vehicles and PITs in areas where cargo is being worked on, or heavy machinery is being used.
- *Lack of communication.* Accidents often occur because of poor communication. Technicians, mechanics, and other employees fail to alert vehicle operators of their location, and employers fail to notify employees of changes to traffic routes. In addition, noisy terminal environments can hinder effective communications. In some cases there may be inadequate accommodations for persons with hearing impairment or language barriers.
- *Lack of training and awareness.* Accidents can occur when drivers and equipment operators do not have adequate training in the safe operation and maintenance of equipment and vehicles. Likewise, pedestrians walking in marine terminals are at risk of injury if they do not receive training on the potential for traffic accidents and how to avoid them.
- *Shift changes.* Marine terminal employers report that accidents often occur just before the end of a work shift or while employees are parking equipment at the end of the work shift.
- *Fatigue.* Marine terminal employees often work long and irregular hours, which can lead to fatigue and sleepiness. Fatigue and sleepiness

can impair operator performance and contribute to workplace accidents and fatalities.

- *Substance abuse.* Substance abuse may contribute to vehicle accidents in marine terminals.

Commercial Diving Activities

Commercial divers are dying at a rate that is 40 times greater than all other workers. But, because divers are listed as a “non-hazardous” work group there are no formal regulations. This group, which accounts for most of the commercial dive time underwater, includes divers involved in construction, maintenance, and inspection of vessels and structures such as oil rigs, bridges, and dams. Causes of deaths listed most often for divers included drowning (73% of cases), asphyxia (14%), and embolism (7%). Other causes included trauma, hypothermia, and late medical complications, but hypothermia and air embolus may be underestimated because of difficulties in diagnosing these conditions.

Divers performing work-related diving activities should understand and follow standard diving precautions including 1) developing familiarity with equipment and safety procedures, 2) avoiding diving without a “buddy” or being line tended, 3) avoiding diving without an available backup diver, and 4) carrying reserve air supplies. Equipping vessels with shrouded propellers (to reduce net entanglement), propeller clearing ports, or line cutters on the propeller shaft would reduce the need for divers to untangle nets and lines.

Jeff Lewis, MS, RSP, CSSM, DMT began as an international commercial pilot and then spent over 18 years with the U.S. Navy studying Marine Engineering and International Maritime Law. His credentials include Gas Free Engineer, Chief Engineer (Unlimited; Ocean), and Master (Unlimited; Ocean). Subsequent to his Naval Career, Jeff spent almost two decades as an authorized instructor and instructor-trainer for many organizations including OSHA, FEMA, international SCUBA organizations, and international emergency medical institutions; and consulting in safety and emergency management. He has been an instructor with the University of California–San Diego OSHA Training Institute Education Center for over seven years, and is currently the Course Chair for the Maritime Programs.

WSO Endorsed Conferences

The Summit Zero Waste Management Conference

January 19 -20, 2014

International Petroleum Technology Conference

January 20-22, 2014

SPE Middle East Health, Safety, Environment & Sustainable Development Conference & Exhibition

September 22-24, 2014

The 8th International Petroleum Technology Conference

December 10-12, 2014

The 9th International Petroleum Technology Conference

December 7-9, 2014

Employment Opportunities

There are no new job listings at this time. For information regarding positions published in previous issues of the WSO News-Letter, please refer to the WSO website:

www.worldsafety.org/job-postings



Have You Sent In Your Update Form?

In order to keep our records current, we need every member to send an update form each time they receive an invoice to ensure that all contact information is up-to-date. If everything is current and there are no changes, please send in your form anyway to let us know!

Request for Manuscripts and Articles

Currently, we are requesting submissions of manuscripts and articles for WSO News-Letters and World Safety Journal. Contributions in English are always welcome and should be sent via e-mail to:

editorialstaff@worldsafety.org

Or by mail to the World Management Center located at:

**P.O. Box 518
Warrensburg, MO 64093 USA**

For the World Safety Journal, only articles with original material are accepted for consideration with the understanding that, except for abstracts, no part of the data has been published, or will be submitted for publication elsewhere before appearing in the World Safety Journal. Authors are required to assign copyright to WSO WORLD MANAGEMENT CENTER when their article is accepted for publication.

Instructions for Contributors

- Articles should be less than 2000 words and carry an abstract of no more than 150 words, stating the key points of the material. Supply brief details of author's professional qualifications, current position and employer.
- Short communications are short reports without headings, contacting less than 1000 words. Photographs or diagrams may be included.
- Letters should not exceed 300 words.
- Conferences/seminars/courses: Details supplied for publication should include date, time, location, subject, content, and contact person(s).



Wishing You a Happy and Prosperous New Year!

The WSO's Purpose is to internationalize all safety fields including occupational and environmental safety and health, accident prevention movement, etc.: and to disseminate throughout the world the practices, skills, arts and technologies of safety and accident prevention.

WSO's objective is to protect people, property, resources and the environment on local, regional, national and international levels. WSO membership is open to all individuals and entities involved in the safety and accident prevention field, regardless of race, color, creed, ideology, religion, social status, sex or political beliefs.

WSO is in Consultative Status Category II Status (Non-Governmental Organization-NGO) to Economic and Social Council of the United Nations.

**The WSO is a Not-For-Profit Corporation (Missouri, USA), non-sectarian, non-political movement to
“Making Safety a Way of Life ...Worldwide.”**