

July 2015,  
Issue 47

# Army Industrial Hygiene News and Regulatory Summary

## Hazardous Substances

### Special Interest Articles:

- [ALS](#)
- [Headphones](#)
- [Teeth & Toxins](#)
- [Yellow Book](#)
- [Guantanamo](#)

DOEHRS Super Star

## NIOSH Identifies Take-Home Lead Exposure as Concern in E-Scrap Recycling

The recycling of used electronics (e-scrap) is an emerging area of concern as a source of both occupational exposures to workers and take-home exposures, according to a NIOSH investigation recently described in CDC's Morbidity and Mortality Weekly Report (MMWR). The investigation concerned a case of childhood lead poisoning in Ohio that resulted from parental take-home exposures.

Read more:

<https://www.aiha.org/publications-and-resources/TheSynergist/Industry%20News/Pages/NIOSH-Identifies-Take-home-Lead-Exposure-as-Concern-in-E-scrap-Recycling-.aspx>



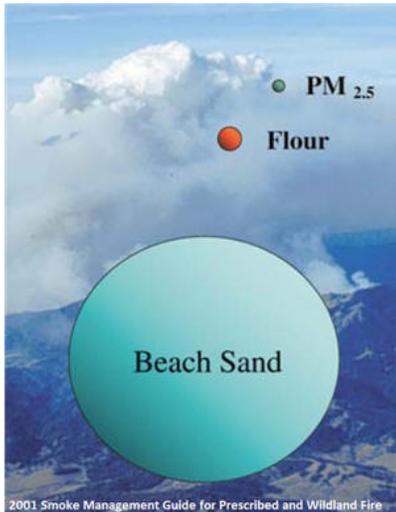
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Contents:



[Hazardous Substance](#)..... 1  
[Radiation](#).....7  
[Ventilation](#).....7  
[PPE](#).....9  
[Noise](#).....10  
[Preventive Medicine](#).....12  
[Environmental Health](#).....16  
[Ergonomics](#).....17  
[Safety](#).....18  
[Emergency Preparedness & Response](#).....21  
[Deployment Health](#).....23  
[Nanotech](#).....24  
[Regulatory Research & IH News](#) .....26  
[Training](#).....29

## Combining PM2.5 Component Data from Multiple Sources: Data Consistency and Characteristics Relevant to Epidemiological Analyses of Predicted Long-Term Exposures



Regulatory monitoring data have been the exposure data resource most commonly applied to studies of the association between long-term PM2.5 components and health. However, data collected for

regulatory purposes may not be compatible with epidemiological studies.

We studied three important features of the PM2.5 component monitoring data to determine whether it would be appropriate to combine all available data from multiple sources for developing spatiotemporal prediction models in the National Particle Component and Toxicity (NPACT) study.

*Read more:*  
<http://ehp.niehs.nih.gov/1307744/>

## Optimal Exposure Biomarkers for Nonpersistent Chemicals in Environmental Epidemiology

We discuss considerations that are essential when evaluating exposure to nonpersistent, semivolatile environmental chemicals such as phthalates and phenols (e.g., bisphenol A). A

biomarker should be chosen to best represent usual personal exposures and not recent, adventitious, or extraneous exposures.

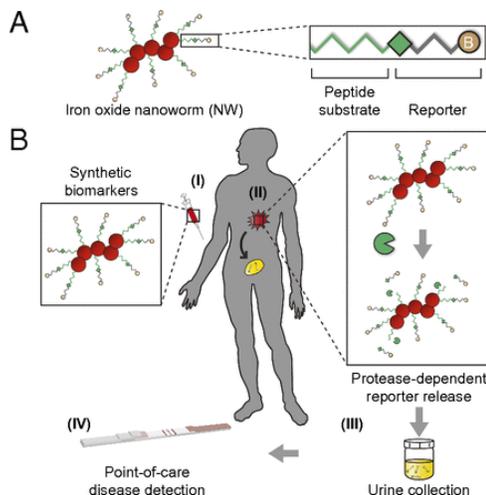


# Army Industrial Hygiene News and Regulatory Summary

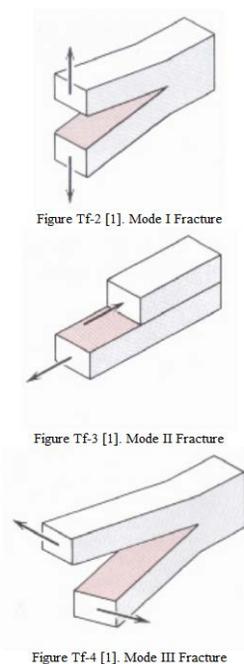
Biomarkers should be selected to minimize contamination arising from collection, sampling, or analysis procedures. Pharmacokinetics should be considered; for example, nonpersistent, semivolatile chemicals are metabolized quickly, and urine is the compartment with the highest concentrations of metabolites. Because these chemicals are nonpersistent, knowledge of intraindividual reliability over the biologic window of interest is also required.

Read more:

<http://ehp.niehs.nih.gov/1510041/>



## Exposure Assessment of a High-Energy Tensile Test with Large Carbon Fiber Reinforced Polymer Cables



This study investigated the particle and fiber release from two carbon fiber

reinforced polymer cables that underwent high-energy tensile tests until rupture. The failing event was the source of a large amount of dust whereof a part was suspected to be containing possibly respirable fibers that could cause adverse health effects. The released fibers were suspected to migrate through small openings to the experiment control room and also to an adjacent machine hall where workers were active.

To investigate the fiber release and exposure risk of the affected workers, the generated particles were measured with aerosol devices to obtain the particle size and particle concentrations. Furthermore, particles were collected on filter samples to investigate the particle shape and the fiber concentration.

Three situations were monitored for the control room and the machine hall: the background concentrations, the impact of the cable failure, and the venting of the exposed rooms afterward. The results showed four important findings: The cable failure caused the release of respirable fibers with diameters below 3  $\mu\text{m}$  and an average length of 13.9  $\mu\text{m}$ ; the released particles did migrate to the control room and to the machine hall; the measured peak fiber concentration of 0.76 fibers/cm<sup>3</sup> and the overall fiber concentration of 0.07 fibers/cm<sup>3</sup> in the control room were below the Permissible Exposure Limit (PEL) for fibers without indication of carcinogenicity;

and the venting of the rooms was fast and effective.

Even though respirable fibers were released, the low fiber concentration and effective venting indicated that the suspected health risks from the experiment on the affected workers was low. However, the effect of long-term exposure is not known therefore additional control measures are recommended.

*Read more: Journal of Occupational and Environmental Hygiene Volume 12, Issue 8, 2015 (Available with AIHA membership).*

### Bisphenol S and F: A Systematic Review and Comparison of the Hormonal Activity of Bisphenol A Substitutes

Increasing concern over bisphenol A (BPA) as an endocrine-disrupting chemical and its possible effects on human health have prompted the removal of BPA from consumer products, often labeled “BPA-free.” Some of the chemical replacements, however, are also bisphenols and may have similar physiological effects in organisms. Bisphenol S (BPS) and bisphenol F (BPF) are two such BPA substitutes.

This review was carried out to evaluate the physiological effects and endocrine activities of the BPA substitutes BPS and BPF. Further, we compared the hormonal potency of BPS and BPF to that of BPA.



**Where can I go for more information?**

For more information on what federal agencies are doing related to BPA, visit the following web sites and search for “BPA.”

- U.S. Department of Health and Human Services:**  
<http://www.hhs.gov>
- U.S. Food and Drug Administration:**  
<http://www.fda.gov/>
- Centers for Disease Control and Prevention:**  
<http://www.cdc.gov/>
- U.S. Environmental Protection Agency:**  
<http://www.epa.gov/>
- Consumer Product Safety Commission:**  
<http://www.cpsc.gov/>
- National Institute of Environmental Health Sciences:**  
<http://www.niehs.nih.gov>
- National Toxicology Program:**  
<http://ntp.niehs.nih.gov>

Read more:

<http://ehp.niehs.nih.gov/1408989/>

## Occupational Exposure to Chromium of Assembly Workers in Aviation Industries



Aircraft are constructed by modules that are covered by a “primer” layer, which can often contain hexavalent chromium [Cr(VI)], known carcinogen to humans. While the occupational exposure to Cr(VI) during aircraft painting is ascertained, the exposure assessment of assembly workers (assemblers) requires investigations.

Three biological monitoring campaigns (BM-I,II,III) were performed in an aviation industry, on homogeneous groups of assemblers (N = 43) and controls (N = 23), by measuring chromium concentrations in end-shift urine collected at the end of the working week and the chromium concentration difference between end- and before-shift urines. BM-I was conducted on full-time workers, BM-II was performed on workers after a 3–4 day absence from work, BM-III on workers using ecoprimer with lower Cr(VI) content. Samples were analyzed by atomic absorption

spectroscopy and mean values were compared by T-test.

Even if Cr concentrations measured during BM-I were lower than Biological Exposure Indices by ACGIH, statistically significant differences were found between urinary Cr concentrations of workers and controls. Despite 3–4 days of absence from work, urinary chromium concentrations measured during BM-II were still higher than references from nonoccupationally exposed populations. In the BM-III campaign, the obtained preliminary results suggested the efficacy of using ecoprimer.

The healthcare of workers exposed to carcinogenic agents follows the principle of limiting the exposure to “the minimum technically possible”. The obtained results evidence that assemblers of aviation industries, whose task does not involve the direct use of primers containing Cr(VI), show an albeit slight occupational exposure to Cr(VI), that must be carefully taken into consideration in planning suitable prevention measures during risk assessment and management processes.

*Read more: Journal of Occupational and Environmental Hygiene Volume 12, Issue 8, 2015 (Available with AIHA membership).*

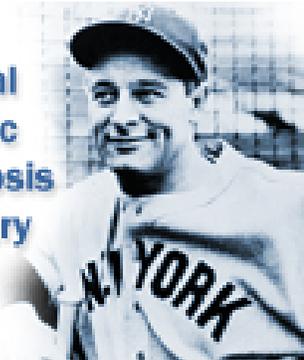
## Study Strengthens Formaldehyde Link to Crippling Disease ALS

Funeral directors who use formaldehyde to embalm bodies may be the most at risk, the researchers at the Harvard School of Public Health found.

Their findings, published in the Journal of Neurology Neurosurgery & Psychiatry, strengthen the links between formaldehyde and amyotrophic lateral sclerosis (ALS), also called Lou Gehrig's disease. The condition, which gradually paralyzes patients by damaging their nerves, affects an estimated 30,000 Americans. It's always fatal. Veterans carry a higher-than-average risk, for reasons not fully understood.

[news/study-strengthens-formaldehyde-link-crippling-disease-als-n391336](http://www.cdc.gov/news/study-strengthens-formaldehyde-link-crippling-disease-als-n391336)

The National  
Amyotrophic  
Lateral Sclerosis  
(ALS) Registry



[www.cdc.gov/als](http://www.cdc.gov/als)  
(800) 232-4636



Read more:

<http://www.nbcnews.com/health/health->

## EPA Proposes to Cancel Some Uses of an Insecticide Commonly Used for Residential, Industrial and Commercial Purposes

*Propoxur*

Flea and Tick Pesticide

The EPA is proposing to cancel certain uses of the insecticide propoxur after preliminary human health assessment found risks from certain applications.

“Today, we are taking strong steps to protect human health—especially the health of children—from this widely used

insecticide,” said Jim Jones, assistant administrator for the Office of Chemical Safety and Pollution Prevention. “The agency will continue its work to reduce exposure from pesticides that pose the greatest risk to those who are the most vulnerable.”

From 1995 to 2013, EPA has reduced exposure from carbamates, the class of insecticide that includes propoxur. The use of carbamates has fallen by 70 percent.

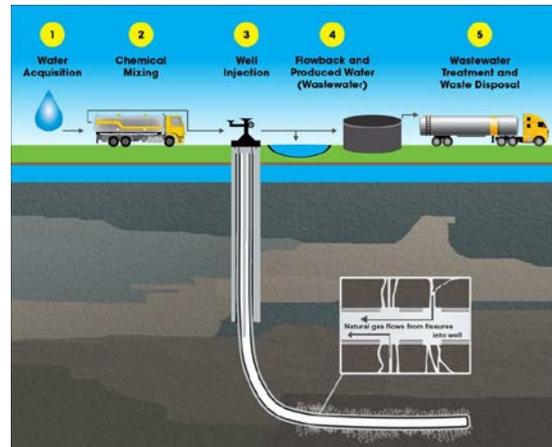
Read more

<http://yosemite.epa.gov/opa/admpress.nsf>

## Radiation

### What's NORMal for Fracking? Estimating Total Radioactivity of Produced Fluids

Naturally occurring radioactive materials (NORM) found in liquid wastes from hydraulic fracturing are an emerging environmental health concern.<sup>1</sup> The heavily drilled Marcellus Shale, for example, contains isotopes of radium, polonium, and lead.<sup>2,3</sup> However, the few studies that have focused on NORM in fracking wastewater (produced fluids) have reported on a single element—radium.<sup>4,5</sup> In this issue of EHP, researchers estimate total reactivity for a mixture of isotopes present in liquid fracking waste from the Marcellus Shale.<sup>3</sup>



Read more: <http://ehp.niehs.nih.gov/123-A186/>

## Ventilation

### Effects of Temperature, Humidity and Air Flow on Fungal Growth Rate on Loaded Ventilation Filters



This study compares the fungal growth ratio on loaded ventilation filters under various temperature, relative humidity (RH), and air flow conditions in a controlled laboratory setting. A new full-size commercial building ventilation filter was loaded with malt extract nutrients and conidia of *Cladosporium sphaerospermum* in an ASHRAE Standard 52.2 filter test facility. Small sections cut from this filter were

## Army Industrial Hygiene News and Regulatory Summary

incubated under the following conditions: constant room temperature and a high RH of 97%; sinusoidal temperature (with an amplitude of 10°C, an average of 23°C, and a period of 24 hr) and a mean RH of 97%; room temperature and step changes between 97% and 75% RH, 97% and 43% RH, and 97% and 11% RH every 12 hr.

The biomass on the filter sections was measured using both an elution–culture method and by ergosterol assay immediately after loading and every 2 days up to 10 days after loading. Fungal growth was detected earlier using ergosterol content than with the elution–culture method. A student's t-test indicated that *Cladosporium sphaerospermum* grew better at the constant room temperature condition than at the sinusoidal temperature condition. By part-time exposure to dry environments, the fungal growth was reduced (75% and 43% RH) or

even inhibited (11% RH). Additional loaded filters were installed in the wind tunnel at room temperature and an RH greater than 95% under one of two air flow test conditions: continuous air flow or air flow only 9 hr/day with a flow rate of 0.7 m<sup>3</sup>/s (filter media velocity 0.15 m/s). Swab tests and a tease mount method were used to detect fungal growth on the filters at day 0, 5, and 10. Fungal growth was detected for both test conditions, which indicates that when temperature and relative humidity are optimum, controlling the air flow alone cannot prevent fungal growth. In real applications where nutrients are less sufficient than in this laboratory study, fungal growth rate may be reduced under the same operating conditions

*Read more: Journal of Occupational and Environmental Hygiene Volume 12, Issue 8, 2015 (Available with AIHA membership).*

### Power Outages, Airflow System Failures Reported at CDC Labs

In 2013 and 2014, high-containment laboratories at the CDC logged about a dozen power outages and airflow system failures that could have compromised safety, USA Today reported yesterday.

The problems were disclosed in a lab incident summary that the newspaper obtained through a Freedom of Information Act request. They occurred between January 2013 and July 2014.

The incidents resulted in staff evacuations and exposed flaws in safety communication



## Army Industrial Hygiene News and Regulatory Summary

systems that are critical in emergencies, the story said. The airflow systems are important for preventing the release of pathogens.

The CDC document provides few details about most of the incidents, but it says a lightning strike and electrical surge in July 2013 "caused airflow changes that 'made it nearly impossible to open the lab hallway doors over approximately 1 hour' in a \$365

million, 16-story CDC lab tower in Atlanta known as Building 23 that also lost phone service and had no backup communication plan," according to the story.

*Read more:*

<http://www.cidrap.umn.edu/news-perspective/2015/07/news-scan-jul-10-2015>

### PPE

## N95 Respirator Use during Pregnancy – Findings from Recent NIOSH Research



Recent NIOSH research has shed some light on the topic of the safety of N95 filtering facepiece respirators (FFR) use by pregnant workers. Women make up approximately one-half of the US work force. At any given time, about 10% of those female workers of

child-bearing age (15–44 years of age) will be pregnant. Because many women are employed in occupations that require the use of protective facemasks, such as medical/surgical masks and FFR, NIOSH conducted research into the safety of FFR use while pregnant. The most frequently used FFR in the US is the N95 FFR (commonly referred to as “N95 mask”), but little information was previously available about the safety of N95 FFR use during pregnancy.

*Read more:* <http://blogs.cdc.gov/niosh-science-blog/2015/06/18/respirators-pregnancy/>

## **Effects of Ultraviolet Germicidal Irradiation (UVGI) on N95 Respirator Filtration Performance and Structural Integrity**

The ability to disinfect and reuse disposable N95 filtering facepiece respirators (FFRs) may be needed during a pandemic of an infectious respiratory disease such as influenza. Ultraviolet germicidal irradiation (UVGI) is one possible method for respirator disinfection. However, UV radiation degrades polymers, which presents the possibility that UVGI exposure could degrade the ability of a disposable respirator to protect the worker. To study this, we exposed both sides of material coupons and respirator straps from four models of N95 FFRs to UVGI doses from 120–950 J/cm<sup>2</sup>. We then tested the particle penetration, flow resistance, and bursting strengths of the individual respirator coupon layers, and the breaking strength of the respirator straps. We found that UVGI exposure led to a small increase in particle penetration (up to 1.25%) and had little effect on the flow resistance. UVGI

exposure had a more pronounced effect on the strengths of the respirator materials. At the higher UVGI doses, the strength of the layers of respirator material was substantially reduced (in some cases, by >90%). The changes in the strengths of the respirator materials varied considerably among the different models of respirators. UVGI had less of an effect on the respirator straps; a dose of 2360 J/cm<sup>2</sup> reduced the breaking strength of the straps by 20–51%. Our results suggest that UVGI could be used to effectively disinfect disposable respirators for reuse, but the maximum number of disinfection cycles will be limited by the respirator model and the UVGI dose required to inactivate the pathogen.

*Read more: Journal of Occupational and Environmental Hygiene Volume 12, Issue 8, 2015 (Available with AIHA membership).*

## **Noise**

### **Hearing Loss Due to Headphone Use on the Rise**

Exposing your ears to extremely loud music or other types of loud noise can really take a toll on your hearing.

Dr. Thompson, a local audiologist tells us in the U.S., 1 in 5 children have hearing loss. That figure is 30% higher than it was 25 years ago.



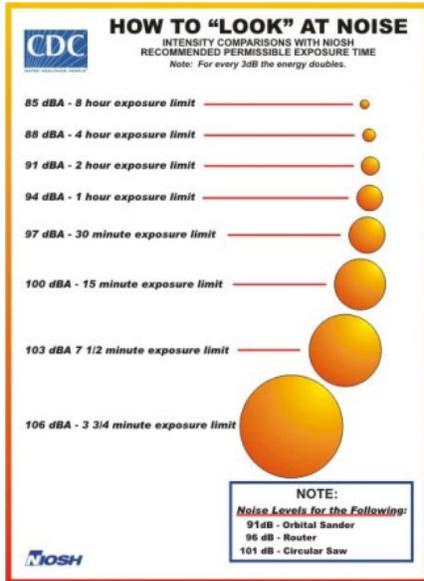
# Army Industrial Hygiene News and Regulatory Summary

He says the increased use of headphones play a big role in that number.

<http://www.nbcrightnow.com/story/29607637/hearing-loss-due-to-headphone-use-on-the-rise>

*Read more:*

## Occupational Noise and Hearing Loss Prevention Efforts Can Protect Millions of Workers



The CDC has stated that occupational hearing loss is one of the most common work-related illnesses in the United States. The agency reports that approximately 22 million U.S. workers are exposed to hazardous noise levels at work and an

additional 9 million are exposed to chemicals that are toxic to the ear. The Occupational Safety & Health Administration (OSHA) lists the number of people exposed to hazardous noise at 30 million. The CDC estimates worker's compensation for hearing loss disability costs \$242 million annually in the United States.

Globally, occupational hearing loss continues to be one of the most common occupational hazards. A World Health Organization (WHO) report found that 16% of hearing loss can be attributed to occupational noise exposure.

*Read more :*

<http://www.webwire.com/ViewPressRel.asp?ald=198979>

## Preventive Medicine

### Doctors and Medical Students in India Should Stop Wearing White Coats

Doctors and medical students in India should stop wearing white coats, argues a doctor in *The BMJ*. Edmond Fernandes, a postgraduate at Yenepoya Medical College in Mangalore, says evidence shows that long sleeved coats spread infection and lead to avoidable harm and cost to patients.

Although long sleeved white coats have traditionally been worn by doctors since the 19th century, we now know that white coats "harbour potential contaminants and contribute considerably to the burden of disease acquired in hospital by spreading infection," writes Fernandes.



Read more:

[http://www.eurekalert.org/pub\\_releases/2015-07/b-dam072015.php](http://www.eurekalert.org/pub_releases/2015-07/b-dam072015.php)

### Flu Vaccine Patch Induced Good Immune Response in Small Human Trial



In a small clinical trial, an influenza vaccine skin patch studded with 200 tiny, soluble needles induced immune responses comparable to those generated by a conventional subcutaneous flu vaccine, Japanese researchers reported in *Biomaterials*.

Skin patch vaccines have been in development for several years as a possible

## Army Industrial Hygiene News and Regulatory Summary

way to make flu immunization easier and less painful. The authors, from Osaka University, say they developed a dissolving microneedle patch, called MicroHyal, made of hyaluronic acid, a substance that cushions the joints. In previous studies, "transcutaneous" vaccination using the patch induced strong immune responses against various antigens in mice.

*Read more:*

<http://www.cidrap.umn.edu/news-perspective/2015/07/news-scan-jul-15-2015> (Scroll down to the 3rd article)

### Armadillos Are Spreading Leprosy in Florida

For once in his life, Florida man is not the focus of a news story. Instead, Florida armadillos are in the spotlight.

Local health officials are warning Floridians to stay away from the animals after nine people were infected with leprosy after coming into contact with the leathery armored creatures.

Typically, Florida sees just 10 cases of leprosy in a year. The centuries-old bacterial infection, also known as Hansen's disease, causes nerve damage and disfigurement and was once a considered a sentence to death or life in isolation. Thanks to antibiotics, the disease is now treatable and only rarely spreads from person to person in the U.S., typically via coughing or sneezing.



*Read more:*

<http://www.washingtonpost.com/news/morning-mix/wp/2015/07/22/armadillos-are-spreading-leprosy-in-florida/>

### Feds Propose Adding H5N1 to HHS Select Agent List

The US Centers for Disease Control and Prevention (CDC) yesterday unveiled a proposal to add certain H5N1 influenza viruses to the Department of Health and

Human Services (HHS) select agent list and to designate ones that are modified to be more transmissible in mammals to the

## Army Industrial Hygiene News and Regulatory Summary

category that poses the greatest risk to humans.



Federal officials have been weighing adding the viruses as select agents in the wake of lab biosafety concerns involving the publication of studies on lab-modified H5N1 strains that were capable of airborne transmission in ferrets, which triggered a debate about dual-use research of concern (DURC) that began in early 2012.

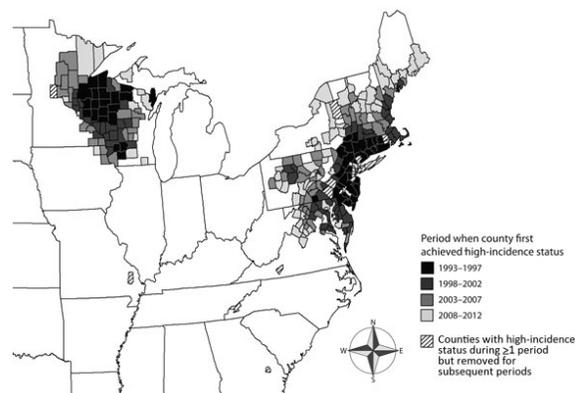
*Read more:*

<http://www.cidrap.umn.edu/news-perspective/2015/07/feds-propose-adding-h5n1-hhs-select-agent-list>

### CDC Study Maps Relentless Spread of Lyme Disease in US

The number of US counties with a high incidence of Lyme disease grew more than threefold over the 20 years from 1993 through 2012 as the illness spread across the Northeast and Upper Midwest, according to a new report in *Emerging Infectious Diseases*.

Researchers with the Centers for Disease Control and Prevention (CDC) tallied cases of the tick-borne disease reported at the county level over the 20-year period, totaling the cases for four 5-year periods (1993-97, 1998-2002, 2003-07, 2008-12) to minimize the influence of travel-related cases and short-term changes in surveillance practices.



*Read more:*

<http://www.cidrap.umn.edu/news-perspective/2015/07/news-scan-jul-15-2015>

## **Teeth Reveal Lifetime Exposures to Metals, Toxins**



Is it possible that too much iron in infant formula may potentially increase risk for neurodegenerative diseases like Parkinson's in adulthood -- and are teeth the window into the past that can help us tell? This and

related theories were described in a "Perspectives" article authored by researchers from the Icahn School of Medicine at Mount Sinai and the University of Technology Sydney and Florey Institute of Neuroscience and Mental Health in Australia, and published online recently in Nature Reviews Neurology.

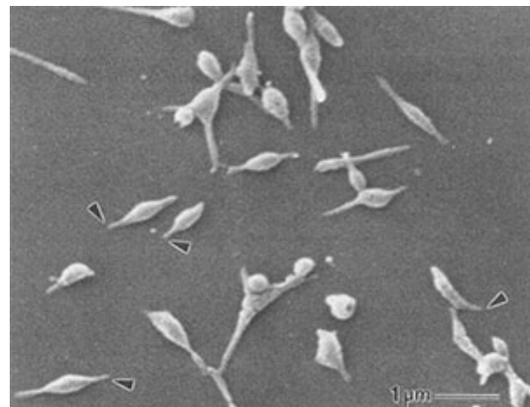
*Read more:*

[http://www.eurekalert.org/pub\\_releases/2015-07/tmsh-trl072215.php](http://www.eurekalert.org/pub_releases/2015-07/tmsh-trl072215.php)

## **Study Notes 13% Rate of Drug-Resistant Mycoplasma Pneumonia**

About 13% of *Mycoplasma pneumoniae* samples from six US locations tested positive for resistance to macrolides, a group of antibiotics described as the drugs of choice to treat the disease, according to a separate study today in Emerging Infectious Diseases.

US researchers tested 91 respiratory specimens from hospitals in Chicago; New York City; Seattle; Kansas City, Mo.; Hackensack, N.J.; and Birmingham, Ala., using polymerase chain reaction. The samples were collected from August 2012 through April 2014. Patient ages ranged from 10 months to 66 years, but 91% were children.

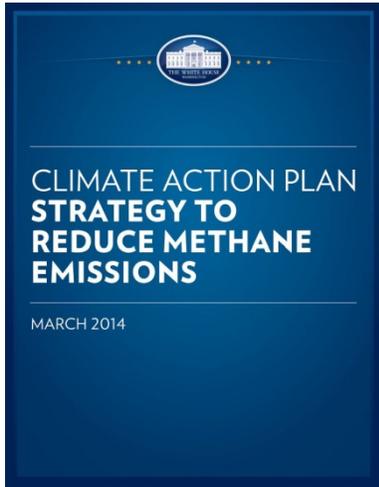


*Read more:*

<http://www.cidrap.umn.edu/news-perspective/2015/07/news-scan-jul-15-2015> (Scroll down to the 2<sup>nd</sup> article)

## Environmental Health

### EPA Finalizes Rule to Reduce Climate-Damaging HFCs



safer, more climate-friendly alternatives. This action responds to President Obama's Climate Action Plan by reducing emissions of hydrofluorocarbons (HFCs), a class of potent greenhouse gases used in air-conditioning, refrigeration, and other equipment.

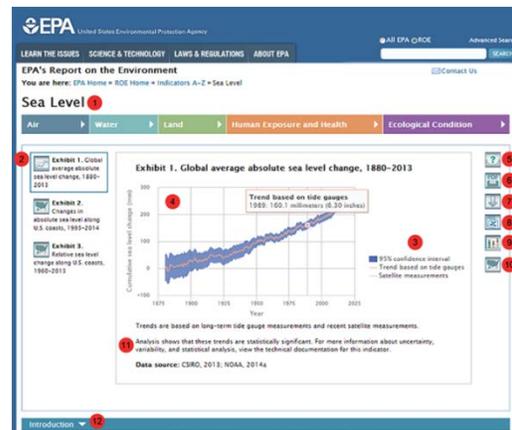
Read more

<http://yosemite.epa.gov/opa/admpress.nsf/21b8983ffa5d0e4685257dd4006b85e2/b1c42a422851c64685257e760057d08f!OpenDocument>

The EPA is finalizing a rule to prohibit certain uses of chemicals that significantly contribute to climate change in favor of

### EPA Releases Updated Environmental and Public Health Indicators in Online Database

The EPA released updated environmental and public health indicators in an online database, making information about the current and historical condition of the nation's environment and human health more accessible to the public. This is an online update to EPA's Report on the Environment. Users can explore 85 individual indicators-- on our air, water, land, human exposure, health and ecological condition-- using interactive graphs, tables, and maps, and download the data for each indicator.



Read more:

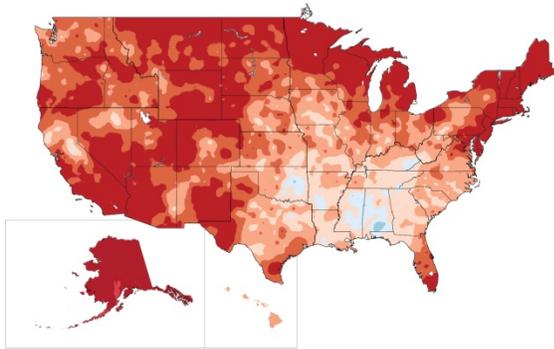
<http://yosemite.epa.gov/opa/admpress.nsf>

# Army Industrial Hygiene News and Regulatory Summary

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[Document](#)

## Earth's Climate Breaks Heat Records in 2014



The year 2014 was Earth's warmest year on record, a new international report confirms. The facts are found in the 26th annual State

of the Climate in 2014 report released online Thursday by the American Meteorological Society.

New records were set by rising levels of land and ocean temperatures, rising sea levels and increasing accumulations of greenhouse gases in the atmosphere.

Read more: <http://ens-newswire.com/2015/07/17/earths-climate-breaks-heat-records-in-2014/>

## Ergonomics

### Self-Care Steps to Heal Back Pain Flare-Ups

For many men, low back pain gets better over time, often within a few weeks. Pain control is important, especially early on. Although recent studies have questioned the effectiveness of acetaminophen (Tylenol) for back pain, this over-the-counter mainstay is still worth a try, reports the July 2015 Harvard Men's Health Watch.

A review in the medical journal BMJ found little evidence that taking acetaminophen relieved pain or shortened the duration of back pain flare-ups. But not all back pain is the same, so acetaminophen could still be helpful for some men.



Read more: <http://www.healthnewsdigest.com/news/pain%20issues0/Self-care-Steps-to-Heal-Back-Pain-Flare-ups.shtml>

# Army Industrial Hygiene News and Regulatory Summary

## Safety

### OSHA-Related Documents: Creation and Retention

OSHA's Form 300A (Rev. 01/2004)  
**Summary of Work-Related Injuries and Illnesses**

All establishments covered by Part 1910 must complete this Summary page, when there are work-related injuries or illnesses occurring during the year. Remember to review the Log to verify that the entries are complete and accurate before completing this Summary.

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the Log. If you had no cases, enter "0".

Employees, former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 300 or its equivalent. See 29 CFR Part 1904.35 in OSHA's recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases			
Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
(a)	(b)	(c)	(d)

Number of Days	
Total number of days away from work	Total number of days of job transfer or restriction
(e)	(f)

Injury and Illness Types
Total number of ...
(g)

Establishment Name  
Street  
City  
State  
Zip  
County  
Employer Name  
Address  
City  
State  
Zip  
County

unsure of what documents the compliance officer is entitled to see and copy.

Employers can also be unsure of how long to retain certain documents required under OSHA. Some OSHA regulations require a specific retention period for documents. Other OSHA regulations, however, do not (although it is often advisable to retain certain documents even if retention is not technically required). This article is intended to give general guidance in these areas.

Read more:

<https://ohsonline.com/articles/2015/07/01/osha-related-documents.aspx?admgarea=news>

It is important to note that any documents produced can be utilized to issue citations, thus, the employer should not produce any documents unless required by law. As most employers are aware, OSHA inspections typically involve a request for the employer to produce certain documents. In many cases, employers are

### Application of a Novel Liquid Nitrogen Control Technique for Heat Stress and Fire Prevention in Underground Mines

With the continually increasing mining depths, heat stress and spontaneous combustion hazards in high-temperature mines are becoming increasingly severe. Mining production risks from natural hazards and exposures to hot and humid environments can cause occupational diseases and other work-related injuries. Liquid nitrogen injection, an engineering control developed to reduce heat stress and spontaneous combustion hazards in mines,



## Army Industrial Hygiene News and Regulatory Summary

was successfully utilized for environmental cooling and combustion prevention in an underground mining site named “Y120205 Working Face” (Y120205 mine) of Yangchangwan colliery. Both localized humidities and temperatures within the Y120205 mine decreased significantly with liquid nitrogen injection. The maximum percentage drop in temperature and humidity of the Y120205 mine were 21.9% and 10.8%, respectively. The liquid nitrogen injection system has the advantages of

economical price, process simplicity, energy savings and emission reduction. The optimized heat exchanger used in the liquid nitrogen injection process achieved superior air-cooling results, resulting in considerable economic benefits.

*Read more: Journal of Occupational and Environmental Hygiene Volume 12, Issue 8, 2015 (Available with AIHA membership).*

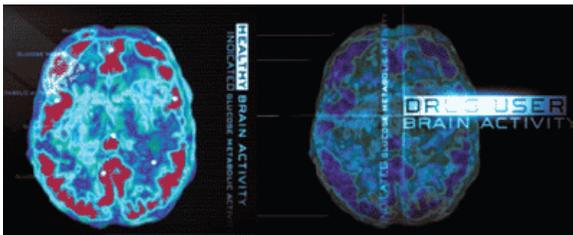
### NASA, Partners Testing Aircraft Engine Health Monitoring System

Remember Eyjafjallajökull? Perhaps not, but the international aviation community certainly does recall the name of the Icelandic volcano that erupted in 2010, halting flights in much of Europe and causing widespread disruptions. Now, NASA is testing a new system for monitoring aircraft engines' health by feeding volcanic ash into a test engine, Jay Levine, an editor

at NASA's Armstrong Flight Research Center, wrote in a report on [www.nasa.gov](http://www.nasa.gov) July 20.

*Read more:*  
<https://ohsonline.com/articles/2015/07/21/nasa-volcanic-ash-testing.aspx?admgarea=news>

### NSC Calls for Comprehensive Workplace Policies on Painkiller Use



The National Safety Council is calling on employers to develop workplace policies around the use of opioid prescription painkillers after reviewing research and court cases showing the negative impacts of

these medicines on employee safety and workers' compensation costs.

According to the research, many workers who have taken opioid painkillers following on-the-job injuries have become addicted. As a result, courts have ordered employers and workers' compensation insurance carriers to pay for detoxification, medication-assisted treatment, and death benefits to surviving family members.

## Army Industrial Hygiene News and Regulatory Summary

Read more:

<https://ohsonline.com/articles/2015/07/14>

</nsc-calls-for-workplace-painkiller-use-policies.aspx?admgarea=news>

### Most Commenters Endorse Oral Fluid Testing Guidelines

Dozens of identical comments referencing shy bladder syndrome were submitted along with comments from the Drug and Alcohol Testing Industry Association (DATIA) and some drug testing companies in response to SAMHSA's proposed mandatory guidelines to allow federal agencies to collect and test oral fluid specimens in their workplace drug testing programs. July 14 was the deadline for comments on the proposed guidelines, which SAMHSA published May 15, 2015.



Read more:

<https://ohsonline.com/articles/2015/07/17/most-commenters-endorse-oral-fluid-testing-guidelines.aspx?admgarea=news>

### New Oklahoma Law Requires Middle School, High School Safety Training



Oklahoma Gov. Mary Fallin on June 25 signed State Senate Bill 262, which requires school districts in the state to provide training on workplace safety and health to students in grades 7 through 12. NIOSH Director Dr. John Howard included an item

about the bill's signing in his July 3 "From the Director's Desk" newsletter.

Howard wrote that "NIOSH partners at the Oklahoma Department of Labor will collaborate with the Oklahoma State Department of Education to make information regarding workplace safety and health available to schools, using the Oklahoma version of the NIOSH Youth@Work-Talking Safety curriculum."

Read more:

<https://ohsonline.com/articles/2015/07/08/new-oklahoma-law-requires-safety-training.aspx?admgarea=news>

*Emergency Preparedness & Response*

**HHS Unveils First Compendium of Resources for Health Emergencies**

The U.S. Department of Health and Human Services launched the first online collection of the federal resources and capabilities available to mitigate the health impacts of emergencies.

The HHS Office of the Assistant Secretary for Preparedness and Response (ASPR) sponsored the HHS Response and Recovery Resources Compendium to aid state, tribal, territorial, local officials in health and emergency management as they guide communities in responding to and recovering from disasters.

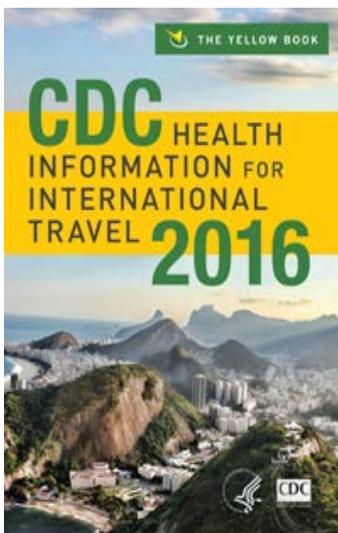


Emergency Management Cycle

Read more:

<http://www.hhs.gov/news/press/2015pres/07/20150716a.html>

**CDC Advises Travelers to Follow the Yellow Book Road**



According to the CDC, 181 “organizations or The CDC today announced the release of the 2016 edition of its health guide for international travelers, nicknamed the

Yellow Book, with updated sections on emerging diseases such as Ebola, MERS, and chikungunya.

Titled "CDC Health Information for International Travel," the book is updated every 2 years. The new edition features expanded guidelines for 16 popular travel destinations, including Brazil, Cambodia, the Dominican Republic, and Haiti, the agency said. Other new features are:

- Yellow fever vaccination recommendation maps for 10 countries

## Army Industrial Hygiene News and Regulatory Summary

- 15 country-specific malaria risk maps
- Comprehensive advice for healthcare workers traveling to provide care overseas
- Discussion of complementary and alternative health approaches to travel medicine
- Commentary on the cost analysis of travel health care

Read more:

<http://www.cidrap.umn.edu/news-perspective/2015/07/news-scan-jul-10-2015> (Scrolled down to the 4<sup>th</sup> article)

### HHS Launches National Ebola Training and Education Center

To ensure that U.S. health care providers and facilities are prepared to safely identify, isolate, transport, and treat patients with Ebola and other emerging threats, the U.S. Department of Health and Human Services today launched a National Ebola Training and Education Center.

A collaborative effort among HHS' Office of the Assistant Secretary for Preparedness and Response (ASPR), the Centers for Disease Control and Prevention (CDC) and three academic institutions, the program supports further training of health care providers and facilities on strategies to manage Ebola and other emerging infectious diseases.

Through the effort, ASPR and CDC will provide \$12 million over the next five years to Emory University in Atlanta, Georgia; University of Nebraska Medical



Center/Nebraska Medicine in Omaha, Nebraska; and Bellevue Hospital Center in New York City, New York, which together will co-lead the National Ebola Training and Education Center.

Read more:

<http://www.hhs.gov/news/press/2015pres/07/20150701a.html>

## Deployment Health

### 20,000 Soldiers Tapped For Army Fitness Program's 2nd Trial



The advice is deceptively simple: Eat better, get your exercise, sleep eight hours a night.

Some of the tips hark back to preschool: Have a regular bedtime, take naps, eat all your vegetables and drink your chocolate milk.

Most soldiers already understand the importance of healthy living, and there are

multiple nutrition and fitness resources available to them beyond the ever-present unit PT. But officials behind the Performance Triad, an Army program that began with trial runs in three battalions in 2013, want more of them to appreciate the benefits they can realize by making healthier choices — benefits that would help improve overall Army readiness and can keep them in top shape long after leaving uniform.

*Read more:*

<http://www.armytimes.com/story/military/careers/army/2015/07/27/-performance-sleep-nutrition-fitness/70212286/>

### New Burn Pit Report: Lung Disease, High Blood Pressure Common in Exposed Vets

Troops who worked at burn pits in Iraq and Afghanistan, as well as those exposed to multiple dust storms during war-zone deployments, have higher rates of common respiratory illnesses like asthma and emphysema, as well as rare lung disorders, according to data drawn from the Veterans



## Army Industrial Hygiene News and Regulatory Summary

Affairs Airborne Hazards and Open Burn Pit Registry.

[y/benefits/health-care/2015/07/22/new-burn-pit-report-lung-disease-high-blood-pressure-common-exposed-vets/30517071/](http://www.militarytimes.com/story/military/benefits/health-care/2015/07/22/new-burn-pit-report-lung-disease-high-blood-pressure-common-exposed-vets/30517071/)

*Read more:*

[http://www.militarytimes.com/story/military](http://www.militarytimes.com/story/military/benefits/health-care/2015/07/22/new-burn-pit-report-lung-disease-high-blood-pressure-common-exposed-vets/30517071/)

### U.S. Navy Investigates Report of Cancer Cluster at Guantanamo



The U.S. Navy is investigating a complaint that seeks the evacuation of civilian and military lawyers from parts of the U.S. base in Guantanamo Bay, Cuba, following reports of cancer cases among personnel working on the trials of detainees there.

At least seven civilians and military members who worked on detainee trials at Guantanamo Bay have been diagnosed with cancer, according to the complaint, which was filed with the U.S. Defense Department's Office of the Inspector General. The complaint calls on American military officials to remove personnel from court facilities on the base and test them and the base itself for carcinogens.

*Read more:*

<http://www.reuters.com/article/2015/07/28/us-usa-navy-cancer-idUSKCN0Q129H20150728>

## Nanotechnology

### Characterization of Airborne Nanoparticle Loss in Sampling Tubing

Airborne nanoparticle release has been studied extensively lately using a variety of instruments and nanoparticle loss data for the instrument sampling tubes were required. This study used real-time measurements to characterize particle losses. Particle concentrations were measured by Fast Mobility Particle Sizer

(FMPS). Electrically conductive and Tygon sampling tubes 7.7 mm I.D. and 2.0, 4.9, 7.0, and 8.4 m long, were used to analyze particle losses. Two different sources of nearly steady-state particles—atmospheric nanoparticles (maximum concentration of 4,000–6,000 particle/cm<sup>3</sup>) and nebulizer-generated salt aerosols (maximum

concentration of 14,000–16,000 particle/cm<sup>3</sup>)—were utilized.

For all test conditions, a reduction in particle number concentration was observed and found to be proportional to tube length for particle diameter ( $d_p$ ) less than 40 nm. A maximum loss up to 30% was found for the longest tube length (8.4 m) at particle size of approximately 8 nm. For particles from 40 to 400 nm, the losses were less than 3%. Measured particle losses

were greater than predicted by theory for the smallest particles. The two types of tubing showed similar particle losses for both test aerosols. Particle losses were low for  $d_p$  greater than 40 nm, and for all particle sizes when the tube length was less than 2 m.

*Read more: Journal of Occupational and Environmental Hygiene Volume 12, Issue 8, 2015 (Available with AIHA membership).*

### Achieving Control of Occupational Exposures to Engineered Nanomaterials

**engineered nanoparticle**, a particle intentionally created (in contrast with natural or incidentally formed) with **one** or more dimensions greater than 1 nanometer and less than 100 nanometers

Occupational exposures resulting from Engineered Nanomaterials (ENMs) can pose a challenge for applying traditional risk assessment, control, or evaluation standards. This article discusses the limitations in traditional risk management approaches when it comes to ENM exposures, reviews current monitoring options, and suggests an interim management framework until research can meet the standard of evidence required by legislators. The proposed Nanomaterial Occupational Exposure Management Model (NOEM) offers a pragmatic approach that

integrates resources from current academic research to provide a framework that can be applied by both industry and regulators. The NOEM Model focuses on addressing three concerns to exposure management: Risk Assessment, Exposure Control, and Exposure Monitoring. The resources supported for meeting these three components involve the integration of the Control Banding Nanotool and Nano Reference Values, both of which have been piloted and accepted through peer-reviewed processes and industry consultation.

*Read more: Journal of Occupational and Environmental Hygiene Volume 12, Issue 8, 2015 (Available with AIHA membership).*

**ACGIH**

**ACGIH® Announces Release of Two-Tier Under Study List**

The ACGIH has announced the release of its two-tier Under Study list pursuant to changes previously made to its TLV®/BEI® Development Process.

In 2006, ACGIH® began providing additional information on the status of chemical substances and physical agents that are on the Under Study list. In addition to the practice of publishing an updated Under Study list on the ACGIH® website (<http://www.acgih.org/tlv-bei->

[guidelines/documentation-publications-and-data/under-study-list](#)), in the ACGIH® Annual Reports by February 1 of each year, and in the annual TLVs® and BEIs® book, the Under Study list will be updated annually by July 31 and presented in a two-tier list.

*Read more:*

<http://www.ishn.com/articles/101900-acgih-announces-release-of-two-tier-under-study-list>

**OSHA**

**OSHA Instructs Compliance Officers on Enforcement of HazCom Standard**



New instructions issued by OSHA provide guidance to agency compliance officers for enforcing the revised Hazard Communication (HazCom) Standard both during its transition period and after it is fully implemented on June 1, 2016. The instructions outline the revisions to the standard, including the standardization of label elements for containers of hazardous chemicals and the specification of safety data sheet (SDS) format and required content. According to the OSHA press

## Army Industrial Hygiene News and Regulatory Summary

release, the instructions will help ensure consistent enforcement of the revised standard, which the agency says improves the quality, consistency, and clarity of chemical hazard information that workers receive.

*Read more:*

<https://www.aiha.org/publications-and-resources/TheSynergist/Industry%20News/Pages/OSHA-Instructs-Compliance-Officers-on-Enforcement-of-HazCom-Standard.aspx>

### OSHA Updates Inspection Procedures for Protecting Workers from Tuberculosis

OSHA has updated instructions\* for conducting inspections and issuing citations related to worker exposures to tuberculosis in healthcare settings.

According to the CDC, nearly one-third of the world's population is infected with TB, which kills almost 1.5 million people per year. In 2013, more than 9,500 TB cases were reported in the United States, and nearly 400 of those cases were among healthcare workers.



*Read more:*

<https://www.osha.gov/as/opa/quicktakes/qt071515.html> (Scroll down to the 8<sup>th</sup> article)

**NIOSH**

### Respiratory Protection Education and Resources Webkit



The Respiratory Protection Webkit includes a 10-module Respiratory Protection Course and accompanying resources. The course is ideal for the occupational and

environmental health professional who wants to learn more about OSHA's Respiratory Protection Standard and the role of the Occupational Health Nurse as the Respiratory Protection Program Administrator. The training includes numerous resources for the OHN which are provided here in the Webkit.

# Army Industrial Hygiene News and Regulatory Summary

The course is free and runs approximately 90 minutes. It includes numerous online links to external respiratory protection resources. It is self-paced and you can do it anywhere, anytime. If you need to log out while using the course, you may login and return. Upon completion of the training and

the accompanying evaluation tool, you will be awarded 1.5 CNE.

*Read more*

<http://aaohnacademy.org/rpp/rpp-program.php>

**USAPHC**

## Demanding a Better Solution: Effective Training Options for the Changing Workplace

### OSHA's 2014 TOP TEN Most Frequently Cited Violations

- |                              |                                |
|------------------------------|--------------------------------|
| 1. Fall protection (C)       | 6. Lockout/tagout              |
| 2. Hazard communication      | 7. Ladders (C)                 |
| 3. Scaffolding (C)           | 8. Electrical: wiring          |
| 4. Respiratory protection    | 9. Machine guarding            |
| 5. Powered industrial trucks | 10. Electrical: systems design |

C = Construction standard

OSHA publishes a list of the year's top 10 most frequently cited standards. And year after year, employee training failures are one of the top violations in many categories.

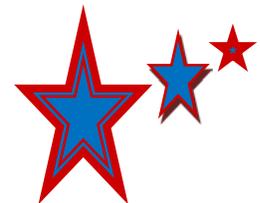
Even though employers have a responsibility to provide a safe workplace and training is a key component of any effective health and safety management system, evidence suggests many companies are not doing everything they can to safeguard employees and mitigate risks in the workplace.

*Read more:*

<http://ehstoday.com/training/demanding-better-solution-effective-training-options-changing-workplace>

## How to become a DOEHRs-IH Super Star

- ✓ Do you feel like you use DOEHRs-IH more than other program offices?
- ✓ Do you feel unnoticed?
- ✓ Do you feel like you have done great IH things with DOEHRs-IH?
- ✓ Do you wear a unitard and cape under your clothes? (Don't answer this question please)



Email the **Industrial Hygiene Training Coordinator** a brief synopsis about a new idea, a faster way, or a milestone you just met. Your Program Office just may be nominated as the monthly DOEHRs-IH **Super Star**.

# Army Industrial Hygiene News and Regulatory Summary

## Training

This monthly summary is published by the Industrial Hygiene and Medical Safety Management Program (IHMSMP) for the U.S. Army Public Health Command.



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## Transitioning to a New Format!

Please be patient while we transition to a new training format. In the past, the AIPH Blackboard courses were dependent on Defense Connect Online recordings; however, DCO is no more, our existing material is being converted to a new format that automatically allows recordings to play within Blackboard. Continue to check the training website as we add course material daily. Some courses are already up and running. So visit <https://aiph-dohs.ellc.learn.army.mil> to check their availability.

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