Best Practice Engineering Control Guidelines to Control Worker Exposure to Respirable Crystalline Silica during Asphalt Pavement Milling

This document represents more than ten years of collaborative research by labor, industry, and government to reduce respirable crystalline silica exposure during asphalt pavement milling in highway construction. The collaborative research began when the Silica/Asphalt Milling Machine Partnership was formed at the 2003 National Asphalt Pavement Association (NAPA) Annual Meeting, and studies on milling machine dust controls began later that year.

Read more: http://www.cdc.gov/niosh/docs/2015-105/
Urinary Metals and Heart Rate Variability: A Cross-Sectional Study of Urban Adults in Wuhan, China

Background: Epidemiological studies have suggested an association between external estimates of exposure to metals in air particles and altered heart rate variability (HRV). However, studies on the association between internal assessments of metals exposure and HRV are limited.

Objectives: The purpose of this study was to examine the potential association between urinary metals and HRV among residents of an urban community in Wuhan, China.

Methods: We performed a cross-sectional analysis of 23 urinary metals and 5-min HRV indices (SDNN, standard deviation of normal-to-normal intervals; r-MSSD, root mean square of successive differences in adjacent normal-to-normal intervals; LF, low frequency; HF, high frequency; TP, total power) using baseline data on 2,004 adult residents of Wuhan.

Results: After adjusting for other metals, creatinine, and other covariates, natural log-transformed urine titanium concentration was positively associated with all HRV indices (all p < 0.05).

Read more:
http://ehp.niehs.nih.gov/1307563/
New Study Shows Workers May Fear Talking to Doctor about Job-Related Asthma

Only 15 percent of working adults with asthma discuss with their doctor how their jobs might affect their breathing, even though nearly half have asthma that is possibly work-related, a new study reveals.

The researchers also found that doctors often don't bring up the topic with patients. People may be reluctant to talk about work-related asthma because they're worried about how it might affect their job and income, said the authors of the study published Feb. 3 in the journal Annals of Allergy, Asthma and Immunology.

Read more:

Evaluation of the Dark-Medium Objective Lens in Counting Asbestos Fibers by Phase-Contrast Microscopy

A Japanese round-robin study revealed that analysts who used a dark-medium (DM) objective lens reported higher fiber counts from American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing (PAT) chrysotile samples than those using a standard objective lens, but the cause of this difference was not investigated at that time. The purpose of this study is to determine any major source of this difference by performing two sets of round-robin studies. For the first round-robin study, 15 AIHA PAT samples (five each of chrysotile and amosite generated by
Army Industrial Hygiene News and Regulatory Summary

water-suspended method, and five chrysotile generated by aerosolization method) were prepared with relocatable cover slips and examined by nine laboratories. A second round-robin study was then performed with six chrysotile field sample slides by six out of nine laboratories who participated in the first round-robin study. In addition, two phase-shift test slides to check analysts’ visibility and an eight-form diatom test plate to compare resolution between the two objectives were examined.

Read more: http://annhyg.oxfordjournals.org/content/early/2015/03/03/annhyg.mev007

Workplace Medical Mystery: Blurry Vision Affects a Print Press Operator

At first it was only an annoyance. Jim thought it would go away.

Then it became dangerous.

Jim works at a big printing company that produces labels for consumer products. If you have a can of motor oil in your garage or a jar of hair mousse in your bathroom cabinet, chances are the label came out of his shop or from one of its three sister plants.

Fifty-two years old, Jim has worked at the plant as a press operator since it first opened almost 20 years ago. In the operation, workers load 80- to 100-pound rolls of paper or plastic onto eight massive rotary presses. Colorful water-based and fluorescent inks are kept in several five-gallon pails around each press. As needed, ink is pumped into troughs where the presses’ printing cylinders with their flexible rubber plates are mounted. The sheets of paper or plastic run through the cylinder, the rubber plates apply the ink at high speed, and bright labels emerge. The process is called flexography printing.

As a press operator, Jim is responsible for running the printing presses, which includes filling the pails with inks and additives as needed, inspecting printed labels for defects, and trouble shooting.

Read more: http://blogs.cdc.gov/niosh-science-blog/2015/03/16/medical-mystery1/
Avoiding Asbestos Exposure in Old Buildings and Houses

Working in and around homes and buildings constructed prior to 1980—and in some cases, after this date—presents a risk of asbestos exposure for homeowners and professional tradespeople. The risk, however, can be greatly reduced by knowing where asbestos-containing materials are commonly found and taking precautions.

It's been estimated that 3,000 different types of commercial products contain asbestos. The first U.S. patent for asbestos, issued in 1828, was for steam engine insulating material. During and after World War II, asbestos was wildly popular as an additive to textiles, building materials, and machine parts. By 1970, asbestos use had expanded to thousands of products and in 1973, U.S. asbestos consumption hit an all-time high of nearly 1 million tons.

Read more:

Explosive Destruction System Begins First Stockpile Project

Sandia National Laboratories’ Explosive Destruction System (EDS) began safely destroying stockpile chemical munitions for the U.S. Army.

The project to destroy 560 chemical munitions at the U.S. Army Pueblo Chemical Depot in Colorado with EDS is a prelude to a much larger operation to destroy the stockpile of 780,000 munitions containing 2,600 tons of mustard agent, stored at the Pueblo depot since the 1950s.

Read more:
A Water Soluble Additive to Suppress Respirable Dust from Concrete-Cutting Chainsaws: A Case Study

Respirable dust is of particular concern in the construction industry because it contains crystalline silica. Respirable forms of silica are a severe health threat because they heighten the risk of numerous respirable diseases. Concrete cutting, a common work practice in the construction industry, is a major contributor to dust generation. No studies have been found that focus on the dust suppression of concrete-cutting chainsaws, presumably because, during normal operation water is supplied continuously and copiously to the dust generation points. However, there is a desire to better understand dust creation at low water flow rates. In this case study, a water-soluble surfactant additive was used in the chainsaw’s water supply. Cutting was performed on a free-standing concrete wall in a covered outdoor lab with a hand-held, gas-powered, concrete-cutting chainsaw. Air was sampled at the operator’s lapel, and around the concrete wall to simulate nearby personnel. Two additive concentrations were tested (2.0% and 0.2%), across a range of fluid flow rates (0.38–3.8 Lpm [0.1–1.0 gpm] at 0.38 Lpm [0.1 gpm] increments). Results indicate that when a lower concentration of additive is used exposure levels increase. However, all exposure levels, once adjusted for 3 hours of continuous cutting in an 8-hour work shift, are below the Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL) of 5 mg/m³. Estimates were made using trend lines to predict the fluid flow rates that would cause respirable dust exposure to exceed both the OSHA PEL and the American Conference of Governmental Industrial Hygienists (ACGIH®) threshold limit value (TLV).

Read more: Journal of Occupational and Environmental Hygiene Volume 12, Issue 4, 2015 (Available with AIHA membership)
Modeling of Human Viruses on Hands and Risk of Infection in an Office Workplace Using Micro-Activity Data

Although the number of illnesses resulting from indirect viral pathogen transmission could be substantial, it is difficult to estimate the relative risks because of the wide variation and uncertainty in human behavior, variable viral concentrations on fomites, and other exposure factors. The purpose of this study was to evaluate the micro-activity approach for assessment of microbial risk by adapting a mathematical model to estimate probability of viral infection from indirect transmission. To evaluate the model, measurements of phage loading on fomites and hands collected before and after implementation of a Healthy Workplace Project intervention were used. Parameter distributions were developed from these data, as well as for micro-activity rates, contact surface areas, phage transfer efficiencies, and inactivation rates. Following the Monte Carlo simulations (n = 1,000), the estimated phage loading on hands was not significantly different from the loading of phage on hands measured in the experimental trials. The model was then used to demonstrate that the Healthy Workplace Project intervention significantly reduced risk of infection by 77% for rotavirus and rhinovirus. This is the first published study to successfully evaluate a model focused on the indirect transmission of viruses via hand contact with measured data and provide an assessment of the micro-activity approach to microbial risk evaluation.

Read more: Journal of Occupational and Environmental Hygiene Volume 12, Issue 4, 2015 (Available with AIHA membership)

New Bornavirus Suspected In Deaths of German Squirrel Breeders

Researchers say a newly discovered bornavirus may have been the cause of fatal encephalitis in three German men who bred exotic squirrels, the European Centre for Disease Prevention and Control (ECDC) reported. The three men, between the ages of 62 and 72, bred variegated squirrels, which are
native to Central America and are sometimes used as pets, the ECDC said in a rapid risk assessment. The men, who knew each other but did not live close together, all died recently after illnesses that included confusion, psychomotor impairment, and ocular paresis (partial paralysis).

Veterinary investigators did a genetic analysis of tissue from a squirrel that belonged to one of the men and discovered sequences of a new type of bornavirus, a genus that can infect many species of mammals and birds, the ECDC reported. Analysis of brain tissue from the three deceased men subsequently revealed the same virus, which "is clearly different from all currently known bornaviruses."

Read more:

Workplace Medical Mystery Solved: Blurry Vision Affects a Print Press Operator

It turns out Jim wasn’t the only one at work with vision problems (see mystery).

To his surprise, Jim discovered almost all of his co-workers who worked the line with him at the label production plant had experienced some sort of vision problems over the last year—including changes in vision, blurred vision or irritation. Once workers and supervisors compared notes, the company requested a Health Hazard Evaluation by the National Institute for Occupational Safety and Health (NIOSH). After taking workers’ job and medical histories, performing eye examinations, taking air samples, reviewing the literature on visual effects associated with chemicals commonly found in printing and other industrial processes, and analyzing samples of the ink used at the plant, the investigators arrived at a plausible association between the workers’ jobs and their symptoms.

Read more:
http://blogs.cdc.gov/niosh-science-blog/category/workplace-medical-mystery/
Chemical Exposure Linked to Billions in Health Care Costs

Exposure to hormone-disrupting chemicals is likely leading to an increased risk of serious health problems costing at least $175 billion (U.S.) per year in Europe alone, according to a study published Thursday.

Chemicals that can mimic or block estrogen or other hormones are commonly found in thousands of products around the world, including plastics, pesticides, furniture, and cosmetics.

The new research estimated health care costs in Europe, where policymakers are debating whether to enact the world's first regulations targeting endocrine disruptors. The European Union's controversial strategy, if approved, would have a profound effect on industries and consumer products worldwide.

Read more:

---

 Radiation

Emergency Department Management of Patients Internally Contaminated With Radioactive Material

After a radiation emergency that involves the dispersal of radioactive material, patients can become externally and internally contaminated with 1 or more radionuclides. Internal contamination can lead to the delivery of harmful ionizing radiation doses to various organs and tissues or the whole body. The clinical consequences can range from acute
radiation syndrome to the long-term development of cancer. Estimating the amount of radioactive material absorbed into the body can guide the management of patients. Treatment includes, in addition to supportive care and long term monitoring, certain medical countermeasures like Prussian blue, calcium diethylenetriamine pentaacetic acid (DTPA) and zinc DTPA.

Read more: http://www.ncbi.nlm.nih.gov/pubmed/25455668

Nanomaterials’ Grain Boundaries Absorb Defects, Lengthen Life of Nuclear Fuel

Nuclear energy supplied 19.4% of the total electricity used in the U.S. in 2013, or 789.0 billion kilowatt-hours, according to the Nuclear Energy Institute. However, the contribution of nuclear to the U.S. grid has been hovering around 19%–20% for the past 25 years. That stagnation may be partially due to hesitation about the safety and utility of current nuclear fuel cycles, which are at the heart of energy generation in a nuclear power plant.

Nuclear fuels come in a variety of forms, many of which are processed into ceramic fuel pellets. The U.S.’s 99 operating reactors consume a lot of pellets—the typical power plant generates 20 metric tons of used nuclear fuel every year—because that fuel must be removed and replaced almost annually within each reactor.

Read more: http://ceramics.org/ceramic-tech-today/basic-science/nanomaterials-grain-boundaries-absorb-defects-lengthen-life-of-nuclear-fuel

Ventilation

Health-Care Patient-Room HVAC Airflow Patterns

Although satisfying overall air-change rates in health-care patient rooms ensures heating, cooling, and ventilation requirements are met, the flow path of supply air within these spaces determines air-temperature distribution, thermal comfort, air quality, and the potential for the transmission of airborne pathogens.
Airflow patterns in a patient room depend on a number of factors, including location and type of supply diffusers, supply-airflow (air-change) rates and associated diffuser throws, supply-air temperature, room-return size and location, bathroom-exhaust-flow rate, location and strength of heat sources, arrangement of furniture and other obstructions to airflow, and location of the patient.


OSHAPublishes ProposedRevision to Eye and Face Protection Standards

According to a press release, OSHA has published a proposed revision to its Eye and Face Protection Standards that updates personal protective equipment requirements in the agency’s general industry, shipyard employment, longshoring, marine terminals and construction standards. The proposed revisions would reflect current national consensus standards and ensure that employers use up-to-date eye and face protection during dangerous workplace operations.

This would incorporate the latest American National Standards Institute eye and face protection standard, which was adopted after OSHA issued the final rule on personal protective equipment in 2009.

Read more:
Comparing Written Programs and Self-Reported Respiratory Protection Practices in Acute Care Hospitals

Airborne biological hazards in hospitals require the use of respiratory protection. A well-implemented respiratory protection program can protect health care workers from these exposures. This study examines the relationship between written respiratory programs and reported practices in health care settings. Twenty-eight hospitals in Illinois and Minnesota were recruited to a study of respiratory protection programs and practices in acute care settings. Interviews were conducted with hospital managers, unit managers, and health care workers from departments where respirators are commonly required. Each hospital's written respiratory protection program was scored for the 11 elements required by the Occupational Safety and Health Administration (OSHA), using a standardized tool, for a maximum possible score of 22 (2 pts. per element). Twenty interview questions associated with program practices were also scored by percent correct responses. Written program scores ranged from 2–17 with an average of 9.2. Hospital and unit managers scored on average 82% and 81%, respectively, when compared to the OSHA standard; health care workers scored significantly lower, 71% (p < 0.001). Minnesota written program scores were not significantly higher than Illinois hospitals (p = 0.16), while all Illinois survey respondents scored higher than those in Minnesota (p < 0.001). There was no trend between written programs and interview responses. Written respiratory protection programs in the study sites did not provide the level of detail required OSHA. Interview responses representing hospital practices surrounding respiratory protection indicated that hospitals were aware of and following regulatory guidelines.

Read more: http://www.tandfonline.com/doi/abs/10.1080/15459624.2014.960576
An Empirical Model of Human Aspiration in Low-Velocity Air Using CFD Investigations

Computational fluid dynamics (CFD) modeling was performed to investigate the aspiration efficiency of the human head in low velocities to examine whether the current inhaled particulate mass (IPM) sampling criterion matches the aspiration efficiency of an inhaling human in airflows common to worker exposures. Data from both mouth and nose inhalation, averaged to assess omnidirectional aspiration efficiencies, were compiled and used to generate a unifying model to relate particle size to aspiration efficiency of the human head. Multiple linear regression was used to generate an empirical model to estimate human aspiration efficiency and included particle size as well as breathing and freestream velocities as dependent variables. A new set of simulated mouth and nose breathing aspiration efficiencies was generated and used to test the fit of empirical models. Further, empirical relationships between test conditions and CFD estimates of aspiration were compared to experimental data from mannequin studies, including both calm-air and ultra-low velocity experiments. While a linear relationship between particle size and aspiration is reported in calm air studies, the CFD simulations identified a more reasonable fit using the square of particle aerodynamic diameter, which better addressed the shape of the efficiency curve’s decline toward zero for large particles. The ultimate goal of this work was to develop an empirical model that incorporates real-world variations in critical factors associated with particle aspiration to inform low-velocity modifications to the inhalable particle sampling criterion.

Read more: http://www.tandfonline.com/doi/abs/10.1080/15459624.2014.970273
Trends in Worker Hearing Loss by Industry Sector, 1981-2010

Background: The purpose of this study was to estimate the incidence and prevalence of hearing loss for noise-exposed U.S. workers by industry sector and 5-year time period, covering 30 years. Methods: Audiograms for 1.8 million workers from 1981-2010 were examined. Incidence and prevalence were estimated by industry sector and time period. The adjusted risk of incident hearing loss within each time period and industry sector as compared with a reference time period was also estimated. Results: The adjusted risk for incident hearing loss decreased over time when all industry sectors were combined. However, the risk remained high for workers in Healthcare and Social Assistance, and the prevalence was consistently high for Mining and Construction workers. Conclusions: While progress has been made in reducing the risk of incident hearing loss within most industry sectors, additional efforts are needed within Mining, Construction and Healthcare and Social Assistance.

Read more: http://www2a.cdc.gov/nioshtic-2/BuildQyr.asp?s1=20045795&f1=%2A&Startyear=&Adv=0&terms=1&EndYear=&Limit=10000&sort=&D1=10&PageNo=1&RecNo=1&View=f&

Exotic Micropumps and Gels Offer Hope for Hearing Disorders

Sufferers of tinnitus and other hearing disorders have had virtually no proved treatment options. That’s because the inner ear is one of the most inaccessible places in the human body—a bony, membrane-lined labyrinth measuring only a few cubic millimeters. These tight quarters make surgery all but impossible. “We can operate in the heart, in the brain, even inside the eye—the only place where we can’t operate in a functioning organ is the inner ear,” says Robert Jackler, a Stanford
University School of Medicine otologist–neurotologist who specializes in complex ear diseases.

Read more: http://www.scientificamerican.com/article/exotic-micropumps-and-gels-offer-hope-for-hearing-disorders/?page=1

### Preventive Medicine

**Poll: U.S. Public Sees Ill Health as Resulting from Broad Range of Causes**

A new NPR/Robert Wood Johnson Foundation/Harvard T.H. Chan School of Public Health poll finds that more than six in ten people living in the U.S. (62%) are concerned about their future health. Nearly four in ten (39%) said that they had one or more negative childhood experiences that they believe had a harmful impact on their adult health.


### Air Pollution and ASDs: Homing in on an Environmental Risk Factor

Although researchers have begun making significant inroads into understanding the genetic and biological basis for autism spectrum disorders (ASDs) and other neurodevelopmental disorders, it’s been estimated that environmental factors could account for just over half the risk of developing ASDs. In this issue of EHP, researchers have used data from 1,767 women in the Nurses’ Health Study (NHS) II to study exposure to particulate matter (PM) as one potential environmental risk factor for ASDs.

In one of the first reports of a relationship between air pollution and ASDs,
investigators in California found associations between estimated exposures to airborne heavy metals and other pollutants and risk of ASDs.\textsuperscript{3} Later studies using the same exposure models as the California study reported links between multiple hazardous air pollutants and ASDs in North Carolina and West Virginia,\textsuperscript{4} and a U.S.-wide study had similar findings.\textsuperscript{5} Other work considered how close pregnant women lived to freeways,\textsuperscript{6} or used monitor-based estimates of air pollutants\textsuperscript{7,8,9} or models of traffic-related exposures to study links with ASD risk.

Read more: \url{http://ehp.niehs.nih.gov/123-A68/}

**First Steps toward Harmonized Human Biomonitoring in Europe: Demonstration Project to Perform Human Biomonitoring on a European Scale**

Background: For Europe as a whole, data on internal exposure to environmental chemicals do not yet exist. Characterization of the internal individual chemical environment is expected to enhance understanding of the environmental threats to health.

Objectives: We developed and applied a harmonized protocol to collect comparable human biomonitoring data all over Europe.

Methods: In 17 European countries, we measured mercury in hair and cotinine, phthalate metabolites, and cadmium in urine of 1,844 children (5–11 years of age) and their mothers. Specimens were collected over a 5-month period in 2011–2012. We obtained information on personal characteristics, environment, and lifestyle. We used the resulting database to compare concentrations of exposure biomarkers within Europe, to identify determinants of exposure, and to compare exposure biomarkers with health-based guidelines.

Results: Biomarker concentrations showed a wide variability in the European population. However, levels in children and mothers were highly correlated. Most biomarker concentrations were below the health-based guidance values.

Conclusions: We have taken the first steps to assess personal chemical exposures in Europe as a whole. Key success factors were
the harmonized protocol development, intensive training and capacity building for field work, chemical analysis and communication, as well as stringent quality control programs for chemical and data analysis. Our project demonstrates the feasibility of a Europe-wide human biomonitoring framework to support the decision-making process of environmental measures to protect public health.

Read more: http://ehp.niehs.nih.gov/1408616/

Cleaner Air Tied to Healthier Lungs in Kids

Over the past 30 years, researchers have linked a wide array of health effects to air pollution. Among these are reduced lung function, asthma, cardiovascular disease, preterm birth, and even death. The period between 11 and 15 years of age is particularly important for long-term lung function, as lungs are developing rapidly.

Read more: http://www.nih.gov/researchmatters/march2015/03162015air.htm

Src-Mediated EGF Receptor Activation Regulates Ozone-Induced Interleukin 8 Expression in Human Bronchial Epithelial Cells

Background: Human exposure to ozone (O3) results in pulmonary function decrements and airway inflammation. The mechanisms underlying these adverse effects remain unclear. Epidermal growth factor receptor (EGFR) plays an important role in the pathogenesis of lung inflammation.

Objective: We examined the role of EGFR activation in O3-induced expression of the chemokine interleukin 8 (IL-8) in human bronchial epithelial cells (HBEC).

Methods: We detected phosphorylated EGFR using immunoblotting. EGFR dimerization was examined through cross-linking reaction and immunoblotting, and
levels of IL-8 protein were measured using ELISA.

Results: Exposure to O3 (0.25–1.0 ppm) induced rapid and marked increase in EGFR phosphorylation at the autophosphorylation site Y1068 and the transphosphorylation site Y845, implicating the involvement of Src kinase. Further investigation showed that O3 stimulation induced phosphorylation of Src at Y416, indicative of Src activation. Pharmacological inhibition of Src kinase activity abrogated O3-induced EGFR phosphorylation at tyrosines 1068 and 845. Moreover, pretreatment of BEAS-2B cells with inhibitor of either EGFR or Src kinase activities significantly blocked O3-induced IL-8 expression.

Conclusion: O3 exposure increased IL-8 expression through Src-mediated EGFR transactivation in HBEC.

New Work Schedule Could Cure Your 'Social Jetlag'

Many of us are walking around all the time in a fog caused by 'social jetlag.' That's what happens when we lose sleep because our daily schedules don't match our bodies' natural rhythms. The condition can be a particular problem for shift workers, who work into the night or on a shifting schedule. Now, researchers report that sleep and workers' wellbeing could be improved if schedules took workers' biological clocks into account.

Read more:
http://www.sciencedaily.com/releases/2015/03/150312123308.htm
UN Official: Most Disasters Climate Related

The head of the United Nations office dedicated to disaster risk reduction is urging world leaders ahead of a major meeting in Sendai, Japan, to provide action-oriented guidance to tackle the underlying drivers of risk, such as climate change, saying it now accounts for 87 percent of the disasters that have killed some 700,000 people over the past decade.

Read more: http://eponline.com/articles/2015/03/12/most-disasters-climate-related.aspx

DOE, National Institute of Building Sciences Release Better Buildings Workforce Guidelines

To enhance and streamline commercial-building workforce training and certification programs, the U.S. Department of Energy (DOE) and the National Institute of Building Sciences (Institute) recently announced new Better Buildings Workforce Guidelines.

The guidelines provide a national framework for certification agencies across the country to roll out consistent programs.

The DOE and the Institute worked with industry trade associations, governing credential boards, and energy-efficiency advocates to develop professional-certification and certificate-program guidelines for four key energy-related jobs: energy manager, building energy auditor, building operations professional, and building commissioning professional.
Ergonomics

Working in an Interventional Laboratory May Lead to Health Problems

Frequent use of lead aprons to protect medical professionals in the interventional lab and radiology departments from radiation exposure is associated with increased musculoskeletal pain, according to a study published today in the Journal of the American College of Cardiology. Fluoroscopically, or X-ray guided, interventional procedures performed by cardiologists and radiologists have become increasingly complex. As a result, these specialists spend more time being exposed to radiation and wearing heavy protective lead aprons. Researchers at the Mayo Clinic in Rochester, Minnesota, surveyed employees to determine whether musculoskeletal pain, cancer and other medical conditions occurred more often among interventional lab and radiology employees compared to other health care workers.

Read more:
http://ohsonline.com/articles/2015/02/02/vibration-hazards.aspx?admgarea=news

Safety

Temporary Area Monitoring 101

Temporary area monitors help safety personnel protect their workers from gas hazards in situations where permanently installed fixed systems are not available. They can also be used in addition to—or sometimes in substitution of—personal, portable gas monitors used as PPE. This happens most often when work occurs outside of normal operations in which the risks are higher and/or different: special projects, construction, maintenance, shutdowns, temporary sites or rigs, etc.
Knowing how to effectively use area monitors can be complex, especially for the workers who are placing the units in the field. If they make the wrong decisions, they could be exposed to, rather than protected from, potential hazards. While the technology has been around for well more than a decade, there are still many misperceptions related to the use of area monitors. This article will examine some of the questions people commonly have about area monitoring:

- What is the range of an area monitor?
- Where should I put an area monitor?
- How many do I need?
- Is it better to use a pump rather than rely on the air to come to the area monitor?
- Do I really need an area monitor when I have fixed systems?

Read more:

Suicide in the Workplace: Which Professions Are High Risk?

There's no way around it. Work is stressful. Most people go through points where their job is so taxing it feels as if it's consuming their entire emotional life. In some instances this situation can end in tragedy with an at-work suicide.

In the U.S., suicide rates have increased considerably in recent years. Though workplace suicide trends have not been well documented, a new study aims to compare suicide rates in the workplace to those outside the job.

The study, published in the American Journal of Preventive Medicine, found that between 2003 and 2010, 1,719 people in the U.S. committed suicide at work. During that same period, a total of 207,500

committed suicide outside the workplace. Overall, workplace suicide declined until 2007 and then began to increase. The researchers say that men are statistically more likely to take their life while on the
job; men between the ages of 65 and 74 are at highest risk. 

Read more: 
http://www.cbsnews.com/media/suicide-in-the-workplace-which-professions-are-high-risk/

2015 National Safety Stand-Down Materials Available

15 participants are asked to pause their workday and participate in safety training in fall prevention. Last year more than 1 million employers and workers across the country joined the effort, making it the largest occupational safety event ever hosted in the United States.

In preparation for this year's stand-down events, employers and workers are encouraged to visit the 2015 Stand-Down page where they can find free fall prevention training materials in both English and Spanish, including the new 2015 Stand-Down poster (PDF*), a list of local events, and also receive a certificate of participation signed by Secretary of Labor Thomas E. Perez.

Read more: 
https://www.osha.gov/StopFallsStandDown/

Understanding the Hospital Sharps Injury Reporting Pathway

Background: Patient-care workers are frequently exposed to sharps injuries, which can involve the risk of serious illness. Underreporting of these injuries can compromise prevention efforts. Methods: We linked survey responses of 1,572 non-
physician patient-care workers with the Occupational Health Services (OHS) database at two academic hospitals. We determined whether survey respondents who said they had sharps injuries indicated that they had reported them and whether reported injuries were recorded in the OHS database. Results: Respondents said that they reported 62 of 78 sharps injuries occurring over a 12-month period. Only 28 appeared in the OHS data. Safety practices were positively associated with respondents' saying they reported sharps injuries but not with whether reported injuries appeared in the OHS data.

Conclusions: Administrators should consider creating reporting mechanisms that are simpler and more direct. Administrators and researchers should attempt to understand how incidents might be lost before they are recorded.

Read more: http://www2a.cdc.gov/nioshtic-2/BuildQyr.asp?s1=20045181&f1=%2A&StartYear=&Adv=0&terms=1&EndYear=&Limit=10000&sort=&D1=10&PageNo=1&RecNo=1&View=f&

Protecting Temporary Workers

To ensure that there is a clear understanding of each employer's role in protecting employees, OSHA recommends that the temporary staffing agency and the host employer set out their respective responsibilities for compliance with applicable OSHA standards in their contract. Including such terms in a contract will ensure that each employer complies with all relevant regulatory requirements, thereby avoiding confusion as to the employer's obligations.

Read more: https://www.osha.gov/temp_workers/index.html

Preventing Occupational and Non-Occupational Head Injuries

Thousands of Americans suffer a traumatic brain injury each year: about 1.7 million did from 2002 to 2006, Merck & Co. Inc.'s Merck Manual reported a few years ago, and CDC reported 2.5 million traumatic brain injuries occurred nationwide, either as an isolated injury or along with other injuries, in 2010 alone. Most TBIs are not workplace injuries, but between 4 and 7 percent of all traumatic head and brain injuries are occupational injuries, the Washington State Department of Labor & Industries has reported.
An average of 53,014 deaths per year among U.S. residents during 1997-2007 were associated with TBIs, Dr. Victor G. Coronado of the Division of Injury Response in CDC's National Center for Injury Prevention and Control and colleagues reported1 in May 2011 in MMWR. They found that although the death rate declined by 8.2 percent during the period, TBIs remained a significant U.S. public health problem, with about 580,000 people with TBI diagnoses dying during that decade.

Read more: http://ohsonline.com/articles/2015/03/01/preventing-occupational-head-injuries.aspx

CDC Notes Safety Lapses at Melioidosis-Linked Tulane Lab

Federal officials noted several biosafety lapses at a Tulane University animal lab after animals were infected with Burkholderia pseudomallei, the bacterium that causes melioidosis, or Whitmore's disease, the Centers for Disease Control and Prevention (CDC) announced.

Officials from the CDC and the US Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) did not pinpoint an exact "transmission event," but they identified lapses in personal protective equipment (PPE) use that may have allowed transport of B pseudomallei on researchers' clothing.

FDA Releases Final Guidance on Reprocessing of Reusable Medical Devices

The U.S. FDA announced new actions to enhance the safety of reusable medical devices and address the possible spread of infectious agents between uses.

The new recommendations are outlined in a final industry guidance aimed at helping device manufacturers develop safer reusable devices, especially those devices that pose a greater risk of infection.

Medical devices intended for repeated use are commonplace in health care settings. They are typically made of durable substances that can withstand reprocessing, a multi-step process designed to remove soil and contaminants by cleaning and to inactivate microorganisms by disinfection or sterilization. While the majority of reusable devices are successfully reprocessed in health care settings, the complex design of some devices makes it harder to remove contaminants.

Read more: [http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm437804.htm](http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm437804.htm)

DOT Announces Rule to Improve Transit Access for Disabled

The U.S. DOT announced the publication of a final rule stating that public transportation providers are required to make reasonable modifications to their policies, practices, and procedures to avoid discrimination and ensure programs and services are accessible to individuals with disabilities.

This applies to public entities providing fixed route, dial-a-ride and complementary paratransit services. It clarifies that an
individual's disability cannot preclude a public transportation entity from providing full access to its service except where doing so would fundamentally alter the service.

Read more:

FEMA Finalizes New Requirement for State Disaster Plans to Consider Climate Change Impacts

FEMA announced afternoon a change in its requirements for State Hazard Mitigation Plans that NRDC has been advocating for nearly three years. These plans, which states develop in order to prepare for future natural disasters, must now consider the projected effects of climate change on hazard risks.

Back in 2012, NRDC petitioned the agency to adopt this requirement because most states' plans did not account for climate change when assessing their future vulnerability to natural hazards. Yet as FEMA recognized yesterday, "the challenges posed by climate change, such as more intense storms, frequent heavy precipitation, heat waves, drought, extreme flooding, and higher sea levels, could significantly alter the types and magnitudes of hazards impacting states in the future."

It's critical that states begin to plan ahead for these changes and develop strategies to reduce the risk of harm to people and infrastructure.

Read more:

FDA Launches Drug Shortages Mobile App

The U.S. FDA launched the agency’s first mobile application (app) specifically designed to speed public access to valuable information about drug shortages.
**Army Industrial Hygiene News and Regulatory Summary**

The app identifies current drug shortages, resolved shortages and discontinuations of drug products.

Drugs in short supply can delay or deny needed care for patients. Drug shortages may also lead health care professionals to rely on alternative drug products, which may be less effective or associated with higher risks than the drug in shortage.

*Read more:*  
[http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm436481.htm](http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm436481.htm)

**GAO Report Claims DEA to Blame for Many Drug Shortages**

The US DEA and the US FDA should work together more closely to prevent shortages of prescription medications containing controlled substances, said a blistering new report from the General Accountability Office (GAO). The DEA should also improve its process for authorizing quotas of the controlled substances used in these drugs, the report recommends.

Shortages of prescription drugs containing controlled substances have increased in recent years, the report notes. Of the 168 shortages from January 2001 to June 2013, nearly 70% began after 2007. Shortages lasted nearly a year on average. Many shortages involved generic pain relievers and drugs with only one manufacturer.

*Read more:*  
Testing Male, Female Combat Strength

University of Pittsburgh scientists who moved into a brick building at the Marine Corps Base Camp Lejeune in North Carolina last year are studying the physiology of men and women in ground combat occupations.

At the Warrior Human Performance Research Center, staff members armed with calipers, sensors and resistance machines spent months taking baseline measurements of the 350 volunteers in an experimental task force. The Marines, including 100 women, are assigned to mixed-gender units of infantry, artillery and mechanized vehicles.

Read more: http://www.utsandiego.com/news/2015/mar/06/marines-strength-ground-combat/?#article-copy

Army Researchers Design Better Protective Gear

Chemical-biological protective gear worn by Army pilots and aircrews has evolved to improve survivability in flight.

Engineers at the U.S. Army Edgewood Chemical Biological Center at Aberdeen Proving Ground, Maryland, are putting design at the forefront of new Mission-Oriented Protective Posture gear, known as MOPP, in order to carefully tailor a suit that addresses specific pilot needs during a given air mission.

Army engineers are working on a chemical-biological protective mask that mitigates thermal burden and hydration issues for
flight crews that can also fully integrate with specific current and future aircraft.

Read more: http://armytechnology.armylive.dodlive.mil

Researchers Identify PTSD Biomarkers

In analyzing blood samples of some 188 U.S. Marines, researchers have located genetic biomarkers linked with post-traumatic stress disorder. The PTSD markers are also associated with gene networks that govern innate immune function and interferon signaling. Researchers at the Veterans Affairs San Diego Healthcare System and University of California, San Diego School of Medicine say an improved understanding of the gene networks connected with PTSD may help improve diagnosis and treatment of patients dealing with the mental health condition. The same knowledge may also help physicians identify patients who are genetically prone to the development of PTSD.

Read more: http://www.upi.com/Health_News/2015/03/10/Researchers-identify-PTSD-biomarkers/1651425989765/

NIST Issues Silver Nanoparticle Test Material

The National Institute of Standards and Technology (NIST) announced March 3 that it has issued a new silver nanoparticle reference material to support researchers studying potential environmental, health, and safety risks associated with these nanoparticles, which are widely used because of their antimicrobial properties. "The new NIST test material is believed to
be the first of its kind to stabilize the highly reactive silver particles in a freeze-dried, polymer coated, nanoparticle cake for long-term storage," Michael Baum wrote in a release posted on NIST's website.

Nanoparticulate silver is, by some estimates, the most widely used nanomaterial in consumer products, including in socks, shoe liners, stain-resistant fabrics, coatings for handrails and keyboards, and more, Baum explained.

Read more: http://ohsonline.com/articles/2015/03/04/nist-issues-silver-nanoparticle-test-material.aspx

Motion-Powered Fabric Could Charge Small Electronics

Wrapped around a person’s wrist, a new foldable fabric patch can scavenge enough energy from arm movement to power small electronic devices (ACS Nano 2015, DOI: 10.1021/nn507221f). The fabric patch paves the way to clothing that can charge smart watches and cell phones while the wearer moves or walks around, the researchers say.

As companies develop wearable electronics, such as sensor-laden clothing and smart glasses, they need equally portable power sources. Traditional batteries carry an environmental cost, so researchers are looking for flexible, lightweight generators that can convert mechanical energy into electricity.

Read more: http://cen.acs.org/articles/93/web/2015/03/Motion-Powered-Fabric-Charge-Small.html

ACGIH Releases 2015 Edition of TLVs, BEIs Book and 2015 Supplement

ACGIH® now has released its 2015 editions of the TLVs® and BEIs® book and the Guide to Occupational Exposure Values, as well as the 2015 Supplement to the Documentation of the Threshold Limit Values and Biological Exposure Indices, 7th Edition.
The supplement contains documentation for the substances that were on the Notice of Intended Changes for 2014, with their corresponding values and notations, that have been approved and adopted as TLVs® and BEIs®.

Read more:

House Passes Bills Restricting EPA Despite Veto Threat

The House has passed two Republican-backed bills that would place new restrictions on the Environmental Protection Agency.

A bill would require the EPA to disclose scientific data behind proposed regulations, while a measure passed Tuesday would prohibit the agency from appointing registered lobbyists to the EPA's Science Advisory Board. Both were approved largely along party lines.

Read more:

OSHA Issues Long-Awaited SOX Whistleblower Rule

On March 5, 2015, OSHA issued a long-awaited Final Rule regarding SOX whistleblower procedures and related matters. The new Final Rule will replace the Interim Final Rule enacted in 2011, after
Dodd-Frank amended SOX. The Final Rule largely follows the Interim Final Rule, even though commenters expressed a range of serious concerns. One key revision that was implemented in the Final Rule based on response from commenters was a procedure requiring each party’s filings to be shared with the other party.

Adding Inequality to Injury: The Costs of Failing to Protect Workers on the Job

A report by OSHA explores the substantial impact of workplace injuries and illnesses on income inequality. Despite the decades-old legal requirement that employers provide workplaces free of serious hazards, every year, more than three million workers are seriously injured, and thousands more are killed on the job. The report states these injuries can force working families out of the middle class and into poverty, and prevents families of lower-wage workers from attaining greater economic opportunity.

Read more:
https://www.osha.gov/as/opa/quicktakes/qt031615.html

DoD Chief: Pay Cuts Possible If Sequestration Continues

The Defense Department will have to consider cutting pay – not just slowing compensation growth – if Congress does not repeal sequestration, Defense Secretary Ash Carter said in written testimony submitted to Congress March 18.
Army Industrial Hygiene News and Regulatory Summary

Congress partially lifted the across-the-board budget caps in 2013, but the caps are set to kick in again in fiscal 2016. Defense Secretary Ash Carter called them "the collateral damage of political gridlock" and told Congress the cuts would hurt every aspect of the Defense Department.


DOEHRS-IH Common Process “Cheat Sheet” for Fieldwork

The DOEHRS-IH common process pick list is available on the USAPHC website. This "cheat sheet" will make it easier for an IH doing fieldwork to identify and assign the most similar process on the list to a process in the shop they're surveying. The cheat sheet is useful because DOEHRS-IH is such a process centric application, and a disciplined common process selection in the basic characterization step will support establishing Similar Exposure Groups (SEGs).

Read more: http://phc.amedd.army.mil/topics/workplacehealth/ih/Pages/DOEHRS-IH.aspx

Indoor Air Quality Occupant Health and Comfort Questionnaire

A new fillable pdf form of an indoor air quality (IAQ) questionnaire is now accessible from the USAPHC website. This form can be sent to employees experiencing health or discomfort symptoms. It can help identify IAQ related problems with temperature, humidity, ventilation, odors, or air pollutants that may be causing associated symptoms. To access
the form, go to the Army IH Indoor Air Quality and Mold website and scroll down to the useful links section.

Read more: http://phc.amedd.army.mil/TOPICS/WORKPLACE/HEALTH/IH/Pages/IndoorAirQualityandMold.aspx

Army Mentoring Program

The Army IH Mentoring Program has partnered with AIHA to provide Army industrial hygienists an opportunity to participate in a more diverse mentorship program. The AIHA Mentoring Program has a very active and engaging program with a large pool of members with a broad range of government and industry expertise. The process to become a mentor or mentee is simple and the benefits are enormous. Mentoring enhances a mentor's professional skills and helps create a legacy that impacts the future of industrial hygiene. An added bonus, CM points awarded to CIHs for participation. Benefits to mentees are career guidance and a new network of colleagues. If you are an Army IH staff member without a mentor or would like to become a mentor go to the Army IH Mentoring webpage or click on the link below.

Read more: http://phc.amedd.army.mil/topics/workplace/health/ih/Pages/IHMentoring.aspx
Open Enrollment

USAPHC has open enrollment for several IH Courses: Courses offered in blackboard:

- **Industrial Hygiene Standards, Regulations, and Committees**
- **Intermediate Industrial Hygiene Topics Course** (Phase I). You must register in **TWO PLACES for this course.**

Courses offered face-to-face:

- **Blueprint Reading and Design Review** (September 2015)
- **DOEHS-IH** (May 2015)

Register at the USAPHC website [http://phc.amedd.army.mil/Pages/Training.aspx](http://phc.amedd.army.mil/Pages/Training.aspx) or directly at the AIPH Blackboard learning site [http://aiph-dohs.ellc.learn.army.mil](http://aiph-dohs.ellc.learn.army.mil), log-in (use the AIPH-DOHS URL), click on the **Courses** tab (top left) and then under the **Course Catalog** tab choose the **AIPH-DOHS Courses** folder (top right). Under the **Browse Course Catalog** tab, type in a keyword to search for the course of interest. Hover the mouse cursor over the course name and a grey drop down will appear. Select **Enroll** and you have completed the self-enrollment process.

Articles appearing in this summary are a collection of articles taken verbatim from public sources and do not necessarily represent the opinions/views, policy, or guidance of the Department of the Army, Department of Defense, or the U. S. Government.

The appearance of external hyperlinks does not constitute endorsement by the U.S. Army for the information, products or services contained therein. The U.S. Army does not exercise any editorial control over the information you may find at these locations.

The use of trademarked names does not imply endorsement by the U.S. Army but is intended only to assist in identification of a specific product.