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# Environmental Management

PRACTICAL AND CURRENT INFORMATION FOR ENVIRONMENTAL, HEALTH AND SAFETY PROFESSIONALS

ARIZONA

## LASER SAFETY:

THE EYES HAVE IT!

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FEB

11-12

10<sup>TH</sup> ANNUAL  
GATEKEEPER  
REGULATORY  
ROUNDUP  
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24-26

AUDITING ROUNDTABLE  
2014 WINTER  
NATIONAL MEETING  
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**Please visit our website at [www.auditing-roundtable.org](http://www.auditing-roundtable.org) to register.**

**If you have any questions, please contact our Managing Director, Kathy Rieth at 480-659-3738.**

### FROM THE EDITOR



The Journal begins our 12th year of publication with the upcoming February/March 2014 issue. I know many of you have been reading the Journal from that first issue years ago--I hope you have found it informative and useful in your work.

A lot has changed in the environmental management field over the years. For example, while hazardous waste management, including waste reduction, recycling, and disposal, remains a key component of most environmental management systems, the forward focus now is less on hazardous waste issues and more on sustainability, Environmental Management Systems, partnerships, and environmental leadership.

Over the next few issues I will be asking what the Journal can do to better help you with your environmental management responsibilities. Where would you like to see the Journal focus our resources in the future? One of our primary functions over the years, in addition to publishing articles on various current topics, has been to publish information about the activities and events of the many Arizona environmental management related organizations. I see this as continuing to be an important purpose for the Journal, but I would like your comments and input.

I hope you had a great Christmas and wish you a Happy New Year!

Sincerely,  
Jim Thrush, M.S. Environmental Management  
Editor & Publisher 480-422-4430 x42

#### JOURNAL OF ENVIRONMENTAL MANAGEMENT ARIZONA

EDITORIAL Publisher & Editor: James Thrush, M.S. Env. Mgt., [jimthrush@cox.net](mailto:jimthrush@cox.net) or 480-422-4430. SUBSCRIBE: [ehshomepage.com](http://ehshomepage.com) or 480-422-4430. RATES FREE to qualified EHS Professionals, others call. MAILING ADDRESS (NEW): JEMA, PO Box 51852, Phoenix, AZ 85076. ADVERTISING 480-422-4430 x42. Published 6 times/year. Copyright ©2013 by JEMA. All rights reserved. LEGAL DISCLAIMER Information presented in JEMA originates from sources presumed to be accurate and complete. Due to the rapidly changing nature of regulations and the law and our reliance on information provided by various sources, we make no warranty or guarantee concerning the accuracy or reliability of the content of JEMA. Readers are encouraged to contact authors, agencies, and advertisers directly for verification/clarification. Content for informational purposes only, and should not be considered legal or professional advice. Consult your legal counsel or environmental consultants for advice. WARNING Serious legal, environmental, and/or safety consequences can result from non-compliance with environmental and safety regulations and standard safety, environmental, and professional practices.

COVER PHOTO: INDUSTRIAL LASER. SEE RELATED ARTICLE PAGE 6.

## JOURNAL OF Environmental Management ARIZONA

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# LASER SAFETY: THE EYES HAVE IT!

by Chuck Paulausky, CHMM

*Pierre Gougelman had the first glass eye factory in the United States in 1851. At first, the public thought artificial eyes actually gave their wearers new sight.*

If only glass eyes worked that way! Unfortunately, some Lasers can result in permanent retinal damage and blindness. Lasers have many common applications these days; everything from

barcode scanners and Laser pointers to military Laser targeting and weapons, and a wide range of medical and industrial applications. It's this last group that I'm most familiar with, having worked for several companies as the Laser Safety Officer.

## LASER LIGHT

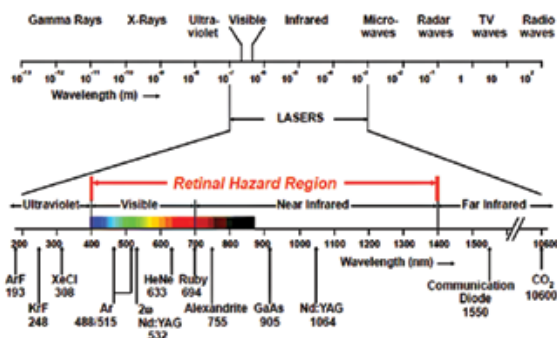
Laser light differs from ordinary light in three ways:

- Monochromatic- Laser light consists of one color or wavelength. In contrast, ordinary white light is a combination of many colors or wavelengths.
- Directional- Lasers emit light that is highly directional, emitting a relatively narrow beam in a specific direction. Ordinary light, such as from a light bulb, is emitted in many directions away from the source.
- Coherent- The wavelengths of the laser light are in phase in space and time. Ordinary light can be a mixture of many wavelengths.

It is these differences that make the Laser beams useful, and potentially hazardous.

## LASER RADIATION

Lasers produce Non-Ionizing radiation, which is less hazardous than Ionizing radiation which can interfere with normal cell processes. Lasers operate within a specific range in the electromagnetic spectrum, including Ultraviolet, Visible, Infrared wavelengths. Within this range is the Retinal Hazard Region, which includes Visible and Near Infrared wavelengths. Eye exposure within this Region can result in permanent retinal damage.



## LASER CLASSES

Lasers are categorized by class, with Class 3B and Class 4 being of major concern, falling under regulatory requirements for Laser safety programs. Basic classes include:

- Class 1- These are generally safe as long as they are not disassembled. The MPE is not likely to be exceeded. Common uses: CD ROM players, drives.
- Class 2/2a- There is a potential hazard if you stare into the beam, but the human blink reflex usually prevents damaging exposures. Example: Supermarket barcode scanners.
- Class 3a- These may pose an eye hazard if collected or focused into the eye. The MPE can be exceeded, but risk of injury is low. Example- Laser pointers.

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● Class 3b- These pose a serious eye hazard if direct or reflected beam is viewed, but diffuse exposure should not be hazardous. Examples: Research applications, some industrial uses.

● Class 4- There is an eye hazard if direct, reflected or diffusely-reflected beam is viewed, resulting in devastating or permanent eye damage. These also have potential for significant skin damage. They may also pose a fire risk and fume hazard, depending on the use. Examples: Research, manufacturing.

## LASER BIOEFFECTS

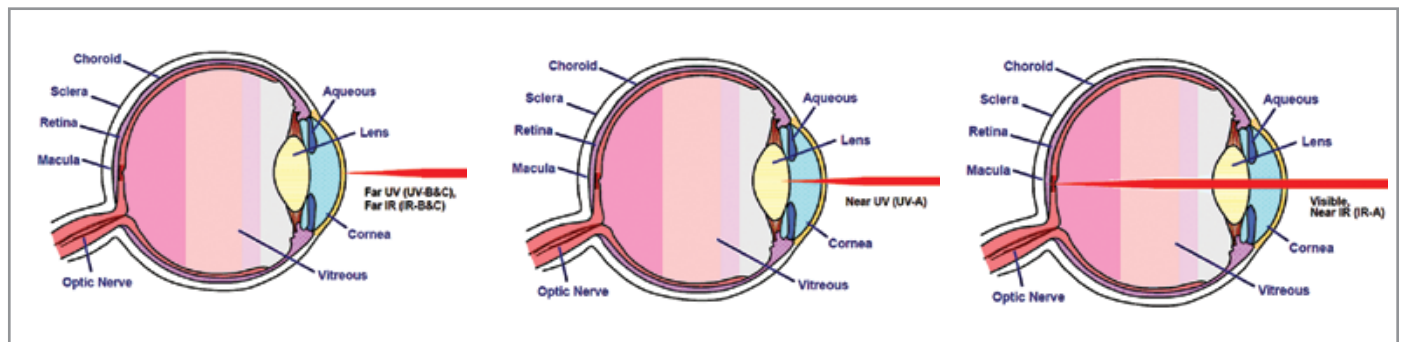
Lasers can result in significant skin damage, which must be protected, but eye damage is the primary hazard. Beam damage can be in three forms:

● Thermal- This is the result of heat generated and absorbed at the site of exposure, causing burns to skin and eyes.

● Acoustic- This produces a mechanical shockwave similar to the wave effects of dropping a pebble into a pond. Acoustic effects can cause local vaporization and tissue damage.

● Photochemical- Certain wavelengths can generate chemical reactions in tissue, which in some cases can result in cataracts, corneal or retinal burns, and a greater risk of skin cancer.

The effect to the eye depends on various factors including pupil size, pigmentation, laser pulse duration and repetition, wavelength. Different wavelengths will penetrate the eyes to different levels, causing damage at that level, to the cornea, lens or retina:



## LASER TERMS

Basic Laser safety terms are used to identify, understand and calculate the protection requirements for a specific laser operated at specific settings. Any changes to a Laser setting will likely change these calculations which are critical to employee safety:


● MPE (Maximum Permissible Exposure) is the highest Laser energy to which the eye or skin can be exposed without risk for a given Laser. The MPE is similar to the OSHA Permissible Exposure Limits for chemical exposures.

● NHZ (Nominal Hazard Zone) is the area within which the exposure to direct, reflected or scattered radiation exceeds the MPE. No controls are required outside of the NHZ


● NOHD (Nominal Ocular Hazard Distance) is the distance along the Laser beam axis beyond which the MPE is not exceeded.

● OD (Optical Density) is a logarithmic measurement of attenuation for protective filters, such as Laser eye protection. The OD defines the specific level of protection for a specific Laser when operated at specific settings.

*Continued on next page*








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## LASER SAFETY:

PAULAUSKY

CONTINUED FROM PREVIOUS PAGE

### ENGINEERING CONTROLS

There are a variety of controls available, depending on the type of exposure. Examples include, but are not limited to:

- Interlocks, installed on process enclosures and guards to prevent the Laser from firing or to close a shutter stopping the beam.
- Beam housings, used to contain an exposed Laser beam between the point of origin and the work.
- Shutters, which are used as doors that close to stop the beam. These can be interlocked with guards, doors and other computerized functions.
- Remote firing controls that position the operator away from the exposure.
- Attenuators, which are used to decrease the power as a beam passes through reflective or absorptive filters or scattering media. The desired level of attenuation is at least the calculated Optical Density for the specific Laser in use.
- Class 1-rated enclosures, which must be certified for Class 1, or the requirements for the Laser Class must be met.
- Fume exhaust, to be used when the process generates potentially toxic fumes.
- Laser Barrier curtains, which can be used to surround a Laser operation to protect anyone outside the curtain from exposure.

### ADMINISTRATIVE CONTROLS

There are a variety of administrative controls which provide additional protection through signage, labels, Standard Operating Procedures and training. Ensure that responsibility for Laser operations is assigned.

Many states have specific requirements for Laser Safety Officers, and Laser incident reporting. These requirements usually only apply to Class 3b and Class 4 Lasers. Be sure to check with the agency responsible for Laser Safety in your state. Many states refer to or incorporate ANSI Standard Z136.1 for Laser Safety into the state requirements, which may include Laser registration, inspections, medical surveillance, ocular history, and a variety of other requirements.

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## PERSONAL PROTECTIVE EQUIPMENT

PPE is used as a last resort, when engineering and administrative controls don't adequately reduce the hazard. Laser PPE may include:

- Gloves or special clothing, to reduce skin exposure
- Laser eyewear, to attenuate the laser radiation for eye protection. Laser safety glasses must meet very specific requirements:
  - ◆ They must be approved and labeled per ANSI Z136.1
  - ◆ They must have the appropriate OD for the Laser type, wavelength, mode of operation (continuous versus pulse wave), and power settings.
  - ◆ They should be comfortable for the wearer.

### NON-BEAM HAZARDS

There are a number of hazards not directly related to the laser beam exposures:

- Explosion hazards may exist from accumulation of high-pressure gases in flash lamps, when fired. Also, some lasers use capacitor banks which can explode when not handled properly. Always follow manufacturer's recommendations when servicing Lasers.
  - Gas exposures from cryogenic and other gases used in generation of certain laser types. Always follow safety procedure for gases and cryogenics
  - Toxic fumes or Laser-Generated Air Contaminants (LGAC) from materials being processed by the Laser beam. Fume exhaust systems will reduce this exposure.
  - Electrical exposures through contact with power sources. Electrical safety and LOTO procedures should be followed
  - Class 4 Lasers are capable of causing fires. Use flame-retardant materials when possible, and always keep a fire extinguisher nearby.
- Some of the most common causes of Laser accidents include:
- Bypassing interlocks. This is always a bad idea.
  - Inserting reflective objects into the beam path.
  - Accidental firing of the Laser.
  - Altering the beam path, or adding additional optical components.
  - Changing the Laser settings without recalculating the MPE, and Optical Density requirements.

### LASER SAFETY PLANS

Written plans may be required, but, required or not, I always develop a Laser Safety Plan for my clients that defines the equipment, MPE/NHZ/NOHD, Optical Density/PPE requirements, training, and all other factors for safe operations of the Lasers.

Chuck Paulausky, CHMM, is President of CPSE LLC, a consulting firm specializing in OSHA and EPA compliance and loss control for small to medium-sized businesses. Chuck is not a Certified LSO, but has maintained Laser safety compliance for companies with Laser operations for over 17 years, including Laser safety plans, registrations, training, and reporting.

Chuck is active with several professional and business organizations and is an AHMP Champion of Excellence Award winner. For over 23 years, Chuck has been providing safety, environmental, and worker's compensation support to companies in Arizona, Texas, California, Utah, Europe, and Asia. Chuck can be reached at: 480-694-1975, [cpaulausky@cpsafety.net](mailto:cpaulausky@cpsafety.net), [www.cpsafety.net](http://www.cpsafety.net)





Larry Olson, PhD.

## IT'S ALL ABOUT CHEMISTRY

# RARE EARTHS - THE NEXT NATIONAL SECURITY THREAT?

When I was an undergraduate chemistry major, the lanthanide series of elements (cerium through lutetium) were a curiosity and we didn't spend much time on them except to note that their valence shell electrons were going into the 4f orbitals. This caused them to form very similar compounds that made it hard for early chemists to separate and identify individual lanthanide elements. They were given the name rare earths, not because of they were so rare (all of them are found in greater abundance than silver), but because it was so difficult to obtain the pure metal. The term Rare Earths was extended from the 14 elements filling 4f orbitals to include scandium, yttrium and lanthanum, because these elements were commonly found with the lanthanide oxides. So the term Rare Earth Elements (REE) includes 17 elements.

In the mid 1960s total worldwide production of REE was only about 10,000 metric tons, but had risen to about 134,000 tons in 2010. A report by the Congressional Research Service estimates global demand could increase to 210,000 tons by 2015. What happened? It turns out those 4f electrons confer all sorts of interesting chemical and magnetic properties. Rare earth elements have become essential to our newest technologies. They are found in regenerative braking systems in hybrid vehicles, catalytic converters and cracking catalysts for petroleum refining, phosphors in compact fluorescent lamps, plasma screen TVs and flat panel displays in cell phones and laptops, new generation generators in wind turbines, high performance

magnets, jet fighter engines, missile guidance systems and communication satellites.

One of the first to realize the implications of access to REE was Deng Xiaoping, who succeeded Mao as leader of China and set the Chinese on their current economic trajectory. He recognized that China has about half the world's supply of REE, much of it in the Bayan Obo deposit in Inner Mongolia, and said in 1992 that "the Middle East has oil and China has rare earth." The Chinese government set out to develop this key resource and by 2009 it was supplying 95% of the world's REE production. Cheap labor, lax environmental laws, and government subsidies drove out most worldwide competitors.

The U.S. also has significant sources of rare earths and once supplied all our needs from domestic sources. But we are now 100% dependent upon imports. It has made our iPhones less expensive, but there is a price to pay, as the world learned in 2010. China announced it would reduce its exports of REE by 40% and by October 2010 global prices had quadrupled. One of the most commonly used rare earths, cerium oxide, increased in price from \$4.70/kg in April to \$36/kg in October.

In this same time frame, there was a major diplomatic incident between Japan and China involving a collision between a Chinese trawler and a Japanese vessel in the East China Sea off the disputed Senaku Islands. The New York Times reported in September 2010 that China had halted shipments to Japan of REE, raising the spectre of economic warfare over scarce resources similar to what we have experienced with OPEC. Some have now questioned whether this embargo did actually occur, but the possibility has sent shock waves around the world. Japan, for example, has scrambled to find other sources and signed an agreement with India in 2012 that would provide as much as 20% of its REE needs. Even more recently, in December 2013, Japan announced it had discovered large reserves of rare earths on the Pacific Ocean seabed that it believes could be recovered economically and could break the Chinese monopoly on REE production. Molycorp also announced plans to reopen its Mountain Pass mine in California with production ultimately projected to reach 10% of the world demand.

We all know the convoluted history of oil, politics, and economics. But oil isn't the only natural resource that can be used as a strategic weapon. Hopefully, we've learned some lessons from our past experiences.

Larry Olson, PhD., Associate Professor, Arizona State University Environmental Technology Management Program. Dr. Olson holds a Ph.D. in Chemistry from the University of Pennsylvania, and is an environmental chemist with interests in remediation technologies and international environmental management. He can be reached at 480-727-1499, or by email at [Larry.Olson@asu.edu](mailto:Larry.Olson@asu.edu).



## SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT



Nicholas R. Hild, PhD.

### EMERGENCY MANAGEMENT SUSTAINABILITY

*"Sustaining Disaster Readiness and Mitigation requires dedicating resources that are not rescinded in times of economic downturn."*

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There are a lot of small and medium-sized cities around the U.S. that are struggling with their economy. That isn't news, of course. Virtually *every* city and town, large and small, has had a tough time with jobs and providing services to citizens of all kinds. So it was interesting to be an observer over the summer in city council meetings in a few different Midwestern cities that were at that time, or had in the previous months, experienced devastating natural disasters. What I learned was eye-opening and I recommend attending city council meetings regularly, for every EH&S professional to make it a regular part of your continuing education, especially in the cities where your company or agency is located.

For instance, in one small city, the council was struggling with real-time flooding that resulted from massive rainfall over several weeks throughout June and into July---rainfall amounts that caused emergency managers to pull out all the stops, including releasing untreated sewage waters from flooded wastewater treatment plants---and, broken dikes and levees that allowed contaminated river water to inundate low-lying areas and homes---many of which who had seen similar calamities in previous years.

Many residents who asked for clean-up funds told the council it was their last flood and that they would not return to rebuild their homes---which caused some council members to comment that it should not be government's responsibility to keep people who live in flood plains supplied with funding every time they found themselves flooded out---nonetheless, other residents were saying that it was their *right* to have city government bail them out because they could not obtain flood insurance. Go figure!

Disaster assistance from the Federal Emergency Management Agency (FEMA) and state/local agencies were Johnny-on-the-spot when it came to helping folks move to temporary quarters but paper-pushing reps from insurance and other government 'programs' that promised to reimburse financial losses were mostly paper tigers---weeks and months after the calamity, little dollar reimbursements had yet arrived.

Americans tend to think about such "emergencies" only when something major happens like the BP Gulf Oil disaster or a hurricane

or earthquake that effects large numbers of people, because they are the kinds of 'disasters' that get international media exposure (for a while). But with widely scattered flooding throughout the midwest and forest fires in widely scattered areas in the west, all commanding the media's attention on national network TV, perhaps, then it's left to media in the areas where the calamities are happening to maintain the 'emergency' in the public's view.

For instance, how much have you heard in the last year or two from the national media about the aftermath of the disasters on the Gulf (Katrina, Rita, the BP Oil disaster) or the tornado's that left Joplin and West, Texas in devastation? Even the more recent Yarnell wild fire disaster that left 19 hot shots dead has had little national press in the last couple of months beyond the occasional '*quick updates*' here and there because, literally, once the sensationalism factor died, the media dropped those disasters like a hot potato and moved on.

And, the rest of the world goes back to network and cable with a subconscious, "...it's not affecting me..." attitude, leaving the devastation aftermath to the politicians and emergency services agencies to sort out. The people most affected---thousands who've lost their homes and/or jobs and hundreds who've been injured or killed---are left to somehow recover and rebuild, pretty much on their own.

Federal agencies tasked with the responsibility for providing physical, and medical relief have an overwhelming job with ever-decreasing allocation of funds and fewer and fewer skilled and trained personnel to do the job as budgets continue to be sliced into so many different pieces---and, as my observations from city council officials struggling to meet their citizen's needs in how they handled the massive flooding, it occurred to me that no matter where you look---but at the local level in particular---whenever disasters happen, there are but a few individuals that have the training and skills to actually understand what is needed to provide the essential needs of the community effected.

In the Council meetings I observed (two different flooded cities, one city with forest fires still raging, and a fourth city emergency meeting after a tornado destroyed most of their downtown businesses), I observed that only one had pre-planned their disaster aftermath response (to flooding) and none were 'budgeted' with real monies---all were looking to the Red Cross to provide food and shelter---even then, there were no designated shelter buildings capable of handling the large numbers of people and numerous medical conditions or situations they encountered.

All this should bring home a message that Boy Scouts have known for a hundred years: BE PREPARED! We have college degrees in Emergency Management that do just that: prepare disaster and emergency managers with the skills and tools to help communities and industry 'prepare' for and respond to disasters, but it isn't clear that our cities and county planners are utilizing our 'trained and skilled' graduates. And, there are not enough programs producing disaster managers with the technical skills that are required to meet the needs of all those communities that have been or will be hit with such disasters in the future.

So, here's the deal: our readership here in the Journal consists of literally hundreds of EH&S professionals, and many have responsibilities that include managing Emergency Response programs for their respective companies and agencies. Given the recent fall-out from the Yarnell fire disaster, it is clear that there are a plethora of

*Continued on page 13*

Nicholas R. Hild, PhD., is an Emeritus Professor and Sustainability Scientist in the College of Technology and Innovation and the founder of the Environmental Technology Management program at Arizona State University. Dr. Hild has extensive industrial environmental engineering and management experience as well as continuing to be a consulting environmental engineer for the past 40+ years. Reach him at [www.worldsleadingexpert.com](http://www.worldsleadingexpert.com) or email at [drnick@asu.edu](mailto:drnick@asu.edu).



# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY PRESENTS: 2013 ANNUAL EMPLOYEE AWARDS

40 ADEQ EMPLOYEES HONORED FOR OUTSTANDING JOB PERFORMANCE AT 2013 ANNUAL AWARDS EVENT

The Arizona Department of Environmental Quality recently recognized 40 employees for outstanding job performance at the department's 2013 annual awards event held Dec. 5 at its Phoenix headquarters.

"This year we recognized several employee teams that brainstormed creative ideas and implemented projects to streamline our processes and dramatically improve efficiency in our work flow," said ADEQ Director Henry Darwin.

The department recognized the Air Quality Special Projects Unit (Teresa Mackey, Heather Colson, Ceresa Stewart and Andy Clifton) for eliminating the most delays in its processes for developing Quality Assurance Program plans.

The department also recognized a team (Tarun Sinha, Tim Trestrail, Rob Arpine, Amelia Peterson, Marina Mejia and Pam Nicola) whose ideas for standardizing forms and using checklists reduced overall time to complete stack tests from 240 days to 67 days, which, in turn, significantly reduced costs.

The Underground Storage Tank State Lead Unit (John Robertson, David Pettigrew, Brent Mitchell, Laura Morales, Mark Rhoades, Jason Kocer, Mike Latin, Samar Bhuyan, Andrea Baca, Debi Goodwin and Richard Brunton) was recognized for implementing the highest number of process improvements, while the Waste Programs Division's Site Investigation and Remediation Unit (Tiffany Yee, Mike Harren, Amy Phalen, Calvina Ashley, Sam Rogers, Charles Hallas and Don Spencer) was singled out for devising the most transferrable process improvement.

The department recognized a Water Quality Division team (Mohamed Hegazy, Monica Phillips, Ramona Rodriguez, David Haag, Luke Peterson and Jeff Emde) for implementing an innovative approach using lobby staff to process walk-in drywell applications, and the Water Quality Division's Compliance Data Unit (Lucy Ruiz, Kolena Locksa, Mike Tenczar, Marcia Colquitt, Linda Seeley and Tracy Bunch) was recognized for its project to reduce the number of errors in Self-Monitoring Report submittals.



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*Air Quality Division's Heavy Workload Team of (left to right) Teresa Mackey, Heather Colson, Ceresa Stewart and Andy Clifton – with AQD Division Director Eric Massey – developed a QAPP work plan and won the award for most delays eliminated. They are members of the AQD Special Projects Unit.*



*Waste Programs Division's Streamlined State Lead Contracting and Oversight Process Team of (left to right) John Robertson, David Pettigrew, Brent Mitchell, Laura Morales, Mark Rhoades, Jason Kocer, Mike Latin and Samar Bhuyan won – with WPD Director Laura Malone – won the award for Highest Volume. Not pictured are Andrea Baca, Debi Goodwin and Richard Brunton. They are members of the WPD CAS State Lead Unit.*



*Water Quality Division's Streamlined Front Desk Procedures for Drywalls Team of (left to right) Mohamed Hegazy, Monica Phillips, Ramona Rodriguez and David Haag – with WQD Director Mike Fulton – won the award for Most Out of the Box Project. Not pictured are Luke Peterson and Jeff Emde. They are members of the WQD Mining Industry/Drywell Unit.*



*Air Quality Division's Stacktesting Process Improvement Team of (left to right) Tarun Sinha, Tim Trestrail and Rob Arpine -- with AQD Division Director Eric Massey -- won the award for Cost Reduction. Not pictured are team members Amelia Peterson, Marina Mejia and Pam Nicola. They are members of the AQD Inspection and Field Services Unit.*



*Waste Programs Division's Developed "Stalled" Case Project Team of (left to right) Tiffany Yee, Mike Harren, Amy Bhatt Phalen, Calvina Ashley and Sam Rogers – with WPD Director Laura Malone -- won the award for Most Transferable. Not pictured are Charles Hallas and Don Spencer. They are members of the WPD CAS Site Investigation and Remediation Unit.*



*Water Quality Division's Minimized Errors in Self-Monitoring Report Submittals Team of (left to right) Kolena Locksa, Mike Tenczar, Marcia Colquitt and Linda Seeley – with WQD Director Mike Fulton – won the award for Highest Impact to the Mission. Not pictured is Tracy Bunch. They are members of the WQD Compliance Data Unit.*



# ASSOCIATIONS PAGES

The Journal of Environmental Management Arizona invites environmental, health and/or safety organizations in Arizona to contribute news articles about their associations. Contact the editor at 480-422-4430 x42.



WWW.SAEMS.ORG

The winter luncheon was held at Hotel Tucson. Our speaker was Carlos Lopez, PE at ADOT. Carlos presented on a study to consider the feasibility of connecting Tucson and Phoenix with a passenger rail system. SAEMS January luncheon will be combined with the (Local Emergency Planning Committee) LEPC seminar. The seminar will be held at Desert Diamond on Wednesday, January 29th, from 8am until 5pm.

SAEMS conducted a highway clean up on December 14th. The highway clean up team picked up 18 bags of trash and several tires. If you are interested in joining SAEMS or attending an upcoming event please visit our website at [www.saems.org](http://www.saems.org).



Dawn Weyer  
President



WWW.AZAEP.ORG

AZAEP and Air & Waste Management (Grand Canyon) co-sponsored our 3rd annual Holiday Networking Mixer at the Terroir Wine Pub in Scottsdale on December 10. The popular event was well-attended and members of both organizations had an opportunity to get caught up while enjoying holiday appetizers and drinks.

The National Association of Environmental Professionals (our parent organization) is holding its first Board Meeting of 2014 in Phoenix. AZAEP members are welcome to come to a happy hour and meet the NAEP board on Friday, January 24. For more information, check our website soon. If you haven't been receiving AZAEP notices lately, please go to our website and sign up again for our distribution list. Our GoDaddy email system inexplicably dropped over 75 names from our distribution list in October and because of privacy regulations, we are not able to add names back to the list.

To become a member, or to learn more about AZAEP, please visit our new website at [azaep.org](http://azaep.org)! AZAEP also has a new post office address: P.O. Box 69, Tucson AZ 85702.



Patricia  
Mariella, Ph.D.  
President



The Arizona Hydrological Society wishes everyone a great New Year and lots of fun things to do in 2014! And you can start by joining

one of our local chapter meetings!

The next meeting of the Tucson Chapter will be held on Tuesday, January 14, 2014, 6:00 PM, at the offices of Errol Montgomery and Associates, 1550 E. Prince Road. Mark L. Brusseau, University of Arizona, will present "Persistent Groundwater Contaminant Plumes: Processes, Characterization, and Case Studies." The Phoenix Chapter will also be meeting January 14, at Macayo's Depot Cantina, on Ash Avenue in Tempe, for the annual planning meeting and free dinner! Social hour starts at 5:30 PM.

The Flagstaff AHS Chapter is meeting Thursday, January 16, 2014, at Peabody Energy, 3001 W Shamrell Boulevard, Suite 110 to discuss plans for the joint 2014 AHS/AIPG Symposium to be held in Prescott. Additionally the Flagstaff Chapter is pleased to host in part another NAU SESES seminar, Tuesday, January 21, at 1600 MST in the NAU Geology Building, Room 103. The title is "Concurrent Changes in Climate, Land Cover, and Population Growth Present Major Challenges to the Management of Natural Resources Worldwide" presented by Dr. Paul D. Brooks, Professor, Hydrology and Water Resources, University of Arizona. Visit the AHS web site for additional information and details at [www.azhydrosoc.org](http://www.azhydrosoc.org).



Christie  
O'Day  
Executive  
Director



AZ.ASSE.ORG

With a new year upon us we pause to think of what we have accomplished and what challenges are ahead, this is where I hope the AZ-ASSE will be there to help. We have an exciting year planned out for our chapter meetings with some good technical education sessions planned and some great networking to be had. Our next meeting will be February 7th, 2014, the topic will be "Drug & Alcohol Testing – Myth Busting". Dr. Juan Rodriguez, MD an expert in the field will help you separate fact from fiction. Walk away with the real story to help you make good decisions & good policy to keep your workplace safe. This meeting will be at the Portales Business Center (Chaparral & Scottsdale Rd). Additionally, I wanted to thank everyone who came to the December meeting and donated toys for the local Toys for Tots program, it was a huge success and I know we made the holiday season brighter for those children in need.

I hope to see you in February and have a great new year! Cheers!



Ryan  
Oughterson  
President



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## A PROMISING NEW YEAR

As we step out of the Great Recession's shadow, now is the time to march back to the drawing board and reinvent strategic plans for a more prosperous Arizona. We'll undoubtedly return to historic patterns of unprecedented growth. Our challenge is to create healthier communities through smart, sustainable development.

The issues facing Arizona today are significant. We're at a crossroad economically, politically and socially. Two of our most vital concerns – water and transportation – have taken center stage. On the water supply front, a sustained drought has greatly affected our most precious resource. Potential impacts of climate change add additional uncertainties to our water future. At the same time, our state's transportation system stands at a pivotal point with necessary infrastructure investments that carry the capacity to enliven our state's commerce, tourism and international trade.

Let's work together in the New Year to build consensus around laser-focused ways to provide for existing demands and future developments. The collaboration of diverse interests and a collective, unified voice on a statewide sustainability agenda will help ensure the environmental quality and economic vitality of our home state.



Diane Brossart  
President



The Southern Arizona Chapter of the American Society of Safety Engineers (ASSE) is back in full swing with luncheon meetings scheduled for January 21st and March 18th (all meetings now held on the 3rd Tuesday) at our new venue - the Sabaar Shrine Temple, 450 S. Tucson Blvd.

The luncheons run from 1130 to 1:00 PM and include a safety related presentation. In February (18th), we join the Southern Arizona Safety Council for an all morning quarterly safety meeting.

The SASC holds their meetings from 0830 to noon at the Granite Construction Training Room - 4115 E. Illinois. The Chapter continues work on the U of A Student section. If you are in need of OSHA classes, check out our web site's scheduled events - <http://southaz.asse.org/events/>.



John Roads  
Secretary



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The Alliance elected its 2014 slate of officers at the recent Annual Meeting. Officers for the Alliance Board of Directors will be: Neal Brown (APS), Chair; Greg Bopp (Honeywell Aerospace), Vice Chair; Matt Conway (PING), Treasurer; and Jim Thrush (JEMA), President. Officers for the Alliance Advisory Council will remain as they were in 2013: Beverly Westgaard, Co-Chair, and Scott Davis, Co-Chair.

When you read this issue of the Journal the Alliance will have just completed the January Air Quality Permit Compliance Assistance Seminar, held in Casa Grande on January 14th. The seminar is co-sponsored by the Alliance and Pinal County Air Quality Department. Interest in this seminar was very high and we unfortunately, due to space limitations, reached our cut-off limit for registrations. We plan to continue similar seminars in the future. For information contact the Alliance at our office number at 480-422-7392 or visit our new website at [azalliance.org](http://azalliance.org).

Matt Conway  
Chair



WWW.EPAZ.ORG

Happy New Year from EPAZ! We'd like to introduce our new Board of Directors:

President:	Skip Harden
Vice President:	Martin Minter
Secretary:	Dave Giles
Treasurer:	Sowjanya Chintalapati
Chairman of the Board:	Michael Ford

Please congratulate them if you have an opportunity to run into them in the New Year. EPAZ is an ALL volunteer organization with no paid staff members and we rely on volunteerism to bring you timely monthly luncheon topics and an awesome agenda at our annual conference which is coming up on February 11-12, 2014. We have several committee level positions that are open and encourage you all to consider stepping up and getting involved.

If you'd like to register for the 10th Annual Gatekeeper Regulatory Roundup you can visit our website at [www.epaz.org](http://www.epaz.org). You will also find a finalized agenda featuring keynote speakers, Mark Holmes, City of Goodyear Water Resources Manager and Dennis Beyer, Incident Command, Oklahoma Tornado Response.

EPAZ hosts a monthly luncheon on the second Thursday of the month. Meetings are held from 11:30 AM to 1 PM at the SRP PERA Club. Visit our website to learn of our upcoming topics and to register to attend.

Lisa Culbert  
Board Member



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## INDUSTRIAL SERVICES | WASTE MANAGEMENT

### SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT

CONTINUED FROM PAGE 10

"issues" that need to be addressed--- by the kinds of emergency planners such as our graduates who have the expertise and skills to help with---they know what kinds of training programs are required to meet the fire fighters skill-set requirements. They know the kinds of planning that is required to be properly prepared for response and mitigation (clean-up) after tornados and hurricanes have devastated communities, and they know how to find the resources/funding that are required to support both the training and response requirements.

So why not do your part to help mitigate future disasters by spreading the word: the man in charge of the Emergency Management educational program at ASU is Dr. Danny Peterson in the College of Public Programs, who will be happy to know you EH&S professionals out there are sending him agency contacts and company representatives who need his graduates and the skills they possess. In addition, there is a newly created Center of Excellence for Emergency Management and Homeland Security which has the overarching philosophy of finding solutions to the fundamental question, "*What keeps you up at night?*"

One of life's worst regrets is looking back and saying, "*I wish we would have done better.*" If we can avoid just one disaster in the coming months and save just one life by finding the resources to properly handle a natural disaster, the beneficiaries of your benevolence will be forever grateful...and, by the way, the most grateful and precious among those would be our children's, children's, children.



# NEWS BRIEFS

## US EPA FINES FISHER SAND AND GRAVEL \$150,000 FOR DUST VIOLATIONS

❖ The U.S. Department of Justice and the U.S. Environmental Protection Agency recently issued a civil penalty against Fisher Sand and Gravel of \$150,000 for failing to comply with dust mitigation regulations at three of its Maricopa County facilities. In addition, the company is required to take steps to minimize the generation of dust at its Phoenix plant.

"Our goal is to prevent airborne dust from harming public health," said Jared Blumenfeld, EPA's Regional Administrator for the Pacific Southwest. "We will continue to work closely with local air quality agencies to enforce the rules that protect communities from dust."

Fisher Sand and Gravel operates numerous sand and gravel facilities in Maricopa County. The violations occurred at their Buckeye, Sun City and Phoenix locations. The enforcement action stems from EPA and Maricopa County Air Quality Department inspections conducted in 2010 at these three facilities that identified 17 violations for failing to perform various measures required to reduce particulate matter emissions, such as:

- Failure to spray water during earthmoving operations
- Failure to remove particulate matter from vehicles leaving the site
- Failure to clean up dirt tracked more than 50 feet beyond the site
- Failure to submit and comply with dust control plans

In addition to the penalty, the company must install water spray bars to control fugitive dust emissions at its Phoenix facility at 3826 S. 28th Street, and submit detailed compliance reports. The action is the last stemming from a series of EPA inspections in 2010 at dust generating facilities in Maricopa County as part of the agency's initiative to help improve compliance with the area's air plan.

Particulate matter affects the respiratory system. Particle pollution is a complex mixture of extremely small particles and liquid droplets in the air. When breathed in, these particles can reach the deepest regions of the lungs, and are linked to a variety of significant health problems—ranging from aggravated asthma to premature death in people with heart and lung disease. The elderly, children and people with chronic lung disease, influenza, or asthma are especially sensitive to high levels of particulate matter.

The settlement, a consent decree, was lodged with the U.S. District Court for the District of Arizona and is subject to a 30-day public comment period and court approval. The consent decree may be viewed at: [www.justice.gov/enrd/Consent\\_Decrees.html](http://www.justice.gov/enrd/Consent_Decrees.html)

## FORMER UNIVERSITY OF ARIZONA DIRECTOR OF STATE RELATIONS BETH HAGER NAMED ADEQ PUBLIC AFFAIRS DIRECTOR

❖ Arizona Department of Environmental Quality officials announced recently that Beth Hager, former director of state relations for the University of Arizona for two years, has been selected as public affairs director for ADEQ.

"Beth brings tremendous experience and competence and a solid work ethic to this position. We are grateful to have her aboard," ADEQ Director Henry Darwin said. "As ADEQ continues its progress to become a leader in balanced, leading-edge environmental protection, we recognize the critical importance of having an exceptionally able public affairs director because of the importance we place on good relations with the State Legislature and our partners in state, county and local government."

Prior to her job at the University of Arizona, Hager was governmental relations analyst for the Arizona School Boards Association for five years. She previously served as chair of the Arizona Education Coalition.

Hager is a licensed attorney in Arizona and received her J.D. from Arizona State University College of Law. She attended Northern Arizona University in Flagstaff as an undergraduate and received her B.S. degree in economics and political science.

## STARDUST NON-PROFIT BUILDING SUPPLIES WINS US EPA ANNUAL AWARD

❖ The U.S. Environmental Protection Agency's Pacific Southwest Region recently announced that Stardust Non-Profit Building Supplies has won a 2013 environmental award for its creative re-use of building materials. Stardust Non-Profit Building Supplies supports local communities with inexpensive construction materials. The award was presented at one of the company's thrift stores in Phoenix, Ariz. The regional environmental awards

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acknowledge significant contributions made in the past year to protect the environment and support communities.

"Stardust's efforts have helped give Phoenix communities low-cost supplies needed to revitalize their neighborhoods," said Jared Blumenfeld, EPA's Regional Administrator for the Pacific Southwest. "Salvaging building supplies that would have been otherwise discarded is not only a win for the environment, but also a win for local businesses and their workers."

As part of its operations, Stardust removes usable building materials from homes and businesses at no cost to the owner and sells donated items from its thrift store locations in the Phoenix metropolitan area. By disassembling a building in such a way that building materials (cabinets, plumbing fixtures, flooring, electrical fixtures, doors, windows and more) can be reused, new construction needs can be met by simultaneously expanding job opportunities for local communities.

"It is an honor to be recognized by the EPA as a community leader in sustainability," says Karen Jayne, Stardust Executive Director. "Our mission is to inspire and encourage people to reuse, effectively depriving our local landfills of usable materials, and to receive this award is confirmation of our efforts."

As a result of Stardust's work, 650 tons of product are diverted from local area landfills each year, reducing urban blight and supporting citywide rebuilding efforts.

Stardust Non-Profit Building Supplies is one of eight environmental winners announced today by the U.S. EPA's Pacific Southwest office.

Each year, the Pacific Southwest office encourages citizens in California, Arizona, Nevada, Hawai'i and the Pacific Territories to nominate individuals, non-profits, businesses, local governments and other groups for environmental awards. This program offers a great opportunity to recognize individuals and groups outside of the EPA who are working to protect public health and the environment. Awards are granted to scientists, teachers, journalists, citizen activists, young people, organizations, business representatives, tribal leaders, public officials, and others committed to protecting public health and preserving our natural surroundings.

For more information about EPA's 2013 environmental award winners, visit: <http://www.epa.gov/region9/awards>.

#### HUACHUCA CITY JOINS ADEQ'S SMALL COMMUNITIES ENVIRONMENTAL COMPLIANCE ASSISTANCE PROGRAM

✦ Arizona Department of Environmental Quality officials announced recently that the Town of Huachuca City in Cochise County is the seventh municipality to participate voluntarily in ADEQ's statewide program to help communities comply with state and federal environmental regulations.

Small towns and special water and wastewater districts often lack



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the resources and staff to sustain compliance with state and federal environmental laws, so ADEQ began a voluntary program in 2007 to help small, mostly rural communities affordably protect their public health and air, land and water resources.

In addition to Huachuca City, the municipalities of Taylor, Holbrook, Show Low, Springerville, Eagar and Winslow are in the Small Communities Environmental Compliance Assistance Program along with Naco Sanitary District and Pinetop-Lakeside Sanitary District.

As part of the program, Huachuca City, which has nearly 2,000 residents, agrees to disclose known environmental violations within town limits, request compliance assistance before enforcement actions begin, participate in compliance evaluation to identify violations and to promptly correct known violations. In so doing, the town will be eligible for up to a 100 percent penalty reduction if it has future environmental violations.

"We are committed to helping small communities in the state comply with environmental laws and be good green stewards," said ADEQ Director Henry Darwin. "We are happy that Huachuca City is among the leaders in the effort to build sustainability and environmental cooperation and hope other small towns and wastewater and water districts will join the program."

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