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JOURNAL OF Environmental Management

Practical and Current information for Environmental, Health and Safety Professionals

ARIZONA

BLACK SWAN EVENTS

MENSA AND BLACK SWANS PART II
DR. NICK HILD, Pg 7

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ANNUAL
GATEKEEPER**

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**2011
GATEKEEPER
REGULATORY
ROUNDUP**

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COORDINATES
BORDER
TRASH
CLEANUP**

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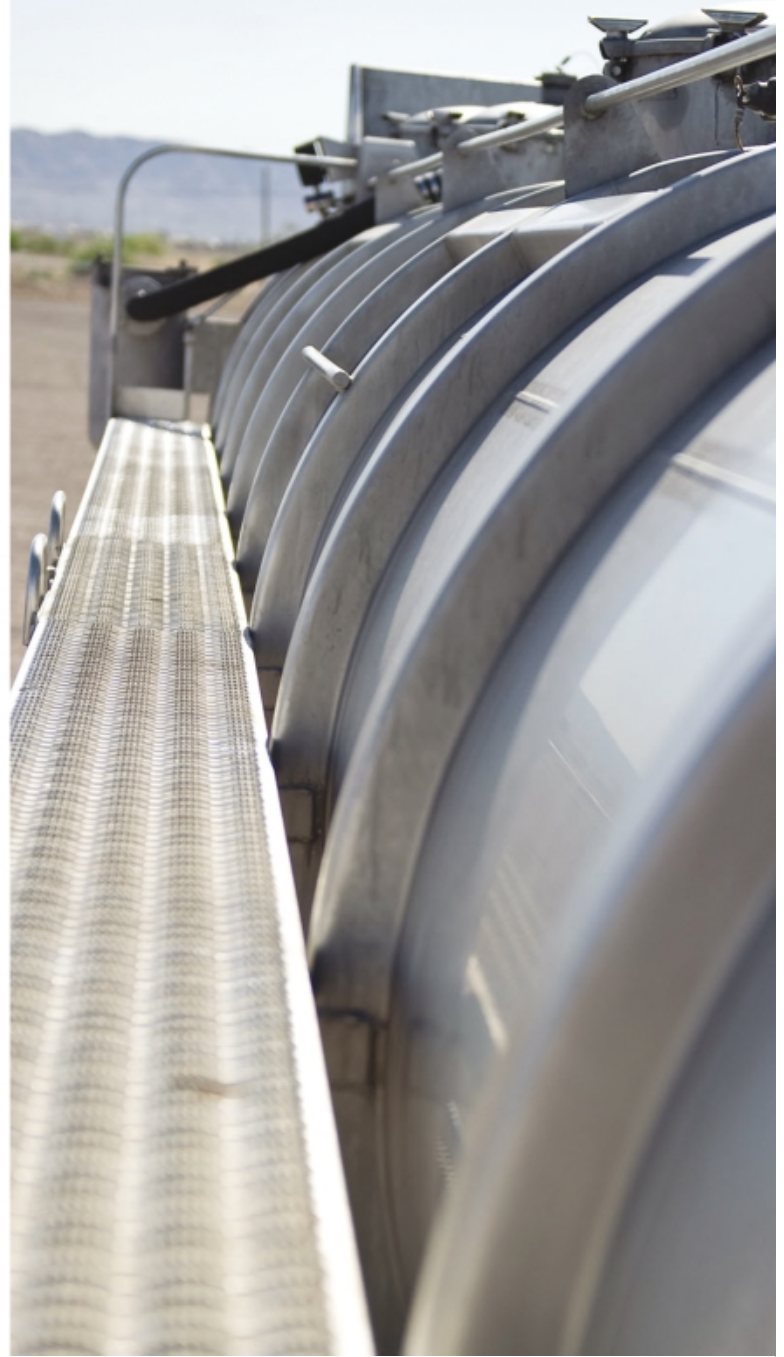
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Slip, Trip, Fall : Preventing “STF” Injuries and Deaths

“In July 1911, famed stuntman Bobby Leach went over Niagara Falls in a specially designed steel drum - and lived to tell about it. Fifteen years later, Leach slipped on an orange peel...and died from injuries sustained in the fall. Bobby evaluated the risks and came up with a safer way to go over the falls. He didn't plan too well for the orange peel.”



Don't Let Your Employees Fall Down on the Job!

Chuck Paulausky, CHMM

Here are some sobering numbers from the National Safety Council that point out the importance of reducing causes of workplace Slip, Trip, Falls (STF):

In 2008, STF's were one of the largest causes of fatalities at 685, and non-fatal, lost-workday injuries at 260,610!

Workers' Compensation records for 2007-2008 indicate that Slip/Falls are rated second for average cost for lost-workday claims at \$40,043!

Remember that the costs indicated above are only the workers' compensation claims themselves, and don't include the extended costs, such as replacement worker training, loss in worker efficiency, product or equipment damage, customer losses... These indirect costs could run several times more than the claims themselves!

There are many situations and conditions that can result in STF injuries and deaths. Here are some things to watch for and ideas for fixes that can reduce these injuries:

Improper housekeeping, including slip/trip hazards such as wet spots or highly-polished floors, grease/oil, clutter, electrical cords and hoses, open desk and filing cabinet drawers, etc.

- Maintain good housekeeping practices, such as immediately cleaning up spills, reducing clutter (“A place for everything, and everything in its place”). You might check out and implement a “Five S Program”, which will benefit these efforts and can improve the efficiency and profitability of your “Lean” manufacturing processes. The five S's are Sort, Set in Order, Shine, Standardize, and Sustain. Check out this EPA webpage for details: <http://www.epa.gov/lean/thinking/fives.htm>
- Provide non-slip surfaces in wet areas, proper use of extension cords, good office safety practices, etc. are easy to do and will go a long way towards keeping employees safe.

Improper footwear. Certain jobs and workplace conditions warrant certain types of footwear.

- Make sure they are designed for the types of hazards posed. Require and provide the right footwear for the job, and keep footwear clean when entering the building.



Inadequate lighting, especially when employees move from light to dark, or vice versa. Wearing sunglasses indoors can also be a contributor.

- Have a lighting evaluation done by a qualified person, and make necessary changes to the facility to mitigate this hazard.

Carrying large objects that block the view of the walkway.

- Provide training and material-handling equipment (carts, handtrucks, etc.) for safely transporting large items. And make sure walkways are kept clear and clutter-free.

Inattention- not being aware of your surroundings.

- Provide training for all employees to be more safety-aware, and to always look for and fix hazards and conditions that can result in injuries.

Failure to maintain walkways, including loose flooring or carpeting, uneven walking surfaces, etc.

- Perform regular safety inspections of the facility to identify and repair these hazards.

Improper use of ladders. This is a big one, since falls from any height, including ladders, will usually result in more

Continued on page 6

Preventing STF's

Continued From Pg 5

serious injuries or fatalities.

- Implement a Ladder Safety program. Make sure ladders are in good condition through regular inspections, and train the employees, so they know which ladders are right of the application and how to use them properly.



Stairways and floor/wall openings, shafts. For purposes of employee safety and OSHA compliance, the regulations define a floor hole as "a gap or void 2 inches or more in its least dimension in a floor, or roof, or other walking/working surface".

- Holes in the floor and walls can pose a risk of injury if they are not guarded or covered. Remember that roofs are "floors" as well, if you have employees working up there. Roof openings, skylights, parapets can pose a significant fall hazard.
- Make sure all stairs are equipped with required handrails.

Fall s from height. This includes work from ladders, scaffolding, roofs, windows and most any work done from a raised position (four feet for General Industry, six feet for Construction). If needed, develop and implement a Fall Protection program.

Also, keep these important issues in mind:

Unfamiliar places. If your work takes you to unfamiliar locations where you have no control over the conditions, be especially aware as you move around.

Visitor and public liability. If you have visitors, or if your business caters to the public, remember that you are liable for their safety, as well.

- Keep your facility free of these slip/trip hazards, so that visitors are not injured, including public areas, such as parking areas, sidewalks, steps/ramps and other walking areas. If you are open to the public, such as a retail locations or restaurants, this can be a significant liability; remember the "hot coffee" lawsuit at McDonalds!

All companies, no matter what they do, have some of these hazards that could result in injuries, lawsuits, and/or non-compliance and fines. Putting some effort into addressing these issues will help reduce the risk and keep your employees from falling down on the job, and taking your company down with them!

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 active with several professional and business organizations and is an AHMP Champion of Excellence Award winner. Since 1989, 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, www.cpsafety.net

JOURNAL of Environmental Management ARIZONA

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From the Editor



The Journal (as always!) is seeking articles on current environmental topics for upcoming issues. If you have recently completed an interesting project, or perhaps just completed your research for a seminar presentation, you may want to consider organizing your information into an article for the Journal — the best time to do it is now!

Subscribers — many of you reading this have been subscribing to the Journal for many years, some from our very first issue 9 years ago! However, to keep our records current, we need you to update your information at least every 1 or 2 years. If you have not updated recently, especially if you have moved, please go to the Journal website (www.ehshomepage.com) and use the "Request a Subscription" link to renew. This way you will be sure to continue to receive your free subscription. And please tell a co-worker or a friend about the Journal!

If you have not yet viewed any of the videos on EMTV, be sure to check it out at www.environmentalmanagement.tv.

Sincerely,
Jim Thrush, M.S. Environmental Management
Editor & Publisher

Journal of Environmental Management Arizona
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COVER PHOTO: Black Swan, courtesy of Wikimedia Commons. Photographer: Dick Daniels.



Sustainability and Sustainable Development

PART II: Nicholas R. Hild, PhD. Mensa and Black Swans

In Part I in the last Journal issue, several events were described which occurred in the past decade that no one predicted: the success of Google, 9/11 events, the crash of the housing market (derivatives) and the 2007 stock market 'crash' being just a few. And, then I used Nasim Taleb's book, *The Black Swan*, to illustrate what those events that no one predicted would happen are: Black Swan Events.

In Part II, the stage is set for how we here in the arid southwest might be headed for a major Black Swan event by illustrating where we have already seen Black Swan *environmental* events which, as predicted in Taleb's list of characteristics of all Black Swan events—these include, no one takes responsibility after such an event happens but there is always a concocted explanation that makes it appear less random and more predictable than it was—so the blame for not knowing what the possible outcomes were going to be, gets deflected away from the planners who didn't know what they didn't know, and no one is held accountable.

The Black Swan that will occur here in the southwestern desert will be all about our refusal to understand that population growth can not be sustained without properly planning for water supply for that growth—and that isn't happening.

To the west, Phoenix has already mapped out developments all the way to Tonopah in an effort to "plan" for increasing populations made up of retiring baby boomers and new age millennials that likely will send energy demand (and costs) into the ozone-laden atmosphere by 2050. But the Black Swan for these 'events' is: no one is really asking about how water supplies can be assured with planners making assumptions about the critical scarce resource being met by... requiring rain water-harvesting for all new developments, gray-water reuse in every home and business, meters that restrict gallons per day to every household, limited number of swimming pools per neighborhood; etc, etc....with no "what if" scenarios that answer the question:

"How do we plan for answering the question of what we don't know we don't know?" And, in this case, that variable is water supply...where will all that water come from to meet the projected demand—it will not be met by conservation strategies alone—and CAP water has already been allocated.

To further illustrate what poor planning can accomplish, here are a few west valley "events" that already can be shown to be environmental Black Swans:

A \$455 Million football stadium (actual cost was more) complete with a/c, heating, and a roll-out field of dreams that consumes hundreds of tons of fossil-fueled BTU's to maintain

and attracts thousands of carbon-spewing, fossil-fueled vehicles to each and every super-event held inside—A \$213 Million ice skating arena, which consumes tons of fossil-fueled kilowatts while soaking up water faster than you can spell zamboni—a new multi-million dollar freeway loop that promotes more development and easier access to half-million-square-foot-under-roof-energy-gulping malls like Steve Ellman's latest, which he recently pointed out proudly, saying... *"... We brought a billion dollars to a freaking cotton field."*

No equally proud-sounding declarations were forthcoming about how much 'green' was built into any of those great economic multiplier projects—but, you get the picture.

Not to focus on the west valley alone, then, way out in the east valley there's the Superstition Vistas state trust lands, stretching from east Apache Junction all the way to Florence and south into Pima County. In a Goldwater Institute study released in March 2006, three scenarios were proposed for *accommodating* the expected growth that will make up the land mass of 275 square miles of desert land by 2050. By August 2009, the public meetings that were held in the years following that 2006 report revealed that the developers and planners needed to downsize their plans to meet the economic realities—and, the public's concerns about the massive plan's environmental impact—

So, in two reports released in August of 2009 and two in June and July of 2010, the stated "visioning process" was (for the Superstition Vistas planners, thinkers, prognosticators) to make sure that *this land sets an example for sustainability... and "economic prosperity for the region."* A search throughout all these documents, however, yields only a few, short mom and apple pie allusions to dealing with the most critical issue of **water supply** (to this massive planned community):

"...constructing higher density housing with "green" buildings that are energy and water efficient...planning for water conservation...(designing and building) infrastructure for water and wastewater that serves the community..."

That's what we call sustainability mom and apple pie-speak. Chamber of Commerce-speak for brochures mailed to the Midwestern masses but not appropriate for addressing the critical issues of water supply in 275 square miles of desert lands.

A little further digging and there is this: In the July 2010 Lessons Learned report: Possible future sources include a local groundwater recharge facility (i.e. which *assumes* there is actually recoverable groundwater already there), near the Central Arizona Project (i.e. also assumes CAP water can be reallocated from current users, which it can not), groundwater imported from other parts of the state (i.e. assumes water farms are still allowed, which they are not by state law), harvesting rainwater, use of reclaimed water (which assumes there *is* water being delivered), —and my favorite of all, *sources not yet developed.*

The bottom line, and I quote: *"Superstition Vistas has a unique opportunity to use best practices and emerging technologies to effectively address water needs."*

Does anyone else see a Black Swan in the making here? There is a finite amount of water from the CAP, and it's all allocated already. There is serious doubt about how much groundwater is in the 275 square miles that planners want to populate with 3 million people, so, while it is laudable to build grandiose scenarios for ensuring sustainable growth in those areas where we know our population will likely migrate, it is unconscionable to give meaningless lip service to the most critical piece of the development plans: **Water**. Otherwise, the next century will find our Children's, children's, children looking back at this Black Swan event and asking why we didn't know what we didn't know...what we didn't know?

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.azhydrosoc.org

Join us as regional industry leaders, scientists and guests attend the 2011 Arizona Hydrological Society Symposium at the High Country Conference Center, September 18th through the 21st, 2011. The 24th AHS Annual Symposium organizers present to you this year's symposium "Watersheds Near and Far: Response to Changes in Climate and Landscape"

CALL FOR ABSTRACTS - Abstracts Deadline: April 29, 2011

Technical session topic possibilities include: Upper Basin Watershed - Colorado, San Juan, and Little Colorado Rivers; Verde Watershed; Groundwater Models Supporting Watersheds; Recent Advances in Watershed Science; Search for Planetary Water in our Solar System; U.S. Bureau of Reclamation Feasibility Studies; Climate Change and Watershed Management; The Schultz Fire and Impacts from Runoff Down the San Francisco Peaks; International and National Watersheds; Central Arizona Groundwater Replenishment District; Watersheds that Contribute to Tribal Water Resources; Watersheds Containing Uranium Resources - Colorado River Watershed and Uranium; Watersheds in Arid Lands - Competing Resources.

Abstracts should be 250 words or less and include title, authorship, and affiliations. Please include a brief biographical sketch of the primary author(s). Please visit <http://www.azhydrosoc.org/callforpapers.html> for additional information.

We are also accepting sponsorships and we are offering the opportunity to purchase your exhibit space at a discounted rate! Visit http://www.azhydrosoc.org/sponsor_exhibitor.html for details on sponsor and exhibitor information.



Christie O'Day
Executive Director



www.eia-az.org

The EIA will be revamping our website! This comes with great excitement and will provide a more "user friendly" tool for individuals to find information on the free asbestos seminars, dust seminars, educational dinner events, and association news. Please keep an eye out for our unveiling.

The upcoming free asbestos seminars are scheduled in Tucson May 13th and in Sedona June 17th. Please visit our web site at <http://www.eia-az.org> or call 602-437-3737 ext. 123 for information on all upcoming events sponsored by EIA-AZ and for membership and sponsor opportunities.

Vicky Aviles
Past President



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Every year Gatekeeper is one of the professional gatherings I enjoy the most, and this year's was no exception. A hearty kudos from the Thunderbird Chapter to all who worked hard to bring us GRR 2011! Keynote Speakers this year were fantastic - Mark Scharenbroich of Layne Christenson shared a participant's perspective on the inspirational Chilean Mine Rescue; John Bresland of the U.S. Chemical Safety Board spoke about the future of his team's fascinating chemical disaster forensics.

A strong panel of local and regional regulators, including Lou Trammel, Chair of The Arizona Department of Emergency Management, Bill Wiley of Maricopa County Air Quality, Mary Wesling of USEPA Region IX, and the ADEQ Division leaders spotlighted important regulatory issues and trends.

Among the 125 attendees were a number of excited scholarship winners and some incognito musicians who proved to be the Shammys - just in time for a raucous Happy Hour shot through with vulgar dance, inappropriate song, disturbance of the peace, medieval merriment and frequent dispatches of Bail Bondsmen. I don't know what you're doing on Jan. 31 of 2012, but I know where I'll be ... with camera!

Jeff Page
CHMM
Board Member



www.valleyforward.org

LIVABILITY SUMMIT FOCUSED ON GREEN ECONOMY, WHY IT MATTERS & HOW TO PROFIT

Nearly 300 business and community leaders attended Valley Forward's Livability Summit kicking off Earth Month with a half-day seminar focused on the risks and rewards of sustainable living. The program was designed to create a paradigm shift in how people live, work and play.

At a time when the global market faces challenges on multiple fronts, green business and technologies are emerging as investment opportunities and economic solutions. Whether it's manufacturing solar panels or inventing fuels of the future, attendees learned how American industry can be at the forefront of revitalizing the economy and our communities to transform the world.

Creator of the Urban Farm and local sustainability expert Greg Peterson showed participants how to reduce their carbon footprint, save money and live healthier. Jerome Ringo, senior executive for global strategies with Green Port and former president of the Apollo Alliance, advocated expanding minority participation in the green movement and promoting clean energy.

Now that it's over, we hope attendees are using the practical advice that was shared to implement sustainability practices in their everyday lives!

Diane Brossart
President



www.azchamber.com

The Arizona Chamber and Manufacturers Council will be holding the 2011 Manufacturer of the Year Summit and Awards Luncheon on Friday, May 20, 2011. This important annual event to recognize manufacturing excellent in Arizona will be held at the Sheraton Phoenix Downtown Hotel at 340 North 3rd Street in Phoenix. The keynote speaker will be Governor Jan Brewer. For more information, go the Arizona Chamber's web page at www.azchamber.com.

The Arizona Chamber and Manufacturers Council Environment Committee continues to hold monthly breakfast meetings focusing on timely topics associated with industrial environmental compliance. Meetings are held on the second Wednesday of each month beginning at 7:00 AM at the Phoenix Sheraton Hotel located at 1600 S. 52nd Street Tempe, AZ 85281. Meeting notices are generally sent out two weeks in advance and include the agenda, topics and speakers that will be participating.

Breakfast meeting information can also be found on the Arizona Chamber's web page at www.azchamber.com.

Contact Katie Whitchurch at kwhitchurch@azchamber.com, (602) 248-9172 x.126 to have your name added to the invitation list.

Jeff Homer
Chairman
Environment
Committee



www.SAEMS.org

The SAEMS Regulatory Roundup seminar on February 23 was a success, providing significant funds for the scholarship program. (See article with photos on pg 13). The participant evaluations showed high ratings for the speakers and their presentations, with the highest rating given for the wonderful lunch provided by the Manning House.

The annual RCRA Seminar, scheduled for May 12, also provides funds for the scholarship program. The scholarship committee has received more than 100 applications this year, far more than in any previous year.

SAEMS members and family participated in Adopt-A-Highway cleanups in February and April, and a clean up of a side channel of the Santa Cruz riverbed in March. The 2011 Tucson Earth Day Festival at Reid Park is scheduled for April 16. Half of the festival committee is SAEMS members.

The year is flying by, and ballots will be e-mailed soon for election of the 2011 - 2012 Executive Committee. We look forward to future luncheon speakers Jennifer Gale, Executive Director of Arizona Clean & Beautiful, and ADEQ Director Henry Darwin. Please visit our web site at <http://www.saems.org/>.

Ken Asch
President



American Society of Safety Engineers

We have a busy next few weeks. Thursday April 28th we have nationally renowned speaker John Klane coming in to speak on how to create the best training techniques and make sure they are working. Jonathan Klane, M.S.Ed., CIH, CHMM, CET is the owner and founder of **KEITHSM** and has over 23 years of comprehensive experience in training and consulting. For more information on the speaker please look at his website www.trainerman.com.

On April 29 & 30 Southern Arizona ASSE is hosting the Regional Operating Committee meeting at Biosphere II. We are also having the Southern Arizona Chapter's annual award banquet on the evening of the 29th. Please contact Gerry Coley if you would like to sign up for either event. You can reach him at GColey@scfaz.com or 520-292-4121. These are both great training opportunities right here in our community.

Alexis Westin
Secretary



www.AzBAS.net

New Board Elected for Arizona Businesses Advancing Sustainability

AzBAS is pleased to announce the recent elections of the following Executive Officers to the AzBAS Board: Richard Condit—*Sundt Corp* (Chair), Debra Park—*Henkel* (Vice Chair), Suzanne Fallender—*Intel* (Treasurer), and Debra Johnson—*Eco-Edge* (Secretary).

This year's Annual Meeting was hosted by Ping. Ping provided an insightful tour of their operations with a focus on sustainability throughout their manufacturing process. Key successes Ping highlighted included a 70% reduction in the use of hazardous materials within their manufacturing process and a 19% reduction on energy use.

AzBAS is also pleased to announce the appointment of Sheila Hamilton to serve as a part time Executive Director to the association. Richard Condit noted "Sheila's skills and strengths will help AzBAS advance our mission to provide a voice to sustainable business practices within Arizona."

Richard Condit
Chair



READ THE ASSOCIATION PAGES
to learn what's going on in Arizona's environmental management community!

If your organization is not yet included and you would like to participate, give us a call at:
480-422-4430 x42



www.EPAZ.org

At our March luncheon, Jamie Wilson from JBR/Applied Environmental Consultants gave a presentation on best available control technology for sources of greenhouse gas emissions. Jamie also brought her 3rd grade Odyssey of the Mind team to give their presentation and demonstration of an engineering project they were to give in regional competition—a competition in which they came in first place in the 3rd - 5th grade division. Those in attendance were impressed with their presentation skills as well as their engineering work.

In April, Edna Mendoza from the Arizona Department of Environmental Quality addressed our luncheon meeting regarding environmental cooperation along the Arizona - Mexico border.

EPAZ normally holds monthly luncheon meetings on the 2nd Thursday of the month from 11:30 am to 1:00 pm at the SRP PERA Club. For details and reservations, please go to our website at www.epaz.org. EPAZ also gathers on the last Wednesday of the month for a casual cocktail mixer at various locations throughout the valley. Visit our website to find the location of our next mixer or contact Mannie Carpenter at (480) 829-0457 for more information.

Mannie Carpenter
President



ESH for
High Technology

www.seshaonline.org

We are pleased to announce that the 33rd Annual SESH Symposium will be held May 16th - 20th 2011 in Scottsdale, AZ at the Hilton Scottsdale. This year the conference is a joint venture between SESH and SIA. The SESH Annual Symposium & Exhibition provides an opportunity for continuous professional growth through presentations and discussions with world class EH&S professionals. The symposium is a forum for openly discussing EH&S issues challenging today's high tech professionals. The



Arizona
Environmental
Strategic
Alliance

www.azalliance.org

The Alliance recently completed this year's "Member Annual Report Presentations". In compliance with Alliance by-laws, Members report on their environmental activities in four areas: Conservation and Pollution Prevention; Education and Mentoring; Organization Environmental Policies; and Other Topics & Potentially Adverse Environmental Matters. The reports are reviewed by the Advisory Council Review Committee.

In addition to fulfilling a review requirement, the presentations showcase member achievements and provide an excellent opportunity to share information and initiate lively discussion among members and guests. You can view the Powerpoints for these presentations on our website. Feel free to contact me or individual members if you have questions or comments about the reports.

Advisory Council news — the Alliance Board recently elected Arizona State Representative Amanda Reeves to the Alliance Advisory Council. Welcome to the Alliance, Rep. Reeves!

To contact the Alliance office call 480-422-7392.

Matt Conway
Chair



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Larry Olson, PhD.

It's All About Chemistry

Fracking — The Solution to our energy Problems?

The earthquake and tsunami in Japan, and the resultant disaster at the Fukushima Daiichi nuclear power plant coupled with the BP oil spill in the Gulf last year, have forced the whole world to take a new look at assumptions about how to meet our demands for energy. One thing is clear – there are no perfect options. All of the current sources we rely on, and most of the proposed new technologies, have significant risks.

In 2010 alone there were 29 people killed in the explosion at the Upper Big Branch coal mine in West Virginia and 11 killed in the BP oil spill in the Gulf. Thousands die each year in China alone from coal mining. Even highly touted “green” biofuels are linked to price spikes and food riots. Most of the nation’s wind power resources are located far from population centers and will require major new transmission systems.

One of the most heavily promoted options (think T. Boone Pickens) is natural gas. The advantages of this fuel are that it burns relatively cleanly, producing much less conventional air pollution than coal or petroleum and because it contains more energy per gram than other fossil fuels it produces fewer greenhouse gases. There is already an extensive distribution network of pipelines in place and, unlike coal, natural gas can be used as a transportation fuel as well as to produce electricity.

But the biggest factor in the renewed interest in natural gas is the development over the last five years of hydraulic fracturing, otherwise

known as fracking. This refers to a process of drilling to depths of as much as 8000 – 10,000 feet and then turning the well horizontally to penetrate into shale formations that contain carbonaceous materials in small, poorly connected pores. This type of shale has been known for some time, but because the pores were very small it was hard for gas to move and the yield of gas per volume of shale was not substantial. In hydraulic fracturing, perforations pierce the horizontal part of the pipe and a mixture of water, sand, and other fluids are pumped into the shale formation at pressures greater than the rock strength which causes fracturing of the formation. The fluid is then pumped back out, but the sand particles remain to keep the newly created fractures from closing. This allows natural gas to move much more readily out of the formation and be collected in the well.

Using this technique, estimates of recoverable natural gas reserves in the U.S. have increased dramatically. Some estimates range as high as 2500 trillion cubic feet which would be 100 years supply based on our current use of about 23 trillion cubic feet per year. The number of natural gas wells has doubled since 1990 and 90% of them use hydraulic fracturing. In Pennsylvania alone, part of the Marcellus Shale formation, the number of wells has increased from 27 in 2007 to 1386 in 2010.

That’s the positive side of the story. But there is another side. Remember all that fracking fluid pumped under pressure into the shale formation? Not all of it is recovered. Depending upon the well conditions, only 15-80% of it may be pumped out back to the surface and into holding ponds or wastewater treatment facilities. The rest remains in the ground and the fear is that it potentially can find its way into groundwater sources. Many argue that these wells are so deep that can’t happen, but questions persist. And the wells do penetrate aquifers, so that poor techniques or accidents in the drilling and high pressure fracking process have the potential for contamination. Although the exact composition of the fluids used in fracking do not have to be disclosed (thanks to a 2005 bill that exempted the process), some of the components include corrosive salts, naturally occurring radioactive materials such as radium and uranium picked up by the fluids, and carcinogenic compounds such as benzene. Even if there is not seepage into drinking water aquifers from below, there have been documented cases of spills, leaks and overflows of fluids stored at the surface that could very easily contaminate drinking water sources. Given the fact that more than a billion gallons of wastewater was created by Pennsylvania wells alone in the last three years, this is not an insignificant problem.

Besides water issues, there is the problem of natural gas seeping into drinking water sources. Not all of the gas freed by the fracking process is captured in the well. The increased fissures allow the gas to move more freely in all directions and as 60 Minutes showed in a November 2010 segment, some Pennsylvania homeowners can now ignite the drinking water coming out of their taps.

So what to make of this new technology? It certainly opens up new avenues of energy resources that are not subject to foreign controls and unstable regimes. But like nuclear power and coal, there is a steep price to pay and many uncertainties about how to make it safer. We can only make good decisions if we know the all the facts. That is the first step.

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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 env. mgmt. He can be reached at 480-727-1499, or by email at Larry.Olson@asu.edu



ADEQ Director Henry R. Darwin:

ADEQ Coordinates Border Trash Cleanup

When the State of Arizona launched its AZ Border Trash web page late last year, the Arizona Department of Environmental Quality found itself in uncharted territory.

Instead of its traditional mission of regulating the many questions surrounding disposal of waste, ADEQ found itself in the role of publicizing the problem of border trash, trying to raise money to solve it, and facilitating the coordination of cleanup events with organizers and volunteers.

It is, indeed, a daunting task.

Two years ago, volunteers from Cochise College were given the GPS coordinates of a location by Sierra Vista hikers high in the Huachuca Mountains about 20 miles north of the border. What they saw amazed

them. Thousands of backpacks, coats, shirts, pants, plastic bottles, toiletries and various other unsavory items had been dumped in an area no more than 50 yards by 50 yards by illegal human and drug smuggling organizations.

The trash was waist deep in many parts of the “layup” area, where “coyotes” and drug mules wait until the optimum time before dawn breaks to meet vehicles on roads in the valley below for transportation northward. At this cleanup event, nearly 150 huge yellow bags were filled with the trash and then moved 1,500 feet down the mountain, passed by hand from volunteer to volunteer.

This volume of trash proliferates in many areas along Arizona’s 370-mile border with Mexico — discarded over time by hundreds of thousands of illegal immigrants — and it is very dangerous work getting rid of it. The trash is often concentrated in the most remote, harshest terrain in the border region’s desert mountains. At times, stripped out jackets contain drugs rather than lining materials and weapons are tossed into the mounds of trash. Degraded plastic bottles ooze their contents into the soil.

Rattlesnakes are as much an ever-present danger as 100-plus degree days. Even worse are unwanted encounters with the foot soldiers of the drug organizations, carrying bales of marijuana on their backs. They often use the trails that pass through some of the worst areas of trash. It’s also getting to be a lot more expensive to landfill the trash. Tonnage fees at border county landfills have doubled during the past five years alone.

All of these factors clearly demonstrate the need to have coordinated border trash cleanups among concerned citizens, and environmental and other non-governmental organizations coupled with the protection that the U.S. Border Patrol can provide. Stakeholders in the cleanups also include the many and varied landholding interests in the border region — Bureau of Land Management, private landowners, counties, U.S. Forest Service, National Park Service, U.S. Defense Department and Native American tribes like Tohono O’odham and Cocopah.

ADEQ has assisted the Arizona Game & Fish Department with its successful collaboration with “Hunters Who Care” in the past to map out and conduct cleanups near the Buenos Aires National Wildlife Refuge and the community of Arivaca in prime deer, javelina and dove-hunting country.

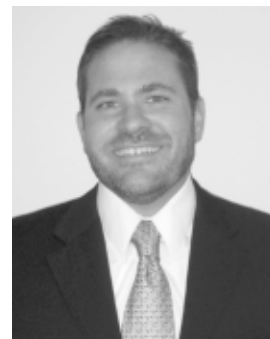
But back to the www.AzBorderTrash.gov website.

Before the BLM funded creation of this website, there was no consistent method for conducting cleanups or for collecting data. ADEQ and the State of Arizona have been working with partners to develop this central site where those who have participated in cleanups, or want to help in future events, can find assessment and cleanup resources and data on past events. This will provide for the most cost-effective, sustainable and efficient cleanups in the future.

Ultimately, we plan to post information on more than 200 past cleanups in the border region, which will be accessible by a database, referenced by red dots on an online map. There also are online forms to fill out for all those interested in participating in future cleanups. We want to hear from you and coordinate your efforts with other like-minded people and groups.

In January, the website had nearly 500,000 hits and media inquiries as diverse as *Phoenix New Times* to al-Jazeera. Needless to say, the world is watching.

Henry R. Darwin
Director, AZ Department
of Environmental Quality



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News Briefs

Fisher Sand & Gravel and Subsidiary to Pay \$312,000 for Air & Water Quality Violations

❖ ADEQ and the Arizona Attorney General's Office announced recently that Fisher Sand & Gravel (FSG) and its subsidiary, Southwest Asphalt, will pay a settlement totaling \$312,000 under a consent judgment with ADEQ for air quality and water quality violations that occurred in six counties.

The air quality violations occurred in the City of Phoenix in Maricopa County, community of Rio Rico in Santa Cruz County, Town of Florence in Pinal County, community of Dragoon in Cochise County and near the Town of Wickenburg in Yavapai County. The water quality violation occurred at Oak Creek in Sedona in Coconino County.

Of the \$312,000 being paid by FSG, \$187,000 will be for the development and implementation of an Environmental Management System (EMS) that is expected to help FSG avoid future violations. The EMS is a continual cycle of planning, implementing, reviewing and improving the actions that FSG undertakes to meet its business goals while protecting the environment.

In 2006, ADEQ inspections conducted in Maricopa County revealed that FSG had in several cases exceeded its hours of operation during a 10-week period. In one of those cases, FSG was permitted for 3.3 hours per day but operated up to 16 hours in some instances. Subsequent inspections conducted as recently as March 2010 uncovered other significant violations including operating without an air quality permit, failure to prevent excess dust emissions, and failure to conduct performance testing on applicable equipment.

FSG also was cited for operating equipment with stack heights significantly below the permitted limits. The permit required FSG to have a 14-foot stack on its internal combustion engines and a 22-foot stack on its asphalt equipment but at the time of inspection many of the stacks measured only between six and 12 feet high. Maintaining the proper stack height is crucial for the proper dispersion of air pollutants.

ADEQ's air quality division issued FSG 18 Notices of Violation and four Notices of Opportunity to Correct from Sept. 2006 through Mar. 2010. The majority of the violations occurred in Maricopa County, which the U.S. EPA has designated as a non-attainment area for PM-10.

In addition, FSG was issued two Notices of Violation in Mar. 2009 and one Notice of Violation in Mar. 2010 for unauthorized discharges of sediment to Oak Creek near Sedona and a sewage spill near U.S. Highway 89A near Oak Park. FSG also failed to control discharges from construction activities which resulted in a plume of sediment moving downstream. Sediment has adverse impacts on fish and aquatic habitats as well as spoiling aesthetic values.

"Fisher Sand & Gravel did not live up to its obligations to protect air quality near its operations and a national treasure like Oak Creek," ADEQ Director Henry Darwin said. "FSG must take its environmental obligations seriously and comply with the laws that protect the environment and public health. An Environmental Management System, as required by this settlement, is a good first step."

"The many serious violations that occurred, including in the Sedona area, prompted our office and ADEQ to take a significant enforcement action," Attorney General Tom Horne said. "Compliance with Arizona's environmental regulations is not optional and companies that fail to abide by the law must be held accountable." The consent judgment is subject to court approval.

Three Phoenix Area Firms Fined for Hazardous Waste Violations

❖ The US EPA announced recently that three Phoenix area companies were fined for violating state and federal hazardous waste laws. In separate actions, the manufacturing and processing companies will pay penalties that total \$131,000.

"We impose strict environmental controls to make sure hazardous waste is properly handled," said Jared Blumenfeld, EPA's Regional Administrator for the Pacific Southwest. "Worker safety and the health of nearby communities is our primary concern, but it's also

important to enforce against violators to prevent them from gaining an economic advantage over their competitors."

EPA and ADEQ inspectors found numerous hazardous waste violations during inspections in 2008 and 2009 at Acme Aerospace, AZZ Galvanizing Services, and Hexcel Corporation.

Tempe-based Acme Aerospace, currently under new management, designs and manufactures custom batteries and battery control electronic systems for military and commercial aircraft applications. Acme was fined \$31,000. AZZ Galvanizing Services, the nation's largest galvanizer, which "hot-dips" machinery to prevent corrosion at its Goodyear facility, was fined \$79,700. Casa Grande-based Hexcel Corporation develops and manufactures composites for use in commercial aerospace, wind energy and industrial applications. Hexcel Corporation was fined \$20,000.

During multiple inspections, EPA and ADEQ inspectors found the facilities violated hazardous waste laws in a variety of ways, including:

Failing to maintain the facility to minimize the possibility of a release of hazardous waste to air, soil, or surface water which could threaten human health or contaminate the environment

Failing to label containers of hazardous waste which increases the possibility of improper handling of the waste

Failing to properly characterize wastes, which led to hazardous waste being disposed of in the general trash

Failing to close containers of hazardous waste, which increases workers' exposure to hazardous constituents, contributes to air pollution, and increases the likelihood of spills

Failing to provide proper training, which increases workers' risk of exposure and increases the possibility of improper management of the wastes

Storing hazardous waste for over 90 days without a permit

MCAQD Holds Seminar for Metal Finishers

Julie Rogers
Rogers Consulting

The Maricopa County Air Quality Department held a seminar for Metal Finishers on March 23, 2011 to assist facilities regulated by 40CFR63 WWWWWW, a recently promulgated regulation controlling emissions from non-chrome electroplating, polishing and chemical coating operations known more commonly as "The Plating and Polishing Rule." The seminar provided valuable help to those new to the County regulatory process, as many of the facilities were not required to obtain Air Quality Permits prior to the passage of this regulation.

A joint endeavor by the National Association of Surface Finishers and Maricopa County Air Quality Dept., the event was hosted by MACT Standard specialist Jess Lotwala of MCAQD and Julie Rogers of NASF. After Jess Lotwala's introductions and opening remarks from MCAQD Director Bill Wiley, NASF's Julie Rogers kicked off the event.

Dr. Vasanti Deshpande spoke about permit engineering and conditions of permit that reflect the new Rule. MCAQD Inspector Steve Depenbrok discussed inspection procedures pertinent to the regulation, and Al Jensen of Tempe Fire Department gave a presentation on Safety and Health issues from the firefighter's perspective. Julie Rogers gave a talk on what industry has done because of the new Rule. New surfactants for fume control, equipment installations and other compliance methods were explored and discussed, as well as newer, safer fume suppressants now available to chrome platers.

For more information contact Jess Lotwala at MCAQD (Jlotwala@mail.maricopa.gov) or contact Julie Rogers at (rogersconsulting60@yahoo.com).



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2011 SAEMS 1st Annual Regulatory Roundup

Seminar for EH&S
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SAEMS hosted its 1st Annual Regulatory Roundup at the Manning House in Tucson, Arizona, February 23rd. Attendees heard a variety of presentations including: Behavioral Safety; Border Air & Water Issues; ADEQ NSR Rule Revision; New MSGP Now What?; Global Substances; APP General Permits; Water & Wastewater Sample Collection; Greenhouse Gas BACT; OSHA Voluntary Protection Program; Orphan Materials; MSGP 2010; and Spill Prevention, Control and Countermeasures. SAEMS has made all of the presentation Powerpoints available online at www.epaz.org.



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2011 Gatekeeper Regulatory Roundup

Held In Scottsdale, AZ

Approximately 200 Environmental, Health & Safety professionals attended the two-day Gatekeeper Regulatory Roundup 2011 held on February 16th & 17th

at the Chapparral Suites Resort in Scottsdale, Arizona.

Highlight attractions included Wednesday's keynote luncheon speaker John Bresland, of CSB, who provided an "Update from the U.S. Safety Board", and Thursday's keynote luncheon speaker, Mark Scharenbroich, of Layne Christensen, speaking on Layne's role in the Chilean Rescue of trapped miners. The GRR activity list included a range of presentations including, Emergency Management in a Disaster, by Louis Trammell, Director ADEM, Chair, AZSERC; Mary Wesling, US EPA Region 9, providing an update on EPCRA & Risk Management Plans; Michele Robertson, Montgomery & Assoc., on "Is Deep Injection A Disposal Option in Arizona?"; Paul Culberson, AZSERC, on Tier II Updates; Mike Ford, Polsinelli Shugart, presenting "Environmental Law 101"; and many others too numerous to include here.

Univar hosted a social & networking gathering outside the conference hall Wednesday evening, with live music by "The Shammys".

The Gatekeeper Regulatory Roundup is hosted annually by EPAZ, AHMP, and AZSERC. The conference committee members volunteers their time and many months of preparation to create this premier Arizona event (see photo, Conference Committee, opposite page). For information on these organizations visit www.epaz.org, www.thunderbirdchmm.org, and www.azserc.org.

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Above, Left: Chapparral luncheon room. Above, Right: GRR Committee Members.

Scholarship Awards Presented at GRR 2011

One of the Gatekeeper Regulatory Roundup highlights is the annual presentation of educational scholarships to Arizona students in environmental programs. Both EPAZ and AHMP presented scholarships to students this year. PHOTOS: EPAZ Scholarship Presenters and Winners, photo at right. AHMP Scholarship Presenter and Winners -- photo, below. For more information on these organizations visit www.epaz.org and www.thunderbirdchmm.org.





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