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CONTEST: WIN \$\$\$**  
See page 14

# U S T

## FINANCIAL RESPONSIBILITY

BY Denise McConaghy, PE, PG 6

**JAN**  
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# 11<sup>TH</sup> Annual Gatekeeper Regulatory Roundup

The Environmental Professionals of Arizona (EPAZ) and the Arizona Emergency Response Commission (AZSERC) are Co-Hosting the 11th Annual Gatekeeper Regulatory Roundup Conference. The Conference is a great opportunity to learn the latest EH&S, Remediation, and Emergency Management updates, share industry specific information, and network among your peers.

Come hear what's new from ADEQ's Director Henry Darwin and the Air, Water, & Waste Division Directors on the afternoon of February 3rd. After listening and learning all day, ask the experts how today's changing regulations and policies may impact you!

[www.epaz.org](http://www.epaz.org)

## FEBRUARY 3-4, 2015

## CALL FOR ABSTRACTS

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Early Bird Registration Rates Available Through December 21, 2014.  
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## KEYNOTE SPEAKERS

Feb. 3rd: Charles E. Ester, Manager, Water Resource Operations, Salt River Project.  
TOPIC: Update on AZ Drought Conditions and Impacts of the Monsoon Flooding in AZ.  
Feb. 4th: Jim Paxon, AZ Game & Fish and Spokesman for the AZ State Forestry Div.

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Topics proposed but are not limited to:  
Coal Combustion Residuals Regulations & Implementation Strategies; Wastewater treatment technologies; Proposed Effluent Limitation Guidelines; Revised Waters of the U.S. (WOUS) Definition Status, Implications, & Strategy; Description of Connectivity Matrix from Science Advisory Board for WOUS; Soil & Groundwater Contamination Characterization & Remediation Strategies; Sustainable Remediation; Probabilistic Risk Assessments & Deterministic Risk Assessments Role in Proposed Surface Water Quality Criteria; New Proposed Ozone NAAQS; GHG rules for electric utilities: new, existing, and modified/reconstructed facilities; New & Proposed Critical Habitat Designations; NEPA Process; Updates to AERMOD; SO2 Data Collection Requirements for New NAAQS; ADEQ DEUR: soil vapor concentrations, implementation of engineering controls on Superfund properties; Mine placement proposed rule; Proposed Updated surface water quality criteria; NPDES Permit Shield litigation and strategies; HazMat transportation/shipping for facilities; and MORE!!!

**LAST CALL! ABSTRACTS DEADLINE:  
Extended to: Tuesday, December 2<sup>nd</sup>**



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## FROM THE EDITOR



**W**hen you received this issue you should also have received a copy of the Journal's 2015 Calendar Planner.

I hope you will find it useful and attractive and perhaps have a convenient wall location for it -- please consider this a small gift to you from the Journal and our six Calendar Advertisers (MP Environmental, Test America, Turner Laboratories, Inc., Hazard Prevention Institute,

EPAZ, and CT Incorporated.) If you would like an unfolded copy, or need additional copies, contact one of these advertisers or visit the Journal website at [www.ehshomepage.com](http://www.ehshomepage.com). Copies are free while supplies last (although a charge for postage & handling may be required). See Calendar related articles on page 8 and page 14.

Congratulations to Nancy Turner on her retirement from Turner Laboratories, Inc., and best wishes in her new career at Turner Auto Sales! Also Congratulations to Richard and Lois Carter and our best wishes to both at their New Mexico ranch! (See related article, page 13). Our thanks to each of these three for their many contributions to Arizona's environmental community for many years!

Have a Merry Christmas & Happy New Years!

Sincerely,

Jim Thrush, M.S. Environmental Management  
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# JOURNAL OF Environmental Management ARIZONA

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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.



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WEDNESDAY

**JANUARY 21, 2015**  
**9 AM TO 3 PM**

(REGISTRATION BEGINS 8:30 AM)

## AGENDA

**MORNING:** Dr. Nick Hild, Introductions. Pinal County AQ Dept Presentations on Permitting (Kale Walch and Anu Jain); Compliance Inspections (Bob Farrell); Enforcement Procedures (Josh Dezeeuw); Particulate Matter State Implementation Plan Update (Mike Sundblom). Pinal County Q&A Session.

**LUNCH / NETWORKING:**

Lunch break & networking opportunity.

**AFTERNOON:**

Afternoon: Presentations by Industry Professionals  
**NEW:** One-on-One Help Sessions with Regulators. Meet privately with regulators for facility-specific permit compliance assistance. Limited availability - request a session when you register to reserve your spot.

*Check the Alliance website for agenda updates.  
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**WHO SHOULD ATTEND?** If your facility has an Air Quality permit in the Pinal County area or you are a consultant working with a regulated source in this area, this seminar is for YOU! Seminar speakers include professionals with industry experience applicable to your situation, and experienced regulators. See agenda (at bottom, left) or visit our website for more details, or call if you have questions about attending. All are welcome. **LUNCH and REFRESHMENTS** will be included.

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# UST FINANCIAL RESPONSIBILITY

## LET'S TALK FINANCIAL RESPONSIBILITY:

### *DO YOU KNOW YOUR UNDERGROUND STORAGE TANK FINANCIAL RESPONSIBILITY REQUIREMENTS?*

By Denise McConaghy, P.E.

#### **RULES & REGULATIONS**

The financial responsibility (FR) rules and regulations require UST owners/operators to demonstrate FR for the corrective action costs and the compensation of third parties arising from the releases of petroleum from underground storage tanks (USTs). The federal regulations are found in Part 280, Subpart H of Title 40 of the Code of Federal Regulations (40 CFR). The State of Arizona adopted the federal regulations into state law [Arizona Revised Statutes (A.R.S.) Title 49, Section 1006]. Those two paragraphs found in A.R.S. §49-1006 became the Arizona FR rules as we know them today. Originally adopted effective September 21, 1992, Sections R18-12-301 through R18-12-321 of the Arizona Administrative Code (A.A.C.) are what most of us in Arizona use and are familiar with when talking about FR requirements for underground storage tanks.

Having a means of financial responsibility not only puts the owner or operator in compliance with state and federal regulations, but it also provides their business with the protection it needs in the event a release occurs from their UST system.

As with most rules and regulations, there are exemptions from having to meet FR requirements. Federal and state governments and their affiliated agencies are not required to demonstrate financial responsibility if their debts and liabilities are the debts and liabilities of a state or the United States. However, local and county government entities must comply with financial responsibility requirements for any USTs they own/operate.

#### **COVERAGE, SCOPE, AND COSTS**

UST FR coverage is required for both sudden and non-sudden accidental releases. This includes releases that may occur from other components associated with the tank (e.g., piping, spill containment devices, dispensing equipment). It must cover on-site and off-site corrective action as well as on-site and off-site third-party compensation for bodily injury and property damage.

The required coverage amounts needed for FR depend on the owner/operator's type of business, the throughput amount (i.e., the amount of fuel dispensed through the tank /per month) and the total number of tanks owned by the owner/operator. It is important to note that the tank owner or the operator may provide FR coverage. However, both are responsible if either party does not

comply with FR requirements! If you recently purchased a new gas station and another party is operating that station for you, you should have an upfront conversation on which party will provide FR coverage before you begin operations and follow through with ensuring that it is addressed!

Two separate FR coverage amounts are required. They are the “per occurrence” and the “aggregate” coverage. All petroleum-marketing firms (e.g., gas stations) must have \$1 million available to clean up and pay for any third-party damages resulting from each release. This is the “per occurrence” amount. For non-petroleum marketing firms, the required “per occurrence” amount is based on an average monthly throughput. An average monthly throughput of 10,000 gallons or less requires coverage of \$500,000, while more than 10,000 gallons requires \$1 million of coverage.

The second amount, the annual “aggregate,” is a limit or cap on the dollar amount, which must be covered per year. The aggregate is based on the number of UST systems owned. The annual aggregate coverage required is \$1 million for owners of one to 100 USTs. Owners of more than 100 USTs are required to have \$2 million of aggregate coverage.

## MECHANISMS USED TO DEMONSTRATE COMPLIANCE

A large number of options are available to owners/operators to demonstrate that they comply with FR requirements. In Arizona, the financial assurance mechanisms allowed for all owners/operators are as follows: financial test of self-insurance, corporate guarantee, insurance coverage/risk retention group coverage, surety bond, letter of credit, certificate of deposit, or a trust fund. If an owner/operator uses a corporate guarantee, surety bond or letter of credit as an FR mechanism, the regulations require that a standby trust fund be established.

Local and county governments that are providing FR for their USTs have three additional mechanisms that are available for them to use. They are the local government financial test, the local government guarantee and the local government fund.

Owners/operators may use one mechanism or a combination of mechanisms to meet financial responsibility obligations.

## ARIZONA REQUIREMENTS

In general, owners/operators must submit documentation demonstrating FR compliance to ADEQ on an annual basis. No matter which mechanism is used, this documentation must include a schedule of covered tanks. In Arizona, the majority of UST owner/operators rely on commercial liability insurance for UST FR coverage.

If the owner/operator is using a commercial pollution liability insurance policy as their chosen FR mechanism, the Endorsement or Certificate of Insurance (whichever is applicable) must be worded as specified in 40 CFR §280.97. Note that ACORDS, Declarations and Binders are NOT acceptable proof of FR compliance documentation! In general, these documents lack tank schedules and signatures. Most importantly, they lack the required CFR language. If you have a new policy, it is helpful to ADEQ if you submit a copy of it to the Department along with your new Certificate of Insurance/Endorsement and tank schedule.

Arizona adopted the majority of the federal FR rules by reference. However, Arizona added an additional FR mechanism to the mix – the Certificate of Deposit. The certification and agreement of the Certificate of Deposit must be worded as specified in Appendix

A of A.A.C. Title 18, Chapter 12. The pertinent documents for all other mechanisms must be worded as specified in the applicable sections of 40 CFR Part 280, Subpart H.

## ARIZONA’S NEWEST LEGISLATION

The 51st Arizona Legislature passed two new legislative bills that could have an effect on UST FR coverage. Governor Jan Brewer signed these bills in April 2014 and they became effective in July 2014.

The first bill, House Bill 2708, prohibits delivery of fuel to USTs that cannot demonstrate FR obligations. The bill also includes the proposed new framework for the UST program, including the development of standard Arizona-specific UST insurance. Senate Bill 1314 allows owners or operators to forego a contemplated baseline site assessment and the standard Arizona specific policy legislated by HB 2708 if they can demonstrate that they meet federal and state FR requirements.

ADEQ is currently conducting stakeholder meetings to gain input on program elements and discuss the concept of having a standard UST insurance policy in Arizona. The goal of the meetings is to develop a consensus bill to deliver to the legislature to consider during the next legislative session that convenes in January 2015. Information on the stakeholder meetings is located at <http://www.azdeq.gov/enviro/waste/ust/lust/index.html#sm>.

## WHY IS COVERAGE IMPORTANT? CONCLUSIONS

In September 2013, the Arizona Auditor General’s Office (AGO) issued a Performance Audit Report on the state of ADEQ UST FR. Included

*Continued on next page*



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# UST: FINANCIAL RESPONSIBILITY:

CONTINUED FROM PAGE 7

in the AGO's findings was the fact that approximately 35% of USTs may lack FR at any one time and that lack of FR may put state monies at risk, especially with Arizona's rapidly aging tank universe. The report further stated that 13% of Arizona's USTs are greater than 30 years of age and 43% are between 20 and 29 years old, a sobering statistic. ADEQ is taking action in response to the findings from the audit. At the first follow-up audit in March 2014, ADEQ had implemented five of 13 audit recommendations and is currently working to implement the remaining eight by the final audit follow-up, March 2015.

ADEQ must take steps to ensure that adequate FR is available to achieve prompt cleanup of releases and provide third-party compensation to reduce risk to human health and the environment posed by leaking USTs. It is ADEQ's mission to ensure this risk is reduced as much as possible. Are you up to collaborating in this task?

For additional information or questions about UST FR, please visit ADEQ's UST FR webpage at <http://www.azdeq.gov/environ/waste/ust/fr.html>.

Denise McConaghy, P.E., is the WPD Financial Responsibility Program Manager at the Arizona Department of Environmental Quality. Denise can be reached at 602-771-4110 or [d1m@azdeq.gov](mailto:d1m@azdeq.gov).

*This article is newly revised from the original, which was published in APMA's magazine, the "Fuel Monitor" in Spring 2014. With permission by APMA.*

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Phil McNeely, Director, Maricopa County Air Quality Department  
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**JANUARY 8, 2015**  
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### LUNCHEON FEATURING: MARK HOWARD

Mark Howard, Executive Director, AZ Emergency Response Commission.  
Topic: Tier II Reporting Updates.  
Location: Pera Club, 1 E. Continental Drive, Tempe, AZ 85281

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Larry Olson, PhD.

## IT'S ALL ABOUT CHEMISTRY

# PAPER OR PLASTIC (OR NEITHER)?

On Sept 30, 2014 Governor Jerry Brown of California signed the first state law in the nation prohibiting stores from handing out single use plastic bags for free. It is set to go into effect in grocery stores and pharmacies on July 1, 2015. Customers will have to pay at least \$0.10 for recycled paper bags or bags made of compostable materials if they don't bring their own.

There have been local ordinances prohibiting plastic bags since 2007 in cities like San Francisco, Los Angeles, and Chicago but this is the first statewide law. The move is supported by the California Grocers Association, whose members spend millions of dollars per year on plastic bags and by environmental groups like the Sierra Club and the National Resources Defense Council.

Proponents of the law claim a number of benefits will result. The NRDC reports that California spends more than \$428 million a year to keep litter out of the state's waterways, and that plastic bags comprise 1/4 of that litter. According to an article by C.J. Moore in Environmental Research ([http://www.caseinlet.org/uploads/Moore--\\_Env\\_Res\\_Plastic\\_Oceans\\_2008\\_1\\_.pdf](http://www.caseinlet.org/uploads/Moore--_Env_Res_Plastic_Oceans_2008_1_.pdf)), plastics are the fastest growing segment of the U.S. municipal waste stream and comprise 60-80% of marine litter. Cigarette butts are the most common form of ocean refuse; plastic bags are second. In addition to being an eyesore and creating a negative economic impact on tourism, such litter clogs storm drains, threatens commercial fishing, and can be deadly to wildlife. For example, plastic bags balloon in water resembling jelly fish, and are consumed by sea turtles. Cattle and sheep have been widely reported to have choked on them. Since half the world's population lives within 50 miles of the ocean, it isn't surprising that the oceans become the ultimate dumping ground. 10% of the plastic produced each year ends up in the ocean.

Plastics have also been implicated as a vehicle for transporting pollutants, inhibiting gas exchange which could interfere with CO2 sequestration and strangle marine organisms, and fouling the sea floor which can interfere with organisms living in the sediments. It is uncertain how long it takes plastic bags to degrade in the environment because there are so many variables, but estimates range up to centuries. Plastic that sinks to the sea floor will probably never degrade.

In response to the California law the plastic bag industry is funding an effort to place a referendum on the November 2016 ballot to overturn the ban. They claim the bill was a backroom deal with the grocery industry to save them money, hurts the poor, negatively impacts the economy, and won't really help the environment. An industry website, BagTheBan.com, claims that manufacture of plastic bags uses 70% less

energy and only 4% of the water required to make paper bags, and that they are 100% recyclable. They also claim it takes 7 times more energy to transport paper bags than plastic ones, contributing to increased greenhouse gas emissions. While one would think that cotton reusable bags would be an obvious improvement from an environmental standpoint, the industry claims that one would have to use a bag 131 times to outweigh the additional energy and transportation costs used in manufacturing it.

Already efforts such as these are having an effect. On October 21 the Fort Collins, Colorado City Council repealed an ordinance that was to have taken effect on April 1, 2015 which would have imposed a \$0.05 fee for each disposable paper or plastic bag provided by a retailer in the city.

With an estimated 500 billion to 1 trillion disposable plastic bags used around the world each year this issue has grown exponentially since their introduction into supermarkets in 1977. Their use varies widely. The U.S. uses 100 billion bags annually and the average family takes home 1500 per year. By contrast, Denmark passed a bag tax in 1993 and now their average use is only 4 bags per year. Ireland charges 22 euro cents per bag and annual bag use is less than 21 per person. Surprisingly, the strictest laws against plastic bags might be found in Rwanda, which passed a ban in 2008. Plastic bags caught in trees and bushes are so common in parts of Africa they are called the national flower.

So if not paper or plastic, what is the answer? Maybe the most important step is to move away from the use and toss culture that pervades so much of our lives.

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).

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# 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.



The Arizona Chamber of Commerce and Industry and the Arizona Manufacturer's Council will hold its 2014 Legislative Forecast Luncheon on Friday, January 9, 2015 at the Phoenix Convention Center. This annual event features legislative leaders presenting their plans and agendas for the up-coming legislative session. More information is available at [www.azchamber.com/events](http://www.azchamber.com/events).

The next Environment Committee Breakfast Meeting will be held on Wednesday December 10, 2014 at the Sheraton Phoenix Airport Hotel. The speaker will be Phil McNeely who was recently appointed as director of the Maricopa County Air Quality Department. He will provide an overview and update for activities, priorities and future plans for MCAQD. For more information contact Jeff Homer at [jeff.homer@gdcd4s.com](mailto:jeff.homer@gdcd4s.com)/480-441-6672 or go to [www.azchamber.com/events](http://www.azchamber.com/events).

Jeff Homer  
Chairman  
Environment  
Committee



WWW.AWMA-GCS.COM

The Air and Waste Management Association-Grand Canyon Section had our last lunch meeting at the AMEC Environment & Infrastructure on Tuesday, November 4. Kara Montalvo, Director of Environmental Compliance and Permitting for the Salt River Project (SRP) was our speaker, and the topic was the EPA's Proposed Greenhouse Gas Regulations for Existing Power Plants, aka "Clean Power Plan". Thank you AMEC for hosting us, and a big thanks to Kara for her presentation!

We concluded our 2014-2015 scholarship program on September 1, and are happy to announce our winner, Denise Napolitano, a graduate student at ASU! Denise also made a brief presentation on her paper at the last meeting.

Our next scheduled meeting will be a joint holiday mixer with the Arizona Association of Environmental Professionals and the Environmental Professionals of Arizona on December 9. Meeting information will be posted when it becomes available. Please join us! For more information about A W M A - G C S , please visit our website at <http://awma-gcs.com>.

Mike Sonenberg  
Chair



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## MENTORING ENVIRONMENTAL STEWARDS



Arizona Forward rang in a decade of celebrating the herculean efforts of Arizona teachers and their remarkable commitment to educating the next generation of environmental stewards. In fact, more teachers throughout the state turned out for Arizona Forward's 10th Annual EarthFest Educators Night at the Desert Botanical Garden than in the history of the program.

Nearly 50 displays representing public and private sector environmental education programs, along with exhibits from the non-profit and educational communities were featured. Teachers left with a myriad of resources, showcasing environmentally-oriented curriculum, activities and programs on Arizona's unique desert character. This dynamic, free event combines entertainment and education for K-12 educators throughout the state and provides complimentary curriculum that meets state standards for education, activities and funding for teachers.

It's not too late to take advantage of the giveaways! Teachers can still apply for a complimentary degree from University of Phoenix, Arizona Forward's official education partner for the event. The scholarship will grant three recipients the opportunity to complete either an undergraduate or master's degree program at University of Phoenix. The scholarship application deadline is December 9, 2014 and recipients will be selected by January 19, 2015. Additional resources can be found online at [arizonafoward.org](http://arizonafoward.org).

For more information visit the website or call (602) 240-2408.

Diane Brossart  
President



[HTTP://SOUTHAZ.ASSE.ORG](http://southaz.asse.org)

The Southern Arizona Chapter of the American Society of Safety Engineers (ASSE) is busy with fall and spring meetings. The November (18th) & February (17th) meetings are the quarterly joint SASC meeting on the 18th. The December meeting

(16th) is our annual collection of Toys for the kids at Ronald McDonald House. And in trying new things to attract member involvement, the January meeting (20th) is a breakfast meeting. Guest speakers are still being lined up. Plans are also in the works this year to include the Chapter's Student Section research projects as part of the regular meeting presentations. The regular breakfast and lunch meetings are being held at the Hungry Fox Restaurant in Tucson. The SASC meetings are held at Granite Construction on E. Illinois Street. For more information or if you are in need of OSHA classes, check out our web site's scheduled events - <http://southaz.asse.org/events/>.



John Roads  
Secretary



WWW.EPAZ.ORG

Our Call for Abstracts deadline has been extended to December 2, 2014 for the 11th Annual Gatekeeper Regulatory Roundup. And Early-Bird Pricing for attendees and exhibitors is being offered until December 21, 2014.

EPAZ Scholarship applications are being accepted until December 31, 2014 and will be awarded at the 2015 conference. Please spread the word to anyone you know that is studying towards a degree within the environmental field in AZ.

### Upcoming Events:

**December 9, 2014** EPAZ is joining AZAEP and the Grand Canyon Chapter of the A&WMA to co-host the 3rd Annual Joint Holiday Mixer at Terroir Wine Pub located at 7001 N. Scottsdale Road, #157, Scottsdale, AZ 85253. Please join us from 6 - 8 PM. No host bar, appetizers provided and attendees are asked to bring a non-perishable food item for St. Mary's Food Bank. A raffle ticket will be given for each item donated to the food drive.

**December 11, 2014** luncheon will feature a presentation by Maricopa County's new Air Quality Director, Phil McNeely.

**January 8, 2015** luncheon will feature Mark Howard Executive Director, AZSERC and he will bring us up-to-date with any changes to Tier II reporting.

EPAZ hosts monthly luncheon meetings on the second Thursday of the month from 11:30 AM to 1:00 PM at the SRP PERA Club. For the most up to date information, event details and reservations please visit our website at [www.epaz.org](http://www.epaz.org).

Lisa Culbert  
Association  
Manager



WWW.SAEMS.ORG

The October luncheon was held at Hotel Tucson and included Molly Reed, a teacher at Borton Magnet School who presented their SAEMS migrant-funded campus landscape and water harvesting project.

*Continued on next page*

## MCAQD ANNOUNCES NEW DEPARTMENT DIRECTOR:

### PHILIP A. MCNEELY

On Sept. 15, Maricopa County Air Quality Department (MCAQD) announced that Philip A. McNeely will be the new Department Director, filling the vacancy created when William Wiley was reassigned to the Maricopa County Flood Control District in June.

McNeely brings 22 years of experience in environmental practice to the (MCAQD). Since 2008, the former Columbus, Georgia native worked at the City of Phoenix as Manager of the Office of Environmental Programs. In this role he managed the city's air quality programs, the storm water program, brownfields land recycling program, city, soil and groundwater remediation projects and pollution prevention.

## ASSOCIATION PAGES

CONTINUED FROM PREVIOUS PAGE

Our speaker was Denise Moreno Ramírez, M.S., Program Coordinator, Community Engagement Core - Superfund Research Program at The University of Arizona. Ms. Ramírez presented community-engaged research within the environmental science field.

Our September speaker was Viki Karanikola who presented on her experience with the U of A chapter Engineers Without Borders' Bolivia sanitation project.

The SAEMS Adopt-a-Highway volunteers picked up 21 bags of trash along I-10 on September 13 and the last highway cleanup of 2014 occurred on November 8.

The next SAEMS luncheon will be at Hotel Tucson on December 10th.

If you are interested in joining SAEMS or attending an upcoming event please visit our website at [saems.org](http://saems.org) You may also find us at [facebook.com/saems.org](https://www.facebook.com/saems.org)



Patrick Harrington  
President



[WWW.AZALLIANCE.ORG](http://WWW.AZALLIANCE.ORG)

The Alliance and the Pinal County Air Quality Department will Co-Host an Air Quality Permit Compliance Assistance 1-Day Seminar in Casa Grande on January 21st, 2015. See our advertisement on page 5 for details.

Alliance members visited SUMCO on September 23rd for an Alliance Environmental Technical Tour. The SUMCO Phoenix Corporation manufactures electronic-grade silicon wafers for the semiconductor industry. We extend our appreciation to our hosts and tour guides: David Grisa, Rob Koehler, Jeff Bradshaw, and Shayne Anderson.

Elections were held November 11th for the 2015 Officers of the Board, and Advisory Council Co-Chair positions. Congratulations to our 2015 officers: Greg Bopp, Honeywell Aerospace: Chair; Sean Aldrich, Sr. Environmental Engineer, Intel: Vice Chair; Matt Conway, Director of EHS, PING: Treasurer; Jim Thrush, JEMA: President. Also congratulations to the Advisory Council Co-Chairs, Beverly Westgaard and Kim Furphy.

If you have questions about the Alliance or are interested in any of our events, visit our website or call our office at 480-422-7392.



Neal Brown  
Chair

During his tenure with the City of Phoenix, McNeely advanced environmental protection and sustainability by promoting and developing sound policies and practices through leadership, education and technical and regulatory assistance.

"I am thrilled to have Philip join our Maricopa County team and bring his many years of experience and knowledge to the air quality department," Maricopa County manager Tom Manos said. "Bill Wiley set the bar high in providing outstanding service to our community. I have every confidence that Philip will continue with that exceptional customer service and, under his leadership, Maricopa County Air Quality will continue to be one of the best run air quality agencies in the country."

McNeely worked at the Arizona Department of Environmental Quality from 1998-2008, and held a position of Division Director. There he oversaw the technical, regulatory and budgetary aspects of the division and was responsible for the division's \$30-million budget and 90 employees.

"I am excited to continue the positive, forward-looking momentum of the air quality department," McNeely said. "The mission of the Air Quality Department is to provide clean air to Maricopa County residents and visitors so they can live, work and play in a healthy environment. Protecting the public's health through increased citizen engagement remains our top priority."

Mr. McNeely, who officially took the reins at MCAQD Monday, Oct. 13, 2014, holds a Bachelor of Science degree and a Master of Science degree in Geology from the University of Florida. Following his studies he joined the Navy and was a pilot for seven years. He moved to Phoenix in 1995. (Text for this article and photo provided courtesy of MCAQD)



Philip A. McNeely  
Director, MCAQD

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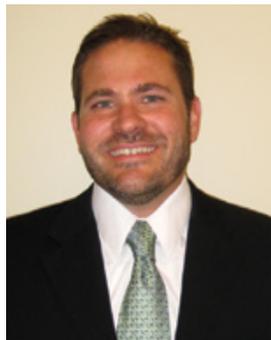
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# NEWS BRIEFS

## ADEQ DIRECTOR HENRY DARWIN ELECTED OFFICER OF ENVIRONMENTAL COUNCIL OF THE STATES

❖ Arizona Department of Environmental Quality Director Henry Darwin was elected by his peers to be secretary-treasurer of the Environmental Council of the States (ECOS) for the coming year at the organization's fall meeting in Santa Fe, N.M., this week.



**Henry Darwin**  
*ADEQ Director*

ECOS is the national non-profit, non-partisan association of state and territorial environmental agency leaders. The purpose of ECOS is to improve the capability of state environmental agencies and their leaders to protect and improve human health and the environment of the United States. Darwin said one of the key projects he will be involved in is advancing the E-Enterprise for the Environment initiative, a joint project between the states and the U.S. Environmental Protection Agency to streamline and modernize the business of environmental protection throughout the country. ADEQ has been a national leader in these efforts by improving productivity and efficiency for the regulated community and the general public.

"Being an officer in ECOS provides a unique opportunity to influence environmental policy in the U.S. by allowing direct access to leadership at EPA, which is great news for Arizona," Darwin said.

Robert J. Martineau, Jr., commissioner of the Tennessee Department of Environment and Conservation, was elected president of ECOS and Martha Rudolph, director of environmental programs with the Colorado Department of Public Health and Environment, was elected vice president.

The other board member is ECOS past President Dick Pedersen, director of the Oregon Department of Environmental Quality.

Darwin has been director of ADEQ since 2011 after serving as deputy director, acting director of the Water Quality Division, and Administrative Counsel for the agency. He has worked in each of agency's divisions – air quality, water quality and waste programs – during his 17-year career at ADEQ.

## EPA AWARDS \$785,000 TO NAVAJO NATION FOR LEAKING UNDERGROUND STORAGE TANK CLEANUP, COMPLIANCE

❖ The U.S. Environmental Protection Agency announced recently it has awarded \$465,000 to the Navajo Nation to oversee the cleanup of an estimated 58 leaking underground storage tanks that store petroleum or hazardous substances throughout the reservation. The agency is also providing \$320,000 for compliance activities reservation-wide.

Over the next 5 years, the EPA anticipates awarding \$3.8 million to the Navajo Nation for this important work. This is the first time the agency has committed to funding these programs upfront for a multi-year period.

"Since the program's start in 2000, EPA has helped fund the cleanup of 86 abandoned sites contaminated by petroleum products, mostly gas stations," said Jared Blumenfeld, EPA's Regional Administrator for the Pacific Southwest. "Our goals are to reduce the number of leaking tanks, and hold tank owners accountable for any pollution they do cause."

The cleanup funds will allow the Navajo Nation EPA to oversee the assessment and cleanup at 58 leaking underground storage tank sites in Tuba City, Shiprock, Lupton, Chinle, and several old abandoned trading posts across the Navajo Nation. Underground storage tank owners and operators are responsible for their tanks and need to maintain them in good condition, but in the event of leaks, must pay for their cleanup.

The compliance activities funds will be used to conduct tank inspections at approximately 100 Navajo facilities to ensure compliance with federal and tribal standards. These funds will also be used to provide training to operators to ensure there are no leaks from their tanks, and for staff to recognize and respond to release incidents.

Through the work of the underground storage tank program, the EPA and the Navajo Nation EPA have brought the compliance rate of underground tank operations to close to the national rate of 68 percent. EPA funding has also resulted in Navajo-specific regulations and petroleum cleanup standards which incorporate the Navajo philosophy of sacredness of the earth and all its resources. The Navajo Nation Underground Storage Tank Act was passed by the Navajo Nation Council on October 29, 1998. The Act requires the removal of all underground storage tanks that do not comply with the standards.

In 1986, Congress created the Leaking Underground Storage

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Tank Trust Fund to address petroleum releases from federally regulated underground storage tanks. In 2005, the Energy Policy Act expanded eligible uses of the Trust Fund to include certain leak prevention activities. The Trust Fund provides money to: oversee cleanups; enforce cleanups by recalcitrant parties; pay for cleanups at sites where the owner or operator is unknown, or unable to respond, or which require emergency action; and conduct inspections and other release prevention activities. Left unattended, releases from underground tanks can contaminate soil, groundwater, surface water, and indoor air.

**EPA ANNOUNCES \$25 MILLION TO IMPROVE WATER QUALITY, INFRASTRUCTURE IN ARIZONA**

❖ The U.S. Environmental Protection Agency announced recently \$25 million in funding to invest in Arizona for statewide improvements in local water infrastructure and the reduction of water pollution.

“In an arid environment, water is the most precious natural resource and we are working with our state and city partners to protect it,” said Jared Blumenfeld, EPA’s Regional Administrator for the Pacific Southwest. “This funding will help create construction jobs, develop infrastructure and conserve water and energy as Arizona adapts to climate change.”

The funds are directed to the Water Infrastructure Finance Authority of Arizona, which will use them to provide low-cost loans for safe drinking water projects and wastewater infrastructure improvements. WIFA’s Clean Water State Revolving Fund provides financing for municipal wastewater treatment projects, and its Drinking Water Revolving Fund provides financial assistance for drinking water infrastructure systems.

WIFA anticipates allocating a portion of this year’s funds for projects like the planned upgrade to

*Continued on page 14*




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*L to R: Richard Carter, Nancy Turner, Lois Carter  
Photo courtesy of Mark Grushka*

## JOINT ANNOUNCEMENTS

### NANCY TURNER

On September 25th, Turner Laboratories, Inc. (Mike McGovern, President) hosted a wonderful retirement party for Nancy Turner (see photo). There was plenty of food and festivities that were enriched with music and laughter. This event provided an opportunity for many friends to get together and celebrate Nancy’s long and distinguished career. Nancy is a SAEMS Founding Member, the driving force behind the Arizona Lab Certification Program and has been an active contributor in many other areas. She has been a member of Sertoma (Service to Mankind) since 1989, which helps those with hearing disabilities and it supports Arizona Schools for the Deaf and Blind. Nancy is keeping busy, she told us, “I am enjoying my time at Turner Auto Sales – learning the car business. Quite different from the laboratory!” Nancy can be reached at 520-624-7234 or by email at [nturner@turnerautoaz.com](mailto:nturner@turnerautoaz.com).

### RICHARD AND LOIS CARTER

Richard and Lois Carter (also in the photo), announced that they will be closing Carter Affiliates, Inc. (CARE) at year’s end; completing 24 years in business. While not retiring, they are selling their Tucson home in the spring, while moving to their ranch in the New Mexico highlands. With 9000 watts of solar power and two commercial greenhouses, they will be growing fruits and vegetables year-round. At first, most crops will be sold to local farmer’s markets and eventually, surpluses will be given to regional food banks. They will employ permaculture, organic gardening and sustainable methods practiced over many years. Contact Richard or Lois at 520-323-1100 or by email at [richard@cartercare.com](mailto:richard@cartercare.com).

## NEWS BRIEFS

CONTINUED FROM PREVIOUS PAGE

Show Low's wastewater treatment ponds that will replace the current ponds with an advanced aeration and sludge treatment facility designed to meet federal and state standards. In the town of Monte Vista, the state hopes to fund a drinking water system upgrade that would reduce the level of naturally-occurring arsenic to meet the new standards for water supplies.

Recent projects using revolving fund loans include Douglas' solar-powered wastewater treatment system, installed to cut energy costs -- half of the facility's annual energy needs are expected to be generated by solar. In Clarkdale, instead of building a costly new plant, the town purchased and refurbished a decommissioned wastewater treatment plant. Oro Valley installed advanced water meters to detect leaks, encourage conservation, and eliminate labor-intensive manual meter reading.

EPA has awarded over \$585 million in federal funding for Arizona's clean water and drinking water revolving funds since the inception of the programs in 1988. The funds are used for a wide variety of water quality projects including watershed protection and restoration, water and energy efficiency, wastewater reclamation, and traditional municipal wastewater treatment systems including nonpoint source pollution control. The funds also support drinking water infrastructure, as well as drinking water plant operator training, and technical assistance.

The EPA's Pacific Southwest Region administers and enforces federal environmental laws in Arizona, California, Hawaii, Nevada, the Pacific Islands and 148 tribal nations -- home to more than 48 million people.

  
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## SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT

Nicholas R. Hild, PhD.

### UPCYCLING: NEW TERMINOLOGY OR SAME OLD?

Ever heard of the term, “Upcycling?” It is a word that just might help keep the sustainability movement growing. Upcycling is a lot like recycling, only different. Merriam Webster hasn’t caught up yet but Wikipedia defines it as the process of converting waste materials or useless products into new materials or products of better quality or for better environmental value.

See, like *recycling* but...well, it’s not the same...it sounds a whole lot like the definition of “recycling” but, like the term “sustainability” it’s a new environmental term we need to embrace. I say it is a “new” term but, according to AOL Online (2014), the *upcycling* concept was first introduced in a book written by Gunter Pauli in 1997, which was the English translation of his *Upsizing* (the opposite of Downsizing) book he first published in 1996.

If you are still confused about the difference between “recycling” and “upcycling” check out the excellent 2002 book by William McDonough and Michael Braungart titled, *“Cradle to Cradle: Remaking the Way We Make Things.”* In their book, they point out that the goal of *upcycling* is to *‘prevent wasting potentially useful materials by making use of existing materials and wastes.* This, they conclude, reduces the consumption of new raw materials when creating new products which leads to the conclusion that reducing the use of new raw materials can result in a reduction of energy usage, air and/or water pollution and even greenhouse gas emissions.

So, even if there is some confusion about what upcycling is, let’s just go with this line of thinking and focus on how we can advance our quest to be more environmentally sustainable by finding more opportunities to ‘upcycle’ in our daily work. That idea is what got me excited about using this term in the first place. By focusing on *upcycling* (as different but similar to ‘recycling’), we can create renewed excitement about new possibilities for reducing our environmental footprint, perhaps by finding some examples of where companies have used unique upcycling ideas in their daily operations. So, with that in mind, here are a few examples of upcycling offered here as motivation for practicing environmental professionals to start their own applications for “upcycling” materials that you may not have thought about before.

One really good real world example of *upcycling* involves two industrial giants that have become unlikely partners in search of environmental solutions in their companies: Ford Motor Company and Heinz (yes, the Ketchup company). Researchers at Ford and Heinz are investigating the use of tomato fibers in developing sustainable, composite materials for use in vehicle manufacturing by utilizing wasted organic/plant parts that were formerly being landfilled. Specifically, they

are converting waste dried tomato skins into electrical wiring brackets and/or storage bins in Ford vehicles that a car owner uses to place coins and other small objects in the console or glove compartments.

In addition to Heinz, Ford is collaborating with other industry giants Coca-Cola, Nike Inc. and Procter & Gamble to accelerate development of a 100 percent plant-based plastic---each with their own unique “waste products” that, with Ford’s help, can be used to make everything from seat and interior fabrics to packaging materials for replacement parts---and whatever else can be made from waste (organics) plant parts---the idea is to cooperatively reduce each corporation’s overall environmental impact by reducing the petroleum-based materials currently in use, and even find ways to utilize new ideas for how to package replacement parts with plant-based upcycled materials that were formerly wasted.

AOLOnline (2014) noted that Ellen Lee, a lead plastics research technical specialist who’s involved with the research at Ford said, “...we are exploring whether food processing byproducts makes sense for automotive applications, with the goal of developing a strong, lightweight material that meets our vehicle requirements, while at the same time reducing (the company’s) overall environmental impact.”

Thus, with a little imagination, one can make the argument that this is actually not ‘*recycling*’ but, rather, a clear example of ‘*upcycling*’. Most important, whether you really see a terminology difference or not is, just using the term, ‘upcycle’ (instead of ‘*recycle*’) as you describe what Ford is doing, and other companies you may find who are upcycling, too, will likely generate sustainability “buzz” that a discussion or article about *recycling* plant wastes into plastics wouldn’t. For example, in the following situation where you might *casually* drop the word ‘*upcycle*’ into the conversation---as you sit around knocking back a few brewskies after the big game on a Saturday night--- you might casually say something like, ‘...did you know that a waste product of beer brewing is spent grain (i.e. grain used in the brewing process), when used as a *substitute* substrate in the biogas process, eliminates the need for disposal of the spent grain in a landfill while generating potential profit from the overall brewing process?’ Now, this will impress your companions and be a great conversation starter that will start the ball rolling in other ideas where upcycling can be applied.

At Heinz, environmental staff were looking for innovative ways to *upcycle* and repurpose peels, stems and seeds from the more than two million tons of tomatoes the company uses annually to produce its best-selling Heinz Ketchup. Leaders at Heinz turned to Ford because they had heard about their upcycling program that was in search of raw plant wastes for their research. It turned out to be a perfect match!

In the brewski spent grain example, a small biogas plant that “processes” the spent grain, acts as an “*upcycler*” of the waste grain by gasifying the grain waste in the bio reactor. If you surf the ‘net, you will find other examples that can be used to generate ‘buzz’ about upcycling, so it’s time to spread the word: upcycling is the new recycling with creative ideas welcome.

If you are an environmental pro working in the regulated community, there’s more incentives to think seriously about upcycling: rumor has it that our own Arizona Department of Environmental Quality is also very much aware of the potential for upcycling in advancing the sustainability movement and would like to hear from industry about the possibilities. Recently, ADEQ held a contest to see who could come up with the best “product” that resulted from upcycling wastes. More information and products they *upcycled* can be found on their website that will get you excited about the possibilities. So, spread the word: *upcycle* is the new and improved term for ‘*recycle*’ but with a lot more creativity and promise for the sustainable future of our children’s, children’s, children.

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).



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