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MISCONCEPTIONS OF AN EMS AUDIT

CATHY PALASZ, NINYO & MOORE, PG 4

February / March 2010 Vol 8 No. 1

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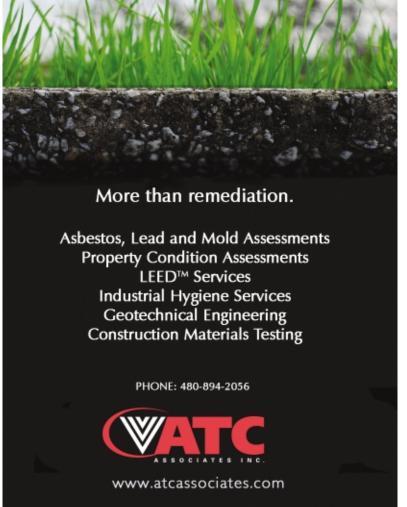
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JOURNAL OF **Environmenta**l Management

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From the Editor



The theme of the recent 2010 Gatekeeper Regulatory Roundup conference (see page 6) was, "The Economy and the Environment". This topic, the economy, has unfortunately become an unavoidable issue for most of us, as the economic downturn is affecting, perhaps not all, but the majority of individuals and businesses.

I like to focus on the positive side of issues in this column, and for the environmental management community in Arizona I think one positive aspect is that many of us have already "taken the hit" of reduced

business, and have responded with operating cost reductions, and, again unfortunately, reduction of employment. Businesses have taken these steps to become leaner and better prepared to operate with reduced revenue, and are now in a better position to face the future challenges of this economy.

This issue of the Journal begins our 8th year in publication. The Journal, as you know, is provided to thousands of EH&S professionals in Arizona at no cost, and is entirely supported through advertising. In this economic period, I especially appreciate the support of our advertisers. If you enjoy reading the Journal, please take a few minutes to call a few of our advertisers & tell them you saw their advertisement in the Journal. Thank you! Sincerely,

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

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COVER IMAGE: (SEE RELATED ARTICLE PAGE 7) Feb. 27, 2010. Photo shows G/RR committee

nembers as follows: (1) Eddie Martinez; (2) Julie Hoskin; (3) Karika Bridgers; (4) Sylvia Castillo; (5) Lisa Culbert; (6) Mike Ardito; (7) Nancy Nesky; (8) Skip Harden; (9) Laura Malone; (10) Brad Cross; (11) Chuck Paulausky; (12) Mannie Carpenter; and (13) Mark Howard.







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Misconceptions of an EMS Audit

Important Differences Between a Regulatory Compliance Audit and an EMS Audit

by Cathy Palasz

he phone rings and the client on the other end of the line inquires about performance of an environmental audit at their facility. As we discuss their situation briefly, it becomes obvious that a lot of confusion exists on the differences between an Environmental Management System Audit and a Compliance Audit.

An Environmental Management System, or EMS, ensures that environmental issues are systematically identified, controlled, and monitored. It provides a mechanism for responding to changing environmental conditions and requirements reporting on environmental performance, and reinforcing continual improvement. An EMS is often designed to meet the requirements of the International Organization for Standardization (ISO) 14001 Environmental Management Standard.

The ISO 14001 is a globally recognized standard that defines the structure of an organization's EMS for purposes of improving the organization's environmental performance. The process-based structure of ISO 14001 is based on the "Plan-Do-Check-Act" improvement cycle. The standard requires an organization to develop an environmental policy, create plans to implement the policy, implement the plans, check progress and take corrective actions, and review the system regularly to ensure its continuing suitability, adequacy, and effectiveness. To gain registration under the standard, an organization must comply with a set of 17 specific requirements that includes such things as objectives and targets; structure and responsibility; training, awareness, and competence; records; communication and community involvement; and monitoring and measurement. An EMS Audit is designed to verify conformance to the standard.

So what is an EMS Audit and how does it differ from a Compliance Audit?

An audit—any audit—is the comparison of actual conditions to expected conditions, and a determination as to whether one is in conformance or

not in conformance. Audit evidence is the information collected through interviews, visual reconnaissance, and documentation review. The audit criteria are the expectations or "rules" of how conditions should be. It is the criterion that distinguishes one audit from the next. An EMS Audit is designed to verify conformance to the standard referenced above.

In compliance auditing, the criteria are the regulations. The regulations include: (a) compliance with national, regional, and local laws, regulations, and permits; (b) company policies, programs, and procedures; and (c) industry-applicable standard of good environmental management practices.

EMS Audit Criteria

The criteria for an EMS Audit is the specification standard described in ISO 14001. The ISO 14001 EMS Audit says, "the organization shall establish and maintain program(s) and procedures for periodic EMS audits to be carried out in order to: (a) determine whether or not the EMS conforms to planned arrangements for environmental management including the requirements of this international standard; and has been properly implemented and maintained; and (b) provides information on the results of the audits to management."

This means if an organization is ISO 14001 certified, they must schedule regular internal audits of its EMS. This audit must assess whether their ISO program meets all the specifications of ISO 14001 and is kept up-to-date. Furthermore, top management must be made fully aware of the audit findings.

The EMS Audit consists of reviewing critical documents such as standard operating procedures, management plans and permits, management meetings, internal audit procedures and results, list of legal and other requirements, and the training program. The purpose of the EMS Audit is to determine *conformance* to the standard, not necessarily *compliance* with a regulation. The purposes of the EMS audit are to assess whether the EMS has been implemented and maintained effectively, as well as identification of opportunities for improving the EMS.

Does ISO 14001 Address Compliance?

You might ask, doesn't ISO 14001 address regulatory compliance? The answer is yes, but from a system standpoint rather than from a performance perspective. The standard requires that certain procedures exist regarding identification of legal and other requirements, that periodic compliance assessments be performed, that legal requirements be considered in setting objectives and targets, and that there be a commitment to compliance. However, actually being in compliance is a performance issue



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and is considered to be outside the scope of an ISO 14001 EMS Audit.

The important point is that during an EMS audit, identified regulatory noncompliances are relevant only to the extent that they reflect a potential system problem. The finding is not that the site is out of compliance with a given regulation, but that the noncompliance means some EMS element is not conformed to. For example, a regulatory noncompliance issue is viewed as a training, recordkeeping, or monitoring and measurement problem rather than strictly a regulatory compliance concern.

The scope of an EMS auditor is not to do a compliance audit as part of the EMS audit. Compliance auditing is typically done separately as part of the EMS requirements itself. There may be legal and other requirements regarding noncompliances encountered during the EMS audit, but this should be decided and addressed in the audit plan.

In addition to responding to requirements of ISO 14001, the EMS must also respond to what the organization said it was going to do. An audit verifies the system conforms not only to ISO 14001,



but also to what the site's EMS program commits to in its documentation. Consistency within the procedures is one of the three C's of ISO 14001 EMS Auditing. Consistency relates to how well the procedure or process of the EMS relates to the others. In other words, do objectives and targets reflect the policy commitments? Are personnel trained on the correct legal and other requirements? The other two C's of EMS Auditing are Conformance and Continual Improvement. Conformance relates to addressing each of the requirements of the standard. Finally, Continual Improvement requires that the system lead to improvements in the system itself as well as with environmental performance. A system that has all the prerequisite procedures, but remains static, is not in conformance.

With EMS auditing, the auditor is not expected to draw conclusions or make recommendations regarding corrective action on nonconformances, unless the EMS's corrective action process includes the auditor drawing conclusions and making recommendations. The ISO standard effectively separates the auditing function from interpretation and corrective action, which in turn are separated from continual improvements that is under management review. An organization's EMS, however, may mix these roles and functions at their discretion.

In conclusion, an EMS formalizes procedures within an organization, provides accountability for continual improvement, and requires regular audits, the results of which must be communicated to management. The differences between an EMS Audit and a Regulatory Compliance Audit lies in the criteria used for evaluation. The criteria for an EMS audit is conformance to the standard itself, whereas the criteria for a Regulatory Compliance Audit are environmental regulations and other legal requirements.

Cathy Palasz is a Senior Project Engineer with Ninyo & Moore's Environmental Division, handling audits as well as other compliance issues for air, waste, and water, and industrial hygiene assessments. She can be reached at (602) 243-1600 or by email at: cpalasz@ninyoandmoore.com

Gatekeeper/ Regul atory Roundup 2010

PAZ (Environmental Professionals of Arizona) co-hosted the 6th ▲Annual Gatekeeper/Regulatory Roundup 2010 in conjunction with the Thunderbird Chapter of the Alliance of Hazardous Materials Professionals (AHMP) and the Arizona Emergency Response Commission (AZSERC).

The conference, held February 26th and 27th in Scottsdale at the Chaparral Suites Resort, was an impressive success, and included dozens of expert speakers presenting on a variety of subjects, exhibitor booths, and a large attendance. This year's conference theme was, "The Economy and the Environment". Ben Grumbles, ADEQ Director, was the opening speaker on the first day of the conference. Martin Jones, Gust Rosenfeld PLC, was keynote speaker, and discussed, "Can the Cost of Environmental Regulation Exceed the Benefits? An Explanation of Past Legislation with an Eye Toward the Future" during lunch on day one. On day two, the lunch keynote speaker was Mike Pasqualettie, Ph.D., ASU School of Geographical Sciences, speaking on "The

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Schol arship Awards:

Each year at the conference. both EPAZ and AHMP, Thunderbird Chapter, present scholarship awards (see articles below, and on next page). For more information on the conference, www.epaz.org.



AHMP Thunderbird Chapter Awards 3 Schol arships

huck Paulausky, representing ✓AHMP, Thunderbird Chapter, presented three scholarships at the Gatekeeper Regulatory Roundup to Arizona students for the 2010 Spring Semester.

Sharmila Krishnamurty (see photo at right, top), Graduate student in Environmental Technology Management at Arizona State University. Sharmila's focus is on international environmental management, sustainability and sustainable development. Beside the work on her degree, Sharmila is also doing voluntary work in sustainability in San Diego-\$2500.00

Selene Hernandez Ruiz (see photo at right, bottom), Doctoral student at the University of Arizona in Soil, Water and Environmental Science. Selene's proposed thesis focuses on the interactions between endocrine disrupting compounds, pharmaceuticals and personal

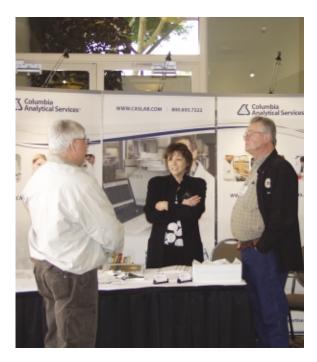
care products, and discoved organic matter on our water resources -\$1500.00

Josephine Groh (not shown), Undergraduate student in Sustainability at Arizona State University. Josephine has a special interest in sustainable energy, materials and technology- \$1000.00





Each scholarship winner also receives a certificate for 8 hours of safety training, sponsored courtesy of John Benz of ETC Compliance Solutions.







PHOTO, L to R: Mannie Carpenter (EPAZ President), Auriane Koster, Robert Sandoval, Seung Joo Lim, Alexander Davis, Sharmila Krishnamurty, Julie Hoskin (EPAZ Scholarship Committee Chair)

EPAZ Awards Schol arships to Five Arizona Students

The Environmental Professionals of Arizona continues its tradition of awarding scholarships to Arizona students pursuing an environmental degree program. Five scholarships were awarded at the GRR (see photo above). Mannie Carpenter, EPAZ President, and Julie Hoskin, EPAZ Scholarship Committee Chair, presented the awards: Auriane Koster: \$1000; Robert Sandoval: \$500; Seung Joo Lim: \$1000; Alexander Davis: \$2500; Sharmila Krishnamurty: \$2500; Vivain Spencer (not pictured): \$500.







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Larry Olson, PhD.

It's All About Chemistry

The Dirty Dozen

hemicals have made incredible contributions to modern society through such applications as new life-giving drugs, wafer chips that form the backbone of information technology, and a molecular understanding of biological processes that has revolutionized medicine. But there has been a downside as well. Only a small fraction of the 75,000+ chemicals used in commercial products have undergone a rigorous risk assessment process and in some cases we are finding unintended consequences long after a chemical has been introduced.

One example of this is what is called Persistent Organic Pollutants (POPs). These are semi-volatile compounds that are not very water soluble and are resistant to photolytic, chemical, or biological degradation. Thus, once they are released into the environment they tend to remain bound to soils or underwater sludge and have very long environmental half-lives, some measured in decades. Examples of POPs include chlorinated pesticides such as DDT, chlordane, and toxaphene, as well as polychlorinated biphenyls (PCBs), and unintentional combustion byproducts such as dioxin. These are some of the most toxic chemicals known, not only to humans but to fish, mammals, and birds.



Besides their persistence in the environment there are other problems with POPs. Even though their actual concentration in soils, water or air may be very small, once these chemicals are absorbed by a living organism they tend to be stored in fatty tissues and as one goes up the food chain their concentration can be biomagnified to several orders of magnitude above background levels. Thus, the actual dose that humans or predator birds are exposed to from consuming fish isn't accurately reflected in environmental concentrations in water, soil, or air.

Another surprising finding has been the discovery of how far POPs can be transported from their original point of introduction. Their vapor pressures are low, but not zero, and volatilization from more tropical regions has been shown to cause dispersion throughout the entire global atmosphere. Deposition can occur by dissolution in surface waters or condensation on suspended particles which are then removed from the atmosphere by rain or snow.

There is now extensive documentation of POPs in polar regions which are far from any release point. The problem is exacerbated by the colder climate, reduced biological activity, and lack of sunlight, all of which act to slow down any natural degradation processes. Modeling experiments show that both air and water transport of only a fraction of the total amount of POPs in the environment can result in significant polar contamination.

By the late 1990s it was clear that a global solution to the problem of POPs was required and in response to a call by the United Nations Environmental Programme, the first conference on the subject was held in Montreal in 1998. In May of 2001 the Stockholm Convention on Persistent Organic Pollutants was adopted and it went into force in May of 2004.

An initial list of 12 POPs was established ("the Dirty Dozen"). The Convention seeks to eliminate or restrict the production and use of all intentionally produced POPs and to reduce and ultimately eliminate the unintentional release of POPs. The U.S. signed, but has not ratified, the Stockholm Convention. However, production, import or export of all the intentionally produced POPs in the Dirty Dozen have been banned in the U.S. and the combustion products dioxins and furans have been listed as hazardous air pollutants.

In May 2009, the 4th Conference of the Parties added 9 new compounds to the list of regulated POPs. These include additional chlorinated and brominated compounds as well as perfluoroctane sulfonic acid (PFOS), its salts, and perfluoroctane sulfonyl fluoride (PFOS-F). The new chemicals will require developing an inventory, a reporting process, and a plan for control measures.

It has become increasingly clear that unless we are as innovative and diligent in managing chemicals and controlling their environmental impact as we are in their discovery and application, we will likely be subject to many other unintended consequences. Let's hope we're learning our lessons.

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-





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YUMA April 14-15, 2010

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Navajo County Government Complex Board of Supervisors Conference Room 100 E. Carter Drive, Holbrook, Arizona 86025

Dead Horse Ranch State Park 675 Dead Horse Ranch Road Cottonwood, Arizona 86326

Clark Co. Regional Transportation Commission 600 S. Grand Central Parkway, Room 108 Las Vegas, Nevada 89155

Arizona State University-Polytechnic Campus Student Union Annex (Union 2) 5931 S. Sterling Avenue, Mesa, Arizona 85212

Arizona State University-West Campus 4701 W. Thunderbird Road UCB Room 265, Glendale, Arizona 85306

NIGHT CERTIFICATION CLASS Arizona State University-West Campus Las Casas Lawn 4701 W. Thunderbird Road Glendale, Arizona 85306

> Yuma Civic Center 1440 Desert Hills Drive Yuma, Arizona 85365

Arizona State University-Polytechnic Campus 7360 E. Tahoe, Mesa, Arizona 85212

Mohave Community College 1971 E. Jagerson Avenue Kingman, Arizona 86401

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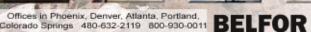
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 ${f R}$ ecent chapter activities included a Tucson chapter presentation on Feb. 9 by Terra Michaels on the activities of Engineers without Borders. The Phoenix chapter followed with a meeting on Feb. 10 focusing on "Marketing in a Changing World" by Bruce Robinson. On Jan. 29th the Flagstaff chapter attended the 2010 Darcy Distinguished Lecture, as part of NAU's Flagstaff Earth Sciences Seminar Series. This year's lecturer is Tim Scheibe of the National Ground Water Association and Pacific Northwest Laboratory and his presentation is titled "Beyond the Black Box: Integrating Advanced Characterization of Microbial Processes with Subsurface Reactive Transport Models.'

Looking ahead: Mar. 9th-Chapter dinner presentations; Mar. 23rd-Herman Bouwer Intern Scholarship student applications due; Mar. 31st - Leonard Halpenny Intern Scholarship student applications due; Apr. 6th-AHS/AEG Student Night at the ASU Memorial Union; Apr. 30th-AHS Scholarship applications due; May

1st-Flagstaff Chapter Intern Scholarship applications due. Please visit www. azhydrosoc.org for additional details and information.







High Technology

www.seshaonline.org

 ${f I}$ n spite of the winter storm on Jan. 21st, we had a good turnout to our local SESHA Chapter Meeting. Dr. James Leemann, PhD. Clinical Assistant Professor at Tulane University, gave interesting presentations on "Is there Safety in Sustainability" and "Competencies that Distinguish Superior Performance among EHS Professionals". Our meeting was held at ASU's MacroTechnology Works in Tempe, AZ. Plan on attending our 32nd Annual International High Technology ESH Symposium and Exhibition on April 26th-29th at the Hilton in Scottsdale, AZ.

You can find more information on line at http:/ /www.seshaonline.org/meetings/2010/index.php3 We are looking for exhibitors to host a booth. Admission to the Symposium comes with your exhibitor's booth fee. That's a \$595/\$695 (SESHA member/non-member) savings.

The high technology industry is booming and we expect record attendance at the Symposium this year. I'm so convinced it will be a great opportunity that I am hosting a booth for my consulting company! Plus it is a great EHS networking opportunity.

Call me at 480-897-ERGO(3746) or email me at christine@cihergo.com if you want details regarding exhibitor's booth. Hope to see you there!!





WMA kicked off its meeting schedule this year on $oldsymbol{A}$ Jan. 28, 2010. At the meeting we heard some interesting ideas for meetings, speakers and plant tours for the year. Stay tuned for the official schedule. We will hold our 4th Annual Feb. meeting as a joint meeting with the Environmental and Natural Resources Law Section of the Arizona State Bar on Feb. 25, 2010. Roger Ferland of Quarles & Brady will give a presentation entitled "From the Backburner to the Frontburner: A Critical Look at Environmental Justice." EPA Administrator Jackson has pledged to make this issue a first priority and a consideration in every EPA decision from reviewing the renewal of registration of pesticides to the provisions of the hazardous waste recycling rule. Although it has achieved a new found importance under this Administration, there has been very little critical analysis of the fundamental assumptions underlying the concept of environmental justice or its real significance as far as environmental decision-making. The purpose of this presentation will be to ponder the questions that should be asked about this very important topic. For additional

meeting info. and upcoming meeting topics, please check our website at www.awma-gcs.com. New members are Michelle De Blasi always welcome!

ARIZONA CHAMBER

of Commerce and Industry







The Arizona Chamber of Commerce and ■ Industry and the Arizona Manufacturer's Council has arranged to have Pete Reich from EPA Region 9's Oil Program to speak at the March 10, 2010 Environment Committee breakfast meeting about recent revisions to the EPA's Spill Prevention

Control and Countermeasures (SPCC) program.

The EPA's SPCC program has been under review and public comment since 2007. The final rule was published in November of 2009 with the revised rules becoming effective on January 14, 2010 and compliance required by November 10, 2010. Mr. Reich will be addressing the many changes to the SPCC program and the new requirements that industry will have to comply with. The March 10, 2010 breakfast meeting will be held at the Phoenix Sheraton Hotel located at 1600 S. 52nd Street Tempe, AZ 85281. Breakfast will be served at 7:00 AM and the speaker beginning

at 7:30 AM. Please go to the Arizona Chamber 's web page at www. azchamber.com for registration information.







www.eia-az.org

The Environmental Information Association's **▲** (EIA) commitment to the dissemination of current environmental information and providing educational outreach opportunities will prove even more valuable this year than perhaps years before. The economic outlook for 2010 indicates that there will be less construction of new structures and more renovation/demolition projects - and even more maintaining existing structures. That means more concern will be placed on environmental issues such as indoor air quality, mold, lead-based paint, asbestos and radon. Regulations have existed for decades regarding many of these substances but it's always surprising how few are aware of them. You're encouraged to take advantage of the regulatory seminars sponsored by the EIA.

Please visit our web site at http://www.eiaaz.org or call 602-437-3737 ext. 123 for information on all upcoming events sponsored by EIA-AZ and for membership and sponsor opportunities. We encourage participation from

members and nonmembers (environmentally concerned community) involvement with our outreach programs.







www.thunderbirdchmm.org

The Thunderbird Chapter wants to thank all **L** those who attended the **6**th **Annual** Gatekeeper Regulatory Roundup. The event was a great success and the Thunderbird chapter awarded scholarships to three deserving Arizona students:

Sharmila Krishnamurty, Graduate student in Environmental Technology Management at Arizona State University- \$2500.00

Selene Hernandez Ruiz, Doctoral student at the University of Arizona in Soil, Water and Environmental Science- \$1500.00

Josephine Groh, Undergraduate student in Sustainability at Arizona State University-

Congratulations to this year's winners!

The Chapter is working on a couple of possible Outreach Projects. Watch for details in emails and in the Journal!

AHMP/EPAZ monthly lunch meetings are held from 11:30 ~ 1:00 on the second Thursdays of each month, at the SRP PERA Club in Tempe, so check your emails for the meeting notice. Meeting details: www.thunderbirdchmm.org or www.epaz.org.

Cal endar Items: Mar. 11-Luncheon Meeting-TBD; April 8-Luncheon Meeting-TBD; May 13-Luncheon Meeting-TBD





www.AzBAS.net

zBAS held its first meeting of the year on January ${f A}$ 7th in Tucson at the Raytheon Rita Road facility. After a welcome by Hyte Johnson and Sally Gestaulus from Raytheon, Ed Fox gave an overview of AzBAS to our guests from the Southern Arizona Environmental Management Society (SAEMS). After the business meeting, the attendees had a spirited roundtable "on keeping items out of the landfill" highlighted by Intel's 'Dumpster Diving" video and some of the remarkable successes at Raytheon. These roundtables are often cited by attendees as some of the most valuable activities of AzBAS. Following the roundtable was a presentation by Deron Beal, Executive Director of Freecycle, who gave an overview of the Freecycle concept and its exponential growth; both in the US and internationally. You can visit Freecycle: http://www.freecycle.org. One of the exciting new applications to be released by Freecycle will be a business version. Stay tuned!

Note: The AzBAS Board recently agreed to allow affiliates to participate in the organization. Affiliates are defined as non-profit, academic or governmental organizations. In addition, consulting or legal firms may join as an affiliate. For more information on becoming a member or affiliate please see our website.

The next AzBAS meeting will be in Phoenix on March 11.

For information on AzBAS or interest in membership, please see our website at Edward Z. Fox www.AzBAS.net.



American Society of Safety Engineers

he Southern Arizona Chapter of the American L Society of Engineers celebrated Christmas at their December luncheon by collecting toys for the Ronald McDonald House in Tucson. In addition, Margaret Dykinga helped identify individual's holiday stressors ment Arizona reaches and talked about ways to alleviate them. The SA ASSE Board met February 3 to discuss the programming for the remainder of the year, the upcoming

election of officers and its upcoming annual meeting and awards ceremony. For information contact me at 520.586.5204 or by email at sdipeso@ssw.coop.



Shari Di Peso Secretary



www.EPAZ.org

 \mathbf{I} n December, Cathy Arthur of the Maricopa Association of Governments provided an update on the efforts to achieve attainment of the national ambient air quality standards (NAAQS) in Maricopa County. Revised standards to the ozone NAAQS and ongoing efforts with the PM-10 5 Percent Plan were explained.

On January 26 and 27, EPAZ co-sponsored the 2010 Gatekeeper Regulatory Roundup Conference.

The conference theme this year was "The Economy and the Environment." Attendees heard outstanding presentations from representatives from EPA Region IX, ADEQ, AZSERC, MCAQD, PCAQCD, PDEQ, Arizona State University, industry, law firms, and consultants. See the accompanying article in this issue for more information. In addition to being enlightened, attendees were also entertained by the band "The Shammys" at our evening reception/mixer. Scholarships totaling \$8,000 were awarded to six future environmental professionals. We wish to thank all those who supported this event as sponsors, exhibitors, presenters, attendees and planning committee members, without whom this event would not be possible.

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, resuming on February 10. 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. For more details see our website or contact Mannie Carpenter (480) 829-0457.



Mannie Carpenter President



Arizona Environmental Strategic Al I iance

www.azal I iance.org

We are off to a busy start for 2010! In January, Alliance members presented "Practical Applications of EMS" at the Gatekeeper/ Regulatory Roundup, and on February 1st we launched the 2010 "Green Arizona" Environmental Educational Youtube video contest. Participants create a short Youtube video about ways to reduce your impact on the environment. Top prize in both adult and youth categories is \$1000, 2nd prize is an I-Pod Touch. If you, your children, or friends are interested in participating, visit www.azalliance.org for details. Registration is open through March 7. Video entries are due March 21.

The Alliance 2010 Member Annual Reports Luncheon was held February 4 at APS. Members from Ping, Intel, and APS discussed environmental

challenges accomplishments of the past year. Members guests participated in an active discussion & sharing of experiences.



Matt Conway

About the Associations Pages

 ${f K}$ eep in contact with your organization's members and with Arizona's environmental management community by contributing bi-monthly "Association Pages" articles to the Journal! These are

short, informative "new items" that tell your members and Journal readers what activities your organization has planned, and what you have accomplished.

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Sustainabil ity and Sustainabl e Devel opment

Nicholas R. Hild, PhD.

Targeting Solar Incentives for Existing Arizona Businesses . . .

n October of 2009, the U.S. House approved a bill that would create a Solar Technology Roadmap, which lays out R&D needs for the next 15 years. It would authorize \$350 million initially and another \$550 Million bump in 2015, presumably to be paid to contractors who will determine how the nation will develop a solar industry to diversify our power sources with clean sources of electricity.

Interestingly, if you look at the 'roadmap' these politicians propose, it doesn't say anything about Solar Hot Water Systems which, studies are showing, accounts for 12% to 18% of the total energy consumed by households across the nation. Conservatively, then, let's say that 15% of residential energy is used to heat water—that's a significant amount of btu's, fossil fuel, and carbon emissions that could be totally eliminated by the simple use of SOLAR Hot Water systemsand it's payback to homeowners — (spell that, T-A-X-P-A-Y-E-R-S)—in real dollars actually going back into homeowner's pockets; it is *not* monies paid out to manufacturers in the form of incentives or stimulus monies that never gets paid back to taxpayers.

It seems, however, Arizona politicians, Chambers' of Commerce, and other business organizations are looking for love in all the wrong places. In their haste to attract 'green' industry to Arizona, they have entirely overlooked opportunities right here in our own sun-baked, back yard to jump-start the movement to make solar hot water systems (SHW) available to every home owner and apartment complex in the state—a more efficient use of incentive dollars with a much quicker pay back than giving tax write-downs to out-of-state solar (PV and thermal) industries—that won't pay back for many years to come.

Thus, there is a way to utilize all that solar radiation without mortgaging the future with tax incentives: it is called SHW. And, there is already a base for the SOLAR HOT WATER industry here just waiting to be incentivized! Look no further than the existing HVAC, and plumbing and piping, and swimming pool companies that are anxious to 'tweak' their manufacturing capabilities to build and install solar hot water systems.

For a much smaller incentive package than is being touted for PV Solar makers, a dozen or more companies in a half dozen of Arizona's largest cities (metro-Phoenix, Tucson, Yuma, Flagstaff) that are already in the HVAC and/or plumbing and/or pool business, could be provided with 'incentive' seed monies to purchase all the copper piping, structural materials, and sheet metal required to build SHW systems, and the funding to hire and train permanent skilled craftsmen to build, install, and maintain SHW systems.

If funding those Arizona businesses resulted in a couple of dozen jobs added to each of those manufacturing companies in half a dozen cities, it would result in sustainable economic growth that keeps spinning off other jobs from the copper and sheet metal sectors while homeowners reap their energy savings and their tax credits for installing solar hot water systems on their residences.

Some of those 'incentive' dollars could also fund SHW systems grants for non-profit businesses to do the research to find the most efficient ways to manufacture, assemble, and install SHW systems. In addition, those dollars could provide for training to those businesses that need their workers trained, by utilizing the non-profit companies to train the skilled SHW systems craftsmen while allowing the manufacturing companies to reap the benefits of the latest research to make those SHW systems more efficient.

Solar Hot Water systems may not be as sexy as Solar PV but we really should take advantage of all the ways we can utilize our Arizona sun—and that certainly includes the many environmental benefits those include—so why are we not looking at SHW where saving 15% of the energy used in households would have a direct impact on fossil fuels burned, the state's power industry's carbon footprint and. homeowner's too? And all those small businesses would love to be provided with some of those incentives our politicians want to give away—they will gladly retrain their craftsmen and even hire more (yes, that means more jobs), if they can just be included when politicians want to incentivize 'green' manufacturers.

In Arizona, there have been no incentives aimed at our own home-grown businesses who justifiably are asking why. With all the "incentives" that both the Fed and States are likely to throw at the solar industry in 2010, the time is long overdue for our state and city politicians to look at SHW incentives for Arizona businesses that will return *real* dollars to homeowner-taxpayers, while growing the economy, and providing real environmental benefits for our children's, children's, children.

Nicholas R. Hild, PhD., Professor, Environmental Technology Management, Arizona State University College of Technology and Innovation, has extensive experience in Environmental Management in the southwestern U.S. Dr. Hild can be reached at 480-727-1309 and by email at DrNick@asu.edu.



ADEQ Director Ben Grumbles: Wasted Energy

s crazy as it sounds, methane may be one of our greatest green energy opportunities. If we tap into it correctly, we can unite air, water, and waste policies and technologies to reduce pollution, while producing power.

"Flaring," the burning of gases, in this case methane at landfills and wastewater treatment plants, can reduce hazards but is also an admission of defeat, of sorts. While the burning helps to reduce the emission of methane directly into the atmosphere, the process signals a failure to tap into beneficial reuse. What can we do to help reduce the flaring and re-use the resource?

The more I learn about methane, one of the planet's top greenhouse gases contributing to global warming and climate change, the more interested I get in cost-effective, practical ways to capture the gas and put it to work.

That led me to Arizona's biggest and busiest solid waste





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landfill, Butterfield Station, in Mobile. With ADEQ Waste Programs Director Amanda Stone and Michael Anable from Gov. Jan Brewer's office, I toured Waste Management's operations to learn about bio-reactor, or wet cell, technologies to foster the production and capture, and most importantly, beneficial re-use of methane. Pipes at the landfill collect methane, an abundant byproduct of the busy microbes that decompose garbage. In Arizona, though, the arid climate often lacks the moisture to spur the chemical reactions to produce enough methane to fuel the combustion engine to generate sufficient electricity.

I also represented Gov. Brewer in late January at the dedication of the Glendale Energy Power Plant, a new facility in which landfill gas is converted into electricity for Arizona Public Service customers and will produce power for about 750 homes. The plant is an outstanding collaborative effort among the City of Glendale, Glendale Energy LLC, the engineering company Bryan A. Stirrat & Associates and APS to produce energy for nearby homes for the remaining lifetime of the landfill the next 35 to 40 years.

EPA, the waste management and power industries, and others are interested in collaborating to promote green energy in various ways. In our case, this could involve additional pilot projects and permits that include environmental safeguards and restrictions on liquids in landfill but also allow some liquids on a demonstration scale to wet the appetite of the microbes to produce the methane that fuels the engine connected to the electric generator. This same process also speeds the compaction and settling of landfills, which extends their life and delays the need for development of new landfills.

I've also met with wastewater officials who are still "flaring" but looking for opportunities to capture more energy and channel it into more positive directions. It's happening at several anaerobic digester treatment plants in Arizona but the green biogas movement has a lot of room to grow, not just here but around the country. Hundreds of power optimizing treatment works (aka POtws) are implementing combined heat and power projects, using biogas methane to run the facility or serve the community but that number should be in the thousands.

Speaking of numbers, EPA and its 31 partner governments are celebrating the fifth anniversary of the international Methane to Markets Partnership. The projects are reducing emissions by more than 27.3 million metric tons of carbon dioxide equivalent annually – equivalent to the annual emissions of five million passenger vehicles. Check out the Methane to Markets Partnership EPA website (www.epa.gov/ methanetomarkets/).

Closer to home, at the Butterfield Station we toured, the numbers are equally impressive. A Pinnacle West/Arizona Public Service pilot projects fact sheet says by converting landfill

gas to energy we could reduce harmful NOX, CO, and VOCs and, by example, if the landfill produces 300 cubic feet of landfill gas per minute that could generate about 4 million kwh of electricity per year and reduce greenhouse gases equal to planting 8,300 acres of trees.

That's impressive.

Benjamin Grumbles Director, AZ Department of Environmental Quality



News Briefs

City of Phoenix To Post Brownfiel ds News Items on Webpage

The City of Phoenix Office of Environmental Programs recently announced a new monthly online feature, the "Brownfields News Alert". The webpage will present newsworthy items on the brownfields industry at the federal, state, and local level.

To view the current Brownfields News Alert, visit http://phoenix.gov/greenphoenix/land/brownfields/whatsnew/index.html.

Redhorse Corporation Appoints

Darcy J. Anderson Senior Project Manager

Redhorse Corporation, a program management and technology services company based in San Diego, California, recently announced the appointment of Darcy J. Anderson as a Senior Project Manager for energy and environmental services in Arizona. "We are thrilled to have Darcy on board as a key member of our energy audit and training team. Darcy's more than 25 years of experience in energy and environmental services and excellent technical skills strengthens our capabilities in these areas'" said Mark Walsh, Chief Operating Officer of Redhorse Corporation.

Redhorse Corporation is both a Native American and Service Disabled Veteran-owned Small Business, and has numerous contracting options available for clients. Darcy can be reached at darcy.anderson@redhorsecorp.com or by phone at 520-360-2641.

Contractor to Pay \$225,000 Penal ty for Asbestos AQ Viol ations in Hol brook Dorm Demol ition

The Arizona Department of Environmental Quality and the Arizona Attorney General's Office announced recently that an Albuquerque, N.M., contractor has agreed to pay a \$225,000 penalty under a consent judgment for asbestos air quality violations that occurred during the 2007 demolition of the Bureau of Indian Affairs school dormitory in Holbrook.



In May 2007, a subcontractor for Gerald A. Martin Ltd., a New Mexico corporation, began demolition of the dormitory. As the

general contractor that was responsible for overseeing the demolition activities, Gerald A. Martin Ltd. was required to ensure compliance with asbestos removal and handling procedures prior to the demolition of the building. In August 2007, analysis revealed that materials containing asbestos were disturbed during the demolition of the dormitory.

On Aug. 29, 2007, ADEQ issued an Order of Abatement to Gerald A. Martin Ltd. requiring compliance with state and federal asbestos air quality requirements. After consulting with ADEQ on measures to reduce the health risks associated with the removal of the contaminated debris, Gerald A. Martin Ltd. reportedly spent more than \$900,000 handling and disposing the asbestos in the demolition debris in accordance with approved procedures. All of the demolition debris was removed by Nov. 7, 2007. Asbestos is made up of microscopic bundles of fibers that may become airborne when damaged or disturbed. Exposure to airborne asbestos may result in potential health risks, and continued exposure can result in serious lung disease, including asbestosis, lung cancer or mesothelioma.

"It never pays to take shortcuts with asbestos and other hazardous materials involved in building demolitions," said ADEQ Director Benjamin H. Grumbles. "Fortunately, the company stepped forward after an abatement order and complied with state and federal law to reduce potential risks to students, employees, and the community."

"Strict compliance with asbestos identification, notification and handling requirements is necessary to ensure safe handling and disposal of these potentially lethal materials," Attorney General Terry Goddard said. "Arizona's asbestos handling rules protect our communities, workforce and public health. Violations will not be tolerated."

The consent judgment is subject to court approval.

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PROSPECTING

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The Internal Marketpl ace

hat is the internal marketplace? It is the business climate within your organization excluding interactions with clients. It is the inter-workings of your operation that incorporate the principals of supply and demand within the walls of your office, or the boundaries of your firm. Simply put: every organization has a demand for new business, and its sales department is responsible for supplying it. And, in every marketplace, goods come at a price.

At what price does new business come in the internal marketplace? Obviously salary and benefits, office space, phones, marketing events, lunches, travel etc. are provided to the sales person in return for new business. These are all very measurable, easily documented and provided by terms of employment. Much more subtle is the currency consisting of technical expertise, administrative support, extra effort, respect, and trust. Operations personnel provide these forms of "currency" to the sales and marketing department to support the sales process and help close business. The degree of support they are willing to provide is directly related to the benefits received. As with any marketplace, value drives price. Do management, technical and support personnel simply provide this currency because they "should" or because it is in their job description? No. The sales person must earn it. The sales person must first realize that support from colleagues is critical to success, and then convince the internal market that what she supplies is of significant enough value that people will "pay" for it. Pay in the form of after-hours proposal work, an early breakfast meeting, squeezing in that extra delivery, putting extra effort into that technical paper, making it to the marketing meeting when schedules are tight, delivering the report a day early or working the trade show booth. This form of currency is invaluable to the success of the sales and marketing effort, not to mention the morale of the operation as a whole.

How does the "micro-marketplace" flourish? The same way the external market flourishes: relationships. Relationships are a two-way street, but I have always believed the sales person should take responsibility for business relationships (internal and external) because it is what we do. You can argue that everyone should take the responsibility for their own relationships. But in a highly technical environment, it may come more naturally for the salesperson so she should take the primary initiative to be sure good relationships are in place. If you are the primary business development person, start by recognizing that your internal client relationships are just as important as those outside your building and take action to be sure they are fostered and nurtured. Then, keep at it over the long term. It can make the difference between a good business development department and a great one.

So, get in there and tell your project managers how much you appreciate their work, get the drivers a box of donuts, take the admin staff to lunch, and ask them what you can do



to help them. Better yet, team them up to win a huge project and you will have friends for life. Sell to them just like you would a client and give it the same level of importance.

Joe Holmes is the Regional Manager of Business Development at ATC Associates. He can be reached at joe.holmes@atcassociates.com.

Joe C. Holmes

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