

JOURNAL OF Environmental Management ARIZONA

PRACTICAL AND CURRENT INFORMATION FOR ENVIRONMENTAL, HEALTH AND SAFETY PROFESSIONALS

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HAZARD ANALYSIS

ADOSH ON ASSESSING WORK HAZARDS pg 9

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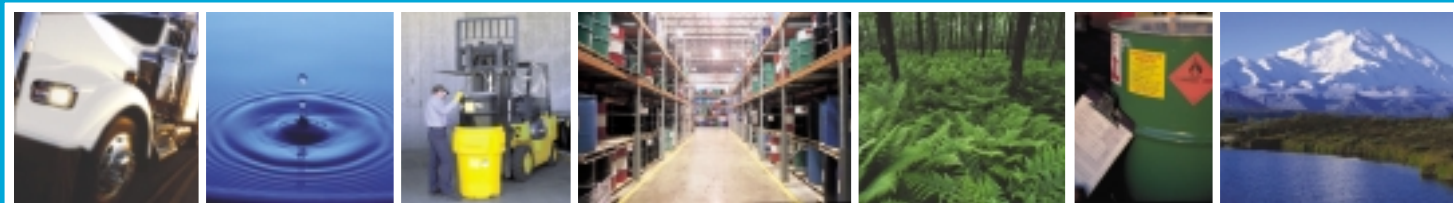
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The JOURNAL welcomes readers letters, articles, suggestions for articles and photographs, and releases of news, products, services, literature, business updates, and meeting dates. EH&S associations may participate in the Association Pages. Contact us at the above address and telephone number, or visit the Journal website.

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FROM THE EDITOR



As the Journal begins our second year of publication, I have been hearing good things about the Arizona environmental business market. More and more lately individuals in Arizona environmental businesses have been telling me that business is slowly beginning to pick up speed. There definitely seems to be an increased optimism out

there. Some manufacturers that had previously reduced production (and therefore reduced need for services, waste disposal, transportation, etc.) are beginning to use more of their capacity. This in turn leads to more business for waste disposal facilities, suppliers, consultants, laboratories, and everyone else. I've also been hearing more and more that job opportunities are opening up. Let's hope the trend continues!

I hope you will enjoy this issue. In "Metal Finishing Successes in P2" (pg 8), Gail Bliss, of the ADEQ, Facilities Assistance Unit, discusses the successes (read: "savings") Arizona metal finishers have had implementing Pollution Prevention measures presented in a recent workshop. In "Internet 101" (pg 20), Paul Kramkowski, of Raytheon, documents internet references, resources, & research methods valuable to EH&S professionals. As always, thanks to all of our great contributing writers, readers, & our advertisers!

Jim Thrush

Editor

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LETTER'S & EMAILS

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Subscribers who sign up on our web page often tell us where they learned about the Journal—here are a few recent comments that I thought were interesting & that show the wide range audience the Journal is reaching:

WHERE DID YOU HEAR ABOUT THE JOURNAL?

“AG sent article regarding drug labs. Local Emergency Planning Committee gets involved in site remediation. County also has several landfill and other environmental issues. We have a UST cleanup operation in progress.” “CHMM Meeting.” “ASU.” “Read a copy that was sent to another GRIC agency.” “Read your magazine.” “ADEQ.” “AZEPA Environmental Regulatory Roundup.” “On-line.” “ASU Environmental Technology Class.” “ASU East - I am a graduate student in the 2003 cohort in the Env. Technology Program, concentrating in both Environmental and Emergency Management.” “Fellow employee.” “SBEPA website.” “At the Intel XL meeting.” “Supervisor.” “Courtesy copy sent to me at work.” “From my colleague.” “Fellow grad student.”

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METAL FINISHING SUCCESSSES IN P2

METAL FINISHING WORKSHOPS RESULT IN
SUCCESSFUL P2 PROJECTS

An ADEQ Facility Assistance Unit study shows that metal finishing P2 workshops resulted in successful Pollution Prevention projects. Metal finishers implement waste minimization techniques learned at P2 workshop

by Gail Bliss

The Arizona Department of Environmental Quality (ADEQ) Facility Assistance Unit (FAU) recently completed a study evaluating the effectiveness of a workshop for Arizona metal finishers that provided assistance on water compliance issues and pollution prevention (P2) techniques. The workshop was one of a series of metal finishing workshops conducted in the fall of 2001, and sponsored by the US EPA Region IX, Arizona Department of Environmental Quality, City of Phoenix, American Electroplaters and Surface Finishers Society (AESF), and the Arizona Water Pollution Control Association (AWPCA).

Metal finishing facilities use a wide variety of materials and processes to clean, etch, and plate metallic and nonmetallic surfaces to provide desired surface properties. The materials used include solvents, surfactants, acids, bases, solutions of metal salts, and other compounds. Due to materials used, metal finishers have historically had a relatively high rate of non-compliance and remediation issues. By implementing a pollution prevention program, hazardous wastes can be

Photographs at left and on cover are courtesy of Southwest Metal Finishing, Tempe, Arizona. According to Julie Rogers, of Rogers Consulting Services, LLC, (see "Tangible Benefits of the Workshops?" on page 10, Feb/Mar 2003 issue) Southwest Metal Finishing saw a reduction in water consumption of about 30% and a savings in chemical costs of 30-40% after implementing some of the technologies suggested at one of the workshops, most notably spray rinsing for process water reduction and bath control by analysis rather than a standard schedule. Julie can be reached at 520-490-8380.

SURVEY RESULTS

The responses to the evaluation and the survey were as follows:

P2 MEASURE	WOULD YOU CONSIDER IMPLEMENTING THIS MEASURE?		AT 9 MONTHS - DID YOU IMPLEMENT?	
Extend bath life	100%	Yes	56%	Yes
Increase hang time	100%	Yes	45%	Yes
Provide worker P2 training	100%	Yes	45%	Yes
Optimize rinse system	92%	Yes	44%	Yes
Change part tilt / improve draining	100%	Yes	33%	Yes
Measure amount of drag-out	100%	Yes	23%	Yes
Conductivity controlled rinse system	83%	Yes	23%	Yes
Evaluate reject/rework connections to P2	92%	Yes	23%	Yes
Change withdrawal rate	100 %	Yes	11%	Yes
Implement steps from MP & M regs.*	100%	Yes	11%	Yes
Change part orientation on racks	83%	Yes	11%	Yes
Regular rack maintenance program	58%	Yes	11%	Yes
Implement Environmental Mgmt. System	100%	Yes	0%	Yes

* Metal Products and Machinery regulations

eliminated or reduced thereby protecting human health and the environment.

The FAU compared an evaluation filled out by attendees at the conclusion of the workshop, which included questions concerning P2 practices attendees would likely implement at their facilities, to a follow-up survey conducted after allowing facilities approximately nine months in which to incorporate P2 processes. The specific results and P2 techniques implemented, as taken from the FAU report, are outlined below. The full report is available on the ADEQ website at www.adeq.state.az.us/. For additional information, contact Gail Bliss (contact information at end of article.)

SUMMARY

At least 25 metal finishing pollution prevention process changes were implemented as a result of the workshop, demonstrating that the workshop effectively generated a high interest in pollution prevention and motivated facilities into action. The FAU survey results also showed that attendees not only implemented many of the techniques presented but also were able to see actual reductions in raw material usage, waste generation, and water usage. The high number of pollution prevention process changes indicates the positive impact of the workshop in encouraging facilities to implement and expand their P2 activities. Survey respondents also expressed interest in additional lectures and hands-on workshops.

SURVEY PART I

The survey was sent to 23 workshop attendees. Responses were obtained from nine different facilities.

The workshop evaluation (completed at the conclusion of the workshop) asked respondents what the likelihood would be that they would implement certain pollution prevention processes presented in the workshop. Twelve facilities responded. The follow up survey asked the respondents to report on the status of implementation of the various pollution prevention

processes listed on the evaluation. By comparing the perceived usefulness and the actual implementation rates, ADEQ could determine if the perceived usefulness matched actual implementation.

SURVEY PART II

The second part of the survey dealt with road blocks,



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HILD:

SUSTAINING OUR FOCUS: THE IMPORTANT THINGS

Thus, its more important than ever that we focus on living, as the song said, and what it takes to sustain our quality of life for our children's future. If we heed those warnings now, in another half a century, our children will be able to look back at what actions we take that

allows now for them to view these times with the same nostalgic reverence that we oldies show for the '50's era of innocence, when things were much less complicated.

For some of us, it comes down to the songs that jog our memories of those times of innocence that will never be available to future generations. The *'Age of Exuberance'* that William Catton discussed in his 1980 text, *Overshoot*, will never again lull an unsuspecting and innocent population into complacency unless we fail to remember lessons learned. And, we can never allow our children's, children's, children to experience such heinous events if we remain focused on providing a sustainable future. Never forget: *Let's think about livin'...let's think about life!*

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The Global and Fliteway equipment, which are both in excellent condition, were purchased brand new from the manufacturer in May 2002. The sale of this equipment will include warranties and the operation manuals and delivery to a local Phoenix destination.

The approximate purchase price was \$70,000, and no unreasonable offering price will be turned away.

For additional information, or to see the equipment, please contact David Kirchner at BASIN & RANGE HYDROGEOLOGISTS, INC. (602) 840-3333, ext. 102, or kirchner@basin-and-range.com.

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METAL FINISHING: P2 SURVEY RESULTS

equipment installed, actual reductions and other improvements not covered in the first portion of the survey.

ROADBLOCKS

Most roadblocks cited centered around financial issues including the following: the need for a cost analysis, having to wait for next budget cycle, and funding not available.

EQUIPMENT

Some respondents purchased equipment to reduce the amount of waste generated. The equipment included: low-pressure, low-volume nozzles, and water evaporators. Others added stagnate dragout tanks after the hot tanks, and spray rinses above some tanks, using rinse water to replenish the plating baths.

REDUCTIONS

The facilities reported seeing the greatest reductions in water usage and waste generation following reduced raw material usage and dragout. One facility through optimizing their rinse system and evaluating their reject/rework connection in regards to pollution prevention was able to reduce the amount of hazardous waste generated from 100 tons down to 55 tons.

TOTAL NUMBER OF PROCESS CHANGES IMPLEMENTED

The workshop motivated facilities into implementing 25 process changes.

ABOUT THE FAU

The Facility Assistance Unit (FAU) focuses on pollution prevention and compliance assistance. For more information on the above article or to receive additional assistance with environmental issues contact the FAU at 602-771-4235 or Dale Anderson, Unit Manager, at DAA@ev.state.az.us.

Gail Bliss is Waste Minimization Coordinator for the Arizona Department of Environmental Quality, Facilities Assistance Unit. Gail has a Master of Technology degree in Environmental Management from Arizona State University, and has been involved in waste minimization and pollution prevention work for 12 years. Gail can be reached at 602-771-4212, or by email at Bliss.Gail@ev.state.az.us.



Michael C. Ford, Attorney

LEGAL NEWS YOU CAN USE
**REGULATORY
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**RCRA PROPOSAL REGARDING
INDUSTRIAL RAGS/WIPES**

On November 20, 2003, EPA proposed two conditional RCRA exclusions for solvent-contaminated wipes and rags. This proposal marks the end of a decade-old policy of deferring interpretations on the issue to authorized states and regions, and should bring more consistency to the varying regulatory interpretations on this issue.

First, EPA is proposing to conditionally exclude from the definition of "solid waste" reusable industrial shop towels and rags that are contaminated with hazardous solvents and sent for laundering or dry cleaning. To take advantage of this exclusion the rags/wipes can only be contaminated with F-listed (e.g., F001-F005) solvent or a corresponding P- or U-listed chemical (e.g., acetone, toluene, etc.) ("included solvents"). The rags/wipes can exhibit a hazardous characteristic as long as it is a result of solvent contamination. The rags/wipes must satisfy a "no free liquids" condition and must be handled in accordance with basic accumulation and transportation provisions.

Second, EPA is proposing to conditionally exclude from the definition of "hazardous waste" disposable industrial wipes that are contaminated with solvents and are bound for disposal. The allowable contaminants, and accumulation and transportation conditions for this exclusion are similar to the reusable rags/wipes exclusion. However, when sent for disposal to a municipal or other non-hazardous landfill, certain additional restrictions apply. Each rag/wipe must contain less than 5 grams of solvent or be treated for solvent extraction. Moreover, 11 specific solvents are disqualified from the exclusion based on EPA risk analysis, including MEK, TCE and TCA. If a rag/wipe contains any amount of these particular solvents, the rags/wipes may not be land-disposed in a municipal or other non-hazardous landfill, but may still be sent to a non-hazardous combustion facility. Solvent-contaminated wipes that contain listed waste other than the included solvents or that exhibit a hazardous characteristic (other than ignitability) due to co-contaminants would not be eligible for either exclusion.

EPA's proposal, and the conditions for the exclusion, represent somewhat of a departure from ADEQ guidance. Under ADEQ guidance, used wipes destined for commercial laundering and reuse are not solid waste, and therefore are not subject to RCRA regulation¹. ADEQ guidance does not specifically limit the types of materials that can be in the wipes, and does not include the other conditions of EPA's proposal, such as the accumulation and transportation conditions. With respect to recycled wipes, therefore, EPA's proposal is more stringent than current requirements. With respect to wipes sent for disposal, on the other hand, the proposal eases current requirements, as it conditionally excludes a number of otherwise hazardous wastes, and allows waste wipes to be land disposed with relatively minimal conditions.

The rule (if and when finalized at the federal level) would become effective in Arizona only after it is adopted at the State level by ADEQ. However, EPA clearly intends to require states that have followed a less stringent interpretation for recyclable wipes to adopt the new federal provisions, and will encourage states to adopt the new less stringent provisions governing wipe disposal as well. Until ADEQ changes its own approach, however, current ADEQ guidance will continue to govern wipes generated and managed within Arizona. (Note: This proposed rule's comment period has been extended to March 19, 2004.)

Note: (1) ADEQ letter from E. DeMarr to C. Duthler dated August 1, 1994.

Michael C. Ford is an Attorney with the Phoenix office of Bryan Cave, LLP, practicing environmental and occupational safety law. His practice is focused primarily on regulatory compliance advice and enforcement defense. He can be reached at 602-364-7417, or by email at mcford@bryancave.com.

ASSOCIATIONS PAGES

Editors note:
Arizona's many environmental associations provide a path for communication and education in the EH&S community. Among other benefits, they provide networking opportunities, educational resources, and keep members informed on professional news and technical advancements. Many of these resources are available to both members and nonmembers, so always look to these associations when you need assistance.

If your organization is not represented here, and you would like it to be, please call us. Being a part of the Associations Pages benefits both the organizations and the readers, most of whom belong at most to a only a few of the organizations, but still would like to keep current on all environmental activities.
Editor

AAI's EHS COMMITTEE BREAKFAST MEETINGS ARE HELD ON THE 2ND WEDNESDAY OF EACH MONTH AT 7:00 AM AT SHERATON PHOENIX AIRPORT HOTEL, 1600 SOUTH 52ND STREET, TEMPE, AZ. 85281.

AAI

The AAI 2004 Manufacturer of the Year Awards Luncheon was held on Feb. 13th at the Arizona Biltmore to recognize and honor Arizona's top manufacturing companies.

This event was attended by business leaders and elected officials from around the state to celebrate excellence in manufacturing in Arizona. We would like to thank all of those who sponsored and participated and want to offer our hardest congratulations to the 2004 winners.

AAI's Environmental, Health and Safety Committee's January 14th Meeting featured Senator Carolyn Allen, Senate President Pro-Tem and Chairman of the Senate Health Committee and Jim Buster, ADEQ's Legislative Liaison. Senator Allen spoke about her expectations for the 2004 legislative session and Jim spoke about ADEQ's 2004 legislative agenda.

For more information go to AAI's web page at <http://www.azind.org> and click on events or contact Brent Frazier (602-252-9415) or Jeff Homer (480-441-6672).

*Jeff Homer,
EHS Committee
Chairman*



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ARE YOU APPROVED TO SIT FOR THE CERTIFICATION EXAM?

The ACHMM Thunderbird Chapter and Gateway Community College are co-sponsoring the National CHMM Overview Course in April 2004. Look for the full-page ad in this issue of the Journal! If you are planning to attend and sit for the certification exam April, don't forget that you need to submit your exam application to IHMM **six weeks** before the exam date. This means that your complete application, including all documentation and the exam fee must be received by IHMM **no later than February 27th!**

IHMM has very stringent requirements for the application, including a complete history of your work experience and accomplishments, education, and professional references. You will need time to arrange for official college transcripts and reference evaluation forms to be sent to IHMM. These can take some time, especially if you have to apply for transcripts by mail. The Overview course does a good job of preparing you for the range of topics covered by the exam. However, you will want to do some additional studying in advance. Here are some additional resources:

- **Hazardous Materials Management Desk Reference.** This ACHMM recommended book was written and edited by CHMM's and will be a valuable addition to your reference library. Refer to the overview course brochure for information on getting the book at a discount: <http://www.thunderbirdchmm.org/TBirdcourse2004.pdf>.
- **CHMMprep V2.2** by Datachem. This software program offers over 1400 study questions in a format that allows you to self-test and find out where your strengths and weakness lie. Go to: <http://www.datachemsoftware.com/chmmprep.htm>.
- **Managing Hazardous Materials.** This study guide is offered by

*Chuck Paulausky,
Chapter Secretary*



IHMM at: www.ihmm.org.

The ACHMM Thunderbird Chapter Feb. 11th meeting was a plant tour of the SRP Arizona Falls hydroelectric plant. The Mar. 3rd meeting will be held at 6:00 PM at the at the **Old Spaghetti Factory, 1418 N. Central Avenue, Phoenix**. All are invited to attend.



Barry Westerhausen,
Sergeant at Arms

The Arizona AESF would like to welcome all who are interested in metal plating, metal finishing, surface cleaning, metal coating or those interested in environmental issues that effect industry to meet with is the second Thursday of each month. Meeting begin with social hour at 5:28 PM and Dinner at 6:28 PM, discussion following. Topics planned for the 2004 are environmental regulations, hazardous waste, new processes, EPA regulations, and plating trends. If you attended last year we had some great meetings on acoustical tank testing, recovery of assets and ways to turn environmental liabilities into financial assets.

It is very important to be aware of what is happening in the industry and AESF is a great way meet people that have many of the same interests and may have encountered some of the business or environmental problems you may be trying to solve. All are welcome to attend; you do not need to be a member to attend.

If you would like to be notified of upcoming AESF events and receive our news letter or have your business/business card listed on the news letter please call or send an e-mail to Barry Westerhausen at bwesterhausen@lachim.com (480) 206-4107 or Mark Thede at markthede1@cox.net (480) 695-4344. Meetings are held at the Doubletree Resort in Phoenix, Van Buren and 44th Street.



Mike Block,
President

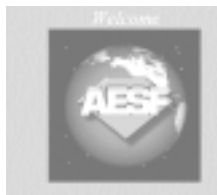
Symposium volunteers are busily preparing for the *Second Biennial Symposium on Scientific Issues Related to the Management of Landfills in Arid and Semi-Arid Regions* to be held in Tucson on March 19-20, 2004. The schedule will feature a mix of plenary and technical sessions, panel discussions, a poster session, exhibits and demonstrations by landfill industry vendors, filed trips, and social events. For more information, check our website at www.azhydro.soc or contact Michael Geddis, Symposium Chair, at Hydro Geo Chem: (520) 293-1500, X-114 (mikeg@hgcinc.com).

We are currently planning an AQTESOLV workshop that will be held in conjunction with the 2004 Annual AHS Symposium next September. In order to best tailor this workshop to suite our members' needs, there is an online survey at our website regarding preferences of topics, cost, and format. Potential participants are encouraged to complete the survey.

All interested individuals are welcome to attend monthly meetings in Flagstaff, Phoenix, and Tucson. Meetings are generally held on the second Tuesday of the month. Upcoming presentations will include such diverse topics as geochemical and isotopic mixing models and drinking water projects in remote regions of Nicaragua.

FOR PROGRAM AND OVERVIEW
COURSE INFORMATION, GO TO:
[HTTP://
WWW.THUNDERBIRDCHMM.ORG/](http://WWW.THUNDERBIRDCHMM.ORG/).

AESF



2004 ARIZONA AESF

SPEAKER & EVENTS LINE UP:

FEB. 12TH - DAVE LICEIG, ABRAMS AIRBORNE, ON EPA AND EVAPORATOR REQUIREMENTS FOR WWTU.

MARCH 11TH - PATRICK RYAN, ADOSH, ON INSPECTIONS, TRAINING AND AUDITS.

APRIL 15TH - JOINT MEETING WITH NAMF (NATIONAL ASSOCIATION OF METAL FINISHERS)

MAY 13TH - TBD

JUNE 5TH - ANNUAL AESF GOLF TOURNAY

AUGUST 3RD - ANNUAL AESF DIAMOND BACKS GAME (TENTATIVELY SET)

ARIZONA HYDROLOGICAL SOCIETY



AHS PREPARES FOR UPCOMING
LANDFILL SYMPOSIUM

For information specific to your area, check our website or contact chapter presidents: Flagstaff, Richard Brose, Four Corners Environmental, rjbrose@fourcornersenv.com; Phoenix, Peter Kroopnick, Brown & Caldwell, pkroopnick@brwnclld.com; Tucson, Bill Petrouson, AMEC, Inc., bill.petrouson@amec.com.

SAEMS



SAEMS LUNCHEON MEETINGS ARE ROUTINELY HELD THE LAST WEDNESDAY OF THE MONTH AT THE VISCOUNT SUITES, STARTING AT 11:30. FUTURE LUNCHEON TOPICS INCLUDE ADEQ'S UST PROGRAM, AND VULNERABILITY ASSESSMENTS FOR INDUSTRIAL FACILITIES.

The Southern Arizona Environmental Management Society (SAEMS) 2003 Wildcat Dump cleanup was an overwhelming success. SAEMS received donations of equipment, materials, and/or services from Chemical Transportation Inc., Southwest Hazard Control, Sunstate Equipment, City of Tucson and Pima County Department of Environmental Quality.

The cleanup focused on an area of ~ 1/2 square mile north east of the intersection of Rita and Houghton Roads. During the 4 hour collection, the volunteers collected just less than 5 tons of trash and 1 ton of recyclable scrap metal. The Rita Reserve Neighborhood Association vowed to maintain the desert and trails to alleviate the need for future cleanups at the site.

Some of you saw it at the Regulatory Round-up in Phoenix. Others read about it in the last issue of this Journal. Now, SAEMS is working with the Environmental & Natural Resources Law Section of the State Bar to bring the "Anatomy of a Toxic Tort Case" to Tucson. The half-day seminar will be held the afternoon of March 31 at the Marriott University Park. For more information about SAEMS visit WWW.SAEMS.ORG.

*Pamela Beilke,
President*



VALLEY FORWARD

VALLEY FORWARD



Valley Forward Association's mission is to bring business and civic leaders together to improve the environment and quality of life in Valley communities. Clearly, one of the greatest challenges we face in this Valley is providing a balanced regional transportation plan that incorporates freeways, street improvements, increased bus service and building on the planned light rail system.s

Valley Forward Association strongly endorses the Regional Transportation Plan. It is a balanced plan that will help reduce traffic congestion, provide connectivity among local communities, reinforce efforts to reduce air pollution and improve the quality of life in the Valley.

Our public interest group, representing more than 200 member organizations, has brought business and civic leaders together to improve the livability of Valley communities since 1969. We are historic advocates of an integrated multimodal transportation system, been supportive of other recent voter approved transit programs throughout the community.

Valley Forward Association has been at the forefront of advocating for light rail and transit-oriented design, as well as the economic development opportunities that these projects will create. Well designed light rail systems have proven to rejuvenate urban cores throughout the country. The potential to revitalize our Downtown Urban Core is greatly enhanced with the passage of the Regional Transportation Plan.

We believe the Regional Transportation Plan is critical to our rapidly growing metropolis. It is integral to maintaining the

*Diane Brossart,
President*



Continued on page 16



SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT: **SUSTAINING OUR FOCUS ON THE IMPORTANT THINGS**

“... LET’S THINK ABOUT LIVIN’, LET’S THINK ABOUT LIFE!”

BOB LUMAN, SINGER (JULY 1960)

Nicholas R. Hild, PhD.

When I was a teenager back in the dark ages of the 1950’s, I couldn’t wait to get out of school and across the street to the diner where the jukebox was jumping and the bobby soxers were groovin’ to the latest rock and roll songs. It *was* just like the line in Chuck Barry’s *“School Daze”*...*really!* As I progressed from junior high into high school, American Bandstand and the ageless Dick Clark dictated the trends in dress and hairstyles and the most important priorities of our young lives were how to get my own car for those Saturday night dates with Peggy Sue sitting close and listening to the Wolfman, and cruisin’ the loop. (In Phoenix, it was Central Avenue from the library to Camelback, through Bob’s Big Boy to check out who was cool, and back again).

What got me thinking about those old memories was the music that was played at a car show I attended recently (i.e. those who know me, know that I am particularly fond of old cars and pickup trucks). At most of the car shows, you see a mixture of ‘older folks’ who are able to afford the cars they wish they’d had back in their youth, together with younger folks who just like the nostalgia of having something to show they appreciated the “*they don’t build ‘em like that anymore!*” crowd. For them, the old cars *are* more sustainable, by definition: they keep on going, just like the energizer bunny.

Then, there is the music that is background to all the show activities. At this particular event, one of the oldies they played was the late Bob Luman’s “... *Let’s Think About Livin’*” that seemed to jog something loose in my frontal lobe. That’s the part of my brain where my ‘sustainability’ issues are stored, I guess, because the song reminded me that, way back in the pre-9/11/01 days, growing up (and growing older) young people sure didn’t carry around the burden of knowing they would be responsible for sustaining lifestyles as we know it for our children’s future.

Luman’s lines, while prophetic for their times, weren’t even close to being a call to arms for finding ways to... ‘*think about life*’ and how to sustain it.

“...let’s forget about the whining and the cryin’
and the shootin’ and the dyin’ and the fella
with the switch blade knife...
...let’s think about livin’...
...let’s think about life!”

It was a somewhat tongue-in-cheek poke at us about the carefree lives we were living, and reminding us to take a look around at our own neighborhoods and living situations and to refocus on living together in harmony and peace (in those days, there was a lot of civil unrest and ghetto shootings making the headlines).

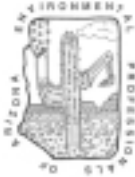
As ‘50’s teenagers, Luman’s sage advice came sandwiched between the launch of Sputnik in ‘58 and the assassination of President Kennedy on November 22nd of ‘63, both jarring reminders that we were no longer an isolated super-power that could dismiss threats to our democracy ever again. The attacks of 9/11, some 40 years later reminds us once more, we can no longer think only about today’s priorities. We must keep ever vigilant to the tasks we need to perform locally that have global ramifications.

Continued on page 10

Nicholas R. Hild, PhD., Professor, Environmental Technology Management, Arizona State University College of Technology and Applied Sciences, 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.

livability and economic vitality of the place we call home. And, it is an investment in our children's future.

EPAZ



EPAZ HOLDS MONTHLY LUNCHEON MEETINGS ON THE 2ND THURSDAY OF THE MONTH AT THE SHERATON AIRPORT HOTEL (52ND ST. & BROADWAY) FROM 11:30 AM TO 1:00 PM. COST IS \$20 MEMBERS/\$30 NON-MEMBERS. EPAZ ALSO GATHERS ON THE LAST WED. OF THE MONTH FOR A CASUAL COCKTAIL MIXER.

Happy New Year and we hope everyone had a great holiday. As the new EPAZ board members get adjusted to our new roles we are hitting 2004 running. January's EPAZ meeting featured Ira Domskey,

*Eddie Martinez,
President*



ADEQ's Deputy Division Director for Air Quality. His presentation explained the PM-10 Ozone Standard and what areas in the Valley were meeting the standard. Robert Bohannon with SA&B Chemical & Environmental Consultants will present at the February 12th meeting and will discuss ANSI training. The March 11th meeting will be presented by Hal Gil with H Gill & Associates and Ken Ames, with Terrane Engineering they will discuss UST and the latest information regarding reimbursement of site remediation from the State of Arizona. Other topics for future meetings will include: Regional Haze, Mold Issues, Children's Health Issues and Forest Energy.

Greg Fisher, the newly elected EPAZ Secretary, recently notified the board of his need to step down. Greg is self-employed with his own firm, Aegis Environmental Strategies. His business recently began to pick up and he was worried that he wouldn't have the time to commit to EPAZ. We are sad to lose Greg, but wish him well and look forward to seeing him at EPAZ events, as he continues to be an active member of EPAZ. The board met, reviewed current Bylaws and after serious consideration, elected Julie Slocum, Sr. Account Manager from Del Mar Analytical as his replacement. Please welcome Julie as our new Secretary.

Visit <http://www.epaz.org> for more details regarding upcoming meetings and our monthly mixer location or contact me at Oberg Industries at (480) 940-2006 x181 or Eddie.Martinez@Oberg.com.

AZELM



GET TO KNOW AZELM AND DISCOVER HOW YOUR VISION, INVOLVEMENT, AND MEMBERSHIP CAN DRIVE THE ECONOMIC ENGINE OF ARIZONA

Dear Friends and Supporters of AZELM (Arizona Environmental Leadership through Mentoring): The year 2003 was a year of transition for our organization and we now look to provide a solid

Richard Polito



foundation for success in the years to come. What more, we need new members with true visionary leadership, as there is nothing like feed back to keep us on our toes.

As you may know, we cancelled the Symposium for Environmental and Economic Development (SEED) in 2003; but SEED 2004 has now been "planted" and we are exploring a new host date with the Doubletree Paradise Valley Resort. This year, it will be important to promote our objectives and establishing new collaborative relationships with strategic partners.

We all foresee 2004 as being a powerful year—one in which we all will continue to seize opportunities associated with protecting the environment. People all over the state should focus greater attention on working together to develop this meaningful dialogue.

You should hear shortly about our plans to transform AZELM into an efficient, customer-focused, best-in-class organization. The transformation starts right now! For more information: www.azelm.org, contact me at 602-506-5102, or Dan Roe at Dan.Roe@azdema.gov.

The Arizona Division of Occupational Health and Safety (ADOSH) is responsible for enforcing the occupational safety and health standards throughout Arizona. However, ultimately, it is the employer's responsibility to provide a safe and healthy workplace for their particular establishment.

The employer must first, understand the hazards that their employees are faced with and protect them against any injury or illness. Under 29 CFR 1910.132(d)(1), ADOSH requires employers to *assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE)*. Before an employee begins a new task, the employer must make an informed decision about how they will provide a "safe and healthy" workplace. One of the basic means by which employers can accomplish this is by performing a thorough hazard assessment. Throughout industry, a hazard assessment is commonly known as a job hazard analysis (JHA); more specifically, the JHA could be known as a *task* hazard analysis. Once that knowledge has been gained, employers could then assign those tasks to be performed.

A hazard assessment entails a full understanding of the work tasks typically performed. An employer could rely on industry practice, knowledge or experience, or PPE representatives to assist in this assessment process. If employees are subject to being injured by the *hazards or processes of the environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of*

We chose hazard assessment for this issue's article based on recent ADOSH inspections conducted and citations issued. Here are some suggestions to help you avoid citations & protect your employees.

HAZARD ANALYSIS

EMPLOYERS MUST PROVIDE A SAFE AND HEALTHY WORKPLACE

by Sean Kriloff

any part of the body through absorption, inhalation or physical contact, PPE shall be provided, used, and maintained in a sanitary and reliable condition.

Once specific PPE has been identified, employers must ensure that employees always use the required it when performing their assigned tasks. During an OSHA inspection, deficiencies are typically found with respect to either an inadequate or missing hazard assessment, or for not providing or ensuring the PPE is always worn. A common misconception stems from the employer's belief that once PPE has been issued, no periodic "policing" must be done to ensure the employees are always wearing the PPE. Employers are required to ensure that PPE is always worn.

An often overlooked part of 1910.132 is the employer's requirement to provide training to each employee who is required to use PPE. Employees must be trained to know at least the following: *When PPE is necessary; What PPE is necessary; How to properly don, doff, adjust, and wear PPE; the limitations of the PPE; and the proper use, care maintenance, useful life and disposal of the PPE.*

During an inspection, a compliance officer typically finds damaged, and worn PPE in the shop and finds no employees wearing what's required. As the employer, you must ensure your employees are provided with adequate PPE, that they always use the PPE, and that they are trained according to its' use.

Arguably, at many work sites hazards are created, changed, and eliminated each day. Employers must have a full and informed understanding of the tasks performed at their worksites. By ensuring employees are utilizing the PPE issued, injuries will be minimized and employee morale can be boosted.

Sean Kriloff is an Industrial Hygienist for the Division of Occupational Safety and Health of the Industrial Commission of Arizona. Sean can be reached at 602-542-1664, or by email at kriloff.sean@dol.gov.

ADOSH has a consultation office that can answer questions or help employers comply with this and other OSHA standards. The consultation sections can be reached at 602-542-1769 in Phoenix, or 520-628-5478 in Tucson.



David G. Young,
President

The strength of the Arizona Environmental Strategic Alliance has always been in its members. APS, a charter member of the Alliance, is currently involved in a project that illustrates

its commitment to sustainability and to being an environmental leader in the State of Arizona.

Since February 2002 APS has been involved with the Stone Forest Biomass Project, which will utilize non-commercially viable and dead trees as feed for a biomass energy plant. The project will be operated by Western Renewable Energy and will help APS meet Arizona's energy needs while lowering the risk of forest fires in the area.

Believed to be the first of its kind in the state, the project will consume approximately 96 tons of forested wood each day and will produce 3 megawatts of electricity, or enough energy for up to 3,000 homes in the region. By using the wood chips that are produced from trees that would not otherwise be used, APS expects to reduce greenhouse gas emissions by up to 15,000 tons per year.

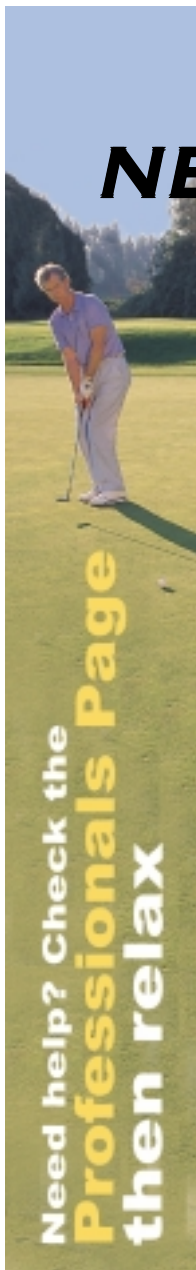
The plant will serve as a blueprint for future APS biomass energy plants around the state.

ARIZONA ENVIRONMENTAL STRATEGIC ALLIANCE



FOR MORE INFORMATION ABOUT THE
ARIZONA ENVIRONMENTAL STRATEGIC
ALLIANCE VISIT
WWW.AZALLIANCE.ORG

NEWS BRIEFS



ROGERS CORPORATION

❖ Rogers Corporation announced that Anita Jain was recently promoted to the position of Corporate Manager of Environmental, Health, & Safety Engineering Department of Rogers Corporation. She has over twenty years of experience including the last sixteen years with Rogers Corporation in Arizona.



Andrea Zeising, EH&S Manager, Rogers Corporation

Anita will be relocating to the corporate headquarters in Rogers, Connecticut. We wish her well with her move and new responsibilities.

Andrea Zeising has been promoted to the position of EH&S Manager of Rogers' Western Operations including facilities located in Chandler, Arizona and in Suzhou, China. Andrea earned her Bachelor's degree in Mechanical Engineering from the University of Minnesota and has over twelve years of experience in the EH&S field. Good luck and best wishes to Andrea as well in her

new position. Andrea can be reached at 480-917-5250, or by email at andrea.zeising@rogerscorporation.com.

Rogers Corporation, headquartered in Rogers, CT, U.S.A., develops and manufactures high-performance specialty materials, which serve a diverse range of markets including: wireless communications, computers and networking, imaging, transportation and consumer. Rogers operates manufacturing facilities in Connecticut, Arizona, Illinois in the U.S., in Gent, Belgium, and in Suzhou, China. Sales offices are located in Japan, Hong Kong, Taiwan, Korea, China, and Singapore.

SUSTAINABLE BUILDING INDUSTRY COUNCIL PRESENTS SEMINAR AT PIMA COMMUNITY COLLEGE

❖ The Sustainable Buildings Industry Council in conjunction with DOE's Federal Energy management program will be presenting "Design Strategies for Low-Energy, Sustainable, Secure Buildings" in Tucson on Feb. 24-25. A few of the topics include "A Way of Thinking: The Building Systems and The Building as a System," "Integrated Design," Indoor Environmental Quality, "IEQ: Acoustics as an Example," and many others. For information contact Richard Franz at Pima Community College at 520-206-4730 or by email at Richard.Franz@pima.edu.

SA&B SENIOR PROJECT MANAGER ATTAINS P.E.

❖ Mannie Carpenter, Senior Project Manager of the Air Quality Consulting & Stack Emissions Testing Group at SA&B Environmental & Chemical Consultants, has met all of the requirements of the Arizona Board of Technical Registration and is now a registered Professional Engineer (Environmental) in Arizona. Mr. Carpenter joined SA&B in 2002, and can be reached at 602-263-0045, or by email at mcarpenter@sab-env.com.

SUPERIOR cleaning equipment inc. <i>Quality cleaning and environmental systems for industry</i>	LANDA WATER CLEANING SYSTEMS	800-635-4903 2455 S 7th Street, Ste 120 • Phoenix, AZ 85034 Ph: 602-257-1357 Fax: 602-254-9048 www.scec corp.com • info@scec corp.com
	<ul style="list-style-type: none"> • Wash Water Recycling & Pre-Treatment Systems • Wastewater Evaporators • Biological Systems • High Pressure Hot & Cold Washers Aqueous Parts Washers • Custom Trailer Units • Local Factory Trained 24 Hour Service • CAD Design & Layout • Showroom 	
"Helping Arizona businesses solve environmental & cleaning equipment needs for the past 12 years."		



Larry Olson, PhD.

IT'S ALL ABOUT CHEMISTRY

MERCURY: DEATH BY QUICKSILVER

She was an internationally known Ivy League scientist who had published almost 100 papers and was a former Dean of Graduate Studies at Dartmouth. Only 48, she was a devoted mother of two young children and an avid hiker and skier. In August 1996, she was working on a cancer project using a well ventilated hood, safety glasses and latex rubber gloves while she transferred a clear liquid, three times as dense as water, using a pipette. Not till five months later would she recall that she had spilled a drop or two on her gloved hands.

Nothing happened. The liquid didn't burn a hole in her gloves. There was no odor or sting or any sensation at all. She didn't even consider it an accident. But a few weeks later she had an episode of nausea, and then abdominal pain. By January she began to have trouble speaking and hearing and with her balance and gait. When she checked herself into Dartmouth Medical Center her blood tests showed she had 80 times the lethal dose of mercury in her body. Six months after her exposure, she went into a coma from which she never recovered. On June 8, 1997 Dr. Karen Wetterhahn died after spilling as little as one drop of a compound called dimethyl mercury on her gloved hand.

Organomercury compounds, the type Dr. Wetterhahn was using, have long been known to be much more toxic than inorganic mercury salts or the silvery liquid elemental form that Aristotle first named quicksilver more than 2000 years ago. Dimethylmercury has been used as a fungicide to prevent seed grains from rotting. Normally the amount remaining on seed grains is only in the parts per million range. But there have been episodes of poisoning, in Iraq, Pakistan, and Guatemala, when treated grains which were intended for planting were instead made into flour. Hundreds of fatalities resulted.

An even more insidious property of mercury is that it can be converted from inorganic to organomercury compounds by anaerobic organisms in soils or sludge and can then bioaccumulate in the food chain. This trait was not recognized in 1956 when the first human victim from Minamata Bay, Japan, a six year old girl, began to exhibit symptoms. Altogether 68 people were killed and thousands more were afflicted with severe birth defects and permanent crippling, giving rise to a July 25, 1970 New York Times editorial. "Mercury has long been known to be a poison...until recently neither government officials nor scientists gave much thought to possible harmful effects...there was evidently widespread assumption that mercury was insoluble and would lie forever quietly and inertly at the bottom of any body of water it reached." Only now in hindsight do we know how wrong this was.

One of the most famous photographs ever published in Life Magazine was by W. Eugene Smith of a Minamata mother bathing her terribly deformed daughter (http://www.masters-of-photography.com/S/smith/smith_minamata_full.html). This photograph became the face of industrial pollution and the impact of toxic chemicals. It was an important milestone in the evolving environmental movement.

In the next issue we will look at how mercury exerts its toxic effects, how much the average person is exposed to, and what can be done to reduce our exposure.

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

INTERNET 101 FOR THE ENVIRONMENTAL, HEALTH & SAFETY PROFESSIONAL

Maximize your effectiveness
with these suggestions on
EH&S References,
Resources, and Research

by Paul Kramkowski, CHMM.

As recent as the early 1990's, the informed Environmental, Health and Safety Professional had to maintain a collection of books that would rival the reference section at your local library. It would have included materials such as a full set of CFR's (usually outdated), a couple chemical dictionaries (probably Merck and Hawley's) and several binders full of MSDS sheets.

Today, reference materials that

used to take up a ridiculous amount of shelf space are now available electronically and sometimes, are actually free. As one searches cyberspace dodging pop-ups and blinking advertisements looking to separate you from your hard-earned money, it is easy to forget that the early internet was inspired by and developed to support the free exchange of information. Not to worry, there are still good people and good organizations out there that continue the spirit of sharing. The hard part for the EHS Professional is locating the useful internet sites and then navigating through them to get to the needed information.

In order to maximize your effectiveness using the World Wide Web as a quick and easy resource, it is important to remember three things: References, Resources, and Research.

REFERENCES

Stockpile all the links to free reference materials that you can find on the internet. On the Windows desktop of my office computer, I keep 10 shortcuts to free websites that I travel to often, all but two of which I used to have in full text versions on my bookshelf. Believe it or not, these 10 have not changed with my career change from HazMat emergency response and remediation contracting to fixed facility environmental management.

- CFR Index - Government Printing Office (www.access.gpo.gov/nara/cfr/cfr-table-search.html#page1)
- Federal Register - Government Printing Office (www.gpoaccess.gov/fr/index.html)
- Arizona Administrative Code (www.sosaz.com/public_services/Table_of_Contents.htm)
- Arizona Revised Statutes (www.azleg.state.az.us/ArizonaRevisedStatutes.asp)
- NIOSH Pocket Guide to Chemical Hazards (www.cdc.gov/niosh/npg/npg.html)
- ATSDR ToxFAQs (www.atsdr.cdc.gov/toxfaq.html)
- Vermont - SIRI MSDS Database (www.hazard.com/msds/index.php)
- DOT Emergency Response Guidebook (www.tc.gc.ca/canutecc/erg_gmu/erg2000_menu.htm)
- SW-846 Test Methods for Evaluating Solid Waste (www.epa.gov/epaoswer/hazwaste/test/main.htm)
- NIOSH Manual of Analytical Methods (www.cdc.gov/niosh/nmam/nmampub.html)

In addition to these 10 reference materials, I keep about 20 more references in my favorites such as the Coast Guard's CHRIS Manual (www.chrismanual.com) and the OSHA Technical Manual (www.osha.gov/dts/osta/otm/otm_toc.html).



Find your own top ten and make them as easy to get to as pulling them off your bookshelf. You can accomplish this by simply dragging the link from your Favorites to your Windows Desktop. For example, if you do a large amount of contaminated soils remediation, you might have a direct link to the latest version of the Arizona Soil Remediation Standards (http://www.sosaz.com/public_services/Title_18/18-07.pdf) and the section in the OSHA Technical Manual for Excavations (http://www.osha.gov/dts/osta/otm/otm_v/otm_v_2.html).

Most of the reference examples listed above are specific to the environmental field but many of the same quality resources are available for health and safety, industrial hygiene, ergonomics, fire safety, and asset protection.

RESOURCES

Find a good EHS focused links page or index that can take you quickly to resources related to your area of expertise or facility type. These comprehensive links pages are typically found through organizational websites such as AIHA (www.aiha.org) or Southern Arizona Environmental Management Society (www.saems.org), education and military sites such as Ohio State University EHS Department (chem.osu.edu/ehs/) or Naval Safety Center (<http://safetycenter.navy.mil/>), and EHS magazine websites such as Environmental Protection (www.eponline.com) or Occupational Hazards (www.occupationalhazards.com/). Some other very good internet sites with quality links pages include Vermont Safety Information Resources Inc. (www.hazard.com), Christie's Safety Related Internet Resources (<http://www.christie.ab.ca/safelist/>), Safety Next (www.safetynext.com), and HazMat 101 (www.hazmat101.com).

I currently use Environment, Health and Safety Online (www.ehso.com/contents.php) as my resource site, if for no other reason than to support a group that provides information in the true spirit of the internet. As the site contributors state on the web site, *"We are chemists, engineers and environmental professionals. We believe that factual, verifiable and easy-to-understand information needs to be provided to the public to help people make better decisions about the products and services they buy and their family's health."* For my needs, EHSO also provides the best combination of ease of use, volume and quantity of information to make it an ideal resource page.

RESEARCH

When all the above fails to gather the information you are looking for, "google" it (www.google.com), "yahoo" it



Many EHS references, once expensive to purchase and difficult to keep current, are now freely available on-line. ABOVE: Snapshot of the Government Printing Office CFR Index web page

(www.yahoo.com) or whatever "it" you prefer. In non-geek terms, let the internet do the work for you. Find a good search engine that filters available information to your liking and let the internet do the research for you.

It's not that there aren't any quality "for profit" websites out there, of course there are. But as the old saying goes, why buy the cow when you can get the milk for free. So until the free milk stops flowing, take advantage of it. Even more important, if you have the means and the knowledge that someone else can use to make better decisions, contribute to the "free milk" flow. Share your knowledge via your company or professional organization's website or newsletter.

If you are interested in an introductory tour of the internet for the EHS Professional, check out "Safety Information and the Internet" by Ralph Stuart at the University of Vermont (hazard.com/course).

Paul S. Kramkowski, CHMM, is Waste Operations Manager with Raytheon in Tucson. Paul can be reached at 520-794-8766, or by email at paul_s_kramkowski@raytheon.com.



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CALENDAR

AZ ENVIRONMENTAL DATES, FEBRUARY 15, 2004, THROUGH MAY 15, 2004

FEBRUARY

- 25 EPAZ Cocktail Mixer Phoenix. Location to be announced. See website www.epaz.org.
 26 SAEMS luncheon Tucson. 11:30 am at Viscount Suites. Check with website www.saems.org.
 27 CHMM applications Statewide. **App. deadline for the exam** to be held Ap. 16, Phx. For info: www.ihmm.org or see pg 3. Deadline for the CHMM certification overview course is April 2. Jerry Fields 602-567-3827.

MARCH

- 1 FAR Reports Due Statewide. Facility Annual Reports and Registration Fees due. Contact Gail Bliss, ADEQ, at 602-771-4212.
 3 ACHMM Din. Meeting Phoenix. Dr. Kevin Wallace, Banner Occ. Health Services, to speak on Toxicology. See www.thunderbirdchmm.org.
 11 EPAZ luncheon Phoenix. 11:30 am to 1:00 pm. Topic: Underground Storage Tanks & Remediation Reimbursement. See www.epaz.org.
 27 AEC Env. Task Force Tempe. AZ Ecumenical Council Conf. Speakers: David Radcliff, New Com. Project, and Carl Pope, Sierra Club. See <http://home.earthlink.net/~caringforcreation/> or Doug Bland 480-967-5266.
 31 EPAZ Cocktail Mixer Phoenix. Location to be announced. See website www.epaz.org.
 31 SAEMS "Toxic Tort" Tucson. "Anatomy of a Toxic Tort Case," an afternoon seminar at Marriott Univ. Park: www.saems.org.

APRIL

- 7 ACHMM Din. Meeting Phoenix. Ben Meche' of KBK Innovations to speak on Mgmt of Universal Wastes. www.thunderbirdchmm.org.
 8 EPAZ luncheon Phoenix. 11:30 am to 1:00 pm. Topic: Mold Issues, Bob Hutzel, Hutzel & Associates. See www.epaz.org.
 28 EPAZ Cocktail Mixer Phoenix. Location to be announced. See website www.epaz.org.

MAY

- 13 EPAZ luncheon Phoenix. 11:30 am to 1:00 pm. Topic: Childrens' Env. Health Issues, Alice Wallwork, ADEQ. See www.epaz.org.
 13-14 Phx Brownfields Conf. Phoenix. Brownfields redevelopment in Phx & Valley. Rosanne Sanchez at rosanne.sanchez@phoenix.gov.

Items for the Calendar should be submitted 5 weeks prior to publication date. Acceptance for publication is at the discretion of the editor. Please contact the Editor at 480-422-4430 x42, or send items to Calendar@ehshomepage.com.

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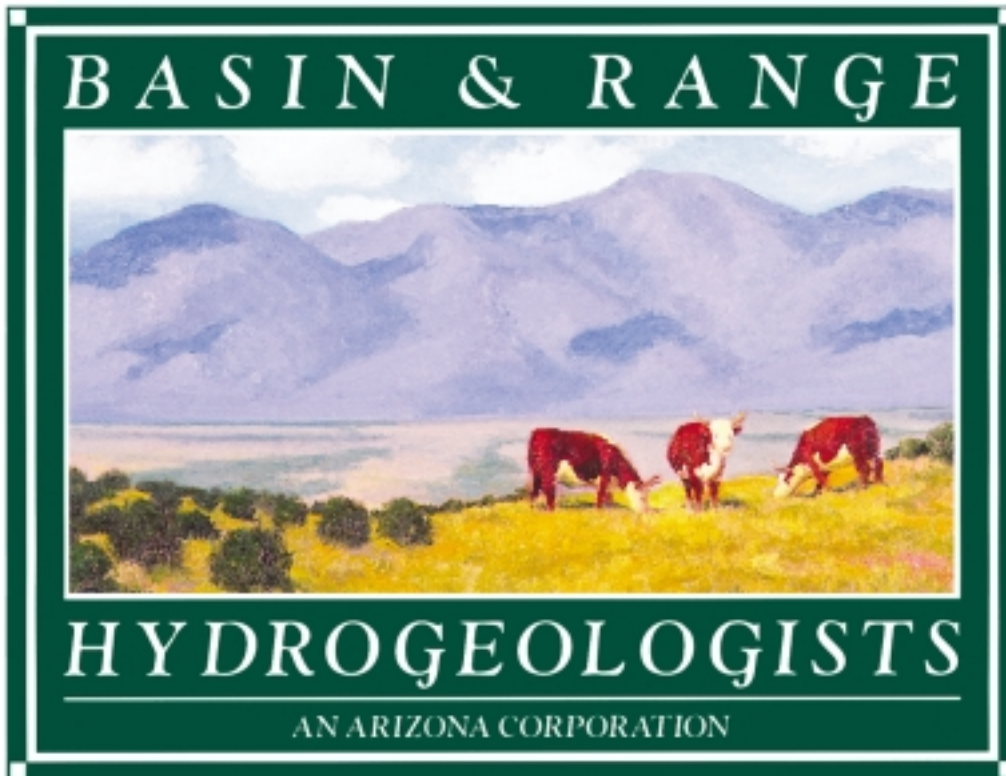
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