

# JOURNAL Of Environmental Management ARIZONA

Practical and Current information for Environmental, Health and Safety Professionals

PREMIER ISSUE

Make Yourself at Home. This is Your State.  
This is YOUR Environmental MAGAZINE!

Arizona Generators:

**REDUCE ENVIRONMENTAL  
LIABILITY & SAVE MONEY**

**SPCC PLAN FINAL RULE**

Fewer Facilities Will be Subject to Plans

**9 ENVIRONMENTAL ASSOCIATIONS  
INTRODUCE THEMSELVES**

How they can help YOU *See the Association Pages*

**SAFE STORAGE OF  
INCOMPATIBLE CHEMICALS:  
A PRIMER**

*See "It's All About Chemistry" with Larry Olson, PhD.*

**BROWSE THE JOURNAL: NEWS,  
ARTICLES, COLUMNS & DEPARTMENTS**

February / March 2003 Vol 1 No. 1

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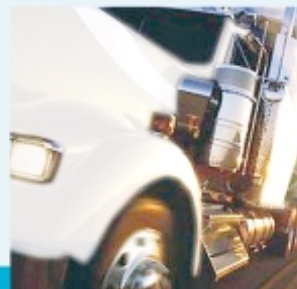
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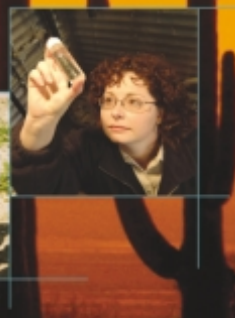
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# JOURNAL OF Environmental Management

## ARIZONA

February / March 2003

Volume 1 Number 1

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Thank you. *Editor*

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Serious legal, environmental, and/or safety consequences can result from non-compliance with environmental and safety regulations and standard safety, environmental, and professional practices.

## JOURNAL of Environmental Management ARIZONA

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## From the Editor



In April 2002, just before I completed my M. S. in Environmental Management at Arizona State University, Lisa Poff Culbert, the President of the Environmental Professionals of Arizona, asked me what my career plans for the future were. I responded, do you want to know about the practical plan or my dream? Lisa told me she

hears enough practical talk, tell me what the dream is. Well, my dream was to publish a journal for the environmental, health & safety (EH&S) community in Arizona. And now, after two years of preparation and thanks to a lot of advice and help from Lisa and many, many others in the environmental community, I'm honored to be able to present to you Issue I, Volume I of the Journal of Environmental Management Arizona.

I've long felt that Arizona has needed a statewide environmental publication for EH&S professionals. Communicating and networking with other professionals is especially important in this field. To stay current with regulations and to grow in knowledge as technology advances, an EH&S professional must continuously look outward for information and sources of ideas. A locally oriented Journal can assist by providing a platform from which local environmental experts can share information and discuss local issues and environmental challenges.

This Journal is a modest attempt to provide a communication platform, and we invite Arizona's environmental experts, and this includes you, to use it to share your knowledge & experiences with others facing similar challenges.

Thank you for giving the Journal a try. Let us know what topics you want to see in future issues. And please subscribe, if you haven't already.

Again, thank you to all who have helped in so many ways to bring this Journal to publication, especially the Journal advisors, columnists, authors, advertisers, and subscribers. I hope you will all benefit from the Journal.

The EH&S field is a great place to make a difference in our world, in our state, & in our community. It's a privilege to be a part of this, and I hope we can work together to improve our environment, our state, our communities, and our facilities.

Jim Thrush

Publisher & Editor



# To the Journal :

## Letter's & email s

EDITOR:

Arizona now has a new way to communicate environmental issues. I hope industry and governmental agencies take full advantage of this excellent opportunity to increase awareness and understanding of the environmental issues facing our state.

KALE WALCH

Engineer II

Pinal County Air Quality Control District

EDITOR:

I'm congratulating you in advance on your new magazine, and am looking forward to some good topics and discussions on Arizona issues! I've seen the list of topics that have been offered as suggestions for articles, and was amazed at the number and variety of topics. Maybe you can send a complimentary copy to our new governor, and ask her how she plans to impact ADEQ's compliance enforcement and customer assistance programs. Best of luck!

TOM CURRY

Environmental Compliance Program Administrator  
Central Arizona Project

EDITOR:

I just wanted to wish you luck and to congratulate you on the eve of the inaugural edition of the Journal. I think the concept is more than a "nice-to-have" and those of us working in Environmental, Health & Safety can surely benefit from it. It will be interesting and no doubt

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*Mail, email or fax your letter to the editor.*

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enlightening, to read and learn about local topics of interest from peers and regulators alike. I must also say that I don't envy you. You're like an unknown actor or recording artist — the first edition doesn't have to be a million seller, but it does have to grab and hold the interest of some very discerning readers. Well, being able to imagine the numbers and credentials of the potential contributing editors you have to choose from (most of whom I'm sure, are more than willing to share their insights, tips, and war stories) you should have no problem at all! So, lots of luck (cause everybody can use some) and congratulations (on making that first big step).

JAMES FOWLER

E, H, & S Manager  
Mesa Fully Formed, Inc.

EDITOR:

Congratulations! The Journal of Environmental Management Arizona is great! This magazine, dedicated to Arizona environmental needs and issues, is sorely needed and fills a great void. Those of us who live and work in Arizona understand our unique and sometimes fragile environment. Having a magazine which examines Arizona environmental issues is a terrific resource for anyone. Thanks for taking the bold step of creating such a resource.

R. BRUCE SCOTT

R. Bruce Scott, L.L.C.



*Romic Shares Generator Do's and Don'ts*

## **Minimize Your Haz Waste Disposal Costs**

Hazardous waste generators can minimize disposal costs, prevent unexpected charges and delays, and reduce environmental liabilities, by following the ten guidelines offered by Romic Environmental Technologies Corporation of Chandler, Arizona.

by Scott Ewbank

**A**s a full-service treatment, storage and disposal facility (TSDF) servicing large and small quantity generators since 1988, Romic has been in a unique position to observe the hazardous waste management techniques practiced by our customers. Our experience over the years shows that simple mistakes can lead to costly delays and surprise charges. These mistakes, in virtually all cases, can be easily avoided by following ten basic guidelines that were developed from the cumulative experience of the environmental professionals at Romic.

Look beyond price and insist on sound disposal methods that reduce liability

Generators should clarify to

their service providers which disposition methods are acceptable and which are unauthorized. For example, many companies expressly prohibit land disposal and deepwell injection because of lingering liability concerns. Tracking of the ultimate treatment/disposal methods and destinations used is required for annual regulatory reporting (FARs), but more importantly is key to managing your company's environmental liability.

Characterize your wastes accurately and precisely

Too many generators place too much reliance on their disposal vendor(s) to properly characterize their waste streams. It is the generator's legal responsibility to monitor the constituents and variances exhibited in their wastes. Your TSDF can assist with this task, but every company should implement their own waste monitoring systems to assure continuous compliance and cost management.

Determine what recycle / disposal alternatives are available for those wastes

Thorough knowledge of waste compositions will assure that cost-effective disposition methods are being utilized. For example, wastes may be suitable for recycling or beneficial reuse if the nature of waste materials is consistently maintained. Insist on knowing exactly what treatment/disposal methods are available and are being used by your service provider for ultimate disposition of your waste materials.

Monitor changes in your wastes, however subtle, and modify profiles as required

Regulatory inspections of hazardous waste generating sites involve checks for updated waste characterization documentation, so be ready. Another benefit of monitoring the "quality" of your wastes is that significant fluctuations can provide a QA/QC indicator of upstream production processes.



*Romic technician analyzes incoming waste samples*

Understand the consequences if / when your wastes vary from established profiles

For instance, the addition of water to a flammable liquid will dilute its BTU value for fuel blending. Inclusion of metal cans or debris in a drum of solvent contaminated rags will require its incineration rather than lower cost beneficial re-use as solid fuels. The elimination of free liquids from profiled solids will assure eligibility for less costly disposal methods. Still another example, certain liquid wastes will solidify if stored too long, rendering them non-pumpable and therefore discrepant and subject to disposal surcharges.

As a general rule, don't co-mingle wastes - establish new profiles as necessary

Many generators have a tendency to co-mingle wastes to simplify operations, without realizing that simple segregation measures would save on disposal costs. Establishing separate profiles for maintenance wastewater, cans, and other "incidentals" will yield substantial savings over the long run.

Routinely inspect the quality and suitability of waste containers

Most pick-up delays, surcharges, and other nuisances can be avoided with a little advance preparation. Inspect the

integrity of drums and containers. Damaged or substandard (not UN-approved) containers require overpacking, a handling measure which usually exceeds the actual cost of disposal. Be sure bungs are in place and tightened before scheduled removal.

Properly label all waste containers

Proper labeling will expedite pick-ups and minimize manifesting errors. Be certain that profile numbers are printed on all labels and that they correspond to manifest information. Also take care to properly position labels on waste containers to comply with DOT placement requirements.

Pay attention to the details when manifesting

Accurate container counts and bulk quantity estimates are essential in avoiding manifest discrepancies and



related amendment measures. A common paperwork error is the manifesting of solid wastes in gallons rather than pounds, which can contribute to over-reporting of the actual quantities generated.

Hold your service provider accountable for any secondary facility utilized

Generators should expect their waste vendors to thoroughly screen and regularly audit the secondary facilities where their wastes are destined. These ultimate disposal sites are often located great distances away from your TSDF or transfer facility, so be certain the disposal rates you are quoted include all transportation expenses incurred.

Scott Ewbank, Technical Sales Manager, can be reached at Romic Environmental Technologies Corp., 1-800-952-5760, or by email at [scotte@romic.com](mailto:scotte@romic.com). Romic maintains a website at [www.romic.com](http://www.romic.com).



*Romic forklift driver loading drums.*

An advertisement for Siam Thai Cuisine Restaurant. The left side of the ad features a photograph of a dining table with a red tablecloth. On the table is a plate of Thai food, including a grilled fish steak, a spring roll, and a salad. There is also a glass of iced tea with a lemon slice and a purple orchid garnish, a white teacup on a saucer, a bottle of beer, and a small candle in a glass holder. The right side of the ad has a red background with white text.

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# news briefs

❖ It's hazardous waste reporting time: the **2002 facility annual reports and 2003 registration fee invoices are due March 1, 2003** to ADEQ from hazardous waste generators; treatment, storage, and disposal facilities; resource recovery facilities; and transporters.

**Even if you do not owe any money for this reporting period, you still MUST sign and return the completed invoice.** If fees are required, you will be subject to interest payments if not postmarked by **March 1**.

**Fees are based on the highest amount of waste generated in any one calendar month of the previous year.** If you were a conditionally exempt small quantity generator for 11 months, but in one calendar month generated more than 220 pounds (i.e., enough waste to be classified as a small quantity generator), for registration and fee paying purposes you are classified as a small quantity generator and must pay the \$100 registration fee. Similarly, if you are a small quantity generator and for one calendar month generated more than 2,200 pounds, then you are considered a large quantity generator for annual registration purposes. You are also considered a large quantity generator if you generated more than 2.2 pounds of acute hazardous waste or 220 pounds of residue from the cleanup of acute hazardous waste, in any calendar month during the previous year. However, **your operating requirements for compliance with RCRA under 40 CFR are determined on a monthly basis.** For more information contact ADEQ's waste minimization coordinator, Gail Bliss, at (602) 771-4212 or [bliss.gail@ev.state.az.us](mailto:bliss.gail@ev.state.az.us).

❖ The Thunderbird Chapter of the **Academy of Certified Hazardous Materials Managers (ACHMM)** and **Gateway Community College** are presenting the **National**

## Certified Hazardous Materials Manager

**CHMM Overview Course and the CHMM Examination in April 2003.** The 3-day course provides an **intensive overview of environmental laws and regulations as well as a basic review of health and safety principles** that one needs to know as a Hazardous Materials Manager. The CHMM Examination is a 4-hour comprehensive exam that follows the review course.

The review course is scheduled for **April 8-10, 2003** at Gateway Community College. The **deadline for course registration is March 28, 2003.** The CHMM examination is

scheduled for April 11, 2003 at Gateway Community College and the application **deadline for the exam is February 28, 2003.** For more information, visit the Thunderbird Chapter ACHMM website at [www.thunderbirdchmm.org](http://www.thunderbirdchmm.org) or call either Jerry Fields (602) 567-3827 or Mary O'Shaughnessy (602) 567-3872. (Also see the ACHMM Thunderbird article in the Association Pages.)

❖ ADEQ announced that the popular handbook for small quantity generators, **Managing Hazardous Waste: A Handbook for Small Businesses**, has been revised and will be available March 3. Contact ADEQ's waste minimization coordinator, Gail Bliss, at (602) 771-4212 or [bliss.gail@ev.state.az.us](mailto:bliss.gail@ev.state.az.us) to obtain this free, useful guidebook.



❖ **Pinal County Air Quality Control District is expanding its Dust Registration Program.** A Dust Registration is required for any construction or earthmoving activity disturbing more than 0.1 acre of surface area. Currently registrations are required for the portion of Pinal County called Area A (Apache Junction, Gold Canyon, Johnson Ranch, and Queen Creek). **Beginning March 25th, 2003 the Dust Registration program will apply to all areas of Pinal County.** For more

*Continued on page 11*

## ADEQ Forms New Unit

### To Provide Facility Assistance

The Arizona Department of Environmental Quality recently announced the formation of the Facility Assistance Unit (FAU). This new unit, which combines the former Technical Programs Unit and the Pollution Prevention Unit, was formed in response to recent national events and ADEQ's goal to protect human health and the environment. The FAU will focus on providing multi-media technical assistance in pollution prevention, RCRA compliance assistance, and emergency preparedness.

### Emergency Preparedness

Helping companies better plan and prepare for chemical-related emergencies is a new service for ADEQ. In preparation for this new task, Jacqueline Maye, FAU staff member, recently attended an EPA sponsored Vulnerability Assessment Methodology for Chemical Facilities (VAM-CF) training. VAM-CF training centers on identifying physical and process vulnerabilities at facilities using hazardous chemicals. It also looks at potential unauthorized access and disruption from terrorist activities that could occur. Based on that information, suggestions can then be made to a facility regarding security enhancements. Information from this training will be integrated into our emergency preparedness activities.

### RCRA Compliance

The new group will also offer RCRA compliance assistance. The first focus will be with the pilot Green Business Program for automotive fleet facilities. ADEQ is partnering with the Rocky Mountain Fleet Management Association (RMFMA) to develop a

program that will recognize automotive fleet facilities that are in substantial compliance and implementing pollution prevention projects. The pilot program was launched in October. One of the requirements for being a Green Business is to be in substantial compliance with applicable environmental rules and regulations. FAU staff will assist facilities desiring certification by providing compliance assistance so they meet the compliance criteria. The other requirement is for facilities to have incorporated a certain level of pollution prevention activities into their business. Compliance assistance will not be limited to those applying for green business certification. The unit will also be helping other facilities by answering RCRA compliance questions and multi-media pollution prevention questions.

The Facility Assistance Unit is managed by Dale Anderson. To contact the FAU at call 602-771-4235, or email Dale at DAA@ev.state.az.us.

## South Phoenix Metal Finishers' Waste Minimization and P2 Project

Staff members of ADEQ's new Facility Assistance Unit are not new to providing environmental assistance to Arizona's business community. Gail Bliss, Waste Minimization Coordinator, for example, was responsible for coordinating the South Phoenix Metal Finishers' Waste Minimization and Pollution Prevention Project, a joint endeavor by EPA Region 9, PRC Environmental (EPA's consulting firm), ADEQ, AESF (American Electroplaters and Surface Finishers Society), and several of the metal finishing facilities in the Valley. Waste Minimization technologies determined by studying process methods at those facilities were detailed in fact sheets available to metal finishers nationwide. These and related documents can be found at [http://www.epa.gov/Region9/cross\\_pr/merit/metal.html](http://www.epa.gov/Region9/cross_pr/merit/metal.html). A continuation of the project included the presentation of waste minimization technologies at several workshops.

### Tangible Benefits of the Workshops?

According to Julie C. Rogers, of Rogers Consulting Services, LLC, who attended a workshop in December 2001 representing Southwest Metal Finishing, LLC, of Phoenix, Arizona, "certain suggested technologies were suitable for Southwest Metal Finishing, most notably spray rinsing for process water reduction and bath control by analysis rather than a standard schedule. By implementing these technologies Southwest saw a reduction in water consumption of about 30% and a savings in chemical costs of 30-40%."

Julie C. Rogers can be reached at 480-377-0562, or by email at [silverwitch1@msn.com](mailto:silverwitch1@msn.com). Gail Bliss can be reached at 602-771-4212, or by email at [bliss.gail@ev.state.az.us](mailto:bliss.gail@ev.state.az.us).





# What's New In Waste Management

*The Regulatory Front*

Patrick J. Paul, Attorney

**T**he year 2003 figures to be a busy one on the waste management regulatory front. At the federal level, last fall, the EPA updated its RCRA orientation manual to reflect changes in the dynamics of solid and hazardous waste management as well as changes in the regulatory expectations and demands of government, public, and private entities. The revised manual is divided into seven sections including specific subsections on solid waste, hazardous waste, underground storage tanks and RCRA's relationship to other environmental statutes.

Although there is some uncertainty in Washington as to whether EPA administrator Christine Whitman will continue at the helm of the agency, and in spite of the roll back of certain new initiatives by the Bush administration, the EPA continues to focus on its regulatory agenda. EPA is contemplating a series of revisions to its programs across all environmental media.

Locally, ADEQ has published its 2003 regulatory agenda, which is available, on its web site at [www.adeq.state.az.us](http://www.adeq.state.az.us). The proposals for ADEQ's waste programs division agenda contains many regulatory goals, including the areas of voluntary remediation fees, soil remediation standards, solid waste facility plan review procedures, solid waste facility certification requirements and Greenfield fees. In addition, Governor Napolitano has appointed Steve Owens as the new director of ADEQ. Owen's appointment is subject to confirmation by the State Senate. Assistant Arizona Attorney General, Pat Cunningham has been appointed by Napolitano to the post of Deputy Director of ADEQ.

These local personnel changes and possible federal personnel changes certainly will shape the regulatory frame work in the coming year. Stay tuned for more information.

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Patrick J. Paul is a partner with the Phoenix office of Snell & Wilmer and a member of the firm's real estate and finance group, focusing his practice on environmental and toxic mold matters. Patrick can be reached at 602-382-6000, or by email at [ppaul@swlaw.com](mailto:ppaul@swlaw.com).

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## News Briefs

*continued from page 9*

information on the registration requirements and the fees that apply contact **Pinal County Air Quality Control District at 520-866-6929**.

❖ Some **Arizona livestock farmers** will be affected by EPA's recently finalized rule revising the Clean Water Act effluent regulations and permitting requirements for **concentrated animal feeding operations (CAFOs)**. The rule

establishes a mandatory duty for all CAFOs to apply for a NPDES permit; extends coverage to all large poultry operations; and requires all permittees to develop and implement a nutrient management plan. More information can be found on EPA's website at <http://cfpub.epa.gov/npdes/afo/cafofinalrule.cfm>.

## Future Topics: Writing for the Journal

### Practical and Current Information for Environmental , Health & Safety Professionals

There are many issues confronting the EH&S professional, and there are just as many possible topics for Journal articles that will be valuable and interesting to readers. The list on this page provides a sample of the type of topics the Journal will address. Our goal in choosing topics is to help our readers better protect the environment, increase safety, understand and appropriately apply environmental regulations, and save time and money for their company.

The Journal of Environmental Management Arizona welcomes submissions of articles and photographs. Please review the Submissions Guide (available at [www.ehshomepage.com](http://www.ehshomepage.com) -- click on "Contribute Article/Photos") before submitting an article. We recommend that writers submit an abstract for review for topic and applicability to the Journal prior to undertaking writing the article.

<p>Regulatory Compliance</p> <p>Employee Training Requirements</p> <p>Mercury in Your Environment - Where to find, how to eliminate</p> <p>Working with Your Analytical Lab - How to choose, taking samples, cost comparisons.</p> <p>Environmental Sustainability</p> <p>The Tres Rios Project</p> <p>Manager Over-Load - stress, resource allocation, and priority setting.</p> <p>Training for the Environmental Manager</p> <p>Internet for the Environment - useful resources?</p> <p>What Internet Info do EH&amp;S Prof's Use?</p> <p>Pollution Prevention - Who is saving money with P2, and how did they do it?</p> <p>AZ Superfund sites - lessons learned.</p> <p>How to Choose a Consultant</p> <p>Mercury Reduction - the AHA Project</p> <p>First Aid - what's required, how a service can help, interviews.</p> <p>RCRA Regulations You Need to Know</p> <p>LQG's - Can You Become a SQG? SQG's, Can You Become a CESQG?</p> <p>Focus on Arizona Companies Env. Successes</p> <p>Environmental Issues at the Mines</p> <p>The Williams AFB Fuel Story</p> <p>Aquifer Problems in Arizona</p> <p>The CAP</p> <p>Lead Paint</p> <p>Asbestos, are you remodeling or demolishing walls or floors in your facility?</p> <p>Continuing Education for the EH&amp;S Professional, Obtaining an Advanced Degree</p> <p>Special Training Features, including: Hazard Communication Program, CPR &amp; First Aid</p> <p>Blood Borne Pathogens</p> <p>Electrical, LOTO,</p> <p>Respirator Training,</p> <p>Confined Space,</p> <p>Ergonomic Issues,</p> <p>General Duty Clause,</p> <p>Worker Comp Costs</p> <p>DOT Shipping Training</p> <p>IATA - Do You Ship Hazardous Materials by Air? Are You Sure?</p> <p>RCRA - storage, record keeping</p> <p>Choosing a Disposal Facility - Why is it important? Air Quality Permitting</p>	<p>Community Relations - reasons to be friends with your neighbors; interview with media relations expert</p> <p>Enforcement Issues &amp; the EH&amp;S Manager, are you the DJ (designated jailee?)</p> <p>Vendor stories, mercury spill cleanups</p> <p>ADOT</p> <p>Green Building</p> <p>How to Write Your Hazard Com Program</p> <p>MSDS Retrieval, what's required, what works?</p> <p>Fork Lift Driver Training, new regs</p> <p>CPR &amp; First Aid Training - Our employees were ready and trained when an accident occurred.</p> <p>Does Bloodborne Pathogen Training Apply to Your Company, and why you should consider this training even if it does not</p> <p>Does your facility use a "Good Samaritan" volunteer policy for emergency assistance?</p> <p>Do your employees need Qualified Electrical Worker Training? What the difference between this and LOTO?</p> <p>Ergonomics injuries - could these be a major loss factor for you? Long recovery periods can cost \$.</p> <p>Bio-waste, Red-bag waste, how do you dispose of it? Misconceptions regarding regulations.</p> <p>"NOVs" - what to do when you get one.</p> <p>Discharge Limit Violations - Fast Reporting and Corrective Actions Reduce Potential Liabilities</p> <p>A Checklist of EH&amp;S Regulations that Might Apply to Your Facility</p> <p>ASU's Environmental Master of Science Internet Accessible Degree Program</p> <p>Hazardous Waste Disposal Facilities</p> <p>Transporters</p> <p>Building a Compliance Point Weir</p> <p>Wastewater Treatment System Maintenance</p> <p>ION Exchange Columns for WW Treatment</p> <p>Surprises in Your Wastewater - (Sulfides, Cadmium)</p> <p>A Model NOV Response</p> <p>Your Slug Control Plan</p> <p>WW Permit Applications</p> <p>Universal Wastes - Fluorescent Lamps, what are Arizona's regs?</p> <p>HMIS Labeling Systems</p> <p>Environmental Associations, what they can offer.</p> <p>What Is a Hazardous Waste?</p> <p>Flammable Storage, regulations, practices</p> <p>Contingency Plans</p> <p>Back Safety - Evaluate Your Facility</p> <p>EH&amp;S Compliance Audits</p>	<p>Environmental Management Systems</p> <p>Zero Discharge - Can You Obtain This?</p> <p>Incompatible Chemicals, Storage Precautions</p> <p>Barrels: Specifications, Storage, Labeling</p> <p>Phoenix WW Discharge Permit Training Classes</p> <p>Regulatory Definitions of Flashpoints, storage, precautions</p> <p>Ladder Safety Training</p> <p>Insurance Companies Can Offer You a Lot of Help on Safety</p> <p>Compliance Inspections - Interview with ADEQ Inspectors</p> <p>CMA Responsible Care Program</p> <p>Pollution Prevention, EPA Financial Analysis</p> <p>Waste Minimization</p> <p>Where to Find Recycling Directories</p> <p>ISO 14000</p> <p>TSCA explained</p> <p>CAA Title 5</p> <p>Evaluating Your Facility's Medical Provider</p> <p>Reducing Worker Comp Losses</p> <p>Writing EH&amp;S Policies</p> <p>Risk Assessment</p> <p>Environmental Assessments</p> <p>EH&amp;S Manager Responsibilities, What is Your Job Description?</p> <p>Accident Investigation</p> <p>Incident Investigation</p> <p>The Most Common RCRA Violations &amp; How to Avoid</p> <p>Backflow Prevention, required inspections</p> <p>Fire Prevention</p> <p>Sprinkler System Inspections, alarms</p> <p>The Value of Routine Fire Drills</p> <p>Fire Safety</p> <p>Maricopa County's Trip Reduction Program</p> <p>Your Receptionist's Vital Role in Emergencies, the sign-in book, emergency plans, visitor policies</p> <p>Training Videos - a Review</p> <p>Safety Shoes - do you employees need these?</p> <p>OSHA Letters of Interpretation</p> <p>Facility Security - Interview with Police Officer</p> <p>Personal Protective Equipment</p> <p>Process Safety Management</p> <p>Red Cross Training</p> <p>The National Safety Council</p> <p>NFPA</p> <p>Useful Environmental Magazines</p>
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Nicholas R. Hild, PhD.

# *Sustainability In Industry*

*Energy Skeleton Keys*

In the past ten years, the focus for environmental managers in industrial settings has shifted. Beginning in the early 1980's, a high priority was placed on hazardous waste management because the Resource Conservation and Recovery Act (RCRA) grew teeth. However, by the early '90's, most industries had brought their hazardous waste management programs into compliance and broadened their management efforts to reflect the Clinton administration's concerns once more on air and water. By the mid-'90's, industry environmental professionals were being asked by their management to prepare for the future: do more with less while meeting 'compliance' objectives.

No one anticipated just how deeply "doing more with less" would mean as the new millennium unfolded. When budgets are slashed and downsizing becomes a monthly expectation, working smarter and doing with fewer resources becomes essential for survival. Thus, today, environmental, safety, and health (ES&H) professionals are searching for innovative ways to manage their programs to be beyond compliance with slimmer staffs and fewer resources than anyone ever dreamed possible in those halcyon days of RCRA-driven waste management.

One of the ways ES&H professionals have begun to move their company's management is by focusing on promoting sustainable processes, operations, and development throughout their industries. In Arizona, examples of companies where ES&H professionals have had an enormous impact on the bottom line haven't been highlighted but they do exist. Its unclear whether its because company management is generally unaware of their contribution or they just want to keep their innovative ideas a secret. Whatever the reason, ES&H professionals should be sharing their bottom-line savings ideas for the benefit of our future generations.

The first real push to look at sustainable processes came in the mid-'70's when this country had its first real energy crunch. ES&H managers were pressed to find energy conservation techniques and most of the low hanging fruit was plucked by the time the crisis was over, in the early '80's. Unfortunately, lessons from those times had to be re-learned in the '90's when, once again, energy shortages threatened industry again. And now, in the 'new' millennium, our country is engaged in trying to find ways to lessen our dependence on foreign oil and, once again, companies have asked their technical management teams to find innovative solutions that will sustain economic productivity.

So where, you may ask, does this all lead? Answer: ES&H professionals are being called upon to find sustainable solutions to their company's ability to remain competitive while complying with regulatory pressures. One way to do that is to, once again, focus on energy use (i.e. find ways to use less energy while sustaining or enhancing productivity). Given that the 'low hanging fruit' has probably been plucked, what's an innovative ES&H professional to do?

## ENERGY EFFICIENCY: The Skeleton Key

Here's an idea, provided free of charge, that I will bet can work in your company. It's like having a

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.

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skeleton key that opens all the doors labeled 'SUSTAINABLE ENERGY CHOICE.' You, however, have to decide which ones to open that will maximize profits and minimize costs in your factory. And, for a change, I won't even charge a consulting fee for giving you the rights to this idea, if you will just let me know, someday, how well it worked.

According to internationally renowned researchers in Sustainable Development, Amory and Hunter Lovins in a 1998 study of the electronics industry, electric motors consume three-fourths of industry's electricity, and slightly more U.S. primary energy than highway vehicles. Further, the Lovins' note that this consumption is highly concentrated: about half of all motor electricity is needed by the million largest motors, and three fourths in the 3 million largest. So, what does that mean to Arizona industries?

Since big motors use their own capital cost's worth of electricity every few weeks, switching to more efficient models can pay back quickly. The Lovins' noted in their study that adding another 30-odd improvements to make the whole motor system optimally efficient typically saves about half its energy with about 190% annual after-tax return on investment!

It's also true that the people whose job it is to specify and purchase new equipment just assume that more energy-efficient models will cost more. In fact, studies conducted at Lawrence Berkeley National Labs by Mills and Knoepfel in 1991 & 1997 revealed that actual market prices of equipment – motors, valves, pumps, rooftop chillers – show no correlation whatever between efficiency and price. They found, for example, a 100 hp motor can be cheaper at 95.8% efficiency than an otherwise identical 91.7%-efficient model.

So, it seems logical that there are lots more energy savings still waiting out there in the factory to go to your bottom line. The last 5 years has seen a plethora of more energy-efficient materials and components coming to the marketplace. Isn't it time you grabbed your skeleton key and took another look behind those doors at all those motors? It's a potential giant step into a more sustainable future. And it's a win-win for both industry and the environment.

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## Help us Choose Journal Issue Themes

The extensive list of potential article topics on page 15 shows the wide range of EH&S subjects we could address in future issues of the Journal. You probably could add many more items to this list yourself. Please take a few moments to help us to narrow our focus to the issues you consider most current and suitable to your interests and needs.

Below are a few main topics that might be used as future issue 'themes'. Please place a check next to the topics that interest you, if any, and then write-in any additional topics in the space below.

- ☐ Employee safety training  
*What's required; what's recommended; what resources are available; sample training programs*
- ☐ Analytical labs  
*how to choose a lab; how to prepare, label, & track samples; saving money on analyses*
- ☐ Fire Safety
- ☐ Pollution Prevention  
*reduce chemical usage; limit environmental liability; reduce waste*
- ☐ First Aid/CPR and Bloodborne Pathogens  
*what's required; what's recommended*
- ☐ Continuing Education for the EHS Professional
- ☐ Compliance Enforcement  
*what do compliance officers look for; how likely are you to be inspected; what penalties apply and to whom*
- ☐ WW Treatment  
*permitting; technology*
- ☐ Community Relations/Good Neighbors

List any additional topics you would like to see as an issue theme or an article topic:

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PLEASE PHOTOCOPY & FAX BACK TO:  
Editor, FAX: **480-422-4430**  
or,  
EMAIL your suggestions to:  
**topics@ehshomepage.com**

## Seeking Announcements

Let us know if you, your organization, an employee, or a colleague receives a promotion, award, or achieves a notable accomplishment. We would like to post this either in the News Briefs or in a separate, new, announcements section. For example, if you are a recent graduate of one of the environmental programs at the various Arizona colleges, let us know when you graduate. If you choose, we can include work status and your contact information -- many potential employers will be reading this news.

### Employers:

Don't forget, the Journal's classified section is a great place to reach thousands of EH&S professionals who live & work here in Arizona!

### Corrections & Omissions

As this is our first issue, of course, we have no corrections or omissions to report.

While we strive to be accurate and complete, there may be an occasional misspelled name, incorrect date, or other error that gets past our copy editors. Please let us know whenever you feel a correction is in order. Thank you!

Jim Thrush, Publisher & Editor  
480-422-4430 x42

# 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 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.

## AAI

The Arizona Association of Industries (AAI) is a business association dedicated to serving Arizona's manufacturers. AAI's primary objective is to increase the growth

and competitiveness of Arizona's manufacturers through legislative, political, and regulatory advocacy and to provide those manufacturers with education and cost effective services. AAI maintains a number of standing committees including Education, Human Resources, Public Policy, Tax, Energy, Membership and Environmental, Health & Safety (EHS). AAI's EHS Committee is chaired by Jeff Homer from General Dynamics and Luke Narducci from Bryan Cave LLC. The Committee hosts a monthly breakfast meeting on the second Wednesday of each month where speakers present on a variety of current EHS topics. To be added to the email notification list for these meetings please contact Brent Frazier at 602-252-9415 or email him at [bfrazier@azind.org](mailto:bfrazier@azind.org).

AAI's annual EHS Summit will be held on August 13, 14, & 15th at the Prescott Resort in Prescott, Arizona. The EHS Summit consists of a full day of presenters from industry, government and professional service providers, receptions and a golf tournament. For more information on opportunities to sponsor, present or attend, please contact Brent Frazier. To find out more about AAI, visit our web site at [www.azind.org](http://www.azind.org).

*Jeff Homer,  
EHS Committee  
Co-Chair*

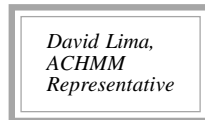


## ACHMM Thunderbird

The Thunderbird Chapter of the ACHMM is the Arizona membership chapter of the Academy of Certified Hazardous Materials Managers (ACHMM). The ACHMM, along with its accrediting affiliate, the Institute of Hazardous Materials Management (IHMM) is the preeminent accrediting and membership organization for environmental health and safety professionals in the USA.

The Thunderbird Chapter was formed in late 2000 and chartered in August 2001 as the 59th chapter of the ACHMM. The ACHMM, based in Rockville, Maryland, is the membership arm of the Institute of Hazardous Materials Management. The Institute's Board of Directors sets the accreditation standards, administers

*David Lima,  
ACHMM  
Representative*



the examination, and oversees maintenance of accreditation requirements (continuing education, ethical standards, etc.). The Academy provides chapter services, develops and maintains educational curricula, sponsors the annual technical conference, and provides outreach and speaker's bureau services to the chapters.

The Thunderbird Chapter is the Arizona membership chapter of ACHMM, but we serve a wider constituency than just certified CHMMs. We are an open membership organization, welcoming anyone with an interest or background in environmental health and safety, emergency response, hazardous materials handling, or environmental consulting. Our members include professionals from the manufacturing sector, private sector consultants, public sector regulators and emergency management fields, and others interested in the programs and networking that the Thunderbird Chapter offers. We are a new chapter, but we have energetic leadership, motivated members, an excellent program of monthly speakers, and a commitment to the communities in which we live.

The Thunderbird Chapter is sponsoring a CHMM review course at Gateway Community College, in Phoenix, on April 8-10, 2003. The CHMM exam follows on Friday, April 11 at the same location. The CHMM credential is widely recognized as a top-level certification in the environmental and safety fields, and can be a valuable asset in demonstrating your proficiency in these areas.

For more information about either the chapter or the review course, visit our website at [www.thunderbirdchmm.org](http://www.thunderbirdchmm.org), or contact David Lima at (520) 836-8761, extension 4313.



*Barry Westerhausen,  
Sergeant at Arms*

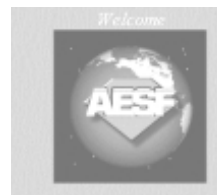
The American Electroplaters and Surface Finishers Society, Inc. (AESF), is an international, individual membership,

nonprofit professional society. Founded in 1909, the AESF has 78 Branches and more than 7,000 members, worldwide. The Society is regarded and respected as the foremost finishing authority in the world. The primary mission of the AESF is to advance the science of surface finishing, to benefit industry and society through education, information and social involvement. We represent the Greater Arizona Branch.

AESF schedules a variety of speakers throughout the year to speak on environmental issues, state and local regulatory issues, and waste disposal. The AESF provides an excellent forum to discuss individual environmental issues and can help businesses locate help on their environmental issues.

We will be meeting on the second Thursday of each

**AESF**





month at the Doubletree Suites 320 N.44th St and Van Buren, just north of Sky Harbor. Our meetings take place in the Sunrise Room, near the pool. Gathering time is 5:32pm with dinner at 6:29pm. Reservations are required. We look forward to having everyone attend. See ya there.

For more information on AESF, contact Barry Westerhausen, LA Chemical, at 480-206-4107, or by email at [bwesterhausen@lachim.com](mailto:bwesterhausen@lachim.com). Visit the Greater Arizona Branch AESF website at [www.aesf.org/bd.cfm?br=52](http://www.aesf.org/bd.cfm?br=52).

## Arizona Environmental Strategic Alliance



The Arizona Environmental Strategic Alliance is currently celebrating its decade-long presence as a unique public-private partnership demonstrating

environmental leadership to both Arizona communities and businesses. The Alliance was created in 1992 by APS, ADEQ and EPA Region IX as the first partnership of its kind in the nation to combine the resources of private industry and federal and state regulatory agencies.

The Alliance's Advisory Council, which includes three permanent seats for EPA Region IX, ADEQ and Maricopa County ESD, must approve all nominations for membership into the Alliance after being presented evidence of the nominee's environmental leadership. The Alliance's current membership includes America West Airlines, APS, City of Tempe, City of Scottsdale, Intel, Karsten/PING, Medtronic Microelectronics, Salem Boys Auto, Southwest Gas, SRP, and ST Microelectronics.

The Alliance recognizes leadership characteristics, shares expertise, builds public trust, and works in partnership for positive environmental change. Currently the Alliance is working with Earth's 911 to develop and maintain a web portal of Arizona-specific environmental information, such as the availability of residential and commercial recycling opportunities. The portal ([www.cleanup.org](http://www.cleanup.org)) has been well received by the public. The Alliance will also be working with the EPA and ADEQ to identify and better define Performance Track opportunities for environmental leaders in Arizona.

For more information about the Arizona Environmental Strategic Alliance, please see our website at <http://www.azalliance.org> or contact David Young by phone at 480-460-5751 or 602-561-2470 (Cell) or by e-mail at [azalliance@azalliance.org](mailto:azalliance@azalliance.org).

*David G. Young,  
President*



*Leilani Bew*

The Arizona Hydrological Society (AHS) is a nonprofit professional organization dedicated to the on-going education of its members and the general public on important water issues

in Arizona. AHS has a diverse membership that includes professional hydrologists and hydrogeologists, policy-makers, water purveyors, lawyers, students and others. There are three chapters within Arizona: Tucson, Phoenix, and Flagstaff. New members and visitors are always welcome to attend any chapter's events.

A symposium is held in the fall of each year to bring together hydrology professionals, students, and other interested individuals to share information on pertinent hydrologic issues of Arizona and the Southwest. It generally consists of two days of presentations, technical sessions, and panel discussions covering a wide-range of hydrology-related topics, followed by a day of field trips. The extended abstracts of speaker presentations and posters are published in the proceedings of the symposium.

Each of the three chapters organizes monthly meetings to promote networking between hydrologic professionals and provide a forum for presenting topics related to hydrology in Arizona. Invited speakers come from a wide array of backgrounds, and speak on topics ranging from hydrologic field investigations, cutting-edge technology and innovations, political and legal ramifications, and public and private hydrology projects throughout the state. Meetings are generally held on the second Tuesday of the month. The meetings begin with a social half-hour, sometimes followed by dinner, and the speaker.

AHS field trips cover a wide range of topics and locations. They have included trips to Havasupai Canyon, Jaguar Canyon, various municipal water works and pilot projects, and bus tours of northern Arizona geology.

Each chapter sponsors an annual intern scholarship program for one undergraduate student enrolled in a hydrology-related curriculum. The student gains work experience with several hydrology-related organizations during the program. Participating organizations include government agencies, private industry employers, and environmental consulting firms. The program includes a monetary scholarship award.

AHS awards three annual statewide scholarships to undergraduates and graduate students in hydrology and hydrogeology. Recipients are announced at the annual fall symposium.

Membership in AHS is open to anyone with an interest in hydrology. Annual dues are \$40, \$15 for students. If you would like to join the Arizona Hydrological Society or

## *Arizona Hydrological Society*

would like more information, please contact Leilani Bew at Errol L. Montgomery & Associates, Inc, at (520) 881-4912; lbew@elmontgomery.com; or visit the AHS website at [www.azhydrosoc.org](http://www.azhydrosoc.org).

## AZ ELM



Arizona Environmental Leadership through Mentoring (AZ ELM) is a new 501 (C) 3 organization developed to help small and medium sized businesses within



*Richard Polito*

Maricopa County, eventually expanding throughout Arizona. AZ ELM will provide tools & resources for industry and government entities to achieve improved environmental performance and compliance. AZ ELM would like to provide a framework through training and education that encourages a holistic, multimedia approach to enhance more green business practices. With increased knowledge, organizations can move beyond compliance and improve their competitiveness and comply with EHS regulations.

AZ ELM's mission is to mentor Arizona businesses and organizations by providing educational assistance information and resources for Environmental, Health & Safety strategies.

In May 2002, AZ ELM presented its first annual Symposium for Environment and Economic Development (SEED). EPA's Mark Samolis, Jon Talton of the AZ Republic newspaper, Michigan's Department of Environmental Quality, the Department of Energy, SRP, and many others contributed their knowledge in a forum of information sharing presentations.

Plan to attend our next SEED event in October 2003. Join us for a full day of presentations that explore how government, business, and education can build a culture of innovation together.

For more information about AZ ELM and other upcoming events, please contact Richard Polito at 602-506-5102, or by email at [RPolito@mail.maricopa.gov](mailto:RPolito@mail.maricopa.gov). Visit the AZ ELM website at [www.azelm.org](http://www.azelm.org).

## SAEMS



The Southern Arizona Environmental Management Society (SAEMS) was formed in 1986 to promote dialogue and education on environmental issues, with



*Jeff Yockey,  
President*

a specific focus on Southeast Arizona. The society now has approximately 200 members, including representatives of private industry, regulatory agencies, and environmental service companies. SAEMS holds monthly meetings, which feature topics relevant to today's environmental professional. In



addition, SAEMS publishes an on-line monthly newsletter and sponsors various technical seminars. Members contribute to the organization through participation in various committee activities including trash clean up, legislation tracking, and earth day.

SAEMS offers two annual scholarships to students enrolled in an accredited Southern Arizona college or university, who are pursuing a career in the environmental arena. Candidates must complete an application, and finalists will be selected for interviews. The application forms will be available in January 2003, and must be submitted by March 1, 2003. Scholarships are awarded at the SAEMS annual meeting in June.

For more information about SAEMS, visit our web site at [www.SAEMS.org](http://www.SAEMS.org), or contact Jeff Yockey, SAEMS President, at (520)884-3692.



*Lisa Culbert,  
President*

The Environmental Professionals of Arizona (EPAZ) is a non profit organization whose mission is to “promote the

effective management of pollution prevention efforts throughout the environment”. EPAZ members come from private industry, regulatory agencies and environmental service companies. EPAZ offers our members the opportunity to pursue networking opportunities with their peers and interact informally with staff from local and state agencies.

Our members strive to foster environmental leadership, to encourage both environmental and economic sustainability through pollution prevention, to improve communications and cooperation between industry and government, to promote networking opportunities in order to exchange ideas on reducing hazardous wastes and toxics use, to provide information to identify, evaluate and implement pollution prevention opportunities and to sponsor educational outreach events and mentoring activities that emphasize regulatory compliance and pollution prevention.

EPAZ hosts an annual “Regulatory Roundup” conference in October and hosts monthly luncheon meetings held the 2nd Thursday of the month at the Sheraton Phoenix Airport Hotel (1600 South 52nd Street), from 11:30 AM to 1:00 PM. The cost is \$18 for Members and \$25 for nonmembers. Annual membership dues are \$40 per year. To join, apply on-line at <http://www.epaz.org> or contact EPAZ’s Membership Committee Chairperson, George Armstrong at (602) 943-9565. To receive meeting notices contact Eddie Martinez at (480) 961-1300 or [eddie.martinez@oberg.com](mailto:eddie.martinez@oberg.com) with your name and email address. Visit our website at [www.epaz.org](http://www.epaz.org) for the most current meeting topic / speaker information.

**EPAZ**



## Valley Forward

VALLEY FORWARD



Valley Forward Association is a 34-year-old non-profit organization that brings business, community and civic leaders together to convene public dialogue on regional issues and to promote cooperative efforts to improve the environment and quality of life in the Valley.

*Diane Brossart,  
President*



Our membership is large and diverse, representing all communities throughout the Valley and including large and small businesses, local and municipal government, the education sector, non-profit organizations, community leaders and individual citizens.

They come to us as a balanced forum for the discussion and study of environmental and quality of life issues that are shared regionally or that have regional implications. Our basic agenda includes transportation and air quality, land use planning, water issues and environmental education.

Valley Forward advocates a balance between economic development and environmental quality. This is especially important in the nation's second fastest growing metropolitan area in the country.

We make our impact through working issues committees and volunteer projects like EarthFest, the state's official Earth Day celebration, as well as through education and promotion.

Throughout our history, Valley Forward has helped to ensure that decisions about how Valley residents will live tomorrow are made with foresight and imagination today. We believe environmental quality is directly related to conservation of natural resources, consideration for indigenous or historic qualities, emerging technologies and regard for human life.

We also understand the need for jobs and economic opportunity. Valley Forward members believe economic growth and environmental quality can exist simultaneously. This truth is evident in the proliferation of green technologies and building solutions, environmentally friendly landscaping techniques, renewable energy programs, education outreach and overall stewardship.

Valley Forward initiated the Environmental Excellence Awards in 1980 to recognize outstanding contributions to the physical environment of Valley communities. Our 22<sup>nd</sup> annual awards program in September was among the most competitive in history. The award finalists represented 31 Valley companies, non-profit organizations, municipalities and other government agencies.

Like Valley Forward's membership, the strength and significance of the award submittals lie in their diversity. They come from all walks of life and from all parts of the Valley – from big business to small business, from government to citizen activist, from one partisan viewpoint to the other.

Clearly, the issue is not environment vs. development or ecology vs. economy. We all have an interest in sustainable development. And we can all contribute in some way. Valley Forward welcomes your involvement. For more information or to join, call 602-240-2408 or visit us online at [www.valleyforward.org](http://www.valleyforward.org).



# *It's All About Chemistry*

## *Storage of Incompatible Chemicals*

Larry Olson, PhD.

*"I'm delighted to be able to contribute this column to the Journal of Environmental Management. My goal is to interpret the chemistry behind important topics for the environmental professional in a way that is accessible and yet contributes to a safer workplace and better decision making. I would welcome any suggestions for future issues or comments."*

Devising an appropriate system for storing chemicals is no insignificant task. There can be federal, local, and company rules that must be followed including types of storage containers, quantities allowed, chemical segregation, etc. In all situations, however, one important way to minimize hazards is to store only the minimal amounts of chemicals required.

For the non-chemist, one of the most difficult tasks in devising a storage system is to identify incompatible types of chemicals. There is not enough space in this column to do more than highlight some areas, so I'd like to focus on three of the more common incompatibilities:

- Strong acids and strong bases
- Oxidizers and flammable materials
- Oxidizers and reducing agents

By definition, aqueous solutions of acids generate hydronium ion ( $\text{H}_3\text{O}^+$ ) and bases generate hydroxide ion ( $\text{OH}^-$ ). Thus, the problem when acids and bases react is not usually the product (which is just water and a salt), but that a tremendous amount of heat can be generated. This heat could be an ignition source or could initiate other reactions in surrounding materials.

Oxidizers are more difficult to define. OSHA (29 CFR 1910.1450; the Laboratory Safety Standard) defines an oxidizer as a chemical, other than a blasting agent or explosive, that initiates or promotes combustion in other materials. From a chemical standpoint, oxidizers (also called oxidizing agents) are chemicals that can accept electrons from other materials. Thus, an oxidizer must have a lower oxidation state available to the element accepting the electrons. Ammonia ( $\text{NH}_3$ ) is not an oxidizer, therefore, because nitrogen is in its lowest oxidation state of  $-3$ . But nitric acid ( $\text{HNO}_3$ ) is an oxidizer, since here nitrogen is in a  $+5$  oxidation state and can readily accept electrons. Oxygen gas ( $\text{O}_2$ ) is also a strong oxidizer, because the oxygen atoms can each accept two electrons and be reduced to oxide ions.

Flammability, as we normally think of a compound burning in air, can be described as a very rapid oxidation-reduction reaction in which heat is evolved as electrons are transferred to oxygen. Most organic compounds are flammable because the carbon atoms are in a reduced state and can lose their electrons to either  $\text{O}_2$  or to another oxidizing agent. Other materials besides organics such as diborane ( $\text{B}_2\text{H}_6$ ), hydrazine ( $\text{N}_2\text{H}_4$ ), or white phosphorus ( $\text{P}_4$ ) can also burn, but in each case electrons are being transferred from the combustible material to oxygen or another oxidizer, just as with carbon.

A chemical storage plan should therefore ensure that any flammable material is separated from oxidizing agents. Even in the absence of ignition sources, the heat generated from the oxidation-reduction reaction can cause the flammable to ignite.

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



# Guest Column



David L. Kirchner  
President and Founder of Basin  
& Range Hydrogeologists, Inc.

## HOW ENVIRONMENTAL CONSULTANTS COULD AVOID MAKING SILLY MISTAKES

When Performing Environmental Assessments of  
Real Estate and Contaminated Properties

**H**ow many times have you reviewed a document entitled “*Phase I Environmental Site Assessment (ESA) Report*” and thought to yourself “*Why the heck didn’t my consultant do that?*” Or you scratched your head and exclaimed, “*How come they did this?*” Perhaps you shouted down the hallway to your business partners, “*Why did we spend our good money on this piece of work?*”

Today, there are burgeoning numbers of consultants who are performing environmental assessments of real estate. Indeed, some of those persons are qualified, but some are not. But even for those treasured environmental professionals who are highly qualified and experienced, it is truly amazing to me how many silly mistakes they seem to make when performing environmental assessments and detailed site investigations. The purpose of this article is to demonstrate the nature and apparent causes of some of these mistakes in hopes that it may demonstrate how environmental consultants could avoid making such mistakes in the future.

Usually, when a paying client hires an environmental consultant to perform a Phase I ESA in accordance with a well-

known reference such as the ASTM Standard (Designation E 1527), then it should be clear what the scope of work is going to be. The primary goal of performing that ASTM Standard on a parcel of real estate is to identify “*recognized environmental conditions*.” If the consultant has not agreed to perform the ASTM Standard (which, by the way, is not a *standard*, nor is it necessarily *standard practice*, but I will address that matter in a future Journal article), or if the client does not desire for the consultant to conduct such a formal site assessment, then the scope of work is likely to be quite variable indeed.

Nevertheless, the consultant and the client must define exactly what the scope of the investigation will be. Moreover, the consultant should *perform* the agreed upon scope of work, whatever that scope might be. It is not altogether uncommon for some environmental consultants — just as in many other occupations — to simply fail to perform their own scope of work, despite the fact that they recommended their clients do so.

In any case, whether or not environmental consultants believe they have adhered to the elements of the ASTM Standard, following are the silly mistakes that I have seen many of them make when performing environmental site assessments and investigations of real estate and contaminated properties:

- \* Not preparing a detailed scope of work *and* a written agreement with the client.
- \* Not getting *outside* the car, walking around, and actually *looking* at the property.
- \* Not identifying the key players involved and asking them any relevant questions.
- \* Not reviewing any client-owned documents or any records on file at Arizona Department of Environmental Quality (ADEQ), or any other appropriate governmental agencies.
- \* Not interviewing, or attempting to interview, former occupants or speaking with those who are most knowledgeable about operations at the site, or the history.
- \* Not attempting to understand the local geological and hydrogeological conditions.
- \* Not providing sufficient documentation to support his or her conclusions and recommendations, but perhaps most of all — not providing the reasoning behind the speculations he or she has been asked to provide to the client.
- \* Not cautioning the client regarding possible environmental risks at the site and recognized environmental conditions that are known to exist on adjacent properties, or in the immediate vicinity.
- \* Not openly admitting to his or her client that there are many uncertainties involved with the work.

With the potential liabilities for errors and omissions being so great in this litigious world, it is difficult for me to comprehend why so many environmental consultants continue to make these mistakes.

If you ever discuss environmental issues with your retained consultants, or with your environmental attorneys, you might want to emphasize to them that you are aware that these kinds of silly mistakes could happen to you, and you want to avoid them before it is too late.

To be sure, not everyone is capable of identifying mistakes *before* they happen. However, probably the most important action we should all take — clients, lawyers, and consultants alike — is to demand members of the environmental services industry to adhere strictly to evidence-based consulting. If we don’t do this, well, that’s just plain *silly*.

David Kirchner can be reached at 602-840-3333 and by email at [kirchner@basin-and-range.com](mailto:kirchner@basin-and-range.com)

*If you would like to contribute a guest column, please call the  
Journal Editor at 480-422-4430 x42.*

## Chemistry:

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Many other incompatibilities, that might be described in an MSDS for example, are the result of contact between oxidizing and reducing agents. Even water is a strong enough oxidizer to react with very strong reducing agents like silane ( $\text{SiH}_4$ ) or sodium metal to produce hydrogen gas ( $\text{H}_2$ ). Just segregation of acids from other substances may not be enough. Non-oxidizing acids such as hydrochloric, sulfuric, or phosphoric may be safely stored together. However,



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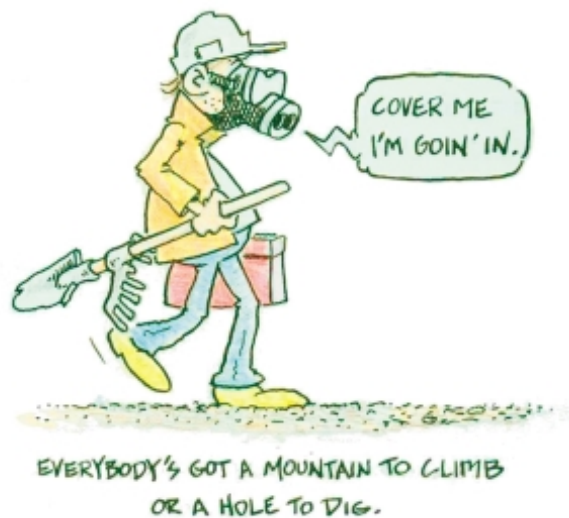
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oxidizing acids such as perchloric, chromic, or nitric should be separated and stored together, although not directly on wooden shelves or paper which might ignite in the event of a spill. Organic acids, such as acetic acid or benzoic, are flammable because they contain carbon and should be separated from oxidizing acids.

This only scratches (with a non-sparking tool, of course!) the surface of chemical storage. You can find more information at *Prudent Practices in the Laboratory*, National Academy Press, 1995 or at a number of good websites including the University of California at San Diego (<http://www-ehs.ucsd.edu/lab/0801.htm>).



Thanks to David L. Kirchner © 2003



# *SPCC Plan Final Rule*

## *EPA Narrows Applicability*

### EPA Amends Spill Prevention, Control and Countermeasure Requirements

by Michael C. Ford and  
Stephen M. Rakowski

**O**n July 17, 2002, EPA published a final rule (67 Fed. Reg. 47042) amending many of the requirements regarding Spill Prevention, Control and Countermeasure (SPCC) plans under the Clean Water Act. The new rule clarifies many issues that were considered ambiguous, modifies the applicability of the regulations, and alters various substantive requirements. In general, the rule narrows the applicability of the current regulations. EPA estimates that the number of facilities subject to SPCC plans will be reduced by 55,000.

Although many of the changes relax the regulations, certain issues are still open to the discretion of the EPA Region. Moreover, the CWA provides states with the option of creating more stringent requirements.

#### Background

The previous SPCC regulations required facilities to prepare a plan outlining spill prevention procedures, methods and equipment (i.e., an SPCC plan) if they met the following three conditions:

1) The facility's activity is non-

transportation-related<sup>1</sup>;

2) The facility is reasonably expected to discharge oil in harmful quantities to navigable waters<sup>2</sup>; and

3) The facility has a storage capacity for underground tanks greater than 42,000 gallons, or aboveground storage capacity greater than 660 in one tank, or over 1,320 gallons of total aboveground capacity.

#### Key changes

The new rule significantly amends the SPCC plan applicability criteria. First, the 660-gallon tank trigger is deleted, so facilities need only look at their total aboveground capacity. Second, if completely buried tanks are subject to the requirements of 40 CFR Part 280 (i.e., the federal UST regulations or an EPA-approved state program), the tanks are not counted toward the underground capacity. This change will exclude, for example, many gas stations from the SPCC regulations. In addition, EPA also created a minimum size container of 55 gallons for counting purposes. Before this de minimis exemption, facilities were unsure if they should add the volume of all oil containers, including small bottles and jars. Finally, the new rule clarifies that the use of oil in operational equipment can subject a facility to SPCC requirements, but excludes such equipment from the requirements for bulk storage tanks.

#### Other Changes

New definitions for several important terms, such as "facility," "oil," and "bulk storage container,"

An exemption for wastewater treatment facilities that are used exclusively for wastewater treatment. However, if a facility or part thereof is used for oil storage, this capacity must be counted toward the relevant SPCC threshold (1,320 or 42,000 gallons);

Integrity testing of ASTs must now be done on a "regular schedule," and whenever repairs are done, instead of "periodically"; and must combine visual inspection with another technique (§ 112.8(c)(6));

Field-constructed ASTs that undergo repair, alteration, reconstruction or change in service, or have had brittle fracture



or other catastrophic failure, require a brittle fracture evaluation (§ 112.7(i));

Underground piping installed/replaced after August 16, 2002 must have protective wrapping and cathodic protection, or otherwise satisfy corrosion protection standards for piping, instead of "if soil conditions warrant" (§ 112.8(d)(1));

Underground piping must undergo integrity and leak testing when installed, modified, or replaced (§ 112.8(d)(4));

Exemptions from many requirements are possible, if equivalent environmental protection is provided (§ 112.7(a)(2));

Facilities exempted from secondary containment requirements must now also conduct periodic integrity testing in addition to the other applicable provisions (§ 112.7(d));

Training is now required annually, but only for employees that handle oil products (§112.7(f));

Spill reporting continues to be required for single discharges greater than 1,000 gallons but now must also be done when two discharges greater than 42 gallons each occur within a 12-month period (§ 112.4(a));

#### Changes Required for SPCC Plans

Procedures and schedules for required inspections and testing of tanks/piping must be established, with consideration of applicable industry standards (§112.3(d)(iv));

Facility diagrams must show all piping and transfer stations, and all ASTs and USTs, including the contents of each container (§ 112.7(a)(3));

Include description of procedures to be implemented in the event of a discharge, if a separate facility response plan is not prepared (§ 112.7(a)(5));

Sections of the plan must be re-numbered to match the sequence of the new regulations, or a cross-reference table must be included (§ 112.7);



*Petroleum product storage areas may be subject to more stringent SPCC requirements  
Photo courtesy of Brown & Caldwell*

A complete copy of the Plan must be maintained at the facility if it is normally attended at least 4 hours per day instead of normally attended 8 hours per day.

#### Compliance Deadlines

The rule requires that facilities in operation on or before August 16, 2002 must review and (if necessary) amend their SPCC plans prior to February 17, 2003.

Facilities that become operational between August 16, 2002 and August 18, 2003 must have an SPCC plan no later than August 18, 2003.

Facilities that will begin operation after August 18, 2003 must prepare their SPCC plans prior to beginning operations.

However, on January 9th, 2003, EPA published an Interim Final Rule which extended the original compliance date (February 17, 2003) by 60 days (i.e., to April 17, 2003). Also, EPA published a proposal that would extend the compliance date for another year from the original date (i.e., to February 17, 2004). Additional comments and/or legal challenges could alter these deadlines, so it will be important to keep abreast as the rule continues to develop.

#### Footnotes:

1. EPA and DOT jointly determined in a 1971 Memorandum of Understanding (MOU) the criteria for determining "non-transportation related." This MOU and a related 1994 MOU between the EPA, DOT and Department of Interior are found in 40 CFR Part 112, Appendices A and B, respectively. Certain facilities conduct activity that falls under transportation and non-transportation-related (termed "complex facilities"), and they are subject to the SPCC requirements for the facility's non-transportation-related units. Although this is not a new requirement, EPA provides example scenarios for clarification in the new rule.

2. This criterion has generally been interpreted broadly by EPA, and under the new revisions, this criterion has been expanded to include discharges affecting natural resources. However, EPA contends that this change will not subject many new facilities to the SPCC requirements.

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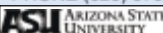
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# Calendar

Arizona Environmental Dates, February 15 through May 15, 2003

## February

- 26 SAEMS luncheon meeting Tucson. Contact Jeff Yockey, President, at 520-884-3692.  
 28 CHMM Application deadline Phoenix. Deadline for the Certified Haz. Materials Managers exam. Contact Jerry Fields 602-567-3827 or Mary O'Shaughnessy at 602-567-3872.

## March

- 1 FAR Reports Due Statewide. Facility Annual Reports and Resgistration Fees due. Contact Gail Bliss at 602-771-4212.  
 13 EPAZ luncheon meeting Phoenix. Visit [www.epaz.org](http://www.epaz.org) for speaker / topic, contact Eddie Martinez at 480-961-1300. Meetings held at Sheraton Phoenix Airport Hotel from 11:30 am to 1 pm.  
 26 SAEMS luncheon meeting Tucson. Contact Jeff Yockey, President, at 520-884-3692.  
 28 CHMM Course deadline Phoenix. Deadline for Certified Haz. Materials Managers course. Contact Jerry Fields 602-567-3827 or Mary O'Shaughnessy at 602-567-3872.

## April

- 3 AESA meeting Phoenix. 1 - 3 pm, Member's meeting, 3 - 5 pm, Advisory Council Meeting of the Arizona Environmental Strategic Alliance. Contact David Young at 480-460-5751.  
 8 - 10 CHMM review course Phoenix. Presented by the Thunderbird Chapter ACHMM and Gateway C.C. Contact Jerry Fields 602-567-3827 or Mary O'Shaughnessy at 602-567-3872.  
 10 EPAZ luncheon meeting Phoenix. Visit [www.epaz.org](http://www.epaz.org) for speaker / topic, contact Eddie Martinez at 480-961-1300. Meetings held at Sheraton Phoenix Airport Hotel from 11:30 am to 1 pm.  
 11 CHMM Certification Exam Phoenix. Sponsored by Thunderbird Chapter ACHMM, see above for contact info.  
 19 StRUT Public Computer Recycle Day Multiple locations. 8 am to 12. Contact David Young, AZ Env. Strategic Alliance, at 480-460-5751.  
 19 Earth Day Festival Tucson. Contact Jeff Yockey, President, at 520-884-3692.  
 30 SAEMS luncheon meeting Tucson. Contact Jeff Yockey, President, at 520-884-3692.

## May

- 1 AESA Meeting Phoenix. 9 am to 2 pm. Joint member and Advisory Council meeting. Contact David Young, at 480-460-5751.  
 8 EPAZ luncheon meeting Phoenix. Visit [www.epaz.org](http://www.epaz.org) for speaker / topic, contact Eddie Martinez at 480-961-1300. Meetings held at Sheraton Phoenix Airport Hotel from 11:30 am to 1 pm.  
 TBD Annual RCRA Seminar Tucson. Date to be determined. 8 Hr training meets requirements for annual RCRA refresher. Contact Jeff Yockey, SAEMS President, 520-884-3692.

*Environmental associations, regulatory agencies, non-profits, and others may suggest items for the Calendar. Deadline for submission is 6 weeks prior to publication date. Acceptance for publication is at the discretion of the editor. Editor: 480-422-4430 x42*

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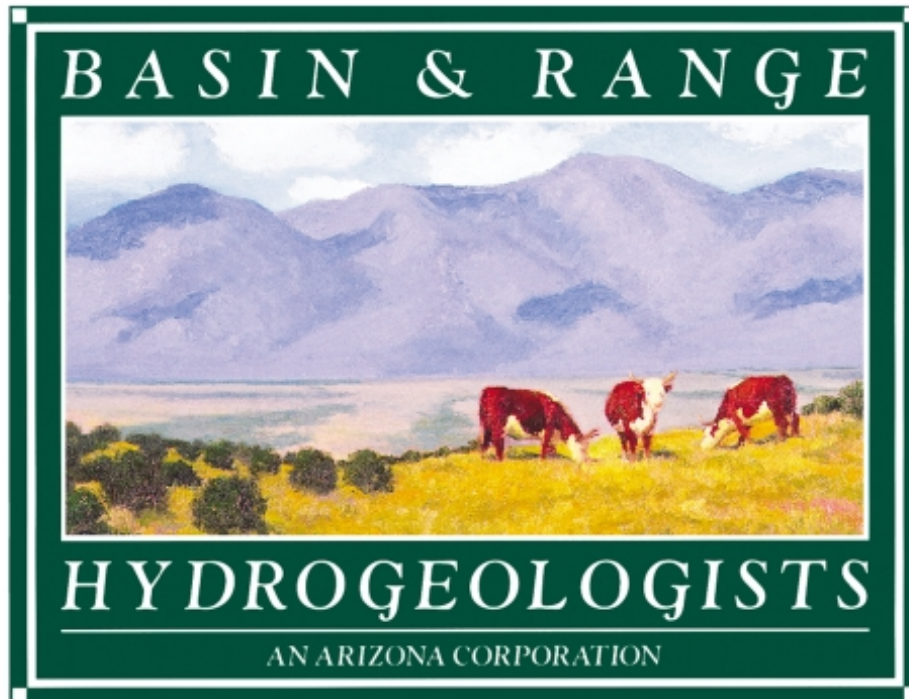


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