

JOURNAL ^{OF} Environmental Management ARIZONA

Practical and Current Information for Environmental, Health and Safety Professionals

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TRAINING

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REQUIRED TRAINING

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See "Sustainability & Sustainable Development" by Nicholas Hild, PhD

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June / July 2003 Vol 1 No. 3

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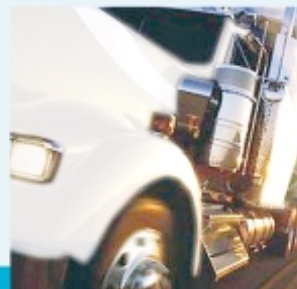
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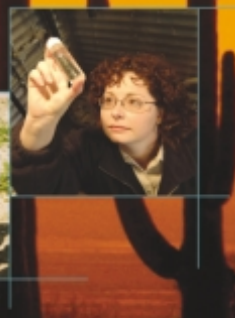
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**Emergency
Preparedness**
Is your facility
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for an emergency
today than it was
before September
11, 2001?

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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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JOURNAL of Environmental Management ARIZONA

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From the Editor



The Journal of Environmental Management Arizona, with this issue, completes a full half-year of publication! I hope you have been enjoying reading the Journal as much as I have enjoyed publishing it. Thank you to all readers, contributors, advertisers, and all others who have made the Journal such a success!

In this issue, we tackle one of the most important responsibilities in environmental management: employee training. Training is an essential part of safety as well as regulatory compliance, yet it can also be a complex web of requirements. In "Training Requirements," (page 6) Tim Page of Workplace Safety Specialists describes 3 essential steps to determine what employee training is required at a facility. In "Defining Accepted Practices," (page 10) Robert Bohannon of SA&B Environmental and Chemical Consultants describes the new ANSI standard for acceptable training programs, and Bill Rosenthal of Pacific Resource Recovery Services reviews one specific area of training in "Mandatory DOT Training," (page 12.) We also have included for reader convenience a mini-directory of some of the businesses and organizations in Arizona that offer training services (page 26).

Don't miss "Cathode Ray Tubes," by Barbara D. Lockwood, P.E., of Pinnacle West Capitol Corp. (page 17). There are also many other articles, columns and useful information in this issue for you.

In our next issue we will address some of the practical aspects of Emergency Preparedness, in consideration of the 2nd anniversary of September 11, 2001. We are still considering specific article topics. Call me if you have something you would like to contribute, on this or any other EH&S subject.

Here is a suggestion for anyone who would like to contribute an article: the majority of articles we accept for publication are *practical* in nature. After reading an article, the reader should be able to *use* the information. For example, the article should tell the EH&S professional something he/she needs to know, how to do something, or explain regulations that affect his/her facility or business. However, please feel free to call to discuss *any* topic you think will be of value to our readers. Thanks!

Jim Thrush, M.S.
Publisher & Editor

To the Journal :

Letter's & email s

EDITOR:

I believe that this publication has great potential as an informational tool for the environmentally minded individual. I have noticed a few employees viewing the magazine as well, but not with the same focus, and curiosity as those employees (including myself) that possess an environmental outlook. In my exploration into the manufacturing sectors at several different companies, this tunnel vision viewpoint seems common, thereby sometimes creating a barrier between the goal of environmental compliance and profit.

In future editions of the Journal of Environmental Management, hopefully topics could be addressed on how to involve and/or eliminate the politics behind the regulations we follow and observe. Thank you for the publication.

Sincerely,

ROBERT PHALEN

EHS Manager, Prototron, Tucson, AZ

EDITOR:

In February 2003 a co-worker informed me of your Journal of Environmental Management Arizona magazine. I subscribed and recently received my first issue. It was very informative as I was able to read about local issues that are unique to the State of Arizona. In the April/May issue an article was written on

developing an Environmental Management System through P2 planning. I'm proud to say that the City of Phoenix Water Department has implemented this same system.

I'm continuing my education in Water / Wastewater Treatment and have found that I'm able to use the Journal as a good resource for term papers. I have shared your magazine with other co-workers that are in the same job title and I'm sure they will find it as informative as I have.

SHEILA DENNEY

City of Phoenix Water Department
Operation Maintance Technician
Environmental Health & Safety Liaison

Thank you to all readers who send in your comments & suggestions. Please mail, email or fax your letter to the editor:

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How to determine your employees' EH&S

Training requirements

Sorting through the maze of regulations to ensure you have not overlooked any training requirements can be challenging.

Tim Page, EH&S Director with Workplace Safety Specialists, offers some structured guidance.

An environmental professional must be committed to keeping employees safe as well as protecting the environment. And that requires proper training. Employers can face substantial legal penalties, as well as the potential for employee injury, from inadequate employee safety and training programs. But what training, and in what areas, is required?

The Journal asked Tim Page, EH&S Director with Workplace Safety Specialists, "How does an employer determine the appropriate training for employees?" The following are excerpts from Tim's response.

In evaluating employee environmental and safety training requirements, according to Tim Page of Workplace Safety Specialists, an employer should follow three steps.

- Ensure that someone in the organization has experience in the EH&S field.
- Take full advantage of the many resources and information available in the EH&S community.
- Perform a hazard assessment to identify employee hazards, then provide the appropriate training.

First: Experience

It is extremely important that the employer or someone in the organization have experience in the EH&S field. This experience can come from training within or from outside the company. And don't overlook the

Photo at Left: Frank Tovar

experience of your own employees, they carry a wealth of knowledge and may already know much about specific training required in their workplace.

Second: Resources

Take full advantage of the training information and resources available to employers. Ask the manufacturers of any hazardous materials you purchase for product safety information and training guidance. Network with local EH&S associations, such as the Environmental Professionals of Arizona and the American Society of Safety Engineers of Arizona. Most of your EH&S peers are very willing to share their experiences and offer assistance. Request safety training information from trade associations in your particular industry; many of these have specific guides to help others within the same industry. Non-profit organizations, such as the Southwest Safety Training Association, can help assess your training needs, as well as for-profit businesses and consultants.

Third: Hazard Assessment and Training

Perform a hazard assessment. OSHA and the Arizona Department of Occupational Safety and Health (ADOSH) require an employer to perform a hazard assessment to identify hazards to employees. Employees must receive training on the identified hazards.



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Timothy S. Page, MS, CHMM, is the Director of EH&S with Workplace Safety Specialists in Chandler, Arizona. Tim can be contacted at 480-649-2851, or by email at timp@workplacesafetyspecialists.com. Workplace Safety Specialists maintains a website at www.workplacesafetyspecialists.com.

A Selection of Employee Training *(by Journal Staff)*

The items below were selected to show a sample of the wide range of both voluntary & required EH&S training.

Since every workplace is unique, training requirements must be assessed on a case-by-case basis, as warranted by the hazards present and regulatory requirements. For specific training information, the Journal recommends you consult with regulatory authorities or your own professional consultants.

OSHA 10 Hr Card
OSHA 30 Hr Card
Hazard Communication, 29 CFR1910.1200
Respiratory Protection, 29 CFR1910.134
Personal Protective Equipment, 29 CFR1910.132 - 1910.140
Fall Protection Training, 29 CFR1926 Subpart M
Occupational Exposure to Haz. Chemicals in Labs, 29 CFR1910.1450
Bloodborne Pathogens, 29 CFR1910.1030
Occupational Noise Exposure, 29 CFR1910.95
Specific Substance Related Training, (Such as: Acrylonitrile, PCB's, Hydrofluoric Acid, Radiation, Lead, Asbestos)
Emergency Response, 29 CFR1910.120(q); 29 CFR1926.65(q)
LockOut Tag-out, 29 CFR 1910.147
Electrical General Awareness, 29 CFR 1910. 332
Electrical - Qualified Electrical Worker, 29 CFR1910.331 - 335
Flammable Storage
Accident Prevention
Permit Required Confined Space Entry, 29 CFR1910.146

40 Hour HazWOPER, 29 CFR 1910.120
8 Hour HazWOPER Refresher, 29 CFR 1910.120(e)(8)
8 Hour HazWOPER Manager / Supervisor, 29 CFR 1910.120(e)(4)
24 hour (Occasional) Hazardous Waste Site Worker, 29CFR 1910.120(e)
24 Hour Site Safety and Health Supervisor
16 Hour Supplemental Hazardous Waste Site Worker
16 - Hour Laboratory Safety, 29 CFR 1910.1450
16 -Hour RCRA, 40 CFR 265.16(a)(1)
8 Hour RCRA Refresher, 40 CFR 265.16(c)
Clean Air Act
Water Quality Laws & Regulations
Pollution Prevention
16 Hour DOT Haz. Materials Transportation Cert., 49 CFR 172.704
8 Hour DOT Haz. Mat Trans. Refresher Cert., 49 CFR 172.704(c)(2)
16 Hour IATA (Int'l Air Trans. Association) Cert., 49CFR172.704
Forklift Driver Training, 29 CFR 1910.178
CPR & First Aid Training
Fire Extinguisher Training, 29CFR 1910.157

news briefs



SAEMS Earthday April 19th

❖ The Southern Arizona Environmental Management Society (SAEMS) sponsored an activity booth at the 9th Annual Earthday Festival in Tucson. (Photo at left.) Read the SAEMS article on page 26 for more information.

❖ EPA honored Pima

Community College with an environmental award: In recognition of Pima Community College's efforts to protect and preserve the environment, the Environmental

Protection Agency's Region 9 office selected PCC to receive one of its five 2003 Environmental Achievement Awards. Wayne Nastri, EPA regional administrator, said the award recipients applied creativity, teamwork and leadership in addressing many of Arizona's most pressing and complex environmental problems. "Thanks to their efforts, our air, water and land will be cleaner and safer for generations to come," he



Judi Gard, Environmental Program Coordinator, and Scott Harper, Director of EH&S, Pima Community College

said. "The winners set an example for all of us to follow." Pima College has an active environmental program that includes composting, compressed natural gas in fleet vehicles, energy and water conservation, waste reduction and recycling. In November 2002, the College received a Leadership in Energy and Environmental Design (LEED) award from the U.S. Green Building Council for the Plaza Building constructed at Desert Vista Campus. This was the first building in Arizona to receive the LEED designation and one of only 23 in the nation. The Plaza Building will use 21 percent less energy than a standard building, paying back the College's investment in energy efficiency in 10 years.

The EPA said that the efforts above, combined with College



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practices of irrigating athletic fields with reclaimed water, shading parking lots and creating mercury-free campuses, show PCC is a model for demonstrating environment stewardship.

Judi Gard, Environmental Program Coordinator, and Scott Harper, Director of Environmental Health and Safety, were honored guests at an award ceremony the EPA held on Earth Day, April 22, in San Francisco. For more information contact Judy Gard at 520-206-2766, or by email at Judith.Gard@pima.edu.

Pima Community College (PCC) is the sixth-largest multi-campus community college in the nation, with more than 84,000 enrolled students.

❖ **Arizona Clean & Beautiful** announced that **nomination applications for the 2003 Governor's Pride in Arizona Awards will be available after July 4th.** Anyone can submit a nomination. Individuals, organizations, businesses, and governmental agencies with achievements in Pollution Prevention, Recycling, or any of the many award categories are encouraged to apply. Nomination applications will be reviewed in September by a panel of distinguished judges, with awards presented on December 12th at the Governor's Pride in Arizona Award Conference in Scottsdale.

The awards recognize achievements by those who have made a contribution to or created outstanding programs in environmental leadership, environmental technology, public/private partnerships, beautification, community achievement, Adopt a Highway, and recycling. The awards program began in 1989 through a partnership between the Arizona Department of Transportation and Arizona Clean and Beautiful to honor outstanding Adopt a Highway volunteers, and has evolved into a daylong conference that celebrates environmental achievements and provides knowledge on other critical environmental issues facing Arizona.

For more information contact Arizona Clean & Beautiful at 480-615-7200, or visit the website at www.arizonacleanandbeautiful.org.

❖ The first **Arizona/Sonora Regional Workgroup** meeting was held in Tucson on June 5th. The workgroup was created under the new **Border 2010: US-Mexico Border Environmental Program** to implement bi-national environmental projects that are consistent with the program's mission to "Protect the environment and public health in the US-Mexico border region, consistent with the principles of sustainable development." For information contact ADEQ at 520-628-6733, or the US EPA San Diego Border Office at 619-235-4765, or visit www.epa.gov/usmexicoborder.

❖ APS and Waste Management recently announced the dedication of a **solar-hybrid power system** at the Waste

Management of Arizona's Gray Wolf Landfill facility just outside of Prescott in Dewey, Arizona.

According to the announcement, the Gray Wolf Landfill was originally powered by three diesel generators. **The new system uses photovoltaic solar, battery storage and diesel backup to decrease fuel use and improve air quality.** "Our commitment is to the safe and responsible management of waste and the highest quality of service," said Vince Murphy, Director of Operations for Waste Management. "Partnering with APS on this project helps ensure that we, indeed, are acting responsibly toward the public and the environment."

Gray Wolf will serve as the first commercial application of the APS Tilted Tracker Photovoltaic System. Developed by APS, **the tilted trackers use a hydraulic actuator and electronic controls to advance the position of the modules by approximately two degrees every eight minutes to maximize exposure to the sun.** With the tilted axis rotation, these modules can deliver more solar energy throughout the year than if they were fixed or roated on a horizontal basis. The Gray Wolf facility features eight such trackers.

News Briefs

will publish items of environmental interest including notices, new products or services, significant accomplishments or awards to individuals or facilities, and other information helpful & of interest to Arizona's EH&S community. Photographs are also encouraged; contact us first regarding photo requirements. Please contact the editor, or send your notices to:

Editor@ehshomepage.com

Defining Accepted Practices

**“What is acceptable
EH&S training?”**

**Robert R. Bohannon,
President of SA&B
Environmental &
Chemical Consultants,
discusses the
ANSI Standard that will
answer the question.**

by Robert R. Bohannon, CET

Most environmental, health, and safety (EH&S) regulations that apply to chemical operations have employee training as a key component. It should be noted that training is both a science and an art. While the principles of systematic training development are virtually universal and apply to all types of training, including EH&S training, the style of delivery may vary to reflect the personality of the trainer and accommodate the characteristics of the training audience. As a result, training may have many formats, may utilize any of an array of technologies, and may have varying levels of success. What is required to fulfill the various EH&S training requirements? That is one of the major issues pertaining to EH&S training. In the past, this determination was left to the parties responsible for the training, as minimal guidance or criteria were

available to answer this question.

In 2001 the American National Standards Institute (ANSI) developed the consensus standard, ANSI Z490.1-2001 Accepted Practices in Safety, Health, and Environmental Training, to clarify the issue. The Z490.1 standard “establishes criteria for EH&S training programs, including development, delivery, evaluation and program management and defines accepted practices for safety, health, and environmental training.” This standard is recommended for voluntary application by training providers of EH&S training and is intended to be applied to a broad range of training and training programs. Even though the ANSI standard is voluntary, it will soon follow the course of similar ANSI standards and be used as the acceptable criteria for development and evaluation of EH&S training programs. Regulators and legal professionals will cite or reference this standard. Currently, requests for procurement are referencing general compliance with the Z490.1 standard for EH&S training.

The ANSI Z490.1 standard provides criteria to assure that sound principles are followed for systematic course development. This standard also requires trainers to apply the principles of andragogy (the teaching of adults) and suggests ways in which the trainer can glean a sense of the art that encourages trainees to be attentive during training and retain the knowledge needed to perform their jobs safely.

Most of the effort given to training is applied to the delivery portion, which is the “show time” part of training. However, training is similar to sports activities in that the performance during “show time or the game” is a by-product of the preparation. Proper development of the training program and the development and implementation of an effective evaluation tool are vital to the achievement of an effective training program. The ANSI Z490.1 provides criteria for the total training program, including development, delivery, and evaluation.

Training programs are most effective and efficient when managed under a well-defined and organized administrative system. The ANSI standard requires that training be viewed as an integral program, rather than a series of unrelated events. It is important to remember that training alone cannot assure

a safe, healthy, and environmentally sound work environment, nor can it ensure regulatory compliance.

The ANSI Z490.1-2001 standard, "Accepted Practices in Safety, Health, and Environmental Training" provides acceptable practices for EH&S training. It answers the question "What is acceptable EH&S training?" by establishing criteria for EH&S training programs, including development, delivery, evaluation, and program management. The contents of the Z490.1 standard will be used as the criteria to determine the EH&S training programs of the future.

Robert R. Bohannon, CET, is President of SA&B Environmental & Chemical Consultants in Phoenix, and can be reached at 602-263-0045. Mr. Bohannon specializes in EH&S training, as well as establishing programs to ensure compliance with EH&S regulations. He also provides consultation services and expert witness testimony. SA&B maintains a website at www.sab-env.com.

Editors note: The ANSI Z490.1-2001 Standard was available for purchase, at the time of this writing, for \$48 from the ANSI website at <http://webstore.ansi.org/ansidocstore/>. Use the option "Standards Search" along the left side of this somewhat confusing web page. Or, check with your local library.

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Coming in the Next Issue: Emergency Preparedness

The August / September issue of the Journal will include a focus on Emergency Preparedness and Arizona Facilities. Is your facility better prepared today for an emergency of any type than it was before September 11, 2001? If you would like to contribute to this issue, please contact the editor.

Thanks! Editor

2003 Arizona Hydrological Society Symposium

Mesa Centennial Center

Mesa, Arizona

September 17 - 20, 2003



Theme:

"Sustainability Issues of Arizona's Regional Watersheds"

Symposium Highlights

✓ **ONE-DAY WORKSHOP** on geophysics (others may be added). Learn about the basic methods of geophysical investigations and their application to solutions to water resources and environmental problems. Get some hands-on experience with instrumentation.

✓ **PRESENTATIONS.** Numerous presentation sessions are planned, including "Public Policy and Planning for Arizona's Water Supply," "The Role of Private Enterprise in Sustaining Arizona's Water Supplies," "Groundwater Contamination," and "Emerging Contaminants in Surface Water and Groundwater." (Tentative session titles; more will be added.)

✓ **SPECIAL SESSIONS.** (1) Sustainability issues confronting the Verde River Watershed, and (2) A multi-state panel will discuss Colorado River issues of interstate and international consequence.

✓ **SPECIAL EVENTS.** AHS is collaborating with Project WET to present a one-day Teachers' Workshop. This will be an excellent opportunity for science teachers from nearby schools to acquire in-depth knowledge of water issues confronting society from the experts . . . AHS members. It will also be a great opportunity for the teachers and symposium participants to network, expanding water education throughout our community.

✓ **FIELD TRIPS.** Two field trips are planned: (1) the Pueblo Grande Museum tour includes full museum access, a walk along canals that intersect the museum property, and a visit to Native American cultural sites that highlight the significance of water in prehistoric Arizona. An archaeologist will lead a discussion of prehistoric water use and culture in the Valley of the Sun, how present water use and infrastructure were adapted from prehistoric cultures, and water-use sustainability from a historic perspective. (2) The Central Arizona Project Water Operations Tour will include a presentation and discussion of the history of the CAP, current CAP operations, and the future of CAP use in Arizona, a visit to the CAP operational control center, the New Waddell Generation Facility, and Lake Pleasant.

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A Review of

Mandatory DOT Training

Does your facility ship hazardous materials?
Bill Rosenthal, Certified Instructor in Hazardous Commodity Transportation and Hazardous Materials Emergency Response, Examines Mandatory DOT Training

by Bill Rosenthal

Expanded enforcement of the Hazardous Materials Regulations will become more evident to industry as both Federal and State agencies tighten compliance requirements by working more closely together. The overall goal behind this aggressive and cooperative move is to dramatically reduce the number of incidents of non-compliance involving all modes of hazardous materials transportation. With this in mind, it is important to examine the current DOT mandatory training requirements which pertain to all individuals who "affect hazardous materials in transportation."¹

Mandatory Requirements

To properly comply with the DOT mandatory training requirements, it is first important to understand the meaning of "affecting hazardous materials in transportation." Any individual or organization who packages, labels, marks (DOT required markings), loads and/or unloads,

completes and/or signs required documentation (Bill of Ladings/Shipper Certifications or Hazardous Waste Manifests), offers placards for transportation or placards transport vehicles, ships or receives, or transports any regulated hazardous materials is considered to "affect hazardous materials in transportation." Additionally, individuals involved in distributing and filing documentation from hazardous materials shipments fall under this definition.

An individual who "affects hazardous materials in transportation" at a minimum, must receive General Awareness/Familiarization Training, Function Specific Training, and Safety Training as defined in DOT, 49 CFR, Section 172.704(a)(b). Although initial training is required for an individual prior to performing any hazardous materials function, a newly hired individual or individual who changes job functions may work under the direct supervision of a knowledgeable and properly trained person, but the training requirements must be completed, the individual tested, and training documented within ninety days of initial hire or changing job. Under the final rule for Docket HM-222B, published by the Research and Special Programs Administration (RSPA) on May 30, 1996, recurrent training must be provided at least once every three years and must include all training identified under the initial training requirements. In addition, the individual receiving recurrent training must be tested and the training must be documented. However, with on-going revisions and/or new provisions to the Hazardous Materials Regulations, individuals who "affect hazardous materials in transportation" and who are required to comply with these revisions and/or new provisions, must receive the appropriate levels of training on the updated standards before performance of any hazardous materials function affected by these standards can be undertaken.

Each employer is responsible to insure that all individuals who "affect hazardous materials in transportation" are in compliance with the mandatory training requirements. As defined in DOT 49 CFR, Section 172.704 (d), each employer must certify by additionally signing and dating the training certification in addition to the certification by the training

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Sustainability and Sustainable Development:

not-Axioms *of Environmental Sustainability*

Nicholas R. Hild, PhD.

Just when you think you have a good understanding of what '*Sustainability*' is, something you read makes you realize there's a lot of confusion about it. Yet, more and more, we see everyone from our President (*dubya*) to Madonna (*the Material One*), using the term in interviews and print media in ways that begs the question: is the term going to be so overused, abused, and mis-applied, that it will lose its beneficial impact, like other catchy descriptors have in the past? Words like, '*paradigm*,' the '*bottom line*,' and '*politically correct*,' come to mind. We certainly don't want the drive for sustainability and sustainable development to be so misunderstood that it negatively impacts the future of our children's, children's, children. We need more people to take *sustainable* actions and fewer to use it as the latest buzz-word!

In the last couple of years, the ASU ETM program has offered courses in Sustainability and Sustainable Development where both undergraduate and graduate-level students wrestled with that definition problem. And, while we found that it is not easy to have a consensus definition, we *did* learn this: there are some things that we can definitely say are *NOT* sustainable. I have a short list I've compiled (i.e. its still evolving) for a text I'm writing on the subject that I call the '*not-Axioms* of Environmental Sustainability.' Here are two, which, based on my research, should be obvious but aren't well appreciated:

not-Axiom #1: Sustainability is impossible with non-renewable resources

It sounds like double-negative-double talk but, simply put, it is impossible to '*sustain*' any process (of living on earth) while utilizing non-renewable materials or resources. Non-renewable resources must, therefore, be kept in reserve to be used (if at all) as resources by future generations and *only* as an absolute earth/life preserver when all other processes and/or materials options have been depleted and no technological alternatives exist. Think about this: if we consider alternative fuels which substitute natural gas for oil, don't they both come from non-renewable petroleum resources? Yet, propane and natural gas is now touted as an "*alternative fuel*" for gasoline and diesel. Amazing!

not-Axiom #2: Sustainable growth is not always associated with positive economic growth

Former Vice President Al Gore was fond of saying that (paraphrasing), '*sustainability and positive economic growth can and do occur simultaneously.*' What we have learned since his tenure in the White House is, that's true . . . sometimes . . . but, more often, the economics leads the decision to implement a sustainable development decision. If a process or project does not provide a positive *economic* outcome (for someone), no matter how *sustainable* it is, it doesn't happen. That is the biggest reason we need to promote sustainability without consideration of the economics involved. Sustainability, and not economics, needs to be the driver if we are ever to provide a future for our children's, children's, children.

I am betting that those of you reading this can think of a lot of other examples of *not-Axioms* that
Continued on page 14

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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HILD: not-Axioms

are so logical, it makes one wonder why no one's talking about it. I would be interested in hearing your's, so if you feel so inclined, drop me an E Mail and, if I use it, I will give you credit in the new text for your contribution. Meanwhile, think about '*sustainability*' in the things you do today — for our children's, children's, children.'



continued from page 12

DOT Training

instructor, that the required training has been properly performed and completed, and that the individual has been tested on the appropriate material. A record of current training is required in accordance with this section, and must be kept on file for each individual throughout the course of their employment, and for a minimum of ninety days thereafter.

Expanding Compliance

The key to maintaining compliance with the Hazardous Materials Regulations is to frequently update and train all individuals within the organization who "affect hazardous materials in transportation." Review regulatory changes being implemented, and design a training standard which best parallels and exceeds these requirements. This will ensure compliance with the most current regulations and will additionally assist with "always staying one step ahead" of any Hazardous Materials Regulations training violations. To take this one step further, industry should consider establishing a recurrent training program to be provided at least once each year, which would ultimately result in a greater sense of awareness and provide a broader level of understanding and compliance for all concerned.

Footnotes

1. See "hazmat employee" under Definitions and Abbreviations, DOT, 49 CFR, Section 171.8.

Bill Rosenthal, Director of Corporate Environmental Training with Pacific Resource Recovery Services and Ellis Paint Company, can be reached at 800-499-7145, Ext. 340. He is a Certified Instructor in Hazardous Commodity Transportation and Haz. Material Emergency Response, and provides DOT, EPA, and OSHA training to the California Highway Patrol, the U.S. Customs Service, Hazardous Waste Facilities, and others too numerous to mention.

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Michael C. Ford, Attorney

Regulatory Developments

Legal news you can use

The purpose of this column is to highlight for the non-environmental lawyer developments in the law of practical importance to Arizona businesses. General familiarity with environmental laws and acronyms is presumed. If you have any questions or comments, or a topic you would like to see addressed, please let me know (see contact information below.)

An important component of ADEQ's new AZPDES permit program is the permit appeal process. Rather than dealing with EPA's procedures under the NPDES program, new or renewing Arizona permittees (or aspiring permittees) should be aware of the applicable appeals process, which is prescribed by the state Administrative Procedures Act, A.R.S. §§ 41-1001 *et seq.* ("APA"). While applicants are guaranteed appeal rights, the standard to prevail is daunting: ADEQ's decision can only be reversed if the applicant demonstrates that ADEQ's decision was arbitrary, unreasonable, unlawful or based upon a technical judgment that is clearly invalid. *See* A.R.S. § 49-324.

Applicants may challenge ADEQ's decision to deny a permit, or the issued or renewed permit's terms, by filing within 30 days a notice of appeal ("NOA"). A.A.C. R2-17-108. During the appeal of an issued permit, all permit conditions that are specifically contested in the NOA and those permit conditions that are not severable from those contested provisions are stayed pending the final resolution of the appeal. A.R.S. § 49-324. The NOA must include a brief statement setting forth the reasons for the appeal, which ADEQ must respond to by filing an "answer" within 20 days thereafter. A.A.C. R2-17-108, 109. The parties must then begin "discovery" by identifying in a disclosure statement the factual basis of the appeal or response; the legal theory upon which the appeal or response is based; all witnesses expected to be called and a description of the expected testimony; the name of any expert witness expected to be called at trial along with a summary of their opinions; and a copy of all documents that each party plans to use at the hearing. The parties will also have the opportunity to file motions, responses and supporting memoranda (limited to 15 pages) and replies (limited to five pages). A.A.C. R2-17-112. A hearing will be scheduled and held before the Water Quality Appeals Board within 60 days from the filing of the NOA. The Board is appointed by the governor and consists of three persons, all with technical expertise, including at least one attorney. *See* A.R.S. § 49-322.

The Board has wide discretion in considering evidence, compared to other court proceedings. The Board must issue its decision within 15 days of the conclusion of the hearing. If the permittee (or ADEQ) is not satisfied with the Board's resolution, the applicant may request a rehearing or appeal to the Superior Court. *See* A.R.S. §§ 49-321, 49-323, 12-901, *et seq.*, 41-1092.08, .09; A.A.C. R2-17-125. A request for rehearing and/or review must be made within 30 days of receipt of the Board's decision. The reasons justifying rehearing or review, include procedural irregularities, abuse of discretion, misconduct, accident or surprise, new discovery of material evidence, error in admission or rejection of evidence, and an unjustified decision. A.A.C. R2-17-126. The Board has 15 days to rule on the motion

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Thanks to my colleagues John Burnside and Gerry DaRosa for their assistance with this column.

Michael C. Ford is an Attorney with the Phoenix office of Bryan Cave, LLP. Mr. Ford practices exclusively in the area of 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.



Management Options: Reuse, Recycling, Disposal

Cathode Ray Tubes

Millions of used televisions and computer monitors with Cathode Ray Tubes containing lead are replaced each year. This article examines the regulatory status and management options for these CRT's

by Barbara D. Lockwood, P.E.

The rapid advancement of computer technology has resulted in a huge turnover in electronic equipment, including computer monitors. EPA estimates that about 57 million televisions and computers are sold each year in the United States alone. (Ref. 1) The number of computers sold around the world is staggering, and the disposal of obsolete or unusable computers and electronic components has become an international issue.

Cathode ray tubes, or CRT's, are found in virtually every computer and television made today, with the notable exception of flat screen plasma monitors and televisions. A typical color CRT and monitor contains about four pounds of lead. Studies have shown that a typical color CRT will leach lead at approximately 22 milligrams per liter (mg/L), which exceeds the federal hazardous waste standard (Toxic Characteristic Leaching Procedure, or

TCLP) of 5 mg/L by more than 4 times (Ref. 1) This limits the options for disposal of color CRT's. Black and white CRT's contain less lead and most likely would not be hazardous.

Management Options for CRT's

There are several options in the United States for management of CRT's including reuse, recycling, and disposal.

Reuse

There are numerous organizations today (both for-profit and non-profit) that will accept old computer equipment for potential reuse. Some of these organizations will simply sort through donations, retain, redistribute, or resell equipment that is still usable and desirable, and discard the rest. Other organizations may even repair equipment and then redistribute or resell it.

Recycling

There are other organizations that break down electronic equipment into its component pieces (i.e. glass, plastic, metal, etc.). Each component is then shipped to another facility for recycling. The monitor components are usually not valuable enough to offset the cost of demanufacturing, so these organizations will typically charge a fee for their services. Electronics manufacturers are also increasingly willing to take back computer CRT's for recycling.

Disposal

The final option is disposal. If each television and computer sold in a year were replacing another unit that was disposed in a landfill, it would equate to over 225 million pounds of lead disposed in landfills each year in the United States. Fortunately, most consumers and businesses are reluctant to use this option for various reasons. In fact, consumers and businesses will frequently store their electronic equipment, and EPA estimates that the average household has two to three units in storage.

Regulatory Status of CRT's

Each of the three management options has its own unique regulatory status. The Environmental Protection Agency (EPA) published a proposed rule addressing CRT management on

June 12, 2002 (see 67 FR 40508) (Ref.1). This rule outlines EPA's current perspective on CRT's and proposes a regulatory exemption for recycling CRT's.

Reusing

In the proposed rule, EPA acknowledges that it has no jurisdiction over reused computers. In fact, EPA encourages this option as a responsible way to conserve resources. EPA also acknowledges that some equipment sent to an organization for evaluation for possible reuse is eventually discarded, because it is either obsolete or can not be repaired economically. EPA clarifies in the proposed rule that they do not consider a user sending a CRT to a reseller for potential reuse to be a waste generator, even if the CRT is eventually disposed and never reused or resold. EPA further clarifies that CRT's undergoing repairs are still commercial products and not solid waste. (Ref. 1)

Recycling

EPA also explains that under the current regulations, CRTs undergoing recycling could be hazardous waste. Considering the barrier this presents to recycling CRT's, EPA proposed an exclusion from the definition of solid waste for used CRT's being recycled. Under the proposal, used, intact CRT's destined for recycling would be excluded from the definition of solid waste. Used, broken CRT's destined for recycling would also be excluded as long as certain minimal standards for storage and transportation are met. Since most of the lead is present in the glass, CRT glass undergoing processing and processed glass sent to a glass manufacturer for recycling would also be excluded if certain similar minimal standards are met. EPA also clarifies that it does not regulate unused CRT's sent for reclamation. (Ref. 1)

Disposal

Most CRT's generated by a business would be hazardous waste if disposed. They would be subject to all the applicable hazardous waste requirements found in 40 CFR 262 including packaging and labelling, 90-day accumulation requirements, use of the hazardous waste manifest, and recordkeeping and reporting. Hazardous waste rules would require the CRT's to be shipped to a hazardous waste treatment, storage, and/or disposal facility (TSDF). The CRT's would also require treatment prior to final disposal to reduce the leachability of the lead to below land disposal restriction (LDR) standards. Of course, CRT's that are generated by households are exempt from hazardous waste management standards, and CRT's generated by conditionally exempt small quantity generators (e.g. generators who generate less than 100 kilograms of hazardous waste in a month) would not be subject to full hazardous waste regulation.

Arizona's Position on CRT's:

On November 14, 2002, Arizona Department of Environmental Quality's (ADEQ's) Hazardous Waste Section

Some controversy has evolved in recent years over electronic components that are shipped overseas to less developed countries for recycling. The low value of the materials and the labor intensity required for demanufacturing makes it attractive for recyclers to ship these materials to countries that have low labor rates. Unfortunately, these countries do not always have and/or enforce worker protection laws. Workers in these countries may be exposed to elevated levels of lead or other metals depending on work practices. Some organizations that demanufacture electronics will allow customers to specify that none of the components from their CRT's be shipped outside the United States. Of course, this requirement usually increases the cost of the service.

issued a letter stating that they will support and encourage management of CRT's as outlined in EPA's proposed rule until the rule is finalized. ADEQ also clarified that prior to publication of the proposed rule, they had taken the position that broken or crushed CRT glass was a hazardous waste and companies that demanufactured CRT's were hazardous waste generators and TSDF's. (Ref. 2)

EPA has indicated in its most recent regulatory agenda that the final CRT rule is expected to be published around May 2004. (Ref. 3) Subsequent to the proposed rule, in late-2002, EPA issued a direct final rule for Region III (covering Delaware, Maryland, West Virginia, Pennsylvania, Virginia, and the District of Columbia) implementing the proposed rule exclusively for this region. EPA explained that they hoped to gain additional information from early implementation in a limited area that would assist them as they consider implementing the exclusion nationwide. As with most direct final rules, EPA announced that they would withdraw the direct final rule if they received adverse comments. (Ref. 4) They did, in fact, receive adverse comments and withdrew the rule in early-2003. They indicated they would address the adverse comments in a final

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CRT

Disposal Options

action on the proposed rule which was published at the same time as the direct final rule. (Ref. 5)

Conclusion

While there are multiple options for managing used CRTs, each of those options requires careful consideration of the regulatory requirements. Hopefully, EPA will be successful in their attempt to remove barriers to CRT recycling, but until the proposed rule is finalized, most of the nation will still be required to manage CRTs being recycled as hazardous waste.

Barbara D. Lockwood, P.E., Environmental Consultant, Pinnacle West Capital Corporation, holds a BS in Chemical Engineering and has over 12 years experience with waste regulation focusing on hazardous waste. Ms. Lockwood can be reached at 602-250-3361 or by email at barbara.lockwood@pinnaclewest.com.

References:

1. Hazardous Waste Management System; Modification of the Hazardous Waste Program; Cathode Ray Tubes and Mercury-Containing Equipment; Federal Register 2002, 67, 40508 – 40528.
2. Memo to Susan Szabo, Pinnacle West Capital Corporation from Denise McConaghy, Arizona Department of Environmental Quality, Hazardous Waste Section, re: Regulatory Status of Cathode Ray Tubes (CRTs) in the State of Arizona, November 14, 2002.
3. Semiannual Regulatory Agenda, Federal Register 2002, 67, 75168 – 75317.
4. Regulatory Innovations: Pilot-Specific Rule for Electronic Materials in the EPA Region III Mid-Atlantic States; Hazardous Waste Management System; Modification of the Hazardous Waste

Program; Cathode Ray Tubes, Federal Register 2002, 67, 78711-78731

5. Regulatory Innovations: Pilot-Specific Rule for Electronic Materials in the EPA Region III Mid-Atlantic States; Hazardous Waste Management System; Modification of the Hazardous Waste Program; Cathode Ray Tubes; Withdrawal of Direct Final Rule, Federal Register 2003, 68, 8553

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FORD:

AZPDES Permit Appeals

for rehearing. Alternatively, the permittee may appeal the Board's decision directly to the Superior Court, without requesting a motion for rehearing or review by the Board, in which case the appeal process is governed by A.R.S. § 12-901, *et seq.*, and the Rules of Procedure for Judicial Review of Administrative Decisions. 17B A.R.S. J. Review Admin. Dec.

While no appeals have been taken to date, applicants should be aware of the limited opportunity to challenge ADEQ's permitting decisions, and take full advantage of the informal permit negotiation process in order to avoid any need to resort to the appeals process.

Continued from pg 19 (at right)

Olson:

Arsenic

than about 100 connections). These include absorption (Mn-activated alumina or iron media) and reverse osmosis.

Non-treatment options involve replacing water sources or blending high arsenic concentration water with less contaminated water to bring the concentration below the regulatory limit and may provide a cost effective approach.

The Arizona Department of Environmental Quality published an Arsenic Master Plan in February 2003 (<http://www.adeq.az.us/enviro/water/dw/arsenic.html>). Approximately one-third of the state's water systems will not meet the new 10 µg/L standard. A total of 287 of the water systems serving less than 10,000 people will be impacted. ADEQ evaluated feasible alternatives for these systems and estimated a lowest cost option in excess of \$24 million annually (including capital and operating costs). Watch your future water bills for more exciting information on the cost of compliance!

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It's All About Chemistry

Removing Arsenic From Drinking Water

Larry Olson, PhD.

In the last column, we reviewed the history of the new arsenic standard of 10 $\mu\text{g/L}$ that applies to most public drinking water systems in the U.S. Enforcement is to start by January 23, 2006, five years after promulgation of the rule. Now let's look at the options if our drinking water sources exceed the standard.

As the 20th most common element in the earth's crust, arsenic in ground or surface waters occurs naturally from contact with various minerals. It is most commonly found combined with Cl, S, or O. Since it is a Group V element, it has five valence shell electrons and mimics phosphorus in its chemical reactions. Common valence states are -3 (e.g. AsH_3), 0 (pure As), +3 (e.g. As_2O_3 , As_2S_3 , or NaAsO_2), and +5 (e.g. As_2O_5 , NaHAsO_4 , or $\text{Ca}_3(\text{AsO}_4)_2$).

Oxidation state and chemical form naturally affect chemical, physical, and toxicological properties as well as mobility. Arsenic(V) compounds predominate in oxidizing environments like surface waters, whereas As(III) is found in reducing environments such as sediments or natural groundwaters. Arsenic can partition onto sediments or soils, especially those containing clays, iron oxides, or organic matter, reducing its mobility. This is affected by pH (higher alkalinity promotes desorption) and the presence of competing anions like phosphate.

As(III) compounds are more toxic than As(V). Organic forms of arsenic also exist, such as $\text{CH}_3\text{As}(\text{OH})_2$ or $(\text{CH})_2\text{AsO}(\text{OH})$, but unlike organomercury compounds it is the inorganic arsenicals that are considered more toxic. Since arsenic can be oxidized or reduced and converted from inorganic to organic forms by microorganisms in the environment, as well as by the human body, the regulation does not distinguish between the forms of arsenic.

However, treatment options for arsenic contaminated water do depend upon oxidation state and composition of arsenic compounds. Arsenic is usually required to be in the +5 valence state and pre-treatment (for example with chlorine) may be required if it is not. Other water quality factors such as high fluoride, silica, or phosphorus concentrations or high pH can interfere with adsorption process and affect the choice of treatment.

EPA has identified Best Available Technologies (BAT) for arsenic removal based upon field demonstrations and cost effectiveness. These include:

- Anion exchange
- Activated alumina
- Reverse osmosis
- Modified coagulation/filtration
- Modified lime softening
- Oxidation/filtration (Greensand)

Some emerging technologies have also shown promise and continue to be evaluated under field conditions.

Treatment options for small water systems can be limited by high initial costs, complexity of operation, or disposal of hazardous by-products. Point of Use (POU) treatment options may be more cost effective for small systems (less

Continued on page 18

Correction:

In the April/May "It's All About Chemistry," references to MCLs for Arsenic should read " $\mu\text{g/L}$." The Journal inadvertently converted the symbol for micro (μ) into the letter "m." We regret any inconvenience this may have caused.
Sincerely, Editor

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

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

AAI is gearing up for its 12th Annual Environmental Summit which is scheduled for August 13th, 14th & 15th at the Prescott Resort in Prescott. The Summit will begin with a

reception the evening of August 13th at historic Murphy's in downtown Prescott. Thursday August 14th will be a full day of speakers and workshops at the Prescott Resort which will include ADEQ Directory Steve Owens, Deputy Directory Patrick Cunningham and ADOSH Assistant Director Patrick Ryan along with many others. Friday August 15th will include keynote speaker Jim Paxon, United States Forest Service Retired, who will speak about the Rodeo/Chediski fire. AAI's Annual Environmental Summit Golf Tournament will be held at the Stone Ridge Country Club the afternoon of Friday August 15th. For more information go to AAI's web page at www.azind.org and click on "events" or contact Brent Frazier (602-252-9415) or Jeff Homer (480-441-6672).

AAI's EHS Committee Breakfast meetings continue to be held on the second Wednesday of each month from 7:00 to 9:00 AM. The May 14th meeting featured Dan Blackson from the Palo Verde Nuclear Generating Station and Jim Larson from Intel presented on Palo Verde's environmental management programs and the Arizona Strategic Alliance's Earth 911 Program respectively. The next breakfast meeting is scheduled for July 9th. There will be no breakfast meeting in August. For more information go to AAI's web page under events or contact Brent Frazier or Jeff Homer at the numbers noted above.

*Jeff Homer,
EHS Committee
Chairman*



ACHMM Thunderbird

The Thunderbird Chapter of the ACHMM and Gateway Community College presented the National CHMM Overview Course from

April 8-10, 2003. The 3-day course, which consisted of 26 different modules, provided an intensive overview of environmental laws and regulations as well as a review of health and safety principles. Twelve students from occupations ranging from facility professionals, consultants, federal agencies, and the military attended the course. Approximately 15 instructors, with backgrounds that included industry, consultants, legal firms, and state agencies, volunteered to teach the course. On April 11, 2003, approximately nine individuals took the 3-hour comprehensive exam required for the CHMM credential.

*Matt Conway,
ACHMM
President*



The Thunderbird Chapter would like to thank all individuals who participated as instructors as well as Gateway Community College which provided an excellent facility for the course and exam. The Thunderbird Chapter tentatively plans on holding the course and exam again in Spring 2004. For more information, visit the Thunderbird Chapter website at www.thunderbirdachmm.org.



*Barry Westerhausen,
Sergeant at Arms*

AESF will hold the annual Beginning of Summer Golf Tournament June 7th at Club West Golf Course. Please

contact Barry Westerhausen at bwesterhausen@lachim.com or call (480) 206-4107 to reserve your spot. This annual event brings all the society members and friends together for a day of golf, lunch and prizes. Last years event was very successful and we expect this year be even better.

The Arizona AESF will break until the second Thursday of September 2003. We will then resume meeting at the Doubletree Resort with social hour beginning at 5:30. Topics planned for the second half are environmental regulations, hazardous waste, new processes, and plating trends; these are just some of the topics planned after the summer break.

At the April AESF meeting the topic was Ultrasonic Cleaning by Tom Eschner of Branson Ultrasonic. Tom spoke on the progress that ultrasonic cleaning has made in past few years to become more affordable and how the industry is working to address the concerns of the plating industry. With the use of ultrasonic cleaning technology the number of tanks and time of cleaning can be significantly reduced and also reduce waste.

If you would like to be notified of upcoming AESF events and receive our newsletter 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 or (480) 206-4107.

AESF



*David G. Young,
President*

The Arizona Environmental Strategic Alliance is in the process of nominating and selecting Advisory Council

members to replace those whose terms have ended. The Advisory Council is comprised of representatives from academia, government, consulting and industry who are the heart of the Alliance. The council ensures that the Alliance members are continuing to work toward the Alliance Principles.

The Alliance Principles are guidelines that the Alliance members agree in writing to follow as part of their company's or organization's everyday operations. The Principles state that members "have a responsibility for the environment and must conduct all aspects of business in a manner that demonstrates

Arizona Environmental Strategic Alliance



commitment to environmental protection as well as a vibrant economy." They also require management commitment to environmental issues, sustainable use of natural resources, environmental education and monitoring and environmental performance and integrity.

The Advisory Council has three permanent seats for EPA Region IX, ADEQ and Maricopa County ESD. The other Council members must number no less than nine. There is no maximum number of Advisory Council members defined by the Bylaws. After a nomination and pre-screening candidates are then asked to review the Principles and other Alliance documentation and then affirm in writing to uphold the Principles. Candidates will then be interviewed by a selection committee, which will then make its selection.

For more information about the Advisory Council or the Arizona Environmental Strategic Alliance, please see our website at www.azalliance.org or contact David Young by phone at 480-460-5751 or 602-561-2470 (Cell) or by email at azalliance@azalliance.org.

AZ ELM



AZ ELM's Second Annual Environmental and Economic Development Symposium (SEED #2) will be held on October 28, 29 & 30 at a location to be announced soon. This

*David L. Kirchner,
President*



symposium may be the only statewide event that brings together the private sector, academia, and the governmental community in a collaborative setting for the purpose of improving environmental performance and economic development in Arizona. The SEED #2 agenda will focus on strengthening Arizona's partnerships between the public and private sectors, and it will showcase innovative approaches to solving environmental problems and helping businesses to comply with environmental regulations. The event will foster the development of mentors, mentorees and internships in the environmental community, and it will be a dynamic networking opportunity for everyone who attends. Please don't miss it.

For information regarding speaking engagements, exhibit booths, or event registration, please contact Mr. David L. Kirchner, AZ ELM President, at 602-840-3333 or by email at kirchner@basin-and-range.com. Also, additional information about AZ ELM can be found on its website at www.azelm.org.

Valley Forward



We tend to look past them, not giving much thought to the vacant, brown sections of land dispersed throughout our Valley. We see them along various rivers, in thriving residential

*Diane Brossart,
President*



neighborhoods, in-between buildings downtown, in busy business districts – undeveloped areas of our desert known as brownfields. Valley Forward Association is on a mission to help cities and developers throughout Maricopa County revitalize

and turn brownfields into self-sustaining, usable and valuable parcels of land.

In the newly released publication, *Redeveloping Brownfields – A How To Handbook*, Valley Forward takes a step-by-step look at the process required to turn brownfields into viable land. The booklet not only helps to define brownfields and why they are important, but also features individual case studies on brownfields in our Valley and across the country. Additionally, the publication addresses common challenges and provides tips for success in revitalizing these neglected parcels of land.

For the better part of a year now, a group of Valley Forward members including urban planners, architects, government liaisons and related professionals worked together to develop the how-to guide. We wanted to dispel myths that often prevent consideration of brownfields as opportunities for infill development. We believe brownfields redevelopment is a critical component in enhancing the environmental fabric of Valley communities. *Redeveloping Brownfields – A How to Handbook* was released in April by Valley Forward in conjunction with APS.

For more information or to obtain a copy of the publication, please call (602) 240-2408 or visit Valley Forward online at www.valleyforward.org.



*Redeveloping Brownfields - A How-to Handbook
Photo from the cover; courtesy of David Black.*



*Mike Block,
President*

The AHS is a non-profit, educational organization that runs on clean-burning volunteer energy! As summer approaches, much

of our effort turns to the organization of our annual fall Symposium. This year's event will be held in the Mesa Centennial Center in Mesa, Arizona, September 17-20. The theme of the 2003 Symposium is *Sustainability Issues of Arizona's Regional Watersheds*. See announcement on page 11 for details.

Symposium fever aside, business continues as usual for our three chapters. Meetings are generally held on the second Tuesday of the month. Presented here is a sampling of events and activities being sponsored around the State. Check our website often for updates at www.azhydrosoc.org. Members and non-members alike are welcome at any of these events.

Up in the cool pines of northern Arizona, AHS activities are often coordinated with events at Northern Arizona University (NAU). On May 12-13, the NAU Center for Sustainable Environments, in conjunction with the Flagstaff Chapter of AHS, presented a symposium titled "Southwest Drought Summit". This meeting brought together regional experts and decision-makers to examine how drought impacts may affect water resource management strategies. Now, with NAU headed for summer hiatus, the Flagstaff Chapter currently

Arizona Hydrological Society



has no activities planned for the next couple of months; meetings and presentations will resume in the fall. For more information about AHS activities in Flagstaff, please contact Peter Schwartzman at (928) 556-9696 or peter@pgwg.com.

Amongst the not so cool cacti of Phoenix, there is a range of meeting topics to choose from. Beginning on May 13 a talk titled "Current Developments Relating to 1,4-Dioxane" was presented by Matt Rutkowski of CH2M Hill. June 5-7, the 11th Biennial Groundwater Recharge Symposium was held at the Embassy Suites Hotel, Tempe, Arizona. For more details or information on proceedings, contact symposium chair Doug Bartlett at dbartlett@clearcreekassociates.com. On June 10, David Kirchner, President of Basin & Range Hydrogeologists, speaks on "Continuing Hydrological Education: Gaining the Advantage!" Jim Ashley of Minor Planet Research, Inc. will give a presentation on July 8 exploring "Near Earth Objects and the Impact Hazard". Meetings will be held at Macayo's Depot Cantina, 300 S. Ash, Tempe. They begin with a social hour at 5:30, dinner at 6:30, and presentations start at about 7:15 PM. For more information about the Phoenix Chapter, please contact Julie Rutkowski at (602) 771-4411 or rutkowski.julie@ev.state.az.us.

Way down south in Tucson, we have both work and play scheduled for the summer. On May 10th, we took a field trip to the Western Containment System - Broadway-Pantano WQARF site. The City of Tucson and the Arizona Department of Environmental Quality hosted this event. In June, the only place to be is by a pool. Planning for a Friday Happy Hour/Poolside Social Gathering is in the works. Stay tuned or check our website for exact date and location. On July 8, Gary Corbell of *welenco, inc.* will conduct a Brown Bag Luncheon discussing Gyroscopic Well Surveys. This event will be held at the Metro Water District office in Tucson. For more details about Tucson Chapter activities, please contact Bill Petroustson at wdp@dakotacom.net. Have a great summer and stay cool!

SAEMS



The Southern Arizona Environmental Management Society is in the middle of its busiest time of the year. We recently completed two major events, and we are preparing

for our June annual meeting when we will install new leadership. On April 19, 2003, SAEMS participated in the 9th Annual Earth Day Festival and Parade in downtown Tucson. SAEMS sponsored an activity booth where children could learn about simple, everyday strategies for preserving our natural resources and protecting the environment. The booth was a popular stop for the kids, and much thanks goes to the SAEMS Earth Day Committee Chairwoman Michelle Freeark and the other volunteers who made the event such a success. During the awards ceremony, SAEMS was recognized for five continuous years of supporting the Earth Day Festival and Parade. The Earth Day event is managed financially as a SAEMS program, which allows the event to receive the benefits of non-profit status without

*Jeff Yockey,
President*



having to set up a separate non-profit organization.

On May 6, 2003 SAEMS held its 13th annual RCRA training seminar. This year's event, aptly titled *RCRA Survivor: Outlearn, Outthink, Outplan*, was one of our best ever. Paid attendees numbered over 200, which is a record for the event, and the diversity of the presenters is greater than you will find in most other RCRA courses. This year's presenters include representatives from EPA, ADEQ, Office of the Arizona Attorney General, private attorneys, industry, consultants and contractors. Again, thanks go out to Seminar Committee Chairman Paul Kramkowski and all the other committee members whose efforts make this event the continuing success that it is.

In June, SAEMS will hold its annual meeting at which time the Board of Directors for FY 2003-2004 will be installed. Pamela Beilke, current President-Elect, headed up the nominations committee, which has produced an outstanding slate of candidates. Under Pamela's leadership, look for SAEMS to continue its successful programs and make great new strides in environmental education and outreach. Also at the annual meeting, the student scholarship winners will be announced, and ADEQ Director Steve Owens is scheduled to present the keynote speech.

For more information about SAEMS, visit our website at www.SAEMS.org, or contact Jeff Yockey, SAEMS President, at 520-884-3692.



The SAEMS Activity Booth at the Earth Day Festival, April 19th, was a popular stop for kids.



Lisa Culbert,
President

At the May 8th monthly EPAZ luncheon, Roger K. Ferland, of Quarles & Brady Streigh Lang, presented a

thought-provoking talk on "Ethical Challenges for the Environmental Professional." Attendees participated in an exploration of ethical decision-making regarding four different scenarios pertaining to the environmental industry.

Our next monthly luncheon meeting will be July 10, 2003, with a talk on "Security Vulnerability Assessment - Water and Wastewater Utilities Experiences," presented by Kalyan Raman, P.E., Brown and Caldwell. There will be no meeting in August. The speaker and topic for the September 11th meeting is yet to be announced.

EPAZ is planning the 2003 Regulatory Roundup scheduled for October 9 & 10. If you would like to volunteer to assist on this or any of the other EPAZ committees, please contact Lisa Culbert at 602-332-3174 or by email at lisapoff@cox.net. For more information on EPAZ, contact Lisa or visit our website at www.epaz.org.

EPAZ



Training Resources

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Pacific Resource Recovery Services	800-499-7145 x340	
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A peek from the back of the room: the sell-out crowd at the SAEMS 13th Annual RCRA Seminar, May 6, 2003

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3150 E. Pico Blvd, LA, CA 90023	DOT Hazardous Material/Waste Training; DOT Hazardous Material Security Training; Waste Profiling & LDR. Too many to list all. Call for info.	
PO Box 618, Linton, IN 47441	Practical electrical safety seminars; water/wastewater; electrical maintenance 1 & 2; and a variety of maintenance training seminars public & on site training.	
5002 S. 40th Street #R, Phoenix, AZ 85040	EH&S training too many to list all, please call for more information.	
4205 Camino de Palmas, Tucson, AZ 85711	Hazardous Waste Worker; HazCom; Fire Safety; Storm Water Pollution Prevention; and more! Spanish language training available in some programs.	
5320 N. 16th Street, Ste. 114, Phoenix AZ 85016	Referrals to trainers. Training skills training.	
3001 W. Indian School Rd Ste. 312, Phx, AZ 85017	EPA; OSHA; DOT Regulatory Compliance, SPCC; RCRA; Confined Space Entry; Process Safety Mgmt; EPCRA. Too many to list all. Call for info.	
PO Box 41433, Tucson, AZ 85717	Annual RCRA Refresher in May; Biannual P2 Seminar (October - odd years)	
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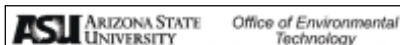
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Redevelopment of Contaminated Properties
Phoenix Brownfields University

In celebration of Earth Day,
the City of Phoenix hosted
Brownfields University 2003

by Rosanne Sanchez

The city of Phoenix hosted *Brownfields University 2003* on April 22 in celebration of Earth Day. The one-day program offered education and information on recycling land for the future. This fifth annual event was well attended with representatives from many industries that are directly involved with or provide services for the cleanup and restoration of environmentally contaminated properties, known as brownfields. Brownfields is a term that is used by the U.S. E.P.A. that refers to real property, where the expansion, redevelopment, or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

The courses taught at Brownfields University were designed to provide information on available sources of capital to fund projects, innovative technologies used to reclaim property, such as landfills, federal, state and local programs that are available specifically for brownfields, and examples of successful projects that have been completed. In one very popular session, nonprofit organizations talked about the benefits of brownfields redevelopment. The Trust for Public Land discussed their involvement in the restoration of a 32-acre abandoned rail yard site in California that has been restored to a park.

The brownfields industry is still relatively new, with its beginnings in the mid-1990s, when the Clinton administration developed the National Partnership Action Agenda that called for funds and assistance to be provided by various

government agencies to cities, state, and tribes across the country to assist with brownfields redevelopment. The city of Phoenix initiated its own Brownfields Land Recycling Program in 1998 with a \$200,000 grant from the EPA to establish a program. Since then the city has committed general funds to the program annually, including over \$100,000 that is given in grants to the private sector for development costs, such as infrastructure improvements. Through the city's Capital Improvement Bond Program, over \$3 million is available for cleanup of contaminated properties that the city acquires for the construction of public facilities.

The city of Phoenix intends to continue this annual event and welcomes participation as a sponsor, exhibitor and presenter.

Rosanne Sanchez, Brownfields Project Manager, Office of Environmental Programs, City of Phoenix can be reached at 602-256-3452 or by email at rosanne.sanchez@phoenix.gov.



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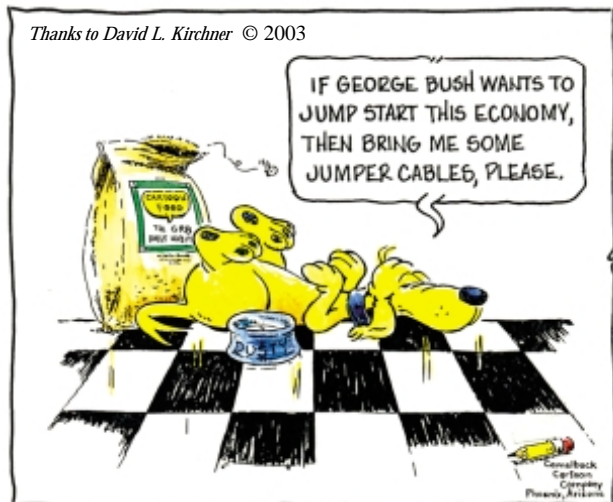
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Calendar

Arizona Environmental Dates, June 15 through September 15, 2003

June

25 SAEMS luncheon Tucson. Contact Jeff Yockey, President, at 520-884-3692, or for information visit www.saems.org.

July

1 Toxic Data Reports due Arizona. Regulated AZ P2 facilities are required to file a TDR by July 1. Contact ADEQ: 602-771-4205.
 8 AHS Phoenix Dinner Tempe. Social Hr. 5:30 PM, dinner 6:30 PM, Macayo's Depot Cantina. Jim Ashley of Minor Planet Research, Inc. will speak on "Near Earth Objects and the Impact Hazard." Contact Julie Rutkowski at 602-771-4411.
 8 AHS Tucson Lunch Tucson. Brown Bag Luncheon at Metro Water District office. Gary Corbell of *welenco, inc.* to discuss Gyroscopic Well Surveys. For more info contact Bill Petroustson wdp@dakotacom.net.
 9 AAI Breakfast Phoenix. AAI's EHS Committee breakfast from 7 to 9 AM. Contact Brent Frazier 602-252-9415.
 10 EPAZ Luncheon Phoenix. Kalyan Raman, PE, Brown & Caldwell, speaking on "Security Vulnerability Assessment - Water & WW Utilities Experiences." Contact Lisa Culbert 602-332-3174 or visit www.epaz.org. Meetings held at Sheraton Phoenix Airport Hotel from 11:30 AM to 1 PM.
 30 SAEMS luncheon Tucson. Contact Jeff Yockey, President, at 520-884-3692, or for information visit www.saems.org.

August

13-15 AAI Annual Env. Summit Prescott. Speakers/workshops, including ADEQ Director Steve Owens, and Jim Paxon, US Forest Service Retired, on the Rodeo/Chediski fire. Contact Brent Frazier 602-252-9415 or visit www.azind.org (click on events).
 24 SAEMS luncheon Tucson. Contact Jeff Yockey, President, at 520-884-3692, or for information visit www.saems.org.

September

11 EPAZ luncheon Phoenix. Speaker to be announced. Contact Lisa Culbert 602-332-3174 or visit www.epaz.org. Meetings held at Sheraton Phoenix Airport Hotel from 11:30 AM to 1 PM.
 17-20 AHS Symposium Mesa. Theme: Sustainability Issues of AZ's Regional Watersheds. WEB: www.azhydrosoc.org. See notice on pg 11.

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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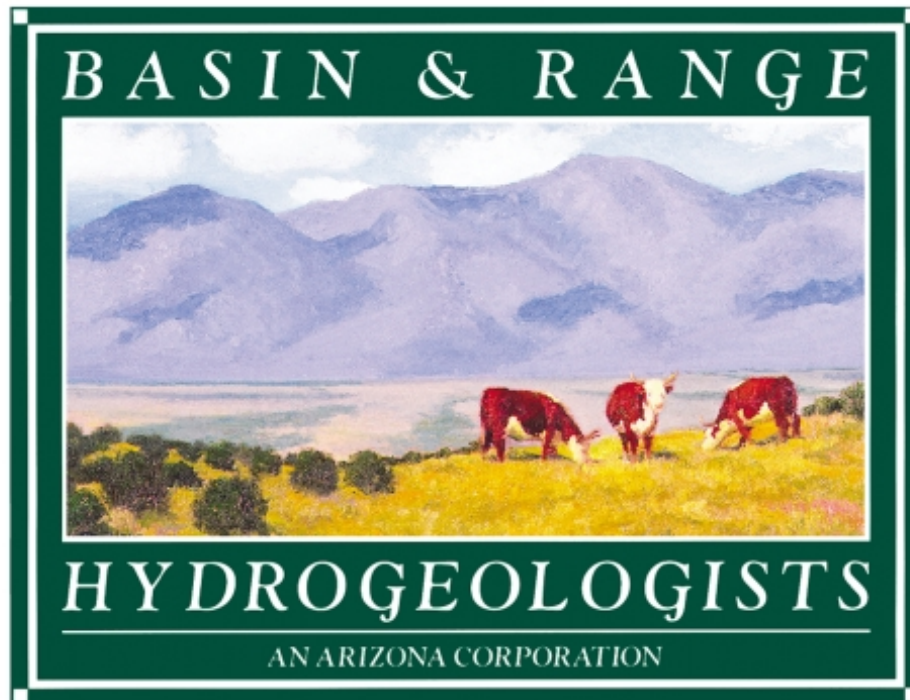
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