

JOURNAL ^{OF} **Environmental Management** ARIZONA

Practical and Current Information for Environmental, Health and Safety Professionals

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Prevention**

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October / November 2003 Vol 1 No. 5



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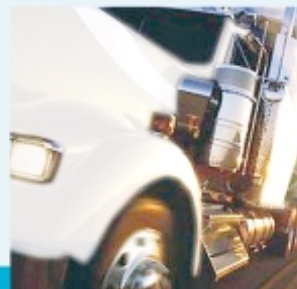
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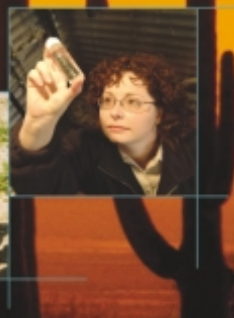
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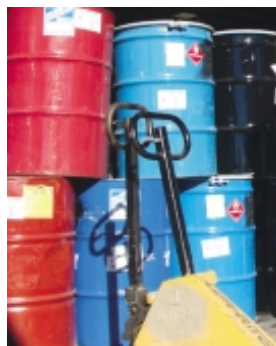
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Journal of Environmental
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JOURNAL of Environmental Management ARIZONA

Editorial

Publisher & Editor

James Thrush, M.S.
jimthrush@ehshomepage.com
480-422-4430 x42

Contributing Authors; Oct/Nov Issue

Stephen A. Owens, *ADEQ Director*
Arizona Emergency Response Comm
Richard H. Carter, *Carter Affiliates, Inc. (CARE)*
Raul E. Gonzalez, *Western Reg. Pollution Prev. Network*
J. Andy Soesilo, PhD., *AZ Dept. of Env. Quality*
Bill Quinn, RES, *AZ Dept. of Env. Quality*
Photography Assistance
Charles Holland
ChuckHolland@ehshomepage.com

Advisors

Legal

Lown & Hilleman, PLC

Editorial

R. Bruce Scott, Nicholas R. Hild, Larry
Olson, Tom Curry, Julie C. Rogers,
J. Andy Soesilo

Operations & Business

Daniel Nelson, Randy Anderson.

Advertising

Advertising Sales Manager

Position not filled

Circulation

Circulation Manager

Position not filled

Columnists

Guest Column

David L. Kirchner *Basin & Range Hydrogeologists*

Regulatory Developments

Michael C. Ford *Bryan Cave LLP*

Sustainability & Sustainable

Development

Nicholas R. Hild, PhD.

Arizona State University

It's All About Chemistry

Larry Olson, PhD. *Arizona State University*

Programming

Programming/Technical Support

Hiep Van Vo

From the Editor



The core goal of the Journal of Environmental Management Arizona (as it says on the cover) is to provide "practical and current information for environmental, health & safety professionals." This issue, I believe, attains this goal with a number of authoritative articles by some great contributors on the subject of pollution prevention

and waste minimization, as well as our regular columns and features. For example, in "P2 Fundamentals," Richard H. Carter (page 10) drew from his many years of experience and the experience of his colleagues to compile an article that is packed full of helpful pollution prevention tips, guides, and strategies that could be valuable to nearly any company. "P2 Resources," by Raul E. Gonzalez (page 18) provides a guide to information available from the Western Regional Pollution Prevention Network. Plus, you will find several other articles and some of the columns that discuss aspects of pollution prevention.

I would like to thank our article contributors. A lot of work and forethought by the authors has gone into this issue, and I hope you can put some of it to use! Contact information is included with every article or column, so if you have comments or questions for the authors don't hesitate to call!

Our next issue, December/January 2003/4, will complete the Journal's first full year of publication! Thank you, as always, to our advertisers and readers, for making this Journal possible. This is a good time, readers, to let me know how you feel about the Journal. What topics would you like to see us cover during the next year? What would you like to see more of, or less of? What can we do to improve the Journal? One of our problems recently (this is the "good" kind of problem) has been that there is not enough space for all the articles & photographs we would like to publish. So one of our goals is to increase the number of pages in each issue.

The Dec/Jan issue will not have a specific theme; we plan to address a number of various topics. So if you have an article on any subject you would like to contribute, please feel free to call me!

Jim Thrush, M.S.
Publisher & Editor

To the Journal :

Letter's & email s

EDITOR:

Your August/September magazine edition is/was super. The articles of special interest and applicability to me were: "Emergency Planning and Community Right To Know - Plus", and "Hazardous Waste Contingency Plan". We at the Central Arizona Project (CAP) have recently updated both our notifications to our Local Emergency Planning Committees, as well as contingency plans for our facilities. Unique to the CAP and I'm sure other entities, we have locations across the state, INCLUDING our emergency backup power systems at our microwave relay stations on several mountain tops. Due to the amount of sulfuric acid in batteries, and the volume of batteries, the mountain top facilities (all unmanned and easily overlooked from the regulatory compliance aspect) require notifications and plans too.

I also very much enjoyed reading ADEQ's "Letters of Regulatory Interpretation". This has been the best edition yet! Keep them coming.

TOM CURRY

Environmental Compliance Supervisor
Central Arizona Project
Phoenix, AZ



Our photographer snapped this shot of a some very popular little WDC Company bears in their booth next to the Journal's booth at the 16th Annual AHS Symposium, held recently in Mesa.

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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Performance Track

Promoting sound environmental management through recognition and regulatory flexibility

by Stephen A. Owens
ADEQ Director

One of the biggest challenges facing the Arizona Department of Environmental Quality as we conduct inspections and pursue compliance and enforcement activities is to distinguish businesses that willingly comply with environmental laws from those which are "compliance challenged" and then

provide incentives for companies to go above and beyond the minimum compliance requirements.

Since being appointed ADEQ Director earlier this year, I have worked to move away from a "one size fits all" approach to compliance and enforcement and focus the department's energies and resources on the truly bad actors and repeat offenders. As a result, the department is better able to focus on those facilities that require increased scrutiny, and maximize the time and resources devoted to prosecuting offenders.

As part of our efforts to establish a baseline for effective enforcement, we have been exploring new ways to encourage environmental stewardship and leadership among Arizona businesses and industries. One promising program to accomplish this goal is the National Environmental Performance Track developed by the federal Environmental Protection Agency. Performance Track is a voluntary partnership between businesses and regulators that recognizes and rewards private and public facilities that demonstrate environmental leadership and

performance beyond current requirements.

The program started in June 2000 and is based on the premise that government should complement existing programs with new tools and strategies that not only protect people and the environment,



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but also capture opportunities for reducing cost and spurring technological innovation.

Performance Track provides various incentives to encourage businesses to adopt environmental management systems and reduce their emissions and waste streams, including access to an extensive environmental resource network, increased flexibility in permitting, and streamlined environmental reporting. These are the opportunities companies are looking for to shorten their lead times for environmental permitting and reduce the paperwork associated with environmental compliance.

Trust, But Verify

A regulatory program cannot be based simply on the premise that some companies can be trusted not to pollute. However, if properly structured, a Performance Track program can ensure compliance, reduce costs and most importantly encourage businesses to invest in environmental management and waste reduction, while maintaining the ability to enforce against violators. Moreover, facilities applying to Performance Track must have an environmental management system in place, a history of sustained environmental compliance, a commitment to continuous environmental improvement and an effective community outreach program.

The Way Ahead

Five Arizona businesses already are members of the Performance Track program. The City of Scottsdale and Abbott Laboratories in Casa Grande are charter members of the program. The Grand Canyon National Park, Xanterra Parks & Resorts at Grand Canyon National Park, Verkamps, Inc., and Motorola also have joined Performance Track, which has a national membership of more than 300 partners.

In the coming months ADEQ will begin working with EPA Region 9 and other stakeholders to consider an Arizona Performance Track program. Initially we will focus on standards, requirements and processes of membership application. While we will look at lessons learned from other states and the EPA, our goal would be to develop a program that is right for Arizona.

The bottom line is that we at ADEQ are seeking ways to recognize and provide flexibility for companies and activities that demonstrate environmental leadership. Through these efforts, I am confident we also will find better and more efficient ways to achieve effective environmental compliance and contribute to a strong economy in Arizona.

Steve Owens is Director of the Arizona Department of Environmental Quality, and has been a practicing environmental attorney in Phoenix for 14 years. Questions relating to this article may be directed to Patrick Gibbons, ADEQ Communications Director, at 602-771-2215, or by email at Gibbons.Patrick@ev.state.az.us.



news briefs

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Turner Laboratories

❖ Nancy Turner, President of Turner Laboratories, Inc., Tucson, AZ, announced recently that **Shari Bauman has been named Laboratory**



Director for Turner Laboratories, Inc. Shari joins Turner Laboratories as the point-of-contact for clients and as the official representative at professional and community functions. She earned her bachelor's degree in geology from Newcomb College of Tulane University and her master's degree in geochemistry from the New Mexico Institute of Mining and Technology in Socorro, New Mexico. Before joining Turner Laboratories Shari worked for **Kleinfelder, Inc. and ERM-Southwest**. Shari can be contacted at 520-882-5880, or by email at ShariBauman@aol.com.

Participation Rising at Local Environmental Events

❖ The Environmental Professionals of Arizona (EPAZ) have kept very busy at the registration table at recent luncheon meetings where attendance continues to climb. In September, **Laura Malone, Manager of the Hazardous Waste Inspections & Compliance Unit, ADEQ**, drew one of the largest groups yet with **"What to Expect From Your Hazardous Waste Inspection."** At right: **Melissa Holmes, EPAZ Program Chair**, registers attendees Sept. 8th at the luncheon at the Sheraton Phoenix, Airport Hotel. (For information on EPAZ, see pg 23.)



Melissa Holmes,
Conestoga-Rovers & Associates

Trainer-of-the-Year Award

❖ The **National Environmental Training Association (NETA)** recently awarded this year's **Trainer-of-the-Year Award to Robert R. Bohannon, CET, of SA&B Environmental & Chemical Consultants**. Mr. Bohannon is President of SA&B, has been a NETA member for more than 16 years, and has served on the Board of Directors and Chairman of the Board of Directors. He is one of the original members of the NETA Designing and Delivering Effective Training instructional cadre, and is a frequent



Robert R. Bohannon, SA&B



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speaker at NETA conferences and on behalf of NETA before other groups.

Mr. Bohannon's nomination is unique in NETA's annals because, although not a water or wastewater trainer, he was **nominated for the award by the City of Phoenix Water Services Department**. As a private consultant/trainer to the Department, he provides the hazmat, OSHA, and other non-operator training for their 1,100 members. In their nomination, the Phoenix water department lauded Mr. Bohannon's superb up-front course development, outstanding course materials, flexibility in both content and delivery, and great customer service.

NETA is a non-profit international society for safety, health, environmental, and other technical training and adult education professionals. Activities central to NETA's mission are competency certification for trainers, and the promotion of training and education competency standards.

Quartzsite Facility to Pay \$100,000 Penalty for Hazardous Waste Violations

❖ Arizona Attorney General Terry Goddard and Department of Environmental Quality Director Steve Owens announced September 23rd that **Quartzsite-based Dome Rock Industries Inc. has agreed to pay a \$100,000 penalty for a series of hazardous waste violations** that occurred in 2000.

Dome Rock owns and operates a facility that collects, handles and processes wastes. On two separate occasions, **Dome Rock accepted loads of hazardous waste without a permit and then shipped the hazardous waste to another unpermitted facility** where it was burned as used oil. On each occasion, Dome Rock also **failed to comply with various reporting and tracking requirements**. On another occasion, the company unlawfully stored hazardous waste at its facility.

"The proper tracking and disposal of hazardous waste is an absolute requirement for those who conduct business in Arizona," Owens said. "Those who violate the law like Dome Rock will be held accountable."

"Clearly violations such as these have the potential to threaten public health and safety," Goddard said. "The Office of the Attorney General will be very aggressive in pursuing violators."

P2 Seminar In Tucson

❖ "Pollution Prevention from the Top Down," a seminar for **generators, handlers, managers, and others involved with hazardous waste minimization and pollution prevention**, was held September 18th in Tucson. Topics included the basic principles of pollution prevention and waste minimization, how to develop an environmental management system, and obtaining management support for pollution prevention projects. **Steve Owens, Director of ADEQ**, presented the keynote address, highlighting his agency's efforts in continuing

pollution prevention outreach and collaboration with the private sector.

Several **representatives of the maquiladora industry** also participated. Seminar attendees had an option of a site visit to either **Bombardier Learjet or Alcoa Fasteners**.

Organizers attributed part of the success of the event to the private-public collaboration of the sponsors. In addition to ADEQ, sponsors included the Southern Arizona Environmental Management Society, the Association of Environmental Professionals of Sonora, the Tucson Fire Department, the University of Arizona's Risk Management Office, and the Pima County Department of Environmental Quality. For more information contact Edna Mendoza at 520-628-6710, or by email at Mendoza.Edna@ev.state.az.us.

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P2 Fundamentals

Pollution Prevention, Waste Minimization,
and Recycling Programs



The basics of
Pollution Prevention
from a paper recently
presented in Tucson at a
seminar,
“Pollution Prevention
from the
Top Down”

Contributed by
Richard H. Carter, President of
Carter Affiliates, Inc. (CARE),
with appreciation to his many colleagues
who contributed much of the
information used in this paper.

The Pollution Prevention Act of 1990 established a new national policy for environmental protection, *“that pollution should be prevented or reduced at the source whenever feasible . . . ,”* per Carol Browner, EPA Administrator. This means that with clearer vision, *we search for information and opportunities in a new way.*

Laws passed in the 1960's and 1970's, like the Clean Air Act, Clean Water Act, and the Resource Conservation and Recovery Act were designed to protect the air, water, and land by pollution control and abatement at the “end of the pipe.” These regulations were based upon a “command and control” philosophy and consisted of mandatory regulations and enforcement to control pollution *after* generation.

Laws required government to set standards, promulgate regulations, issue permits, inspect for compliance, enforce when necessary, and monitor results. These laws were successful in reducing mass loadings, providing essential public health protection and arresting ecosystem losses; however, there are still a large number of small facilities which are not easily dealt with under the current regulatory scheme. In addition, a kind of environmental “shell game” has emerged, in which pollutants are emitted to the medium (air, water, or land) least regulated.

As a result, legislators have now begun to promulgate laws with a broader scope and a more integrated approach, like the Community Right-to-Know Act (EPCRA), 1986, which requires public reporting of discharges to any medium, and the Pollution Prevention Act of 1990, which focuses on source reduction.

Terminology

Environmental protection terminology has rapidly expanded over the last few years. Pollution prevention, pollution control, waste minimization, source reduction, release reduction, and other terms reflect the search for new and more sophisticated approaches to environmental management.

The term pollution prevention by itself seems simple, yet it has many different interpretations. Federal, state, and local pollution prevention programs often use different definitions. No wonder there is confusion over what constitutes pollution prevention.

The Pollution Prevention Act

In 1990, the U.S. Congress passed the Pollution Prevention Act (PPA), administered by the U.S. Environmental Protection Agency (EPA). Under this act, EPA developed a Pollution Prevention Policy Statement, establishing as a national policy of the United States that 1) pollution should be prevented or reduced at the source whenever feasible; 2) pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible; 3) pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and 4) disposal or other releases into the environment should only be employed as a last resort. This policy clearly emphasizes a preference for source reduction through changes in production, operation,

or use of alternative raw materials. As stated in the PPA, "Source reduction is fundamentally different from and more desirable than waste management and pollution control . . . "

Why minimize hazardous waste?

- Legal requirements - it is the law: federal and in many states
- Lending institution requirements - environmental pre-audits are commonplace
- Insurance industry requirements - this is a risk and liability issue
- Competitive edge - the positive impacts on the bottom line are well documented
- Public relations - be the environmental corporate "Good Citizen"

EPA's Definition

From the EPA's perspective, pollution prevention is the maximum feasible reduction of all wastes generated at a facility. It is accomplished through: source reduction, reuse of input materials during production (on-site, in-process recycling), energy efficiency, and reduced water consumption.

The two general methods of source reduction are *product* changes and *process* changes. Product changes mean changing how the product is made and includes input material changes, technology changes, and improved operating practices. Some U.S. states, such as Arizona, have defined pollution prevention in much broader terms.

Pollution prevention, also known as source reduction or waste minimization, is any action that reduces the production of wastes at their source that may otherwise be released to the air, water, or land, without shifting pollutants from one media to another. Generally, pollution prevention activities can be ranked from most to least environmentally beneficial as follows:

source reduction > recycling and reuse >
treatment > disposal

examples of pollution prevention are:

- Good operating practices (waste segregation)
- Improved housekeeping (keeping containers covered)
- Inventory control to minimize expired shelf-life materials
- Spill and leak prevention (preventative maintenance)
- Substitution of non-toxic materials for toxic materials
- Product redesign (to minimize waste or toxics use)
- On- and off-site recycling (recovery/reclamation and reuse)

As summarized in the First Stage, 1992-1994, of the U.S./ Mexico Integrated Border Environmental Plan (IBEP) and other sources, pollution can be prevented in several different ways:

- Products and processes can be reformulated to use less hazardous materials(s)
- Processes can be modified to use less input material
- Recycling/reuse programs should be implemented, such as solvent distillation or energy production
- Waste minimization: a strategy that reduces the overall hazardous wastes generated by industry. Fuels-blend incineration, detoxification, neutralization, distillation,

encapsulation, and bioremediation are some examples

The Waste Minimization Plan

- Inventory of hazardous materials and wastes
- Framework for prioritizing minimization efforts
- Means for identifying and developing minimization efforts
- Monitor, evaluate, document program
- Provide employee feedback and rewards
- Implementation schedules and targets

The first step in a pollution prevention program is to develop and implement a waste minimization assessment, which is a systematic approach and a search for opportunities to identify ways to eliminate and reduce waste. This involves a careful review of a plant's operations and waste streams and the selection of specific, high cost savings/ waste reduction areas to assess and prioritize. Methods, technical and economic feasibility, as well as a schedule, are then evaluated and implemented.

The second step is to develop a plan, based on the process audit/assessment, that will reduce the volume and toxicity of waste generated to the extent that is economically practical. ¹

How you can get started

Experience has shown that pollution prevention is most successfully achieved with a formalized and comprehensive pollution prevention program. Although there are numerous aspects of a pollution prevention program, in general, the three key elements of a program are:

- Management support and commitment
- Employee involvement
- Comprehensive pollution prevention planning

Commitment by management is required to support and direct any pollution prevention, as management establishes priorities and allocates the resources for any organization. Employee involvement is also very important, and can be easily achieved if the management supports the pollution prevention effort.

Comprehensive planning is the heart of a pollution prevention program. Planning involves conducting a pollution prevention opportunity assessment, which is a systematic and thorough review of facility operations. The basic procedures for conducting an assessment are:

- Establish an assessment team or task force (multi-functional)
- Identify all products and services produced
- Delineate current operations, processes, and practices associated with these products or services
- Evaluate operations, processes, and practices to identify pollution prevention opportunities
- Complete feasibility studies, and select and prioritize opportunities for implementation
- Implement opportunities and monitor progress
- Maintain program

Pollution Prevention Plan

Pollution prevention activities, resulting from a pollution prevention program, are typically documented in a pollution prevention plan. Similar to a business or strategic plan, a pollution prevention plan is a living document that must continuously change to reflect the current conditions in an organization. As pollution prevention projects are implemented, the program is maintained through an ongoing assessment and the plan updated or revised.

Waste minimization strategies

- Waste audit
- Spill containment
- Materials substitution
- Process modification
- Process control
- Recycling/waste exchange
- Material segregation
- Delisting (40 CFR 260, HSWA 201(f))

There are essentially three approaches which can be taken to evaluate the pollution prevention and recovery potential in a given process:

1) Straightforward economy - a given recovery technology or program is evaluated on the basis of savings in the

purchase of chemical raw material and associated waste treatment chemicals and in a saving realized in the handling and disposal costs. If the payback in investment capital is attractive, the recovery system or program is installed.

2) Elimination of waste treatment capacity - this is primarily a consideration for a new plant, or one with an inadequate treatment system. In this case, the economic evaluation has an added factor; the saving in capital investment for unnecessary waste treatment capacity.

3) Elimination of hazardous waste - in this case, justification for recycling or recovery equipment is supported by the fact that generation of hazardous waste residuals can be eliminated or at least substantially reduced. Stringent qualification of the economics in this case can be difficult but there is a powerful emotional appeal attached to the logic of minimizing long term liability.²

Waste Minimization: Summary

- Pollution Prevention, not business as usual
- Minimization is required by U.S. law
- Perform a waste audit
- Utilize resources and examine alternatives
- Careful equipment and vendor selection

NOTES

1 "Waste Minimization Opportunity Assessment Manual," EPA #625/7-88/003, by the Hazardous Waste Engineering Research Laboratory, Cincinnati, OH, 45268.

2 "Waste Minimization - Alternate Recovery Technologies," F.A. Steward & W.J. McLay Alcoa Separations Group, Warrendale, P.A. (Lancy International, Inc.)

Richard H. Carter is President of Carter Affiliates, Inc. Resources for the Environment (CARE). The firm specializes in pollution prevention programs, remedial services, hazardous waste management, regulatory compliance audits and resource management, internationally. View the website at www.cartercare.com/care. Richard Carter can be reached at 520-323-1100, by mail at 715 N. Belvedere Ave, Tucson, AZ 85711.

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Small Business Waste Assistance
130 W. Congress, Tucson, AZ 85701-1317
Telephone: 520-740-3340

California Waste Exchange
PO Box 806
Sacramento, CA 95812

Pollution Prevention Information Clearing House
401 M. Street, SW (PM 211-A)
Washington, DC 20460
Telephone: 202-260-1023

Also: www.epa.gov/wastemin, and www.epa.gov/rcraonline



Sustainability and Sustainable Development: *Born in the USA:* Sam's Impact on a Sustainable America

Nicholas R. Hild, PhD.

It is not everyday that we get the opportunity to look into the future and see who our greatest enemy for sustainable development is. But, in the words of past comic strip icon, Pogo: "... it is us!" In this economic recovery that has been marked by continuing job losses, food for thought about sustainability can be found in strange places.

What got me thinking about this was a pair of recent articles in the local papers, that strikes at the very heart of our sustainable futures dilemma. In August, Jon Talton wrote first about the ever-expanding metropolitan landscape that is "Phoenix-Metro" which now accommodates an ever-expanding population that demands ever-increasingly greater and greater infrastructure and services. (*Disposable Cities Create Permanent Problems*, AZRepublic, Aug 05, '03; pp D1)

Talton labeled the resulting decay of strip malls and dying businesses as "*linear slums*" which, I thought, is a pretty good visual description. "*A central fact of Greater Phoenix is too much retail chasing too few shoppers with disposable income*," Talton noted, illustrating by using Mesa's Fiesta Mall as an example. Built in 1979, the Mall is struggling because of the competition from newer centers built in 1990 and 2002, which are competing for the same dollars as population moves further out to the eastern edges of the metroplex, taking their dollars to newer malls built there to serve them. My sense is, we can see the same thing happening in the west and northwest valley, also.

The Fed-controlled mortgage rate declines have enabled lower salaried wage earners to qualify for loans. What that translates to is finding the lowest cost home no matter what the drive-time is to work, and developers are happy to accommodate by building cookie-cutter homes further and further away from city centers where the jobs are. Then, malls and specialty shops follow and move further out where they can attract those homeowner's dollars that formerly went to malls and businesses that were closer into the center of the metroplex. That continuing march to the furthest edges of the valley, begets 'linear slums,' particularly in a sprawling metroplex where small shops and businesses spring up and die in cyclical fashion faster than the change of seasons.

A few days after the Talton article appeared, syndicated columnist Harold Meyerson wrote about one company that is doing its part in leading this march toward a non-sustainable future; that company is retailing giant, Wal-Mart. (*Prosperity Was Born At Ford, Died At Wal-Mart*, AZRepublic, Sep 01, '03). When you look at what Talton described and you integrate the impact of the Wal Mart Mega-Store infusion into every urban corner, we have the makings of a sustainability disaster. Under these conditions, fossil-based energy use increases and real sustainable economic growth declines.

It's not my intent to carp about any particular company in this Journal but it is illuminating to consider Wal-Mart's impact on our lifestyle just since 2000. Wal-Mart has become the nation's largest employer, with 3,200 U.S. outlets and sales revenues of \$245 Billion while paying their workers around \$18,000 a year in salary. That may have been a livable wage in Mayberry settings where Sam Walton

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: Born in the USA

started out 25 years ago, but Wal-Mart business managers with Harvard MBA's have taken his dream to the 'burbs where they've become the antithesis to Sam's original intentions.

As Meyerson noted in his column, *"if Wal-Mart were a nation, they would rank between Belgium and Sweden as the world's 19th largest economy."* Half a century ago, GM's Alfred P. Sloan said that, *"as General Motors goes, so goes the nation."* but, clearly, they have been superseded by (who would have ever believed it?), a retailing company that manufactures nothing and provides no value added to its products.

"I don't recall the moment when the American people proclaimed their preference for an economy driven by Wal-Mart to the one driven by General Motors," Meyerson writes. *"It's one thing after all,*

to live in a nation where the largest employer wants workers to make enough to afford its cars, and quite another to wake up in an America where the largest employer wants workers to make so little they'll be compelled to buy low-end goods in a discount chain."

Meyerson reminds us that his answer to this dilemma is that unions need to re-establish themselves, having been beaten down over the last few decades. However, his points can just as well be used to show that, without conscious effort taken toward balancing manufacturing jobs with service jobs (i.e. too many companies moving jobs off shore, coupled with low wage service sector jobs that don't provide a living wage), our ability to sustain growth in the economy and to have environmentally sustainable development is surly compromised.

In Meyerson's words, *"you won't find any housing developments radiating outward from the center of the new service and retail economy . . . Ford and General Motors are yesterday's news . . . just as they drove up wages for workers who were nowhere near auto factories . . . (in the early part of the 20th century) . . . Wal-Mart drives down wages . . . as they've destroyed what was left of the textile industry and been the loyal friend to the dankest sweatshops of the developing world."*

While it is not my intent to endorse these views or to single out Wal-Mart as being the giant that will consume America, we certainly need to give serious consideration to their impact on the future quality of life of our children's, children's, children.

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FORD: Recycling Electronic Waste

exemptions.

The June 12, 2002 proposal would also add mercury-containing equipment - including devices such as thermometers, relay switches, and gauges - to the national universal waste list. EPA believes that subjecting these materials to the reduced management requirements of the universal waste rule will also encourage recycling.

Footnotes

1 67 Fed. Reg. 40508 (June 12, 2002), available at <http://www.epa.gov/epaoswer/hazwaste/recycle/electron/crt.htm>

2 See e.g., http://www.svtc.org/cleancc/epa_crtrule02.htm.

3 ADEQ is prohibited from adopting a substantive standard that is more stringent than or conflicts with the federal RCRA regulations.

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Regulatory Developments

Legal news you can use

EPA's Proposal to Encourage Recycling of Electronics Waste

Michael C. Ford, Attorney

In January, 2004, EPA is scheduled to finalize a RCRA rule proposed last summer designed to encourage the recycling of electronics-related waste.¹ The rule is touted by EPA as an important first step in dealing with issues posed by electronics waste, and of course has been criticized by activist groups as creating loopholes and encouraging waste exports.² Businesses generating electronics waste should be aware of the impending rule, and its streamlined management requirements. However, because the new rule is less stringent than current regulations (providing a conditional exclusion and adding a new wastestream to the universal waste list), states will not be obligated to adopt it. ADEQ typically does adopt less stringent RCRA amendments.³

The rule focuses on the management of cathode ray tubes (CRTs). CRTs are the glass tubes that constitute the video display components of television and computer monitors. CRTs from color monitors typically contain a sufficient amount of lead to subject them to regulation as characteristic hazardous waste under RCRA. Thus, depending on how the CRTs are managed, they could be subject to the hazardous waste management requirements of RCRA. For example, CRTs sent to landfills would have to meet stringent treatment standards under the RCRA Land Disposal Restrictions. According to EPA, used CRTs sent to recyclers (*e.g.* glass processors) could be considered spent material undergoing reclamation, in which case they would be regulated hazardous waste. The proposed rule is designed to encourage recycling of CRTs by providing reduced regulatory requirements.

Under the proposal, used, intact CRTs would not be considered solid wastes unless disposed, and speculative accumulation limits would not apply to CRTs that are recycled. EPA also proposed a conditional exclusion for used and broken CRTs undergoing recycling. For the exclusion to apply, the material would have to be handled in accordance with certain requirements, including storage and labeling provisions, prior to processing. Speculative accumulation limits would also apply. CRT processors (those who break, sort and clean the CRT glass in preparation for recycling) would be subject to special handling requirements as well. Processed glass sent to CRT glass manufacturing facilities or lead smelters would not be considered solid waste, and thus would not be regulated as hazardous waste. However, the conditional exclusion handling requirements would apply to processed glass sent for other types of recycling. Speculative accumulation limits would continue to apply for all types of recyclers.

The proposed rule also clarified several related regulatory issues surrounding other CRT management options. EPA considers unused CRTs to be unused commercial chemical products, and does not regulate the reclamation of commercial chemical products. In addition, used CRTs sent for reuse as is, or after repair, are "in use," and are not considered materials being reclaimed, and are not solid waste. (RCRA applicability often hinges on whether a material is being used as opposed to being reclaimed). Finally, households and CESQGs generating electronics waste retain their existing RCRA

Continued on previous page (14)

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

Guest Column



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

HOW ABOUT AN ACRE-FOOT OF WATER— ENOUGH FOR A FAMILY OF FOUR FOR A YEAR?

Where will you be in the year 2025? Will you then be drinking bottled water, or boxed wine? Red, or white? Will you be dead, or alive? Sitting still, or kicking hard?

I would venture a wild guess and say that in the year 2025 you will be either: a) living somewhere other than in the Great State of Arizona, or b) playing golf with your old buddies on a lush Scottsdale, Arizona golf course, or c) long dead and buried, or cremated (Hey! Sooner or later, each of us must die — that's the way it works on this planet, "TV QVOQVE VIATOR").

Anyway, the sort of magical-sounding number, 2025, is the exact year that was selected for "*Water 2025*," a program recently initiated by the United States Department of the Interior's Secretary Gale Norton.

The general idea of *Water 2025* is that we Americans, especially those of

us who reside in the arid West and Southwest, must start planning now so we'll have enough water to maintain our standard of living in the next 22 years.

If you attended the *Water 2025* conference in Phoenix last Summer, then you might have heard many different messages from a swarm of noted water experts and gray beards.

Two of the scores of messages I heard were: 1) Arizona needs to immediately manage its water resources better, so that we can prepare ourselves for certain conflicts that are expected to arise 22 years from now, and 2) we already have major conflicts over water today — conflicts caused by the glaring fact that the Western United States has limited water supplies to share with an exploding growth in human populations.

Today, it seems that there is no end in sight for the mass migration and resettlement of people in Arizona and the Western United States. Therefore, I believe that Arizonans should brace themselves for severe restrictions on water use. Either the price of developing and serving water will get so expensive that people will take the initiative to limit their own uses, or the public and private water providers will tighten the valves on the supply lines. In fact, due to the draught, some of those valves already have been tightened.

Everybody has a unique opinion about the best way in which we should manage our water supplies. But most of the general public has absolutely no idea where their water comes from — other than that it just magically flows out of chrome-plated faucets whenever they want it. Until the wells or the faucets run dry (or Safeway quits selling water in plastic bottles), most Arizonans will not worry one little bit about their future water supplies.

Therefore, I have prepared the following unsolicited suggestions for the readers of this journal:

a) Consider that most of you probably are tuned-in to the critical issues of the environment and the connection between having dependable water supplies, a vibrant economy, and a high standard of living.

b) Consider that most of the general public is rather ignorant about water supply issues and the stresses on our natural environment — although most Arizona families now are recycling some of their trash and wastes.

c) If anybody expects average citizens to take it upon themselves to do what is right and necessary regarding the management of Arizona's water supplies, then our best hope for such an outcome would be to begin a massive and relentless education campaign.

d) Our collective environmental professions should take the lead on this educational challenge, and they (we) should act today. However, my sense is that we will not be able to educate the masses fast enough, or accomplish such

an assignment before the water crises hit really hard.

Of course, the real issue is the one of long-term sustainability. If you live in the metropolitan areas of Phoenix and Tucson, then you probably could depend on Colorado River water until the year 2025 — and perhaps well beyond that year. However, if you live or farm in rural Arizona, or too far away from the Colorado River, or the Central Arizona Project, or the Salt River Project, then your water-planning horizon already is in your face.

Certainly by the year 2025, many of us will be retired and likely have moved out of state or into the rural parts of Arizona to escape the throngs of people and congestion.

As a pragmatist, I believe the best thing Arizonans could do to better manage the existing water supplies — and

Editors note:

How much water is an acre foot?

1 Acre = 43,560 square feet
1 Acre-foot = 43,560 cubic feet
1 Acre-foot = 325,851 gallons

"An acre-foot of water can typically satisfy the needs of a family of four for a year."*

*SRP website, September 11, 2003,
<http://www.srpnet.com/water/reduction.asp>

thereby help to ensure sustainable long-term sources — would be to thoroughly treat wastewater at the treatment plants, or at the points of use, and then send it back squeaky clean and allow the people to re-use it. But that idea makes too much sense, and it would cost too much money.

Americans and Arizonans are crisis-oriented inhabitants. Water issues in Arizona will have to hit full-time crisis mode

before any meaningful changes will take place. Even after having been in a major draught for the past 7 or 8 years, Arizonans do not seem to have been motivated to change their ways.

When in-migrating families arrive in Arizona looking for their proverbial acre-foot of water for their family of four — and they find that there's only enough for a family of three for half a year - perhaps the public will begin to discern Arizona's serious water situation.

In the meantime, let's hope that good wine keeps flowing-in from California, and let's pray that greens fees don't get too danged expensive! And while we're hoping and praying, let's also hope that we are still alive in the year 2025.

David Kirchner can be reached at 602-840-3333 and by email at kirchner@basin-and-range.com

*The Journal welcomes Guest Columns.
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to the Journal!*

P2 Resources

Western Regional Pollution Prevention Network

A resource to help
you with your P2 goals
and objectives

by Raul E. Gonzalez

The Western Regional Pollution Prevention Network (WRPPN), established by U.S. EPA in 1997, is a strategic alliance involving local, state, federal and tribal pollution prevention (P2) programs throughout EPA Region 9, which includes the states of California, Nevada, Arizona, Hawaii, the Tribal Lands and the Trust Territories of Guam and American Samoa. Its purpose is to improve communication among regional P2 programs and to promote and encourage the dissemination of quality P2 information to regional technical assistance providers and to environmental managers throughout the region. To achieve this, WRPPN currently offers the following resources to the public through its website:

- **Online P2 Information** – access to over 25,000 P2-related documents in a variety of industrial sectors.

- **Listservs** – Join our WRPPN listserv to receive the latest news and announcements in Region 9. We also host topical listservs for Green Business Programs, and for Arizona P2 Program Coordination.

- **P2 Wizard** – A rapid response service. If you can't find the P2 information you're looking for on our

website, use the P2 Wizard and we will try to find it for you.

- **News** — P2 News updates for Sector Hub Topics, and Region 9 happenings.

- **Region 9 Program Directory** – Don't know who to call for P2-related information? Use our directory and find out about programs in the Region and what they do.

- **Sector/Topic Hubs** – Access to over 40 Sector/topic hubs developed by the P2Rx. Each hub organizes current P2 information you need to know if you are working with a particular industry sector, or pollution prevention topic area.

Each year, WRPPN hosts a regional pollution prevention conference, one of the premier events in Region 9. The WRPPN conference has something for everyone: 1) it serves as a forum in which environmental professionals can meet, network, and interact with one another, 2) it provides the latest information on P2 news, source reduction methodologies and issues affecting Region 9 through its presentation sessions, and 3) it offers quality technical training in a variety of industrial sectors. To learn more about this event and all the services provided by WRPPN, please visit the WRPPN website at <http://www.wrppn.org>.

WRPPN is also a proud member of the Pollution Prevention Resource Exchange (P2RX), a national network of regional centers dedicated to providing pollution prevention information, networking opportunities and other services to States, local governments and technical assistance providers in their respective region. To see a full list of the services offered by the P2Rx, please visit us at <http://p2rx.org>.

To be involved in WRPPN activities or events means access to regional experts in the realm of pollution prevention. It means access to the best P2 information available on the internet. It means finding answers to your most troublesome environmental questions, and it means being part of a network that cares about business survival, increased productivity, and protection of the environment.

Raul (Ed) Gonzalez is Program Manager of the Western Regional Pollution Prevention Network. Ed can be reached at 775-689-6675, or by email at raulg@unr.edu.



It's All About Chemistry **Green Chemistry**

Larry Olson, PhD.

The essence of Pollution Prevention is to prevent or reduce pollution at its source. Green chemistry is a central part of the national strategy to accomplish this goal. In the last dozen years or so, the term green chemistry has come to mean the use of chemicals in such a way as to reduce the risk to humans or the environment. Since tens of billions of pounds of toxic chemicals are annually released to the land, air, and water each year according to the Toxic Release Inventory reports, there is ample room for improvement.

Unlike the focus of much of the first generation of “command and control” environmental regulations, green chemistry is not about controlling or treating pollution after it is generated. Rather, it is a philosophy of minimizing the amount of waste products produced in the manufacture of chemicals, replacing toxic chemicals with less toxic materials, using less energy, and finding renewable sources for feedstocks rather than petroleum derivatives. A unique coalition of industry, government, academia, trade associations, and non-governmental organizations has evolved that focuses on developing efficient, economical technologies to the marketplace. Advocates argue that green chemistry can stand on its own as a market driven choice and does not have to be treated as a cost center, as would normal pollution abatement methods.

Let me give you just a few case studies of green chemistry in action.

- As an example of substituting less hazardous chemicals and renewable feedstocks, glucose can be used instead of benzene to synthesize the important chemical precursors adipic acid, catechol, and hydroquinone.
- Succinic acid can be produced from the fermentation of corn, sugar beets or wood. Succinic salts have been found useful as a non-corrosive, low toxicity option in runway deicing operations. Diethylsuccinate can be used as a low volatility, low toxicity replacement for chlorinated solvents in degreasing operations.
- The tetraamido macrocycle, Fe^{3+} TAML, can be used in conjunction with hydrogen peroxide as a less toxic oxidizer to replace chlorine and chlorine dioxide in the wood pulp and textile industry and to decontaminate chemical and biological warfare agents.
- Supercritical fluids, such as carbon dioxide, can be used as a solvent for chemical synthesis instead of aromatic or chlorinated hydrocarbons. As a supercritical fluid, carbon dioxide can be liquefied under pressure (about 73 atmospheres). When this pressure is released, carbon dioxide evaporates and can be recovered in pure form to be recycled.
- Atom economy (the ultimate incorporation of all atoms of reactants into the product) reduces waste, much of it hazardous waste, which must be disposed of properly. New synthetic routes to the pain reliever ibuprofen increase the atom economy from 40% to 99%, with the consequent elimination of 35 million pounds of waste each year. The new route is a three step, catalytic process vs a six step stoichiometric process and so is faster and requires less capital expenditure.

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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

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

The AAI's Environmental Health and Safety (EHS) Committee's September 10th Breakfast Meeting focused on the progress being made on brownfield properties in the Greater Phoenix area. Rosanne Sanchez from the City of Phoenix and Neil Calfee from the City of Tempe both spoke on successful brownfield projects in their respective communities. The October 8th EHS Committee Breakfast Meeting featured Jackson Shaver from Special Devices Inc and Karyn Moldenhauer from ADEQ. Jackson spoke about EHS compliance programs and challenges at Special Devices and Karyn spoke about ADEQ's new web-based storm water pollution prevention plan filing system.

AAI EHS Committee Breakfast Meetings are held the second Wednesday of each month from 7:00 to 9:00 AM at the Sheraton Phoenix Airport Hotel located at 1600 South 52nd Street in Tempe.

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

*Jeff Homer,
EHS Committee
Chairman*



ACHMM Thunderbird



The ACHMM Thunderbird Chapter meets on the first Wednesday of each month at 6:00 PM at Garcia's, 2212 North 35th Avenue in Phoenix. All are invited to attend. For program information, go to the Chapter website at: <http://www.thunderbirdchmm.org/>.

*Chuck Paulausky,
Chapter Secretary*



What is a CHMM? The Institute of Hazardous Materials Management (IHMM) offers this certification to qualified individuals who have achieved a significant level of education and experience. Once accepted, the candidates must demonstrate that skill and knowledge by passing a rigorous examination, which includes:

- An understanding of the basic principles pertaining to hazardous materials management, including: chemistry, radiology, physics, biology, geology/hydrology, toxicology, and engineering.
- Knowledge of the regulatory framework of environmental and hazardous materials management: the Federal regulations associated with TSCA, RCRA, CERCLA, FIFRA, OSHA, DOT, and EPA.
- Competence and maturity of judgment in managing environmental and safety programs and resources. The CHMM certification is gaining recognition throughout the country by state and federal agencies and private industry alike.

The Academy of Certified Hazardous Materials Managers (ACHMM) is the membership organization. The Academy and the Thunderbird Chapter provide good sources of current information, networking, and professional development.

We encourage membership by all EHS professionals and interested parties. For more information: **CHMM certification-** <http://www.ihmm.org/>, **ACHMM-** <http://www.achmm.org/>, **Arizona Thunderbird Chapter-** <http://www.thunderbirdchmm.org/>



*Barry Westerhausen,
Sergeant at Arms*

The AESF regular scheduled meetings resumed September 11th, with discussion on the current state of the AESF, future events, and speaker

recommendations for the coming months. Recommendations for speakers are always welcomed and encouraged. Plans are underway for elections for recently opened positions, the Holiday party, and possibly of a February golf tournament because of the success of the June golf outing. The AESF attempts to provide speakers to cover a wide range of subjects which include plating, anodizing, coatings, etching, hazardous waste, local environmental issues, current and future regulations etc. All members and non-members are always welcome and can participate in the weekly prize drawing; Septembers drawing was a pair of Diamondbacks tickets donated by Carter Alloys, won by Lan Ha. The scheduled speaker for the Oct. 9th meeting is Ken Ames of Terrane Engineering, on the subject of "Recovering Costs Associated with Environmental Issues."

If anyone would like to speak, recommend a speaker or subject for 2003-2004 events please bring up your suggestions at the next meeting or contact one of the local AESF members. If you would like to make advanced reservations or be notified of upcoming AESF events and receive our news letter or have your business/business card listed on the news letter please call or send an e-mail to Barry Westerhausen a bwesterhausen@lachim.com or call (480) 206-4107.

Meetings are the second Thursday of each month, dinner is currently \$18.00 with advanced reservations, \$20.00 at the door. Meeting begin with social hour at 5:28 PM and Dinner at 6:32 PM, discussion following. You are encourage to book your reservation in advance to insure adequate seating.

For more information on the AESF please look at our web site at www.aesf.org

We look forward to seeing everyone the second Thursday each month at the Doubletree Resort in Phoenix. You do not need to be a member to attend.

AESF



*Mike Block,
President*

AHS Landfill Symposium-March 2004

AHS invites
interested
individuals to
attend monthly
meetings sponsored

by the Flagstaff, Phoenix, and Tucson Chapters. Fall topics will include Indian water settlements, our work with Water for People, what tree rings reveal, and more. Meetings are generally held the second Tuesday of the month. Check our website, www.azhydro.soc for details.

Coming this spring, the Second Biennial Symposium on Scientific Issues Related to the Management of Landfills in Arid

Arizona Hydrological Society



and Semi-Arid Regions will be held in Tucson on March 17-20, 2004, at the Radisson City Center. We are planning 4 days of events. Wednesday will feature relevant workshops; Thursday and Friday will include a mix of plenary and technical sessions, panel discussions, a poster session, exhibits and demonstrations by landfill industry vendors, and social events; Saturday will feature a selection of several field trips, both technical and social.

A sampling of session topics may include: VOC Remediation; LFG Production, Measurement, and Control; Bioreactors; Geophysical Applications to Landfills; Measurement of Landfill Properties; Landfill Stability; Regulatory Update; Emerging Issues; Brownfields Issues; NMOC testing, LFG Utilization; Biodiesel; Demonstrating Landfill Closure and Related Issues; and Experimental covers.

The Call for Abstracts will soon be mailed and information can be found at www.azhydrosoc.org. For additional details or to participate in planning or execution of this event, please contact: Michael Geddis, Symposium Chair, at Hydro Geo Chem: (520) 293-1500, X-114 (mikeg@hgcinc.com).

To become an event sponsor, contact Michael Block at Metro Water: (520) 575-8100 (mblock@metrowater.com). Landfill Symposium Planning Committee sponsors currently include: City of Tucson, Office of Environmental Services; Errol L. Montgomery & Associates, Inc.; GeoSystems Analysis; Hydro Geo Chem; HydroGEOPHYSICS; Metro Water; University of Arizona.

SAEMS

SOUTHERN ARIZONA ENVIRONMENTAL MANAGEMENT SOCIETY, INC.

The new leadership of the Southern Arizona Environmental Management Society (SAEMS) has developed a vision for their one year term: "SAEMS has a growing membership and is recognized statewide as an

organization that promotes environmental education and outreach on environmental issues and provides a forum for the exchange of ideas and information." Our supporting Mission is, "The SAEMS Executive Committee will increase membership value through effective leadership, rapid dissemination of information, pursuing opportunities to expand our sphere of influence, actively engaging Committee members, and seeking membership input."

Some of the key goals in support of the Vision are to:

- Network with other organizations.
- Increase involvement by environmental attorneys.
- Attract more participation from a broader region including Phoenix, Yuma, Nogales and Sierra Vista.
- Become a primary vehicle for outreach to the Southern Arizona environmental community for ADEQ and PDEQ.

On September 18, SAEMS co-sponsored a one-day seminar "Pollution Prevention from the Top Down." This seminar provided valuable strategies to reduce the cost of doing business as well as improve regulatory compliance. It covered the basic elements of an effective pollution prevention program, provided valuable tools and resources, and shared some amazing success stories including site visits. Because of our proximity to the U.S.-Mexico border region, manufacturing businesses along the Arizona-Sonora border also participated in the seminar.

SAEMS luncheon meetings are held the last Wednesday of the month at the Viscount Suites, starting at 11:30. Future luncheon speakers include Fred Brinker, Tucson Airport Authority speaking on Airport Property Soil Remediation in September. Visit the SAEMS website at www.saems.org.

Pamela Beilke,
President





*Lisa Culbert,
Chairman of the Board*

Well, it's that time of year again for EPAZ. Membership fees were due October 1, 2003 and if you haven't renewed your membership as of yet,

please do so today. Don't miss out on all the benefits of an EPAZ membership, such as discounted meeting and conference fees, monthly cocktail mixer, contributions to the EPAZ Scholarship fund and online job bank and web site promoting opportunities. All of this and more for only \$40/Professional Membership (Individual) and \$150/Corporate Membership (5 Individuals). Renew online today at <http://www.epaz.org>.

Our November 13th meeting will feature a presentation by Patrick Ryan from the Arizona Department of Occupational Health (ADOSH). His presentation will explain the Volunteer Protection Program and how this program could benefit your company. Our December meeting will be held on the 11th and at the time of article submittal EPAZ had not confirmed a speaker. Please see our web site for the most current information.

EPAZ will continue to meet at the Phoenix Sheraton Airport Hotel from 11:30 AM to 1:00 PM for our monthly meetings. However, EPAZ is being forced to increase the cost of the monthly meetings due to an increase at the meeting location. Starting with the November meeting, the member rate will be \$20 per person and the non-member rate will be \$30 per person.

Our November meeting will also host the installation of our new officers. Eddie Martinez, President, Martin Minter, Vice President, Melissa Holmes, Treasurer and Gregory Fisher, Secretary. These volunteers have graciously committed their time & efforts for a two-year term and I look forward to watching EPAZ grow and improve under their direction. Please join me in welcoming them.

Don't forget about EPAZ's new monthly Cocktail Mixer. We will be meeting October 29th and November 26th from 4 PM to 7 PM at a new location monthly. Check out our website to see where we are meeting.

At the time of publication EPAZ had just held its 4th Annual Regulatory Roundup Conference and presented our first scholarship awards in several years. We hope to publish more information regarding the success of the conference and the scholarship awards in the next issue. Until the next issue, please see our web site at <http://www.epaz.org> for the most current EPAZ news and upcoming events.

EPAZ



*Diane Brossart,
President*

WaterWorks at Arizona Falls won the President's Award in Valley Forward's 23rd annual Environmental Excellence Awards (EEA), held in

partnership with SRP. Top honors in Arizona's most prestigious environmental awards competition went to the Phoenix Arts Commission for the multiple use canal project, which revitalizes an historic site, reintroducing the generation of clean, hydroelectric power while uniquely combining elements of art, history, site development, education and technology.

The recognition was announced at Valley Forward's

Valley Forward

VALLEY FORWARD





WaterWorks at Arizona Falls

awards banquet attended by 600+ community and civic leaders on Sept. 12 at The Phoenician Resort.

WaterWorks at Arizona Falls was created through a collaborative partnership of the Phoenix Arts Commission, U.S. Bureau of Reclamation and SRP, along with artists Mags Harries and Lajos Heder, and local landscape architect Steve Martino. In addition to The President's Award, the project received the highest

recognition in the Art in Public Places category.

Valley Forward and SRP recognized 44 projects submitted by Valley businesses, government agencies and non-profit organizations for significant contributions to the environment. A total of 16 first-place Crescordia awards (a Greek term, meaning "To Grow in Harmony") and 28 awards of merit were presented.

Schnepf Farms won the Crescordia award for Environmental Stewardship (*SRP Centennial Award*), recognizing the efforts of a third generation farm family in Queen Creek in diversifying and reinventing themselves to keep the farm economically viable while creating a unique and beautiful destination experience in the Valley.

It is both inspiring and enlightening to be able to spotlight so many environmentally sensitive projects throughout the Valley. We should be proud to know that although our metropolitan area is among the fastest growing in the nation and faces challenges with air quality, traffic congestion and related environmental concerns, we are growing responsibly in many ways.

AZ ELM



AZ-ELM is ready for its Second Annual Environmental & Economic Development Symposium (SEED #2).

David L. Kirchner,
President



Please join us for the symposium on October 30, 2003 at the Doubletree Paradise Valley Resort, and again on Halloween for the first annual AZ-ELM Golf Classic at the beautiful Camelback Golf Club. Please see our full-page advertisement on page 29, and **REGISTER TODAY.**

For this year's event, AZ-ELM has arranged for some great speakers, including four environmental workshops and an evening networking reception. For the detailed agenda and registration, please visit AZ-ELM's website.

You also may contact me directly at (602) 840-3333, ext. 101, or by e-mail at kirchner@basin-and-range.com. The AZ-ELM website is www.azelm.org.

AZ-ELM is especially grateful for the sponsorship of the Journal of Environmental Management Arizona, and looks forward to seeing you at the SEED event. And whatever you do, please don't forget what Dr. Larry Olson said: "There is only one ozone molecule."

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OLSON: Green Chemistry

While chemistry has undoubtedly been a great force for the improvement of the human condition through development of new medicines, increased agricultural yield, semi-conductors, etc. it has also contributed new synthetic and persistent pollutants to the environment, the effects of which are only now beginning to be understood. Green chemistry is an explicit recognition of the responsibility of scientists to account for the environmental costs, as well as the more traditional economic analysis, in planning for new products.

For more information on green chemistry, two good places to start are: <http://www.epa.gov/greenchemistry>, and <http://www.chemistry.org/education/greenchem>.



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P2 Achievements

*The 2003 NPPR Report:
A Decade of P2 Results 1990 - 2000*

Report calculates U.S.
prevented 167 billion
pounds of pollution; Arizona
prevented 911 million pounds

by J. Andy Soesilo, PhD
and Bill Quinn, RES

On January 17, 2003, the
National Pollution
Prevention Roundtable

(NPPR) announced the first national report on pollution prevention (P2) results achieved in the U.S. in the 1990's. For the period of 1990-2000, NPPR calculated that more than 167 billion pounds of pollution were prevented, calculating air, water, waste, and energy efficiency measures as reported. In addition to pounds of pollution prevented, the

P2 community also reported more than 4 billion gallons of water being conserved. Thousands of companies and state and local governments implemented P2 programs and activities. In almost every case, these efforts have not only led to environmental improvement, but have been cost-effective, saving millions of dollars per year. The report details P2 activities resulting in savings of \$666 million nationwide.

NPPR also concluded that P2 programs saved 5.4 times the budget allocated to implement the P2 programs. Although the budget allocated to state P2 programs is less than one percent of what is allocated for other state media grant programs (air, water and land) and the fact that P2 programs compete for support and resources against established media programs with strong regulatory requirements, the P2 program results are impressive.

Of the total reduction of 167 billion pounds of pollutants nationwide, approximately 0.911 billions pounds or 0.54% of the national total was contributed by Arizona facilities. In absolute terms this percentage (0.54%) is small. In relative terms, however, the Arizona contribution is significant because Arizona generators only produce 0.13% of hazardous waste generated nationwide. As a reference, the most recent EPA report states that in 1999, a total of 40 million tons of hazardous waste was generated nationwide. Of the total, about 0.052 million tons (or 0.13% of the national total) was generated by the Arizona generators.

The report itself reveals the significant role of the state of Arizona in the national P2 movement. Of the 52 states responding to the NPPR, Arizona and North Carolina were the only states that were able to break down their P2 accomplishments by environmental medium and by year since 1992. South Carolina, Ohio, Pennsylvania, and Michigan were all similar to Arizona except that their measurement of results started at a later year. The revelation is significant to ADEQ because being one of the leaders in program measurement, ADEQ has proven that it has the ability to measure its progress and be accountable for its P2 program. In a situation where resources are scarce, program accountability becomes a critical factor.

Arizona's P2 regulations empower facilities to use knowledge of their operations to reduce the use of toxic substances at the source, minimize the generation of hazardous waste, and prevent the release of pollutants to the environment.



Since 1993, Arizona has required that industrial facilities within a certain threshold of hazardous waste generation and toxic material usage file a P2 plan. These plans become stand-alone management tools, documenting the rigorous P2 activities performed. The plans record the toxic substances used, and emissions and wastes generated by all facility operations. The plans then outline specific P2 opportunities and P2 goals within a targeted implementation schedule. The information in the plans is used by ADEQ to create a comprehensive database that is used for tracking and planning purposes.

Most states provide facility assistance within the umbrella of their P2 program, either in the form of general P2 technical assistance (87% of the states), training (87%), site visits (87%), telephone (88%), or publications (81%). Additionally, more than half of the states provide compliance assistance (53%) and environmental management system, or EMS (65%). The last finding indicates that EMS assistance was provided by 65% of the states which is a reflection that EMS is gaining national popularity. Because EMS is generally viewed as the logical upward sequence of P2 as the program matures, ADEQ is moving in this direction.

The ADEQ program has also been successful in winning P2 grants from EPA. Since 1992, the ADEQ P2 program has brought in about 1 million dollars to Arizona that would not have otherwise come to the state.

The NPPR's national report "An Ounce of Prevention is

Implementing P2 does prevent pollution, saves businesses money, and saves state budgets.

Worth Over 167 Billion Pounds of Cure" is surely impressive. Arizona's 911 million pounds of reduction is part of those impressive results. Great results are achieved because of dedicated employees in companies all over our state. At the beginning of Arizona's program in 1991, many people were unaware of pollution prevention. In fact, when P2 was first introduced, many were skeptical of what could be accomplished, and unbelieving that it could improve a company's bottom line. Who would have known then, that in 2003, pollution prevention would be taking place world-wide!

J. Andy Soesilo, PhD., REM, ADEQ Facilities Assistance Unit, can be reached at 602-771-4205, or by email at soesilo.j@ev.state.az.us. Bill Quinn, RES, ADEQ Facilities Assistance Unit, can be reached at 602-771-4203, or by email at quinn.bill@ev.state.az.us.

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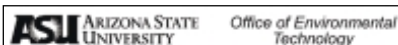
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- 20-24 RMFMA Mesa. AZ Chapter of Rocky Mountain Fleet Manager's Association 2003 Conference at the Sheraton Hotel and Convention Center. For information see www.rmfmna.org/conf2003.htm.
- 29 SAEMS luncheon Tucson. 11:30 am at Viscount Suites, check with website www.saems.org.
- 29 EPAZ Cocktail Mixer Phoenix. 4 pm to 7 pm. For location & details see www.epaz.org.
- 30 AZ-ELM SEED Paradise Valley. 2nd Annual Symposium for Environmental and Economic Development. At the Doubletree Paradise Valley Resort. See ad pg 29.
- 31 ELM Golf Tourn. Phoenix. AZ-ELM Amateur Golf Tournament at Camelback Golf Club. See ad pg 29

November

- 13 EPAZ Luncheon Phoenix. 11:30 am to 1 pm. Phoenix Sheraton Airport Hotel. Features Patrick Ryan, of ADOSH, speaking on the Volunteer Protection Program and how this program could benefit your company. See www.epaz.org for more information.
- 26 EPAZ Cocktail Mixer Phoenix. 4 pm to 7 pm. For location & details see www.epaz.org.

December

- 10 SAEMS luncheon Tucson. 11:30 am at Viscount Suites, check with website www.saems.org.
- 11 EPAZ Luncheon Phoenix. 11:30 am to 1 pm. Phoenix Sheraton Airport Hotel. Please visit the website at www.epaz.org for speaker & other info.

January

Happy New Year!

- 15 Biodiesel Fuels for AZ Maricopa County. "Biodiesel Fuels For Arizona." For more information please contact Richard Polito at 602-506-5102 or RPolito@mail.maricopa.gov.

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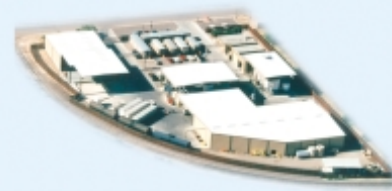
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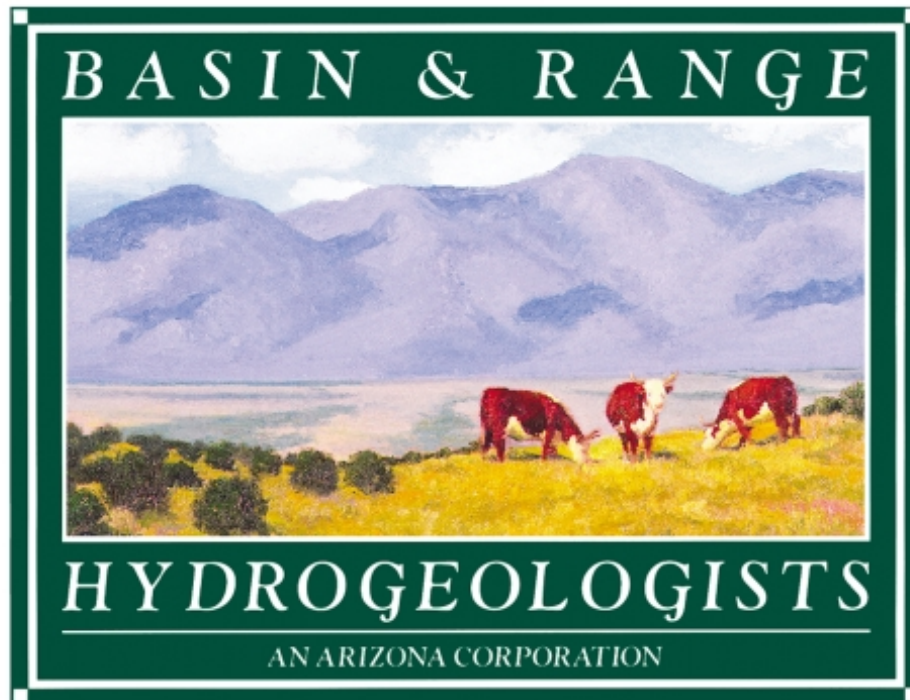
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