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SUSTAINABILITY: SUSTAINING THE MONEY TREE

DR. NICK HILD pg 16

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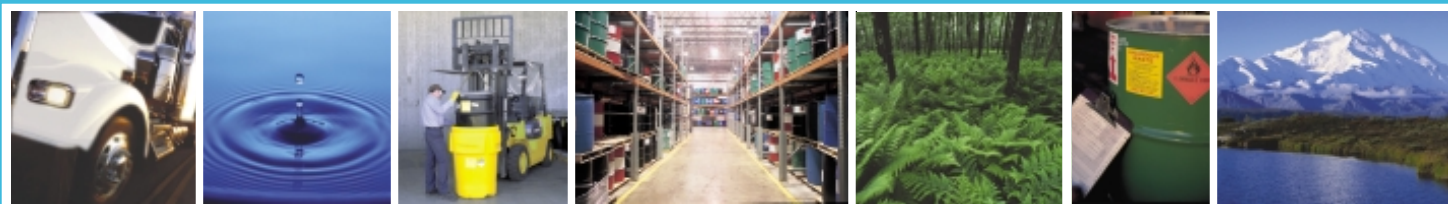
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COVER: VALLEY OF THE SUN ON A BROWN-CLOUD DAY. READ RELATED COMMENTS IN "FROM THE EDITOR" ON PAGE 4.

From the Editor



The photo on the cover of this issue may seem a little familiar to you if you have been a reader since our first issue in Feb/Mar 2003. We published that first issue with a wide shot of the Valley of the Sun taken from a point on South Mountain. I wanted to start with a photo that represented, as much as possible, the whole of Arizona (not that the Valley is the whole of Arizona, but it is the largest part of the state that I could photograph) to show that the Journal is meant for the entire Arizona environmental community. Unfortunately, on the first day I took photographs the "brown cloud" over the Valley was so bad I could not use any of the photos. So I waited a few days, went back earlier in the morning, and then took the much more clear, although still not perfect, cover photo of the Valley that you saw back in 2003. Since the lead article in this issue relates to air quality, I thought it would be appropriate to use for the cover one of the photos that got rejected in 2003 because the air quality was so poor. Since this is the air that most of us live in and breathe and raise our children in, I think the image of the brown cloud puts a perspective on why air quality regulations are so important.

By the time you read this, the Journal should have already moved into our new offices at 4910 East Elliot Road, Suite 100, in Ahwatukee. The new space will allow the Journal to expand its team so that it can create even better issues, and provide more services to the environmental community. The offices will also make the Journal staff more easily accessible. We plan to add a part time office manager and a part time Journal circulation coordinator to our staff, in addition to offering unpaid internship opportunities to interested students. If you know someone who might be interested, please see the ad in the Help Wanted section on page 9.

We plan to hold an open house later in the Spring, but please feel free to stop by and see us anytime! Thank you!

Sincerely,
Jim Thrush, M.S.

Journal of Environmental Management Arizona

EDITORIAL: *Publisher & Editor:* James Thrush, M.S. Env. Management jimthrush@ehshomepage.com or call 480-422-4430 x42

ADVISORS: *Legal:* Lown & Hilleman, PLC, *Editorial:* Nicholas R. Hild, Larry Olson, *Photography:* Chuck Holland, *Programming & Tech:* Hiep Van Vo
COLUMNISTS: *Regulatory Developments:* Michael C. Ford, *Bryan Cave LLP: Sustainable Development:* Nicholas R. Hild, PhD., *Arizona State University: It's All About Chemistry:* Larry Olson, PhD., *AZ State University: Prospecting:* Joe C. Holmes, *Environmental Data Management.*

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How Will the Proposed New HAP Rules Affect You?

ADEQ Recently Proposed New HAP Rules. Will they affect your facility? Are You Ready?

by David Lima

If you are an individual responsible for environmental compliance at your facility, you have probably spent considerable time assessing the cumbersome National Emission Standards for Hazardous Air Pollutants (NESHAPs) mandated by the Clean Air Act, and taken action to ensure that your facility does become subject to them. You have persuaded reluctant process engineers to switch to solvents that do not contain hazardous air pollutants (HAPs) where possible, you have installed air pollution control equipment to minimize HAP emissions, and you have adopted voluntary emission limits into your air permit to keep you below the major source trigger. You have successfully reduced compliance costs and regulatory

burden at your facility and management is pleased with your efforts. It should be time to kick your feet up on the desk and enjoy the fruits of your labor, right?

Not so fast. The Arizona Department of Environmental Quality (ADEQ) recently proposed the Arizona State Hazardous Air Pollutants rule, which is commonly referred to as the AZ HAP rule. The proposed rule places additional regulatory requirements on certain facilities that emit HAP's and will put into place a second tier of HAP emissions control requirements that facilities will have to assess to ensure compliance. So, before you can kick your feet up on the desk, it looks like there may be more work to do. This paper is a summary of the proposed AZ HAP rule requirements.

What is a HAP?

First of all, it is necessary to understand what is being regulated. In simplest terms, the Clean Air Act defines a HAP as a pollutant that presents, or may present, a threat of adverse human health or environmental effects. The Act then goes on to specifically designate 188 chemicals and chemical categories as HAP's (the complete list can be found on the EPA website at <http://www.epa.gov/ttn/atw/orig189.html>). The list of HAP's includes many highly toxic and carcinogenic chemicals that certainly warrant a higher degree of scrutiny and, possibly, control. Many facilities are surprised however, to find that many common industrial chemicals are on the list. Examples are toluene, xylene,

Phoenix Skyline on a Smoggy Day, 2003.

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perchloroethylene (i.e. dry-cleaning solvent), and chromium. So, step one is to review the list of HAP's and determine if any are used or generated in your processes. If so, the proposed AZ HAP rule may affect your facility.

Background

As stated by ADEQ in the preamble, the purpose of the proposed AZ HAP rule is to "address concerns about the lack of regulation governing pollutants not covered under section 112 of the federal Clean Air Act" (p. 5039). Section 112, also referred to as NESHAPs, requires EPA to identify categories of industrial sources that characteristically use HAPs in their processes, and then require those sources to apply stringent emission controls. If a source emits enough HAP to be considered "major", and if the source fits into one of the categories listed by EPA, it becomes subject to the federal NESHAP program. This program requires sources to install air pollution controls that meet EPA's criteria for Maximum Achievable Control Technology, or MACT. As the name implies, these controls are highly efficient at removing HAP's, and can be very expensive to install and operate. It is inevitable that any national effort to categorize similar industrial facilities will ultimately, if unintentionally, exclude a certain number of sources that are not easily categorized. These excluded major sources are one of the major targets of the proposed AZ HAP rule.

A unique feature of the proposed rule, however, is its scope. While the federal regulations only impose control requirements on larger, or major sources of HAP emissions, the AZ HAP rule, as proposed, will impose control requirements on much smaller sources. As a result, the universe of potentially affected facilities is much larger. For this reason, it is particularly important for smaller facilities that have so far been exempt from HAP regulations, to be aware of this rule and to understand its requirements.

Does the Rule Apply to Your Facility?

Whether the rule applies seems like a reasonably simple question. If only it were true. The answer, unfortunately, can only be determined after answering the following series of questions:

1. Are you constructing a new source or modifying an existing source?
2. Is your facility classified as either a major or a minor source of HAP's?
3. If your facility is a minor source, is the primary SIC Code listed as a source category?
4. If your facility is a major source, is it already regulated under the federal NESHAP program?
5. If you are modifying an existing facility, will the actual-to-potential increase in HAP emissions exceed the chemical-specific de minimis amounts specified in the rule?

First, it is critically important to realize that the AZ HAP rule can only be triggered by construction of a new facility or by modification of an existing facility that has the potential to emit HAP's. In other words, you must physically make some type of a change to trigger the rule. *An existing facility that does not undergo modification is not affected by the rule.* However, the definition of "modification" is broad.

If you intend to construct a new facility or modify an existing facility, you must first determine if you are a minor or a

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EHS: 2006

An Enforcement Prediction for 2006 and Some Compliance Suggestions

by Hon. Kenneth F. Reilly, J.D.

While several national environmental writers are predicting a lessening of compliance oversight due to the tremendous damages caused to so many of the southern gulf states, this author cautions, especially for regulated industries in states not directly affected by the twin catastrophes of Katrina and Rita, that those state agencies may make even greater efforts to "take up the slack". One of the obligations of being an "Authorized" state is that the state agency must maintain an active regulatory enforcement program. And the Arizona Department of Environmental Quality is very effective in this regard. As several of you know, I have been conducting RCRA training in as many as forty American states every year for the past nineteen years. There is marked disparity in regard to the level of enforcement among those states. However, you should

be aware that ADEQ is ranked among the best and most active (I would rank it in the top five along with California, Texas, Florida, and Illinois.)

With the above in mind, here are a few suggestions that should help the EHS professional this year:

1. Begin by conducting a vulnerability assessment, not of your security (as required by 49CFR 172.802) but of your compliance with both state and federal environmental regulations.
2. Immediately begin the process of returning to full compliance with regard to any discovered potential violations;
3. Utilize the services of ADEQ's office of Hazardous Waste Facility Assistance (602-771-4235) to assist in solving compliance questions (they are organized and instructed to help, not to punish).
4. Never ignore a discovered violation (a willful and knowing failure to remediate generally converts a civil offense into a criminal violation, many of which are punishable by both fine and jail time).
5. Work consistently to encourage waste minimization both by product substitution and process modification.
6. Make regular inquiry of the Arizona Resource Exchange (www.azrex.org), reuse is a form of recycling.

Hon. Kenneth F. Reilly, J.D., is an environmental lawyer with over 44 years of experience, including service as a Texas Judge. He has also consulted to the U.S. Department of Energy and the Texas House of Representatives. He can be reached at 800-542-2826, or by email at Reillytalk@Reillytalk.com.



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LIMA: HAP RULES

Continued From Pg 7

major source of HAP's. The rule criteria for making this determination are summarized in Table 1. The applicability criteria are somewhat different for major and minor sources, so let's examine the minor source requirements first. Once you have determined that your facility's HAP emissions fall within the

Table 1
Summary of AZ HAP Requirements

Potential Emissions (PE) (tons/yr)		Source Classification	Applicability Criteria	Control Requirement
Single HAP	Multiple HAPs			
PE<1.0	PE<2.5	N/A	None (unless a source in a listed SIC code makes a change that increases potential emissions above the minor or major source threshold)	None
1.0≤PE<10	2.5≤PE<25	Minor	Applies to new or modified sources in listed SIC Codes, unless the source opts in to a federal NESHAP	HAPRACT
PE≥10	PE≥25	Major	Applies to new or modified sources <u>not</u> subject to a federal NESHAP	AZMACT

minor source thresholds, the next step is to determine whether its primary SIC Code is listed in the rule as a source category. Table 2 provides a list of the minor source categories from the proposed rule. If your facility's SIC Code is *not* listed, the rule does *not* apply. If your facility's primary SIC Code *is* listed, and if you are constructing a *new facility*, you need go no further – the rule applies.

If you are modifying an *existing* minor source, one more question must be asked: Does the modification result in an

Table 2
AZ HAP Minor Source Categories

Primary SIC Code	Source Category
1021	Copper Ores
2434	Wood Kitchen Cabinets
2451	Mobil Homes
2621	Paper Mills
2679	Converted Paper Products, n.e.c. ¹
2851	Paints and Allied Products
2911	Petroleum Refining
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increase in emissions of any hazardous air pollutant in excess of its de minimis amount, or does it raise your facility's potential emissions above the threshold for a minor source or a major source? The table of de minimis amounts is too lengthy to reproduce here, but can be found in the proposed rule beginning on page 5066. If the emissions increase from the modification exceeds any de minimis amount, the rule applies. Conversely, if a de minimis amount is not exceeded, the rule does not apply. Figure 1 provides a flowchart that details the applicability process for minor sources.

It is also important to realize that the rule determines the amount of an emissions increase by comparing the facility's average *actual* emissions before the modification to its *potential* (i.e., maximum allowable) emissions after the change. This so-called "actual-to-potential" definition may trigger regulation under the rule in cases where actual emissions do not change or change only a little.

For major sources, it is easier to determine if the rule applies. If your major source is a *new* source, and it is *not* subject to the federal NESHAPs program or covered by one of a few other exemptions, the rule applies. Existing facilities are a little trickier, however. It is worth repeating here that existing facilities only become subject to the rule if a *modification* occurs. Modifications to existing facilities that are already subject to a

Figure 1
Minor Source Compliance Flowchart



federal NESHAPs standard are exempt from the AZ HAP rule. If the modification occurs at a facility that is not subject to a federal NESHAP, the rule applies. Figure 2 provides a flowchart that details the applicability process for major sources.

The exemption for facilities subject to a NESHAP deserves a cautionary note. The exemption applies to the “affected facility” as defined in the NESHAP, not necessarily to the entire facility. If your facility has some portions that are and some that are not covered by a NESHAP “affected facility” definition, those portions that are not part of an “affected facility” can be subject to the AZ HAP rule.

What the Proposed Rule Requires

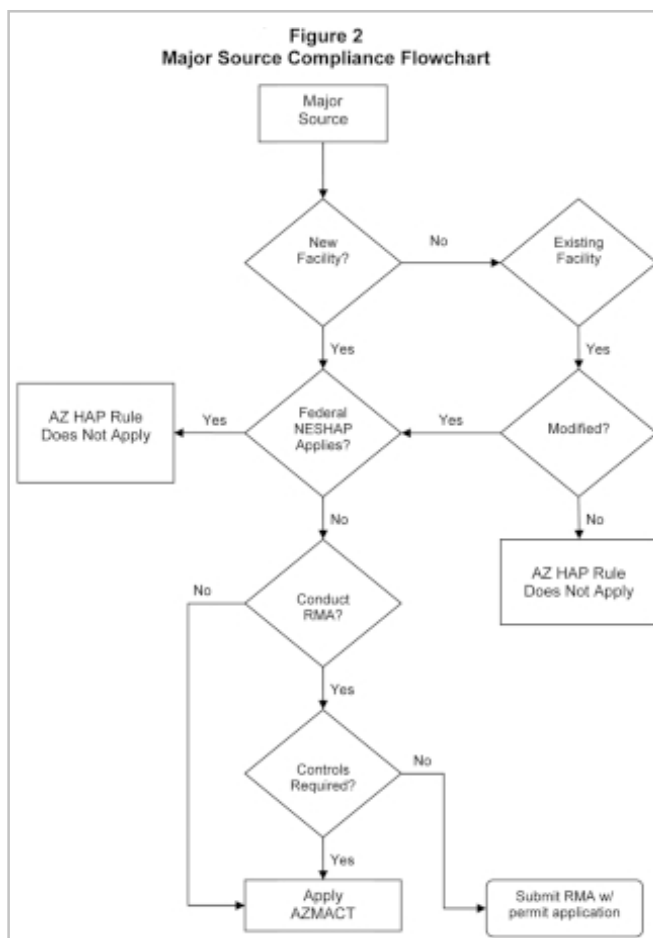
Once it is established that the rule applies, it is necessary to determine what level of emissions control is required and to submit an air permit application to the permitting authority. For major sources, the requirement is application of control technology that meets AZMACT, or Arizona Maximum Achievable Control Technology. As defined in the proposed rule, AZMACT “means an emission standard that requires the maximum degree of reduction in emissions of the hazardous air pollutants subject to this chapter” (p. 5065). Minor sources must apply HAPRACT (Hazardous Air Pollutant Reasonably Available Control Technology). Although HAPRACT is not currently defined in the proposed rule, it is generally considered a less stringent level of control than AZMACT.

Unlike the federal NESHAP standards, which clearly spell out the control requirements, both the AZMACT and HAPRACT are case-by-case determinations *that must be made by the source* as part of the permit application. In essence, it is the responsibility of the source to survey the controls applied at similar facilities and then rank them by control efficiency, with the highest being placed at the top of the list. Then, taking into account energy, economic and other environmental impacts of the proposed technology, the feasibility of each of the options is assessed. If the top option is not selected, the next most efficient control option is evaluated. The most efficient control option not rejected is then proposed as either AZMACT or HAPRACT in the permit application. This approach is referred to as the “top-down” approach by EPA. It is then up to the permitting authority to accept or modify the level of control proposed by the permit applicant.

Regulatory Relief

Clearly, the proposed rule will require many HAP-emitting facilities to install expensive control equipment. Fortunately, there are provisions within the rule enabling facilities that meet certain criteria to avoid some or all of the rule requirements. It is absolutely necessary for EH&S professionals and consultants to fully understand these opportunities in order to help regulated facilities make cost-effective control decisions.

One notable provision in the proposed rule excludes “particulate matter emissions that consist of natural crustal material and are produced either by natural forces, such as wind or erosion, or by anthropogenic activities, such as agricultural operations, excavation, blasting, drilling, handling, storage, earth moving, crushing, grinding or traffic over paved and unpaved roads, or



other similar activities” (p. 5074). This is clearly a useful exemption for large industrial segments in Arizona including agriculture, mining, and the sand and gravel industries.

Another provision in the rule allows any affected facility to conduct a site-specific Risk Management Analysis (RMA) in order to demonstrate whether control equipment is actually necessary to protect human health. In order to understand this opportunity, one must have a basic understanding of the methodology used by ADEQ in establishing the de minimis thresholds. In simplest terms, a conservative air dispersion screening model was used to determine the worst-case dispersion characteristics of a hypothetical facility. The model results were then used along with acute and chronic exposure levels to determine how much of a given pollutant could be emitted without exceeding an acute or chronic exposure level. Due to the assumptions made by ADEQ throughout the process, the resulting de minimis amounts contain multiple levels of conservatism. These assumptions may not be valid when applied to a specific facility. By substituting actual facility-specific source characteristics and air dispersion data, it may be possible to demonstrate through the RMA process that a particular modification will not result in adverse effects, and will therefore not require air pollution control equipment.

Continued on page 22

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How to build quality communities that balance economic growth and environmental sensitivity is a challenging pursuit, but Valley Forward is committed to helping develop solutions.

The 37-year-old civic organization will bring hundreds of stakeholders together to convene public dialogue on the issue at Valley Forward's Livability Summit, a half-day conference (8 a.m.-1:30 p.m.) slated for April 20 at the Phoenix Civic Plaza & Convention Center.

Now in its third year, the forum promotes healthy communities and features nationally recognized speakers, displays and interactive discussion on sustainable development, livability and ways to make our region the most desirable place to live in the country. Key topics focus around Valley Forward's basic agenda, which includes: land use planning and open space, transportation, air quality and water management.

Mark your calendar now to attend this unique and meaningful program. Seating is available to the public at \$130 per person or \$1,250 for a table of 10. For more information, call (602) 240-2408.

Diane Brossart,
President



AAI

AAI's Webpage:

www.azind.org

AAI is pleased to announce that the 2006 Environmental Summit will be held in Tucson on August 10, 2006 with a reception the evening of August 9th and the Annual Environmental Summit Golf Tournament on August 11th. Sponsors and tradeshow participants are being sought. Go to AAI's web page at www.azind.org for more details or contact Kathy Hackett at 602-252-9415.

AAI's March EHS Committee Breakfast Meeting will be held on Wednesday March 8th at 7:00 AM at the Phoenix Sheraton Hotel located at Broadway and 52nd Street in Tempe. For further information contact Kathy Hackett at 602-252-9415 or Jeff Homer at 480-441-6672.

Jeff Homer,
EHS Committee
Chairman



ACHMM Thunderbird



Calendar Items

February - No monthly meeting
(Attend GRR instead!)

Feb. 21-22, 2006
Gatekeeper Regulatory Round-up, Chaparral Suites, Scotts., AZ

Feb. 28-March 3, 2006
CHMM Overview Course, Waste Management Symposium, Tucson, AZ

Mar. 9, 2006 Luncheon Meeting: Andy Ewing, EPSI, "Handling Environmental Penalties through a SEP"

April 3-7, 2006 CHMM Overview Course, Gateway Comm. College, Phoenix, AZ

April 13, 2006, Luncheon Meeting, TBA

IMPORTANT ANNOUNCEMENTS!

Our first combined meeting with EPAZ was very well-attended, with a great program by Barton Day of Bryan Cave. Due to the Gatekeeper Regulatory Roundup (which you don't want to miss) there will not be a meeting in February.

Mark your calendars for the **2nd Annual Gatekeeper Regulatory Roundup** on Feb 21-22, 2006! The Thunderbird Chapter will once again team with EPAZ and AZSERC to offer a bigger and better event. We will be announcing the awarding of the **Thunderbird Chapter Scholarships** at GRR. This is a new program for us. Check out our website for applications.

And don't forget the upcoming **CHMM Overview Courses**. The Chapter will be offering the courses in February 06 in Tucson as part of the Waste Management Symposium, and again in April in Phoenix. For details, contact Dwight Clark at (602) 243-1600 or dclark@ninyoandmoore.com.

The regular combined ACHMM/EPAZ monthly lunch meetings will be at the Radisson Hotel, 427 N. 44th Street in Phoenix, from 11:30 ~ 1:00 on the second Thursdays of each month. Meeting details: www.thunderbirdchmm.org or www.epaz.org.

Chuck Paulausky,
Vice President





Michelle R. Freeark,
President

scholarships to students focused on an environmental discipline, one graduate and one undergraduate, attending the University of Arizona. The deadline for applications is March 15, 2006. For more information and an application, go to www.saems.org. Successful applicants will be invited to a SAEMS luncheon to receive their award.

The Annual SciEnTeK-12 Southern Arizona Regional Science and Engineering Fair (SARSEF) will be held March 20th to 25th. SAEMS is an Einstein sponsor of the event and provides two special awards to high school students each year, and we are looking for a few good judges! Judging will be held on Tuesday, March 21st, and is a one-day only commitment. Please contact Fred Brinker at fbrinker@tucsonairport.org if you are interested in being a judge.

SAEMS will have a booth at the Tucson's 11th Annual Children's Earth Day Festival and Parade on Sat., April 15th. The event will once again be held on the grounds of the Tucson Children's Museum and Armory Park downtown. The booth will provide a hands-on activities for kids related to the environment.

Your calendar should be marked to attend the SAEMS RCRA Seminar on Thursday, May 11th. More information on the event coming soon to our website. If you are interested in becoming a sponsor please contact Shari Bauman at sbauman@turnerlabs.com.

The 2nd Annual Tucson Gatekeeper Conference hosted by SAEMS and AZSERC was another successful conference. There were approximately 75 attendees and the speakers did an excellent job covering the sometimes tough topics. A big thank you to the seminar committee and the wonderful sponsors who made it such a success.

SAEMS will award two full tuition and fees

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Visit our website at
WWW.SAEMS.ORG

LUNCHEON MEETINGS HELD
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(N. of Congress on Granda)
Tucson, AZ

Luncheon Topics:

Feb. 22: Jeremy Lite, Quarles &
Brady; ADEQ HAPS Rule

March 29: Ursula Kramer,
PDEQ; Where PDEQ is and its
future plans

April 26: Diana Rhoades,
Sonoran Institute: Conserving
Arizona's Future



Ed Collette,
Secretary

CITY OF TUCSON'S EPA BROWNFIELDS JOB TRAINING GRANT PROGRAM BEGAN JANUARY 12, 2006

Mayor Robert Walkup welcomed the first 17 students to the first day of class for the City's Brownfields Job Training Program at Pima Community College

This free training program, funded by the U.S. Environmental Protection Agency, will provide these individuals with the education and training to pursue careers in the environmental field. The students will be trained over the next five months to be environmental technicians and be eligible to work for private consulting firms, government, and industry. Each is paired with a mentor who works in the environmental profession. All of the program's instructors are environmental professionals. The students come from a wide variety of backgrounds, with many either unemployed or underemployed.

Edward Collette of the Southern Chapter of ASSE is one of the Mentors for this program.

This is the first year of the two-year EPA Job Training Grant. Recruitment for the following year will begin shortly. For questions or interest in next year's program, contact Lisa Manzanedo, Job Training Coordinator, City Environmental Services, at (520) 791-5414.

American Society of Safety Engineers

For Information on
Meetings and Training:
visit [http://](http://southaz.asse.org)
southaz.asse.org

or call Edward Collette
at 520-740-2656 or
edward.collette@www.pima.gov



Peter Kroopnick,,
President

The Arizona Hydrological Society (AHS) has big news. AHS is happy to announce the establishment of the AHS Foundation. According to its bylaws, the AHS Foundation is a non-profit charitable Arizona corporation formed to "provide support for advancing the science, practice, education, and public understanding of hydrology and water resources in the semi-arid Southwest." Formation of the

Foundation provides access to alternate funding sources that AHS cannot receive directly, but that can be used to further the AHS mission. Being a public charity, the Foundation will further the AHS mission by endowing funds for educational and charitable activities. As a wonderful shot in the arm, Dr. Herman Bouwer delivered a \$25,000 check to the AHS Foundation. Foundation president Howard Grahn said, "Herman's incredible generosity will allow the Foundation to embark on our mission much sooner than any of us had imagined". In recognition of Herman's generosity, the AHS Corporate Board voted to match \$10,000 of his donation to the Foundation. For more information, please contact Howard Grahn at howard@gsanalysis.com.

Arizona Hydrological Society



please visit the AHS web
site: [http://](http://www.azhydrosoc.org)
www.azhydrosoc.org

Continued on page 13

AHS will sponsor a number of meetings and activities for February and March. Tucson Chapter meeting topics include relationships of scale in contaminant hydrology by Mark Brusseau and ongoing work at Cienega Creek by Chris Baldyga. A field trip led by Chuck Graf to the Pinacates is scheduled for March. In Phoenix, Mark Hay will speak on SRP's new well programs. In late March, Flagstaff's Northern Arizona University will host Dr. David Blowes of the University of Waterloo; he is the 2006 Birdsall-Dreiss Distinguished Lecture of the Hydrogeology Division of the Geological Society of America. Please visit www.azhydrosoc.org for details.

US Green Building Council Arizona Chapter



For information
Contact Charlie Popeck at
602-512-0557 or
Charlie@Egreenideas.com

Premium Organization Working with the USGBC Arizona Chapter

The USGBC Arizona Chapter has recently hired Melissa Kemp and her company Premium Organization to help with our administrative issues and to act as an interim "Executive Director" until we can get a permanent director in place. With Premium now in place to handle our daily responsibilities, the board of directors will be identifying sponsorship and funding opportunities within the State of Arizona in order to help the chapter take our sustainable building efforts to the next level.

Charlie Popeck,
Immediate
Past President



We had a very successful January meeting at ASU's Decision Theatre with over 80 people in attendance! We hope that the strong attendance is indicative of what we can accomplish in the future in order to make Arizona a better place to live from a built environment standpoint. Our next meeting is scheduled for Tuesday February 21 at 5:30 P.M. at the Desert Botanical Garden. Dan Huffman, the National Resource Director for the National Ready Mix Concrete Association will be speaking about pervious concrete and how the material can help to alleviate problems caused by the heat island effect in the Phoenix area. Please RSVP for the meeting by sending an e-mail to arizonachapter@chapters.usgbc.org. I look forward to seeing you there!

AZ Chapter Semiconductor Environmental Safety & Health Association

Contact Information:

E-mail :
sesha@burkinc.com.

Many members of the Arizona chapter will travel to Santa Clara, CA this spring for the **SESHA 28th Annual International High Technology ESH Symposium & Exposition, April 18-22**. The 5-day program will include 2 certification classes—an 8-hour HAZWOPER class and an 8-hour DOT HM-126 F class, both as part of the PDC offerings.

The conference is now worth up to 5.0 CEUs. Session tracks including—Safety/IH, EHS Leadership, Environmental Facilities, Disaster Preparedness—will be offered during 3 days of education. A full day on Disaster Preparedness and Recovery will cover Intel's Avian Flu Preparedness Plan, Medical Disaster Response to Hurricane Katrina, and other presentations. Other topics include: NFPA 70E, Arc Flash, Design for Facilities, ANSI Z10, Control Banding and more. Register before March 15, save \$50. \$495/members, \$595/nonmembers; government \$250/\$300; \$75/students, professors, and public safety professionals. View the entire program and register: www.seshaonline.org. Questions? sesha@BurkInc.com

Tim Jones,
President



Arizona Environmental Strategic Alliance



AzREX.org update - The Arizona Resource Exchange web site is allowing individuals and businesses the ability to sell or recycle materials that otherwise would be sent to landfills. In order to better serve the community, and improve this service, we would like your comments regarding the web site and the exchange process. Please send your comments to comments@azalliance.org.

If you haven't visited the site, we encourage you to visit AzREX at <http://www.azrex.org> and ask that you provide comments after your review.
Why use AzREX?

- AzREX makes good, usable materials available to new users at a fraction of the cost of new.
- Allows user to post and view items with no costs.
- Every item reused reduces purchase costs and gives that item an extended active life before

Rob Barnett,
Chairman



recycling or destruction/disposal.

- Reuse holds the greatest potential for reducing landfill disposal.
- BOTTOM LINE - Use AZReX to save money and the environment.

The Arizona Environmental Strategic Alliance is always looking for companies that want to be environmental leaders and work in partnership with the regulatory agencies to improve the environment in our state. If your company is interested in applying for membership, please contact Rob Barnett at 602-687-5000, or call the Alliance at 480-422-7392.



*Eddie Martinez,
President*

January's meeting featured Barton Day, Bryan Cave Barton did an excellent presentation which included advice on how an industry should respond to the discovery of noncompliance. Barton discussed key rules to follow and pitfalls to avoid - when you discover a major compliance problem on your own or when

regulators discover compliance problems at your facility during an inspection.

We will not have a monthly meeting in February due to the 2nd Annual Gatekeeper Regulatory Roundup which will be held on February 21-22, 2006 at Chaparral Suites Resort in Scottsdale. The conference is being co-sponsored by Thunderbird Chapter of ACHMM, and AZSERC. For more information visit our web-site. <http://www.epaz.org>

The March meeting will feature Andy Ewing, EPSI, and the topic will be Handling Environmental Penalties through a SEP and our March mixer will be at Sugar Daddy's (Scottsdale) EPAZ holds monthly luncheon meetings on the 2nd Thursday of the month from 11:30 am to 1:00 pm. Cost is \$20 members/\$30 non-members. EPAZ also gathers on the last Wednesday of the month for a casual cocktail mixer. Visit our web site at <http://www.epaz.org> for more details regarding upcoming meetings and our monthly mixer location or contact Eddie Martinez at (602) 708-9179.

The al l i a n c e:
WWW.AZALLIANCE.ORG
arizona resource exchange:
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EPaz



Visit <http://www.epaz.org> for more details regarding upcoming meetings and our monthly mixer location or contact Eddie Martinez at (602) 708-9179.



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Sustainability and Sustainable Development

Nicholas R. Hild, PhD.

Sustaining the Money Tree:

... Playing the Budgeting Game

The latest grandiose plans that the City of Phoenix, University of Arizona, and ASU have cooked up to build a new medical school in a downtown Phoenix campus (with a few other colleges thrown in to appease taxpayers), hit a snag when a citizen bond panel decided the asking price was too high. With \$198 Million being requested by ASU from an \$850 Million bond program that was set aside for land acquisition, renovation, and new construction, the panel decided that \$10 Million cut out of ASU's portion wouldn't be noticed. But, they didn't count on academic bureaucratic backlash.

Academia has always been provided monies for bricks and mortar but getting the legislature and Board of Regents' approval for monies to support the *real* business of education has always been a crap shoot. "Remodeling" and updating infrastructure on campus always required monies that were contentious mostly because legislators related those requests to balancing their own checkbooks, expecting that Facilities managers could "patch, plug, and repair" and get by until the next fiscal budget year when some other poor smuck legislator would be in the "guns or butter" economics hot seat.

Academic administrators whose job it is to project costs for buildings and infrastructure, are mostly former professors who are poorly trained in the counting of beans and they've been given marching orders from even less qualified administrators to "prepare plans and budgets" for things they have never actually built in the real world. Thus, it wasn't surprising to hear the general response to the bond panel's announcement summed up by one clueless ASU senior vice president as, "*Anything less (than the full amount) does put the project in a certain degree of jeopardy.*"

What really strikes a nerve, however, is the fact that half the money is already earmarked so the \$10 Million will need to be cut out of the remainder and the "balancing" will have to be done on the backs of classroom space, a new Journalism School building, an "expanded" College of Nursing, and....(taa daaa!!), a *full-service* library and student union!

Boy, that *really* hurts! When they start threatening to have a library with *less* than *full-service*, you know something drastic is going to happen! Why, whatever will those poor med students, or nursing students or...or...the "J" School (!) do without a '*full-service*' library...? But, wait! There is a low-cost alternative: think "*sustainability*."

A few months ago, in this column, I challenged the ASU administration to make all *new* campus buildings *sustainability* laboratories. Every building and parking lot can be made more energy efficient, lower impact on the environment, and a whole lot less expensive if planners and engineers, and green-building experts are allowed to do the planning '*before*' the budget request is sent for the review process.

Here's a low-cost example of what that process could accomplish in downtown Phoenix. First, take a look at how the "full-service" library was '*built*' at the Polytechnic Campus (formerly, ASU-East) to help you visualize what could be a state-of-the art library for a whole lot less than \$10 Million. Today, *state of the art* is all about 'information management' (not book stacks and card catalogs; Dewey's Decimals are long-gone) with computers and electronic access to other great libraries all over the world. And, it's a whole lot cheaper to add those 'services' than brick and mortar so, if you really want to save on library services, look at the Will Bruder-designed Phoenix library just down the street from the planned new campus.

It is already one of the most prestigious in the country and, since it's a whole lot easier to get monies (i.e. make that...Phoenix resident's *taxmonies*) to add facilities to existing structures than to build *new* structures with all *new* infrastructure. Students won't mind riding the new light rail to get back and forth if it means a possible decrease in next year's tuition increase. Or, use computer-to-computer links to library resources...gee, what a concept!

While doing the planning, it might be important to also consider putting those new University College classrooms *into* the library expansion and take that problem off the budget, too. Keeping an eye on *sustainable* ways to meet education needs requires more than doing things the same way they were done when Tempe Normal and Old Main was constructed as the center of our (ASU) Universe. Sustainability, like charity, starts at home and we need to remember that the students who will be using these new facilities are, after all, our children's, children's, children.

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.

Supplemental Environmental Project (SEP) Opportunities

The Environmental Technology Management program at the ASU Polytechnic Campus (formerly Arizona State University East) has recently begun to offer assistance to respondents to an enforcement action by helping them complete Supplemental Environmental Projects (SEP's).

SEP's are a great opportunity to satisfy the requirements of an enforcement action while demonstrating to the local community that your company is striving to be a good environmental neighbor. Al Brown, Director of Environmental Research Initiatives at ASU Polytechnic, announces the new service.

by Al Brown

We all strive to meet environmental requirements. However, if alleged violations are discovered, are you aware of all your options?

Supplemental Environmental Projects are an alternative to consider in the negotiation of environmental consent agreements with regulatory agencies. SEP's can be used as a penalty offset that benefits both the community and the respondent in an enforcement action. SEP's may be considered in local, state, and federal enforcement agreements. The ETM program offers a brochure (available by contacting us at the email address below) that identifies potential projects that may benefit your organization. The scope of a SEP is typically tied to the type of alleged violation. Dollar for dollar offsets may not be allowed.

The Environmental Technology Management (ETM) program at ASU's Polytechnic campus offers research, training, and undergraduate and graduate degree programs in various areas of environmental technology and emergency management. In addition, our Office of Environmental Technology produces specialized environmental training. The ETM staff can help your organization design and complete a SEP. We are available to discuss specific projects or concepts, provide a letter of interest and to prepare a proposed project scope and budget, if a SEP will be allowed by the regulatory agency. Please note, the ETM program is not able to provide legal advice or participate in consent agreement negotiations.

If you have an interest in this type of service or would like to further explore SEP options, please do not hesitate to contact me at 480-727-1320 or by email at al.brown@asu.edu.

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news briefs

ADEQ Announces \$94,000 Penalty Against Nordic Boats, Inc.

❖ Arizona Department of Environmental Quality (ADEQ) Director Steve Owens announced recently a \$94,000 penalty against Nordic Boats for air quality violations at the company's Lake Havasu City manufacturing facility.

Owens said that Nordic Boats is considered a major source of styrene, a hazardous air pollutant, but was operating without a permit and had failed to meet federal monitoring, reporting and emission standards. The violations were discovered during an inspection conducted by ADEQ in October 2004.

Styrene, a central nervous system depressant and possible human carcinogen, is emitted during the boat manufacturing process.

"The substantial penalty reflects the serious nature of the violations," Owens said.

Owens added that ADEQ conducted an investigation during the summer of 2004 to identify boat builders

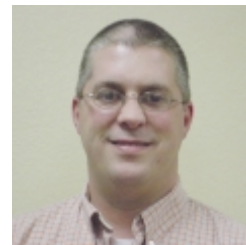
that emit styrene in quantities that require an Arizona Air Quality Control Permit and bring them into compliance. Many of the boat builders cooperated fully with ADEQ's initiative and voluntarily identified the amounts of solvents, resins and coatings used in their operations.

"Unfortunately, Nordic Boats did not do so," Owens said. In addition to paying the penalty, Nordic is in process of obtaining an air quality permit from ADEQ.

The Consent Judgment with Nordic Boats is subject to final court approval.

Matt Brunkow Joins ETC Compliance Solutions

❖ Matt Brunkow, MS, CSP, CHMM has joined the EHS training, management, and consulting firm, ETC Compliance Solutions as Operations Manager. Based in Phoenix, Matt will have direct management responsibility for ETC's statewide training and consulting operations. His years of applied Safety, Risk and Environmental systems management experience with multi-facility corporations include development and delivery of employee training, risk analysis and management, industrial hygiene testing, environmental compliance, ergonomic evaluation, written plans, policy & procedure development and emergency response.



Matt Brunkow

Mr. Brunkow has a Master of Science in Risk Control from the University of Wisconsin. He holds Certified Safety Professional (CSP) and Certified Hazardous Materials Manager (CHMM) credentials. Matt shares the ETC philosophy of "Maximum Risk Reduction at Minimum Cost."

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ASU ETM Group Holds Cohort Dinner

❖ ASU ETM group recently held a cohort dinner for its Master of Science students who are enrolled in the on-line masters program. Graduates from the ETM program also



Dr. Olcay Ulver

participated along with faculty, making the dinner a great networking event for all. Dr. Olcay Ulver, Distinguished Visiting Professor, Kent State University, Former GAP Administrator, Turkey, was the keynote speaker (see photo at left.) The photo at right shows some of the 2005 and 2006 cohort students. The event was held at the University Club at the ASU Tempe campus in January. For information, contact Dr. Nick Hild at DrNick@asu.edu



2005 and 2006 ASU ETM Cohort Students

Geomatrix Phoenix Adds Air Quality Specialist

❖ The Geomatrix Phoenix Office recently added air quality as a core practice area with the addition of Ron Vernesoni as a Senior Air Quality Engineer. Mr. Vernesoni has more than 30 years of experience in air quality, including 14 years in the public sector and 16 years in the private sector. Ron can be contacted at rvernesoni@geomatrix.com.

7th Annual Phoenix Brownfields University

❖ The City of Phoenix City Manager's Office announced the 7th Annual Phoenix Brownfields University. The Brownfield's University is a one-day conference, held on April 27, 2006, on the redevelopment of environmentally contaminated property. Development is occurring in the urban core and industrial areas of Phoenix and many other cities in Arizona where brownfields exist. Attend the conference to learn how to economically and profitably clean up and redevelop these properties.

For information call 602-256-3452, or visit phoenix.gov/ENVPGM/brownfld.html. The 7th annual Brownfields University conference will be held at the Phoenix Civic Plaza.

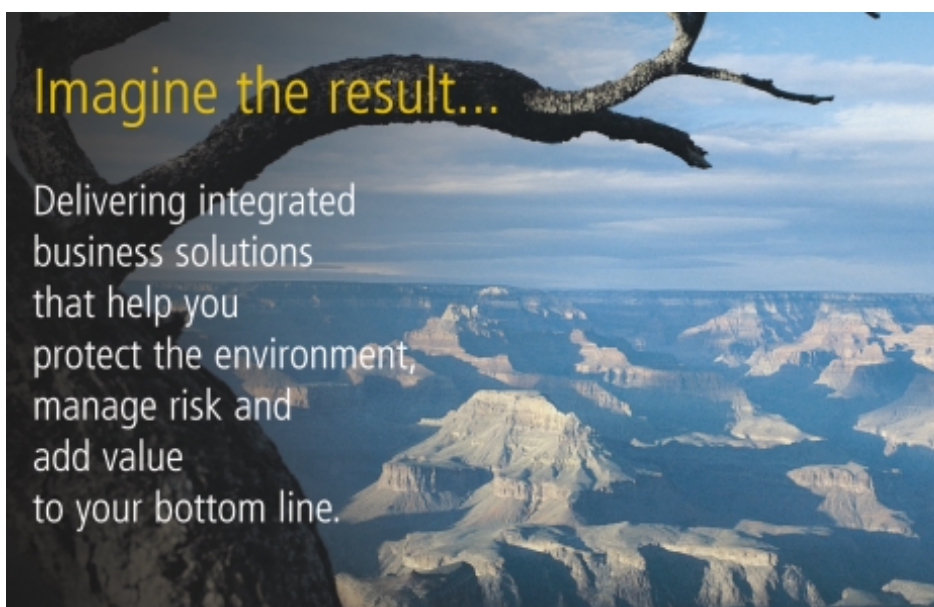
ADEQ Director Owens Announces Two Community Recycling Grants Totaling \$260,000 for Goodyear

❖ Arizona Department of Environmental Quality Director Steve Owens announced recently that ADEQ is providing \$260,000 to fund two recycling projects in the City of Goodyear.

The city was awarded \$200,000 for a curbside recycling program that will increase the diversion of solid waste into recycling from 6% to 25%. The grant is part of ADEQ's Waste Reduction Assistance (WRA) program, which provides assistance

to projects that divert significant amounts of material from the solid waste stream. Under the WRA program, projects must focus on proper disposal of solid waste, source reduction, reuse, recycling or composting.

Goodyear was also awarded \$60,000 for a recycling education outreach program to inform the public about the curbside recycling program. This grant is part of ADEQ's Waste Reduction Initiative through Education (WRITE), which supports information and education projects that encourage recycling, reuse and source reduction and increase awareness of proper solid waste disposal techniques.



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Larry Olson, PhD.

It's All About Chemistry

Biofuels

A controversial, but promising alternative to petroleum based liquid fuels is the use of biomass to produce ethanol, biodiesel, or other fuel blends. Oxygenated fuels, like ethanol, were originally introduced into gasoline as octane enhancers and then in the 1980s were used to reduce carbon monoxide emissions. The 1990 Clean Air Act Amendments contained a provision for fuels to contain at least 2.7% oxygen by weight in areas that were not meeting National Ambient Air Quality Guidelines for CO. More recently, biofuels such as ethanol have been embraced as renewable fuels and a means of reducing dependence upon "foreign oil." Politically this has been a favorite theme of farm state politicians who have pushed for tax subsidies for such fuels as a way to spur economic development in rural areas. Finally, biomass fuels are seen as a way to reduce greenhouse gas emissions, since the carbon dioxide that is liberated upon combustion can be combined with nutrients from the soil and sunlight to produce new plant mass via photosynthesis. Estimates of the net reduction in greenhouse gas emissions using ethanol range from 60-90% relative to gasoline powered engines.

The issue is complicated, however, when one considers the entire cycle of growing, harvesting, processing, and consuming. The net energy value (NEV) compares the energy produced by a gallon of ethanol to the energy required to produce, transport, and distill the feedstock. Many studies have been done of the NEV for corn based ethanol, with estimates ranging from a -33,000 to +30,000 BTUs/gallon. A USDA study in 2002 concluded that corn based ethanol had an NEV of +21,105 BTUs/gallon, or 34% more energy than it took to produce. But the study also showed that the amount of coal and natural gas consumed in producing ethanol from corn made it a net emitter of greenhouse gases.

As an alternative to corn as a feedstock for ethanol, one can use cellulose material such as forest products, perennial grasses,

and paper or other organic matter from municipal waste. Ethanol made in this way is called bioethanol. These low cost feedstocks have much lower inputs than cereal crops and could be supplemented by "energy plantations" with dedicated energy crops such as switchgrass, poplars, or willow trees. However, pretreatment such as milling, exposure to acids, and heat is required to break down the cellulose to fermentable sugars. There

is a substantial opportunity for improvements in technology to cut the costs of processing. Genetic engineering might also make fermentation of cellulose products easier and more economic.

Biodiesel is another fuel derived from biomass. Generally biodiesel is defined to be the methyl ester of vegetable oils or animal fats. The process involves a tran-esterification reaction with triglycerides where long chain fatty acids are hydrolyzed from glycerol and form new ester bonds to methanol. This decreases the viscosity and increases the volatility, producing a better engine performance than using the oils directly. Biodiesel has a lower sulfur content and produces less CO, particulates, and unburned hydrocarbons than conventional diesel. In many cases it can be used directly in existing diesel engines, or can be blended with petroleum diesel. But the problem is cost. Virgin vegetable oil is more expensive than petroleum diesel – one gallon of biodiesel requires 7 lbs of soybeans. So cheaper sources, such as waste frying oil, are being explored.

Is there a future for biofuels? The answer depends upon the cost of oil. With gasoline at \$3 or \$4 a gallon, these alternatives look better all the time.

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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



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Professor Ji Ping of Shanghai, China, visited recently with the staff and students at the Polytechnic Campus, formerly ASU East. Professor Ping lectured on "Incorporating Sustainability into Chinese Environmental Policy" on December 5th, and on "Pollution Control of Waterways in Shanghai" on December 6th.

Professor Ji Ping is currently responsible for developing environmental policy for the Shanghai city government – one of the fastest growing and most heavily industrialized regions of the world. Prior to accepting this position in 2004, she was Director of the School of Chemical Eng. at Shanghai University of Engineering Science. She majored in organic chemistry at Shanghai University where she received her Bachelor of Science degree and in env. chemical engineering at Shanghai Jiao Tong University where she received a Master of Engineering degree. She has published more than 30 papers on water treatment and other environmental issues, as well as a textbook on Experimental Organic Chemistry which she co-authored with Dr. Larry Olson of Arizona State University. For information, contact Dr. Olson at Larry.Olson@asu.edu.

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LIMA: HAP RULES

Continued From Pg 11

An additional level of conservatism has been built into ADEQ's acute and chronic exposure levels as they pertain to "chemical categories". While the majority of HAPs are specific chemical compounds, many are broad classes of compounds. Examples are chromium compounds, glycol ethers, and polycyclic organic matter. Because each chemical category contains numerous individual chemicals with varying degrees of toxicity, ADEQ selected the most toxic chemical from each chemical category in order to establish the acute or chronic exposure level for any compound within that category. Therefore, ADEQ's exposure levels (known as "ambient air concentrations") may greatly overestimate the actual exposure risk posed by the less toxic chemicals in any given chemical category. As a result, if a process utilizes one of these less toxic compounds, it is possible that an RMA could effectively demonstrate that the proposed new facility or modification of an existing facility would not result in adverse human health effects, or require air pollution control unless the applicant takes the additional step of persuading ADEQ to approve the use of a chemical-specific ambient air concentration in the RMA.

The key point is that conservative dispersion and toxicology data are used by the AZ HAP rule as a starting point to determine what emissions at a new or modified facility must be controlled or undergo an RMA demonstration. Facilities subject to the rule will face the choice to comply with controls or make an RMA demonstration for every new construction or modification in the future. Each time will require a case-by-case determination. By conducting an RMA with facility-specific data, it may be possible to demonstrate, on a case-by-case basis, that expensive air pollution control equipment is not necessary to avoid adverse effects.

In particular, RMA's are most likely to be beneficial for facilities that exhibit any of the following characteristics:

1. Rural facilities without nearby residents.
2. Facilities with large buffer zones that prevent public access.
3. Facilities that emit HAP's in one of the chemical categories that ADEQ represented with a worst-case chemical.
4. Facilities with better dispersion than the conservative assumptions used to develop the rule.

It is important to note, however, that an RMA is submitted as part of the permit application, and thus becomes subject to public notice and comment. Because of this elevated visibility, and because adverse public comment could delay or even prevent permit approval, it is vitally important to ensure that any RMA is properly researched and conducted, and based upon sound science.

Conclusion

The proposed AZ HAP rule is complex and has the potential to affect many industrial facilities, both large and small. In fact, ADEQ acknowledges in the rulemaking that, because of the proposed rule, "smaller business sources could experience higher per unit cost of output than larger sources" (p. 5046). This is a significant departure from the approach traditionally employed in environmental regulation, whereby smaller business interests are generally provided partial, if not total, exemption. The main relief mechanism is the opportunity to demonstrate that a specific change will not result in adverse effects, and is therefore exempt from the requirement to install potentially expensive control equipment. Facilities that are aware of the AZ HAP rule requirements, and the options within the rule that could increase or decrease costs, will be better situated to keep costs low and gain a competitive advantage over those facilities that are not aware of the available options.

The proposed AZ HAP rule was published in the Arizona

Administrative Register on December 2, 2005, thereby initiating a public comment period that currently ends on January 31, 2006. Upon consideration of public comments, ADEQ must then present the final rule to the Governors Regulatory Review Council. ADEQ's current timeline indicates that the rule could become final as early as March, 2006, and effective approximately 60 days thereafter. Although time is running short, there is still a small window of opportunity remaining for potentially effected facilities to participate in the rulemaking process.

Once the AZ HAP rule becomes final, local agencies that have authority to issue air permits (i.e. Maricopa, Pinal, and Pima Counties) will then begin the process of adopting the rule into their local air quality rules. Due to the complexities of the AZ HAP rule as it is currently proposed, it appears likely that few air permitting professionals will be relaxing or putting their feet up on desks anytime soon!

REFERENCES:

Arizona State Hazardous Air Pollutants Program, Ariz. Admin. Reg. 11(49), 5038-5088 (proposed December 2, 2005) (to be codified at Ariz. Admin. Code R18-2-1700).

David Lima is a Certified Hazardous Materials Manager with 18 years of experience in the EH&S field, including ten years of air permitting experience in Arizona. David can be reached by email at Dave.Lima@cox.net.

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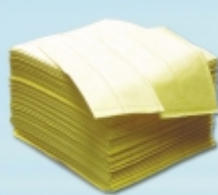
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