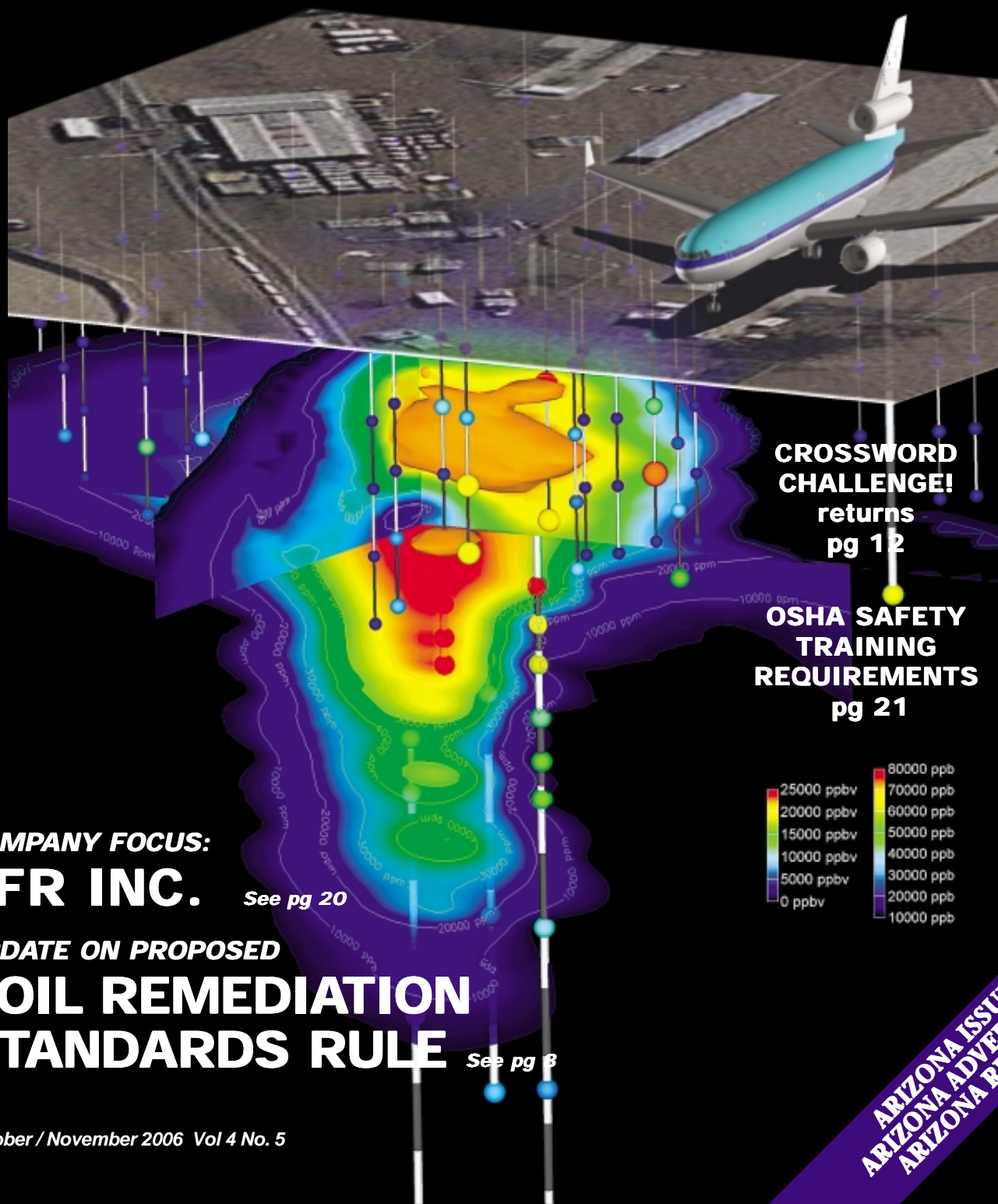


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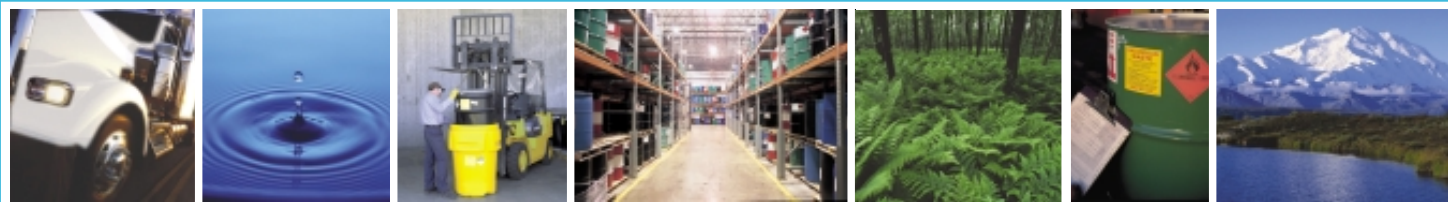
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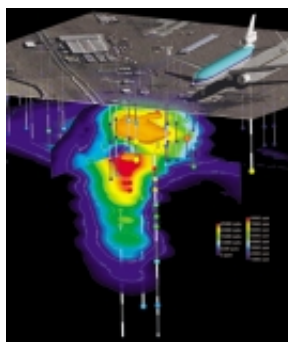
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From the Editor



As we near completion of the 4th year of publication of the Journal, I want to thank all the associations that contribute articles to the Association Pages, our regular columnists, and all of you who contribute articles and photos to the Journal! This is a 'community generated' publication, that is what keeps us going!

New Advertisers

Please welcome two new Journal advertisers! Grizzly Trackout Control (page 24) produces a device that shakes dirt from vehicles as they exit a construction site. Grizzly Trackout Control was formed by Jeff Lange, an Arizona resident, who holds the patent to this clever device. Also, please welcome the Department of Technology Management at ASU Polytechnic Campus, and take a look at their full-page advertisement in this issue (page 4). The Department of Technology Management at ASU has provided a core of environmentally related and other programs for many years and is an outstanding resource to the Arizona environmental community.

Back issues available on-line

Back issues of the Journal have been available for a few months now on the Journal website (www.ehshomepage.com). To find an issue, click on the "search past issues" link on the header bar. You will find a table of "thumbnail" images of all our past issue covers; click on the issue you want to open. Each issue can be downloaded as a compact PDF file (4 to 5.5 M in size). Archived past issues are available to all, but to view "current" issues, you must be a subscriber to the paper version of the Journal. Look at your address label to find the user name and password. If you don't have the password on your current label, just give me a call (480-422-4430 x42).

One of the nice things you can do is searching - there is a "Google" powered search feature on the "search past issues" page. This will help you locate items in most past issues. Current issues may not yet be cataloged by Google.

Sincerely,

Jim Thrush, M.S. Environmental Management

Journal of Environmental Management Arizona

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To the Journal : Letter's & email s

EDITOR:

My semester has begun and I am teaching our graduate Environmental Management course as well as the undergrad Environmental Management version here at Indiana University's School of Public and Environmental Affairs. I just wanted to thank you for your outstanding Journal material!!!

I use a number of articles (at least one from each issue) as real world examples of what these budding environmental management professionals should consider, as well as how they might "think first" when dealing with contemporary environmental issues. My grad students love them...and my undergrad students learn from them (they do not love anything which interferes with their weekends - which begin on Wednesday afternoons). In the last few years I can tell you that former students (now employed at all levels and sectors) give testimony to the legal, technical and regulatory program information from Arizona to be extremely useful. It is always comforting to hear my students weren't completely intimidated when they "jumped into the fire", and the Journal's practical examples help make that possible. Hey, you never know when one of these folks will become your boss ...right?

If only I had access to this material when I was with ADEQ Ed Fox would not have yelled at me so much...kidding. Keep up the great work!

Your Crusty, Dissenting - yet admiring, Ex Ombudsman,
MARC L. LAME, Ph.D.
Clinical Professor
Indiana University
School of Public and Environmental Affairs

EDITOR:

Just two words: MORE CROSSWORDS, MORE CROSSWORDS, MORE CROSSWORDS!

JEFF PAGE

Please mail, email or fax your letter to the editor:

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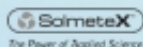
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Update on the Proposed Arizona Soil Remediation Standards Rule

Peter F. Allard, P. E., CIH and
Steven C. Kaminski, R. G.

In February 2006, we spoke at the Gatekeeper Regulatory Roundup on the informal draft Soil Remediation Standards Rule (Arizona Administrative Code R18-7-201 to 209) published by Arizona Department of Environmental Quality (ADEQ) in October 2005. On September 1, 2006, ADEQ formally released the proposed Rule for publication and announced the formal public comment schedule. Public hearings were held on October 11 and 12 in Phoenix and Tucson. The public comment period began on September 1 and ended on October 13.

The predetermined SRLs are

risk-based concentrations of chemicals that may remain in soil after remediation, expressed in milligrams per kilogram of soil (mg/kg). We compared the table of predetermined Soil Remediation Levels (SRL's) given for 567 chemicals in the proposed Rule with the SRL table in the 2005

informal draft Soil Rule. We found 245 revisions affecting about 168 of the chemicals listed. This article discusses these changes and updates our Gatekeeper presentation.

Risk Levels for Probable or Possible Human Carcinogens

In the October 2005 informal draft Rule, SRL's for probable or possible human carcinogens were calculated for a cancer risk level of 1×10^{-5} . However, if more than 10 probable or possible human carcinogens were present on a site, or the site was used or planned for use as a day care, school, health care, or long-term care facility, the more stringent SRL's for the risk level of 1×10^{-6} would apply. The current proposed Rule (September 2006) restores the 1×10^{-5} risk level for cleanup of multiple probable or possible human carcinogens on a site, and allows remediation of these chemicals to a risk level of 1×10^{-5} at health care and long term care facility sites. The current proposed Rule maintains the more stringent 1×10^{-6} risk level for school and day care facilities.

Overview of Revisions in the Proposed SRL Table

In the proposed Rule, a chemical may have up to four SRL's, depending on carcinogenic properties and the respective land use. Up to three separate residential SRL's (RSRL's) are listed for carcinogen target risk levels of 1×10^{-5} and 1×10^{-6} and for non-carcinogen risk. For residential land use, the lowest applicable



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standard applies. A non-residential SRL (NSRL) is included for each chemical.

The proposed SRL revisions we found are summarized below.

1. SRLs adjusted to two significant figures: 112 values for 102 chemicals
2. Additional SRLs for VOC's adjusted for soil saturation: 23 (A total of about 36 VOC SRLs are based on soil saturation)
3. New residential SRLs established for non-carcinogens: 18
4. Suspect carcinogen SRLs delisted because SRLs are lower for the non cancer effects of the chemical: 13
5. Non-residential SRLs of 1,000,000 mg/kg added: 2
6. Bromate and chloroform added as carcinogen risks

Significant Revisions to the October 2005 Draft SRL's

Significant changes to SRLs were made in the proposed Rule for some of the chemicals that we believe are likely to be found in soil or groundwater in Arizona.

Some proposed SRLs increased (made less stringent) from the 2005 draft SRLs, including barium and compounds, cadmium and compounds, beryllium and compounds, methyl isobutyl ketone, methyl-tertiary-butyl-ether, 1,2-dibromomethane, toluene, and the carcinogen SRL and the NSRL for trichloroethylene.

Some proposed SRLs decreased (made more stringent) from the 2005 draft SRLs, including the non-carcinogen RSRL for trichloroethylene, malathion, methyl ethyl ketone, and vinyl chloride.

Potential Impact of the Proposed Rule Changes Relative to the 1997 Rule

Inclusion of soil vapor and soil moisture in the definition of soil is a significant proposed change from the existing rule. The methods ADEQ will use to determine soil concentrations from soil vapor concentrations are not described in the Rule, but they will determine the impacts to interested parties. This issue is compounded by the proposed reduction of SRLs for some individual VOC's based on estimated soil saturation capacity.

The elimination of SRLs for total petroleum hydrocarbons in the C¹⁰ to C³² carbon range (TPH) will alter the common use of TPH tests to screen soils of unknown source/character. ADEQ may alter their guidance for programs including the Underground Storage Tank program and Drywell Investigations. Instead of TPH, polynuclear aromatic compounds (PAH's) will often be evaluated. The change may significantly reduce the duration of remediation for sites that involve releases of gasoline, diesel fuel, or similar products. It is unknown if or how this change might affect the solid waste rules for

petroleum contaminated soil.

The reduced (more stringent) risk tolerance for suspect carcinogen compounds at school and day care facilities will likely increase the cost for development and/or remediation of these sites, particularly in or near former agricultural areas.

More stringent NSRLs for lead, antimony, selenium, silver and other total metals will increase the cost and frequency of remediation at sites involving these metals. Similar changes will affect sites involving PAH's, including benzo(a)pyrene and others.

Polychlorinated biphenyls (PCB's) have been split into two classes, for low and high risk, generally based on the relative percent of chlorine atoms in the compound. Clarification of this issue will be needed, because the classification of individual PCB compounds is not clearly defined in the proposed Rule.

The increase of the SRLs for beryllium is likely to reduce the number of projects that require evaluation of the site specific background concentrations of beryllium.

Summary and Conclusions

We believe the most significant change in the proposed Rule is

Continued on page 19



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news briefs

Maricopa County Violators Pay \$276,713 in Air Quality Violations

❖ The Maricopa County Air Quality Department announced recently that \$276,713 in air quality violation settlements were made during the month of September 2006. A list of settlement cases is available on the county website (www.maricopa.gov/aq), including the

following two:

Procter & Gamble Manufacturing Co signed a settlement agreement for \$11,390 for three air quality violations for the company's failure to comply with air quality permit conditions by testing specific equipment. The location of the violation occurred at

the company's business location of 2050 South 35th Avenue in Phoenix. The Procter & Gamble Manufacturing Co is required to pay the \$11,390 settlement fee by October 5, 2006.

Desert Sun Fiberglass signed a settlement agreement for \$18,200 for failure to submit an annual compliance certification to the Air Quality Department. A certification is expected to certify a company's compliance with air quality rules and regulations including emission limitations, standards or work practices. Desert Sun Fiberglass paid the \$18,200 in full on September 29th.



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Maricopa County Air Quality Dept Customer Services has Moved

❖ Maricopa County announced that its Air Quality Dept. Customer Services has moved to 501 North 44th Street, 2nd floor. Parking is available in the parking garage, level 2.

Maricopa County One Stop Shop services include: Air quality billing, Air quality fee collection, Air quality permit application intake, Dust (Earthmoving) permits, General permits, NESHAP permits, Non-Title V permits, Open burning permits, Title V permits, Vapor recovery decal applications.

One Stop Shop business hours are Monday - Friday from 8:00 a.m. to 5:00 p.m. excluding major holidays. Permit applications must be in queue by 4:30 p.m. to be processed by the close of business at 5:00 p.m. the same day. For information: www.maricopa.gov/aq, or: 602-506-6010.

EPA Removes 19th Ave Landfill From Superfund List

❖ The U.S. Environmental Protection Agency announced recently it deleted the 19th Avenue Landfill Site in Phoenix, Ariz. from the National Priorities List of Superfund hazardous waste sites.

The EPA and the state of Arizona determined that no further cleanup activities are necessary to protect human health and the environment. Further cleanup measures, other than on-going maintenance and reviews, are no longer necessary.

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the Superfund program achieves results," said Keith Takata, Superfund division director for the EPA's Pacific Southwest region. "The city has done an excellent job to ensure that this former landfill property no longer poses an environmental or public health threat."

The site, located by the Salt River, is a closed landfill owned by the city of Phoenix. In 1946, the landfill opened to accept municipal wastes, as well as hazardous and industrial wastes that may have included pesticides, solvents, and medical wastes.

The city operated the landfill from 1964 until 1979 when the Arizona Department of Health closed the landfill after several floods from the Salt River intermittently covered the landfill with water. In May 1978, flood water washed out refuse from portions of the landfill. The landfill was added to the NPL in 1983.

Clean up actions for the site included:

1. Building levees placed along both north and south banks of the Salt River at the landfill site to provide for flood protection;
2. Widening the river to a constant width of 600 feet near the landfill to withstand a 100-year flood;
3. Placing a soil cap and a vegetative /erosion layer to prevent rain water from getting into the landfill;
4. Building landfill gas collection and treatment systems;
5. Monitoring landfill gas, ambient air, and groundwater; and
6. Developing a contingency plan to address potential groundwater impacts.

The city of Phoenix will continue to maintain the drainage and levee system, monitor groundwater and landfill gas, and conduct routine operations and maintenance. The Arizona Department of Environmental Quality will continue to oversee activities at the site and conduct a formal review every five years to ensure the protectiveness of the cleanup.

The EPA also removed the Luke Air Force Base from the NPL in April 2002. Currently, there are eight Arizona sites that remain on the NPL.

The EPA designates sites that may present a significant risk to public health or the environment as Superfund sites, qualifying them for federal cleanup funds. For more information on the EPA's Superfund program, please visit: <http://www.epa.gov/superfund>

\$10,000 Settlement Announced for Illegal Asbestos Dumping in Yuma

❖ Arizona Department of Environmental Quality Director Steve Owens and Attorney General Terry Goddard today announced a consent judgment that requires Yuma resident Peter Auza to pay \$10,000 for illegally dumping asbestos containing waste material (ACWM), a violation of Arizona's env. laws.

In 2003, Auza purchased several trailers that contained

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regulated amounts of ACWM. Rather than properly dispose of this material, Auza illegally dumped it on privately owned property, burning a portion of the ACWM, in violation of state and federal laws.

ADEQ inspectors found unsealed ACWM disposal bags, as well as visible emissions due to burning of ACWM on the site. Because Auza failed to comply with state and federal asbestos regulations governing the handling and disposal of regulated ACWM, ADEQ issued a Notice of Violation in 2004 and filed a complaint in Maricopa County Superior Court.

"Because asbestos is a hazardous material, handling and disposal of it must be conducted carefully and in accordance with the law," Owens said. "The penalty reflects the serious nature of the violations."

In addition to agreeing to pay the \$10,000 civil penalty, Auza assisted efforts to clean up and properly dispose of the ACWM and ensure that dumping will not occur again on the site.

"Illegal dumping is a problem that affects public health and our environment, as well as having a negative effect on property values," Goddard said. "We must enforce the law to discourage illegal dumping to protect our families and neighborhoods."

The consent judgment is subject to court approval.

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Regulatory Developments:

Legal News You Can Use
Will Return Next Issue!

Mike and his wife are busy tending to triplets born July 7th! Congratulations!

Mike C. Ford, Attorney

Crossword Challenge:

Theme: Environmental Safety

Here's the second installment of the Journal's crossword puzzles, relating mostly to environmental safety. Do you want to see more EH&S related puzzles? Was this too easy? Too hard? Let us know - 480-422-4430 x42.

Across

1. Toxin excreted by a microorganism into the surrounding medium
4. Blasting process to clean surfaces using sand, alumina, or steel grit
7. Watt-second
8. Short-term health effects
9. Injury brought about by an outside force
10. Unit of electrical resistance
12. Electrically charged atom
14. Distance between floor and knee/seating surface
16. One dyne acting through one centimeter
17. Bruisitis of the knee joints, common in mining
21. Turns the litmus paper red
23. Any substance that emits radiation
25. Ability of substances to stick together
27. Pertaining to the lungs
28. OSHA standard protecting hazardous waste workers
30. Severe cramping pain in or around the abdomen
33. Fuel element for a nuclear reactor
35. Unit of illumination
37. Quantity of matter
38. If a generator has two properties that are _____ he can move hazardous waste from one to the other.
39. Machine tool used to cut wood or metal by rotation of the workpiece
41. Turns the litmus paper blue
43. 100,000 Btu
45. Clothing or other substances that can absorb and transmit contaminants
46. Pressure-equalizing chamber
50. A deduction of weight, made in allowance for the weight of a container or medium
51. Persistent or repeated
52. Particle, resulting from nuclear reactions, that carries

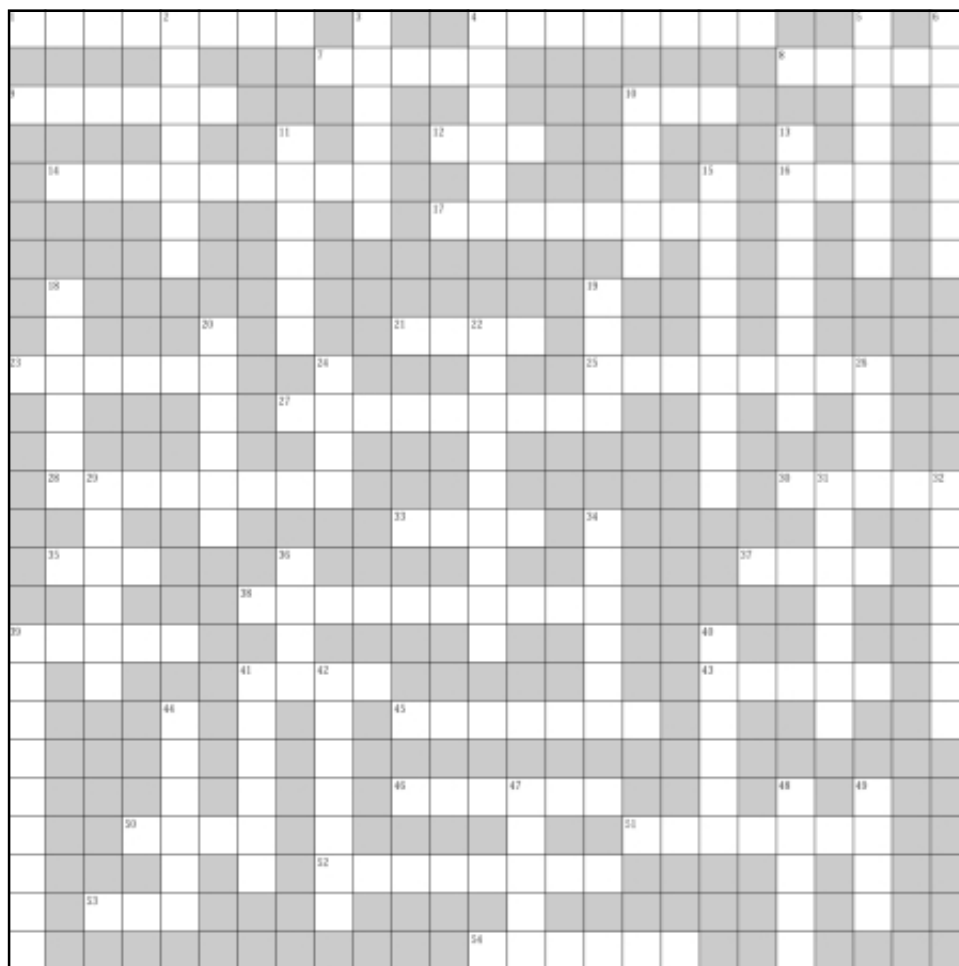
energy away from the system but has no mass or charge and is absorbed only with extreme difficulty.
53. ACGIH's advisory biological limit value
54. Fundamental temperature scale

Down

2. Voltage equals current times resistance
3. Small mass of rounded or irregularly shaped cells or tissue
4. Microorganisms that require the presence of oxygen
5. Anything that can cause a change in a living cell's genetic material
6. Mass to volume ratio
10. This form of a common gas is hazardous at ground level, but it is useful the stratosphere.
11. Ion detecting counter
13. Death of body tissue
15. Device for measuring air velocity
18. Cuts non-round holes
19. One joule of absorbed radiation per kilogram of matter
20. Damage or abnormal change in a tissue or an organ
22. Harmless
24. Thin, rough edges of a machined piece of metal
26. The concentration of a substance at which exposure produces no evidence of injury or impairment
29. Sensitivity of receptors used in hearing/vision
31. Independent OSHA

- reviewer
32. Negative electrode
34. Large group of similar cells forming a structural component
36. Unarousable unconsciousness
39. White blood cell
40. Partial unconsciousness
41. Substance that resists change in pH
42. Material that removes toxic gases and vapors from inhaled air
44. Compound that can neutralize an acid and form a salt
47. Unwanted sound
48. Positive electrode
49. Advisory group of scientists and professionals that make recommendations for radiation protection

Answers: Find KEY to puzzle at www.ehshomepage.com. Link is at bottom of the homepage.



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21605 N. Central Ave. Phoenix, AZ 85024

Perspective on: Gatekeeper Regulatory Roundup

The Arizona environmental community is always changing, with people moving into the state, others changing careers, and others just entering the field. So I think it is worthwhile occasionally to look back on some of the major established organizations and events and provide a little background. For this issue, I asked Lisa Culbert, McPhee Environmental Supply, LLC, for a background on the "Gatekeeper Regulatory Roundup" conference. EDITOR

by Lisa Culbert

The Third Annual Gatekeeper Regulatory Roundup conference is right around the corner, scheduled to be held February 20-21, 2007 in Scottsdale, Arizona. It is amazing to reflect on its humble beginnings compared to the great success it has become.

Originally the Gatekeeper and the Regulatory Roundup were two different events held at separate times of the year. The first Regulatory Roundup event was hosted by Rich Polito in 2000 when he managed the Maricopa County Small Business Environmental Assistance Program (MCSBEAP). Rich invited EPAZ (Environmental Professionals of Arizona) to participate as a co-sponsor and then asked EPAZ to take over the coordination of the event, pledging MCSBEAP's continued support. MCSBEAP continued to co-sponsor the event with EPAZ until 2003. Historically, the Regulatory Roundup provided timely presentations regarding regulatory changes, how industry was responding and implementing those changes, all while ending the day with a fun cocktail mixer and wonderful networking opportunity.

The Gatekeeper was hosted by the Arizona Emergency Response Commission (AZSERC) and held at the Army National Guard at Papago Park since 1990. Historically, the Gatekeeper provided annual updates for all those around the State that were responsible for responding to emergencies. Both events were always well attended, but as Dan Roe, Executive Director of AZSERC looked to the future, he knew resources to continue hosting the Gatekeeper would be limited within AZSERC so he went looking for other organizations that might be willing to partner and continue the good work and great information that those that attended Gatekeeper had come to rely on. Thus, the joining of EPAZ, AZSERC and the Thunderbird Chapter of the Academy of Certified Hazardous Materials Managers (ACHMM) as co-hosts for the Gatekeeper Regulatory Roundup. Since the three organizations joined forces in 2005 to co-host the annual Gatekeeper Regulatory Roundup, we have been fortunate to see tremendous interest and growth. We owe that to all the great environmental and emergency management professionals that work day in and day out in our industry. These folks keep our industries compliant with regulations, respond to emergencies, provide remediation and testing services, and so much more! Thanks to the support of all of you, the proceeds of the conferences have allowed EPAZ and Thunderbird ACHMM to provide scholarships to several very deserving students that may soon be working along side of any one of us.

Associations Pages

Valley Forward



**Jared Diamond to Address
Valley Forward on
December 1**

For information, call
(602) 240-2408 or visit
www.valleyforward.org.

How Mankind's Relationship To The Environment Can Result In Our Extinction Or Survival

What can we learn from the demise of past civilizations that will help us ensure a healthy future? That's the question Jared Diamond, a Pulitzer Prize winning author, scientist and educator will answer at Valley Forward's 37th Annual Luncheon on Dec. 1.



*Diane Brossart,
President*



The author of "Collapse" and "Guns, Germs and Steel," Diamond will address some 600 business and civic leaders from 11:30 a.m.-1:30 p.m. at the Arizona Biltmore Resort in Phoenix. He will talk about how the existence and survival of all ancient and modern cities is determined by their relationship to the environment. He will beseech the question: What about our society today? What can we learn about our future from past civilizations?

A professor of geography at the University of California, Los Angeles, Diamond is the recipient of numerous awards and is recognized globally within the scientific community. His perspective on how societies recognize or ignore, solve or fail to solve environmental challenges has captivated his audiences worldwide. For info. call (602) 240-2408.

American Society of Safety Engineers Southern AZ Chapter

For information:
visit <http://southaz.asse.org>

The Southern Arizona Chapter of the American Society of Safety Engineers, as part of the Southern Arizona Safety Council, enjoyed an entertaining and interesting meeting on August 15, 2006.

Our featured speaker, Lt. Col. Doug "Odie" Slocum, of the 162 FW of the Air National Guard talked about "Human Factors Design and Error Reduction". He reminded us of the most subjective, unpredictable resource with which we work – the Human Resource. A great point to remember is that we all have limitations that vary from day to day based on our physiological, psychological and intellectual point at that particular moment.

Be sure to come to Tucson on October 17 and 18 for the "Safety Works: Safety Expo 2006". The cost is only \$65.00 for two full days of presentations, networking information you can use now to make your workplace safer. For registration information, go to the <http://www.scfaz.com/> and click on the link "Because Safety Matters".

*Shari Di Peso,
Secretary*



AZ Chapter Semiconductor Environmental Safety & Health Association

Contact Information:
www.seshaonline.org

The 3rd quarter local AZ SSHA chapter meeting was held at the Macro Technology Works facility in Tempe. Topics of presentation at this meeting included: Pandemic Planning, Managing a Hoist/Crane Program and Water Reuse Projects. The topics were presented by local EHS personnel in the semiconductor and electronic industries.

Currently, the AZ SSHA steering committee is finalizing the details for a one day mini-conference planned for November 14, 2006. The conference will be held at a local hotel with presenters covering emerging EHS technologies and issues. Mini-conference attendees will be eligible to receive certification points from BCSP and ABIH. More information will be forthcoming soon, regarding this conference.

For information about membership please see our website at www.seshaonline.org.

*John Bucciarelli,
President*





*Bob Estes,
President*

Greetings from Southern Arizona!

The current board of SAEMS has been in place since the end of June, so we're about four months into the fiscal year and a lot has happened so far! The board has been planning ways to spice up our monthly luncheon meetings and we have attended to some internal policy development. This year is our 20th Anniversary, so we're planning something very special

to commemorate that milestone! We conducted our quarterly Adopt-A-Highway cleanup on Saturday, September 9 – 13 people picked up 36 large bags of roadside trash. The next highway cleanup event is scheduled for Nov. 11. Annual cleanup events for the Santa Cruz River and a local illegal dumping site are being scheduled by our Trash-n-Bash Committee for Spring, 2007. About 80 people attended the annual Pollution Prevention (P2) Seminar, held on Sept. 28 – my congratulations to the seminar committee! Upcoming events include a Gatekeeper seminar (Jan./Feb.), the Earth Day Festival (April) and the annual RCRA seminar (May). SAEMS holds a monthly luncheon meeting at 11:30 on the last Wednesday of every month (except Nov. and Dec.) at The Manning House in downtown Tucson. You can find tons of useful info about us on our website “www.saems.org”.

SAEMS



VISIT OUR WEBSITE AT
WWW.SAEMS.ORG



*Peter Kroopnick,
President*

Big changes are occurring at AHS! Our newsletter editor, Leilani Bew, after over 13 years of honored service has decided to move her career forward in different directions and will no longer serve the Society in her present capacity. In addition to producing the newsletter, Leilani also served as information manager and membership coordinator. Thank you Leilani for all your dedicated service.

Some of Leilani's duties have now been passed to Jeanie Merideth of Merideth Association Management, LLC. Jeanie can be contacted at (520)299-6787 Fax: (520)299-6431 jgmerideth@aol.com. She will be the major contact for processing and sending email notices of interest to AHS members; maintaining the membership and mailing list; preparing the newsletter; and serving as the first point of contact.

We have also just completed our Annual Symposium event attended by over 200 people and are planning the 2007 20th anniversary symposium in Tucson and the 6TH International Symposium on Managed Aquifer Recharge (ISMAR6) in Phoenix.

We still have openings on the various chapter, corporate and special event boards for officers and volunteers. So if you want to make a difference in our community and further your career through networking with your peers, regulators and consultants, give me (or any board member) a call (602-659-3235).

Arizona Hydrological Society



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



*Chuck Paulausky,
President*

Thunderbird Happy Hour- The Chapter has started a monthly social/networking/beer-tasting event, which will be held at a different location on first Thursday evenings. If you are on our list, you will receive an email before each event. Upcoming locations: Nov. 2, Sonora Brewhouse, central Phoenix; Dec. 7, West Valley, TBD.

Interested in becoming a CHMM? The Thunderbird Chapter is once again offering the CHMM Overview Course next April in Phoenix. We are also hoping to offer the Course in Tucson again, as part of the Waste Management Symposium.

Mark your calendars for the 3rd Annual Gatekeeper Regulatory Roundup on Feb 20-21, 2007! The Thunderbird Chapter will once again team with EPAZ and AZSERC to offer a bigger and better event.

Also, be sure to watch for information about this year's ACHMM Thunderbird Chapter Scholarship applications.

The ACHMM/EPAZ monthly lunch meetings are 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.

ACHMM Thunderbird



Calendar Items

Nov. 9, 2006 Luncheon:
Tier II Reporting Update & Overview- Dan Roe, AZSERC

Dec. 14, 2006 Luncheon:
RoHS Basics and Application- Pat Collins,
Isola Laminates

Feb. 20-21, 2007
Gatekeeper Regulatory Roundup, Scotts., AZ

Feb. 26-Mar. 1, 2007
Tucson CHMM Overview Course (Tentative)

April 16-20, 2007 Phoenix CHMM Overview Course

EIA-AZ



Dear EIA-AZ Member/Non-Member:

We are now more than halfway through the year and EIA-AZ continues its mission of disseminating environmental information throughout our industry. Your 2006 Board of directors has worked tirelessly to ensure that the Arizona Chapter of EIA is the best in the nation and we will continue as the year progresses.

As promised, we will produce newsletters that contain valuable information about the asbestos, lead, microbial and industrial hygiene industries and keep you informed of EIA-AZ activities. The regulatory seminar program has conducted nine (9) regulatory seminars throughout Arizona and in Nevada and Colorado. Seven (7) more regulatory seminars are scheduled this year. EIA-AZ's brand new web-site is up and running and should prove to be a great information resource.

Most importantly is EIA-AZ's upcoming Southwest Regional Conference in Las Vegas, Nevada on October 19 and 20, 2006. The conference will include a day and a half of technical presentations and a half-day "vendor spotlight". I encourage all members to attend and to spread the word to others as the conference will not be successful without a good audience. To be a vendor, or if you have any questions, please contact us at info@eia-az.org.

Chris Gates,
President



Arizona Environmental Strategic Alliance



The alliance:
WWW.AZALLIANCE.ORG

arizona resource exchange:
www.azrex.org

Performance Track Update: The Alliance, EPA Region 9, and ADEQ will co-host a combined Performance Track / Alliance Membership event on Tuesday, April 3rd, 2007. Performance Track membership offers significant regulatory advantages to participating businesses. Current Performance Track and Alliance members, including Ping, the City of Scottsdale, and Intel will be on hand, along with ADEQ and EPA representatives, to share their experiences, answer questions, and provide assistance to potential members.

If you are considering joining Performance Track or the Alliance, this is the event to attend! For more info, contact the Alliance (480-422-7392).

Arizona Resource Exchange Update: The Alliance is expanding the Arizona Resource Exchange project! Our website (www.azrex.org) continues to be an important component of the project, but we are expanding to include direct assistance to businesses and organizations to help identify users and suppliers of reusable / recyclable materials — that is, to "match" users with suppliers. Sue Diaz, formerly of the ADEQ Pollution Prevention Department, is working with the Alliance as Project Administrator. Sue can help you assess your waste streams, and help search for users that may need your waste materials. No fee is charged. Contact Sue at azreuse@cox.net or call 602-325-4705. This expansion was made possible through an SEP grant from Earth Protection Services, Inc. (EPSI).

Rob Barnett,
Chairman



EPAZ



Our September meeting featured Jami Davis of PSC and a presentation regarding the new Federal hazardous waste manifest. Ms. Davis explained the differences between the old and the new manifests and how the new manifest takes precedence over previous state versions, such as the manifests that California and Texas required for waste hauled within their states.

Our October meeting featured Jim Brohamer, Fleet Management Supervisor for the City of Flagstaff. Jim presented information about Biodiesel fuels, applications, environmental impacts, and the City of Flagstaff Biodiesel program. In 2003, the City of Flagstaff became the first recognized city in the southwest to commit its entire diesel fleet to B20 blend biodiesel. The City received the Clean Cities Coalition Award for outstanding contributions in promoting and using biodiesel and in 2004, Jim received the City Manager's Excellence Award for promoting and instituting the biodiesel program.

Looking forward, our November meeting will feature Dan Roe, Executive Director of the Arizona Emergency Response Commission (AZSERC) and an update on Tier II Reporting and our December meeting will feature Patrick Collins from ISOLA and information about RoHS Basics & Applications.

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 Wed. 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.

Eddie Martinez,
President





Sustainability and Sustainable Development

Nicholas R. Hild, PhD.

Petrolism and Our Addiction to Oil

New York Times columnist Thomas L. Friedman recently wrote about what he called, *"our nation's biggest threat to America..."* and coined the word, *"petrolism."* Friedman defined it this way:

(Petrolism) "...is corrupting, anti-democratic governing practices—in oil states from Russia to Nigeria and Iran—that result from a long run of \$60-a-barrel oil...the politics of using oil income to buy off one's citizens with subsidies and government jobs, using oil and gas exports to intimidate or buy off one's enemies, and using oil profits to build up one's internal security forces and army to keep oneself ensconced in power, without any transparency or checks and balances."

Friedman didn't directly comment on the Big Oil companies who got the contracts to rebuild the refineries in Iraq and get the wells pumping again, but we can read between the lines.

What got me thinking about Friedman's rant was part of President Bush's State of the Union message where he tried to mollify energy critics by throwing out a carrot, that went something like: *"...in even less time than it took to put a man on the moon, we will achieve relief from our dependence on oil in ...six years..."*

I expected some inkling in the President's speech about a game plan to achieve that goal, but didn't hear one. So it was pretty bold rhetoric in light of Congress not yet being able to pass meaningful legislation to support funding-for-energy-alternatives-research in the nearly six years the Bush administration has been in charge. (I hesitate to call it, ...being in 'control'). If last year's *welfare-for-oil-companies-*

and-special-interests energy bill was an example of how the strategy for energy independence *in six years* will be played out, the Bush administration's legacy will surely rank their failure to deliver on this promise as equally devastating to our future generations as the failure on his promise to find Bin Laden and root out terrorism.

So, what does all this have to do with sustainability? Everything. Because, when history records our successes and failures over the first decade of the new millennium, the failure to properly address petrolism and take positive steps to ensure our own energy independence (from oil), will be seen, Friedman further asserts, *"...as one of the most cowardly and un-American acts perpetrated..."* during our (long-running) "war" on Iraq.

Here's the sustainability part: Friedman's bottom-line: *"...real patriots, real advocates of spreading democracy around the world, live 'green.'"* *"Green,"* he said, *"is the new red, white and blue."*

Powerful stuff, for sure. But, the fundamental point Friedman missed, is the same thing I have criticized before about typical environmentalism rhetoric: he doesn't provide an action plan to eradicate his "petrolism." In today's environmental arena, it's unacceptable to cry and whine and point fingers and place blame without also providing a solution. We have all learned by now, the cliché that, *'if you aren't part of the solution, then you are part of the problem.'*

So, here's my proposal: we (you and I) need to be lobbying our politicians today if we are going to **really** achieve independence from oil anytime soon. Those of us (members of the choir) who understand why we need to craft legislation that **really** works toward a sustainable energy policy that truly will achieve energy independence in the next few years must be like Paul Revere, sounding the alarm and carrying the message.

We can do that in several ways, but the most effective short-term strategy is by how we influence voters in the upcoming mid-term congressional elections. This is the one, and perhaps only time, when imbedded politicians actually listen to their constituency. Thus, the time is now, to heavily lobby those influential congressmen who are up for re-election and those who would be their replacements, to run on platforms that contain **real** sustainable energy policy that will start the "six year plan" rolling.

In addition to convincing our policy-making politicians what is needed, we also must convince the voting public that oil independence issues are as critical to our future as the war on terrorism, so we can vote those rascals out of office who 'don't get it.' Besides wiping out 'petrolism' worldwide, this plan will have the most immediate impact on energy independence for 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.

It's All About Chemistry

Air Pollution from Biodiesel



Larry Olson, PhD.

Although the price for gasoline has recently dropped from its record highs this past summer, no one disputes that in future decades the cost of petroleum will inexorably rise. That will create a new climate for biofuels such as ethanol and biodiesel, which thus far have not been price competitive with petroleum based fuels. But is there also an air quality benefit from moving away from conventional gasoline and diesel fuels?

Biodiesel is derived from vegetable oils or animal fats. These are lipids, which consist of long chain fatty acids (such as C16, palmitic acid or C18, oleic acid) which react with a glycerol molecule to form an ester called a triglyceride. The properties of the triglyceride depend upon the fatty acid. Animal fat (lard) is generally composed of saturated fatty acids, meaning all the C-C bonds are single bonds. Vegetable oils, however, contain one or more unsaturated fatty acids; that is there are C=C double bonds (polyunsaturated fats). Naturally occurring fats have the double bond in the cis configuration and that makes the packing between triglyceride molecules less favorable which decreases the melting point. So vegetable oils are liquids at room temperature and lard is a solid.

The molecular weight of a vegetable oil is so high that properties such as vapor pressure, flash point, and viscosity make it unsuitable for use directly in an engine (although Rudolph Diesel used peanut oil in the late 1880s). But it is possible to replace the ester bond

to glycerol with one to methanol or ethanol (a process called trans-esterification). The resulting material is called biodiesel, and because the triglyceride molecule has been broken up into three individual esters of fatty acids, the properties are much closer to conventional diesel. One can burn pure biodiesel in existing engines, or different blends of petroleum and biodiesel.

Since the sulfur, nitrogen, and aromatic content of biodiesel is much lower than conventional diesel fuels, there is a significant improvement in emissions. Carbon monoxide, particulate matter, hydrocarbons, air toxics and sulfur oxide emissions are all significantly reduced with biodiesel. However, nitrogen oxides are increased slightly as the blend of biodiesel increases. The table below shows results from a 20% by volume soybean based biodiesel added to an average conventional diesel fuel (from <http://www.epa.gov/otaq/models/analysis/biodsl/p02001.pdf>).

	Percent Change in Emissions
NOx	+2.0
PM	-10.1
HC	-21.1
CO	-11.0

McCormick, et al (Environmental Science & Technology, 2001, 35, 1742-1747) compared biodiesel derived from various vegetable oils and animal fats, as well as from pure saturated and unsaturated fatty acids with conventional petroleum diesel. They found that higher degrees of unsaturation (more C=C double bonds) were correlated with lower cetane numbers and higher NOx emissions. Longer chain fatty acids also produced more NOx. Particulate matter (PM) emissions were not affected by the number of C=C double bonds or chain length. Making biodiesel from methyl or ethyl esters did not affect NOx or PM emissions. Thus, it would appear that plant derived biodiesel increases NOx emissions more and decreases PM and CO less than animal derived biodiesel, but the overall impact of both sources is an improvement over petroleum diesel fuels. There may be more reasons than the increasing cost of conventional diesel fuels to take a closer look at biodiesel.

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

Soil Remediation Standards Rule

Continued from page 9

the elimination of the draft risk level of 1×10^{-6} when 10 or more suspect carcinogens are present at a site. We noted several changes that propose increased (less stringent) SRLs for selected metals and solvents, and other changes that decreased (made more stringent) SRLs for several VOC's.

We believe the three most significant changes in the 2006 proposed Rule versus the 1997 Rule include:

1. More stringent SRLs for some VOC compounds combined with the inclusion of the soil vapor and soil moisture in the definition of soil,
2. Elimination of the SRLs for TPH, and
3. The reduced risk tolerance for suspect carcinogens at schools and day care facilities.

We caution that the proposed Rule is a work in progress and subject to change until final approval. We recommend that the new Rule be reviewed, and the progress of the rulemaking process and the implementation of the proposed rule be followed by all with an interest in soil characterization and remediation at Arizona sites.

References

1. ADEQ, Notice of Proposed Rulemaking, Arizona Administrative Code Title 18, Chapter 9, Article 2, Soil Remediation Standards, September 1, 2006.

Peter F. Allard, P. E., CIH has over 35 years experience on a variety of environmental and chemical engineering projects. He was a co-founder of SA&B, which merged with Geotechnical and Environmental Consultants, Inc. to form GEC-SA&B. Pete can be reached at 602-393-4800, or by email at pallard@gecsab.com

Steven C. Kaminiski, R.G., is a registered geologist with 19 years of experience on geotechnical and environmental projects for industrial, commercial, and governmental clients. Steve can be reached at 602-393-4800, or by email at skaminski@gecsab.com.



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LFR Inc., Scottsdale office staff. See below for photo key.

Company Focus: Scottsdale Office

LFR Inc.

The Journal continues with the third in our series of articles on Arizona businesses involved in environmental management with "Focus on LFR Inc."

What makes LFR special? If I were to sum up in a few words the highlights of this focus article on LFR Inc., Scottsdale Office, the words that jump to mind are: staff skill and company resources; cool environmental modeling and analysis techniques; teamwork; and dedication to clients and community. But that sounds a bit like a radio commercial, so I won't do it. I'll just dive in directly and let you sum it up for yourself.

BACKGROUND

LFR opened its doors in the Scottsdale Airpark in 1995, and since then has provided investigation and remediation services at some of the largest and most important environmental projects in Arizona, including the North-Indian Bend Wash Superfund site, several State Fund (WQARF) sites, and some of the

State's largest petroleum spill sites. It has also provided pro-bono work on behalf of local communities with limited financial resources to protect and sustain precious water resources. LFR clients range from developers, municipalities, and tribal communities, to Fortune 500 electronics manufacturers and petroleum transportation and distribution services companies. The LFR Scottsdale office, serving Arizona, shares resources with 29 LFR offices nationwide.

STAFF EXPERTISE AND TEAMWORK

LFR describes its staff as "a different breed altogether". The 14 staff members at LFR Scottsdale specialize in the areas of geology and hydrogeology, environmental engineering and compliance, quantitative services, risk management and environmental liability transfer programs, air quality management, water resources, and litigation support/expert witness services. One-third of the staff are State-registered geologists. Three have specific expertise in computer modeling and performing 3-D visualization of groundwater flow, and contaminant fate and transport, within Arizona's unique geologic framework. Some are former environmental regulators who were involved in the development and enforcement of regulations affecting compliance and



Photo Key: LFR STAFF

1) Ned Overs, P.E., 2) Veronica Fennie (corporate), 3) John Kivett, R.G., P.G., 4) Michael Nesky, E.I.T., 5) Bradley Cross, R.G., P.G., R.P.G., 6) Sascha Arnold, 7) Eric Rogoff, P.G., C.E.G., R.G., 8) Sean Coury, E.I.T., 9) Mona Jaweed, M.A., 10) Vit Kuhnel, Ph.D., E.I.T., 11) Courtney Coffman, 12) Robert Forsberg, R.G., 13) Chris Hickman. NOT SHOWN: Douglas Fisher, E.I.T.

AT RIGHT: 3-D Graphic created by LFR. Image shows a solvent plume from a leaking sump at an airport: upper region illustrates soil-vapor PCE concentrations and groundwater concentrations. An aerial photograph and a 3D-Autocad DXF model of a McDonnell-Douglas MD-11 airplane were added for scale. See cover for full-page view of this graphic.

remediation, including Leaking Underground Storage Tanks. One has a doctorate in civil engineering and is an expert in geochemistry, while another is a Professional Engineer with 19 years of remediation experience spanning more than 5 Superfund sites in Arizona alone.

LFR believes its staff is what makes the office successful - and unique. "It's a culture thing," said Ned Overs, P.E., Principal Engineer and the office's Operations Manager who was instrumental in first opening the office back in 1995. "Everyone in this office works hard at being the best in his or her field, at sharing the knowledge, and at solving problems as a team. We all bring something to the table. And more importantly, we all recognize how each of our contributions together play a very important role in solving our clients' issues."

"The office definitely has some very unique capabilities," adds Brad Cross, R.G., P.G., R.P.G., Senior Vice President, and the Geosciences Practice Leader for LFR nationwide, who together with Overs started the Scottsdale office. "Between our three primary practice groups, Engineering, Geosciences, and Water Resources & Quantitative Services (WRQS), we can provide our clients with full-service capabilities. At the same time, however, we're set up as a company to share resources nationwide." Cross goes on to add that, as a result, LFR clients benefit from both the advantages of a local, full-service office that can respond quickly, and the built-in bonus of large-company resources and access to the company's top technical talent across the board.

WATER RESOURCES & QUANTITATIVE SERVICES (WRQS)

The WRQS group is one example of how LFR shares technical resources across the nation. This specialized group often collaborates with co-workers and clients to develop 3-D visualizations of analytical data for interactive analysis. Using aerial photographs, USGS topographic maps and digital elevation model data, GIS information and analytical data, WRQS scientists bring to life what volumes of data on a two-dimensional figure just can't convey. These are powerful applications of science and technology that have been used to develop "surgical" site characterization plans, support trial graphics, and to help achieve regulatory and stakeholder acceptance of remedial strategies. This issue's cover photo (see also the reduced image shown on this page) is a 3-D visualization of a solvent plume from a leaking sump at an airport. The upper region illustrates

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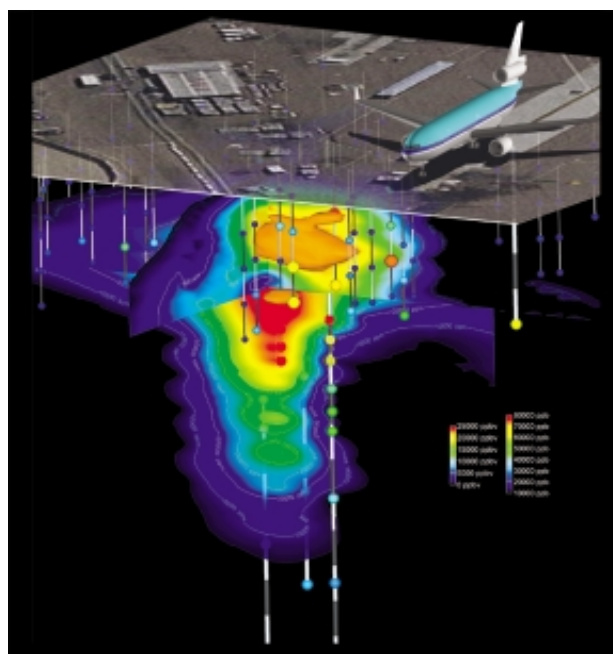
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soil-vapor PCE concentrations and groundwater concentrations. An aerial photograph and a 3-D Autocad DXF model of a McDonnell-Douglas MD-11 have been added for scale. An interesting and valuable benefit of the 3-D model is that it can be rotated and viewed from various angles, allowing an animated

Continued on page 22

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Continued From Pg 21

view of the 3-D boundaries and movements of a commingled plume.

COMMUNITY INVOLVEMENT

A business reveals its true character in how it "gives back" to the local community. Arizona is fortunate to have a number of businesses that are actively involved with the local environmental community, and LFR stands out in this respect. LFR staff regularly participate in local organizations and devote many hours of personal time working with organizations such as EPAZ (Environmental Professionals of Arizona) and AHS (Arizona Hydrological Society). John Kivett, R.G., P.G., Senior Geologist, has served as Vice President and Secretary for AHS, a non-profit organization dedicated to advancing hydrology and water resource research, planning and development. Co-worker Robert Forsberg, R.G., Senior Hydrogeologist, served as Board Member for the Phoenix Chapter, as well as Treasurer for two years, and has given technical presentations at the AHS Annual Symposia along with fellow staff members, Brad Cross, R.G., P.G., R.P.G., Senior Vice President/Principal Hydrogeologist and Eric Rogoff, R.G., P.G., C.E.G., Senior Associate Hydrogeologist.

But while the staff members dedicate a lot of time to the advancement of the core sciences they practice, there are other causes they emphatically support that have little to do

with air, water, or soil. At the top of that list is the Caitlin Robb Foundation, a charity named in memory of a little Tempe girl who died of neuroblastoma at the age of two. Founded 12 years ago by her father, a local developer who also happened to be a client, the foundation donates funds to pediatric cancer research programs and to organizations that serve pediatric cancer patients and their families. LFR Scottsdale has been a staunch supporter for nearly ten years now, participating in the organization's annual golf tournament, dinner, and silent auction, and also making an annual donation to the foundation on behalf of LFR.

So, what makes LFR Scottsdale special? I would say, it is good people with the environmental expertise and resources needed for the job, combined with a heart and concern for the community.

Journal staff appreciates the time and assistance received from LFR staff in creating this article, and especially the content contributions of Nicole Ihlenfeld, LFR Southwest Region Marketing Coordinator, and assistance with graphics from Eric Rogoff, R.G., P.G., C.E.G.

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*SAEMS and ADEQ
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The Southern Arizona Environmental Management Society (SAEMS) and Arizona Department of Environmental Quality (ADEQ) sponsored the annual pollution prevention seminar, this year entitled, "P2 Can Do" September 28th, in Tucson. Over 80 attendees were on hand to hear speakers, including Keynote Speaker, ADEQ Director Steve Owens, on various P2 topics.

Gail Bliss, ADEQ, and Syndee Wundrock, UMC, cheerfully MC'd the event. The seminar covered too many topics to list, but some of these included "P2 Through Waste Minimization", "Biodiesel on the Border", P2 at Davis Monthan, and P2 for Climate Change". Speakers included Monette Greer, TEP; Greg Newton, Veolia; Richard Carter, CARE; Frank Bonillas, HHW; John Korolsky, Phelps Dodge Safford, Inc.; Fred Cone, Ariz. Manufacturing Extension Partnership; Hans Huth, ADEQ; Rob Barnett, Ping, Inc.; Linda Kemp, Malcolm Pirnie; Brian Burke & Justin Gaines, U of A Grad Students; Margaret Bowman, Davis Monthan AFB; and Ben Crawford, Climate Assessment for the Southwest University of Arizona. For information visit the SAEMS website: www.saems.org.



ADEQ Director Steve Owens in Tucson Sept 28, 2006



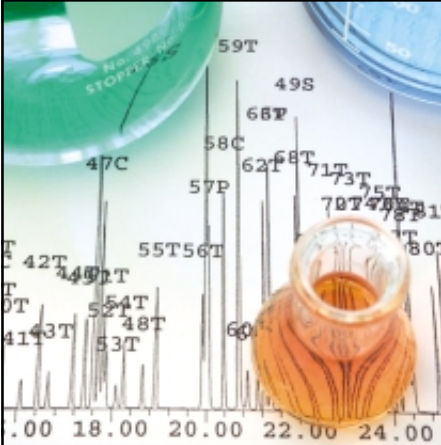
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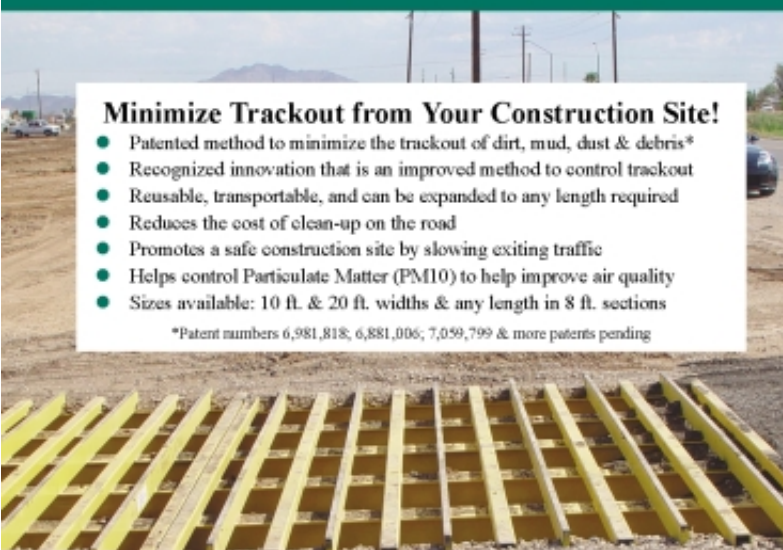


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PROSPECTING:

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The Environmental Industry's "Long Tail" Part I



Long tail economics is a relatively new concept introduced by Chris Anderson in 2004, and recently published in his book, The Long Tail: Why the Future of Business is Selling Less of More. The concept has received notoriety lately through a variety of media channels and looks closely at how technology has impacted the way buyers buy and sellers sell. It is most applicable to consumer goods and services, but I thought it might be interesting to see how this technology based evolution of business applies to our industry. And, it gave me an idea for my column! Part 1 explains the concept of the "Long Tail" and Part 2 will look at how it applies to our industry.



At its most basic, "Long-Tail" economics looks at the effect on buyer behavior in a given marketplace when given unlimited supply and how businesses sell and deliver goods and services when provided with infinite "shelf space". According to Anderson, until recent years, everything consumers could acquire was limited to what businesses could stock on shelves in storefronts within an accessible geographic area. Over time, stores grew by numbers and in physical size and companies soon realized that offering more, sells more. Retail technologies improved, supply chain logistics evolved and the "big box" store was born. But even a gazillion square-foot retail space in almost every city in the country has limitations on how much can be stocked, therefore limiting what consumers can buy. Enter the internet and Google. This changed everything.



Through the internet, consumers have access to products and services on a staggering scale, but what do buyers do with this

Joe C. Holmes

Continued next page



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Holmes: The Long Tail

Continued from previous page

unprecedented level of choice? Economists initially predicted that overwhelmed consumers would gravitate toward familiar products and services resulting in little change to the status quo. However, reality sees consumers embracing choice and purchasing further down the tail than ever expected. Popular products and services are still selling, but the degree that consumers are gobbling up the obscure niche items is what surprised economists the most. The graph (at left) shows the relationship between popularity and products and the "Long Tail".

On the supply side, we all know the 80/20 rule where 80 percent of revenue comes from 20 percent of the clients. Not in the Long Tail. Try 60/40 or even 50/50! The idea that less-popular, or niche products and services can be considered a growth area is attractive to developers of business. Technology has done nothing but make these products easily available and the response is causing business to think differently about inventories, marketing and selling. Niche products and services that have typically amounted to little, now warrant focus to help generate much needed revenue. It's the idea that a viable, sustainable business can exist selling a wide array of less-popular, or niche products.

Stay tuned for Part 2 of this column when we discuss how the Long Tail applies to the Environmental and Safety industry. Until then, thank you for reading and please keep the suggestions coming!

Joe Holmes is National Director of Sales & Marketing with Environmental Data Management. Joe can be reached by email at Joe.Holmes@edm-usa.com

Paul ausky: Stay Safe

Article Starts on Page 26

program. "Benchtop" or "tailgate" meetings can be very effective to help focus on specific safety issues or operations. These are quick, 5-10 minute meetings held for smaller groups, and can be incorporated into regular department or operations group meetings that you may already provide for your employees.

Safety training must not only be effective, it needs to be documented. From OSHA's viewpoint, if it's not documented, it did not happen! Always maintain records of all training provided, including the tailgate meetings, one-on-one training, classroom, and practical training using signed rosters, tests, etc. Retain these records, and set up a method of ensuring that periodic retraining is performed, as required by the specific OSHA regulations.

Chuck Paulausky, CHMM, is President of CP Safety & Environmental, President of the Az. Chapter of the Academy of Certified Hazardous Materials Managers, and a member of the Chandler Chamber and AZ Small Business Association Safety Committees. Chuck can be reached at: 480-694-1975, or by email at cpaulausky@cpsafety.net.

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Stay Safe

OSHA Requirements for Safety Training

Chuck Paul ausky, CHMM

During the 1930's, Greek General Metaxas was invited to try out a new "flying boat" during an inspection of an air base. He took the seaplane for a short flight, and while preparing to land on the airstrip, the base commander intervened. "General, it might be better to come down on the water, as this is a flying boat." Metaxas swerved away at the last moment, and safely landed on the water nearby. After landing, Metaxas turned to his host, saying, "Thank you, Commander, for saving me from making a fool of myself." Then he opened the door and stepped straight out into the sea.

A little training might have helped General Metaxas to avoid potential life-threatening injuries. Training is a key element in your company's safety program. It's very important to provide your employees with safety training before they start working for you, and whenever they take on a new operation, chemicals, or equipment.

The type of training required is specific to the type of operations being performed, and the regulations that apply. Most OSHA regulations include an employee training element of some type. Always review the regulations carefully to determine applicability and details of the training requirements. Failure to provide training is not only foolish; it poses a liability that could result in injuries and OSHA violations.

In-house training can take a variety of forms. Prepared, generic video/DVD's, PowerPoint presentations, and training booklets are useful tools, but aren't always effective when used alone. There are packaged training programs available that often combine formats. Providing a mix that includes hands-on demonstrations, and getting employees involved in topical discussions and activities is always a better way to communicate the information.

Practical safety training is a requirement of some OSHA regulations. This is hands-on training involving actual use of specific equipment or operations. A good example of this is training for forklifts and other equipment that fall under OSHA 29CFR 1910.178 for Powered Industrial Trucks. This regulation requires very specific classroom training, and "driver training," in which the operator drives a pre-planned course designed to test the ability to use the equipment safely under site-specific conditions.

Online classes are available, but should be reviewed prior to use, to make sure they are pertinent, effectively presented, and include testing to confirm that employees are learning the information.

Outsourced training is always an option. OSHA-authorized training is available for a wide variety of OSHA topics. 10-hour and 30-hour training programs are designed to meet the basic training requirements, and can often be customized to fit your specific operations and needs.

Formal classes are only a part of an effective training

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