

JOURNAL OF Environmental Management ARIZONA

The JOURNAL
CELEBRATES
FOUR YEARS in Publication!

Practical and Current information for Environmental, Health and Safety Professionals

**REGULATORY
DEVELOPMENTS:
WATERS REMAIN UNSETTLED
AFTER RAMANOS**
MIKE FORD: See pg 13

COMPANY FOCUS: **LIQUID ENVIRONMENTAL SOLUTIONS**

See pg 20

**EMERGENCY RESPONSE TRAINING
FOR MAQUILADORA WORKERS:
CATASTROPHIC
INCIDENT PREVENTION**

By HAL BERKOWITZ. See pg 8



**12+ Lessons Learned
in Environmental
Consulting**
David L. Kirchner: Pg 24

DEGREES IN TECHNOLOGY MANAGEMENT



- Environmental Technology Management • Emergency Management
- Operations Management Technology • Fire Services Management
- Graphic Information Technology • Global Technology & Development

*We offer professional faculty, state-of-the-art laboratories, industry affiliations,
and both undergraduate and graduate degrees in face-to-face and online formats.*

Department of Technology Management
7001 E. Williams Field Rd.
Mesa, AZ 85212
<http://technology.poly.asu.edu/dtm/>

ASU
ARIZONA STATE
UNIVERSITY
POLYTECHNIC
CAMPUS

480.727.1781

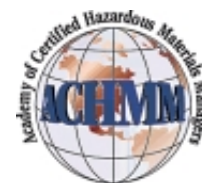
NATIONAL CHMM Overview Course

April 16-19, 2007 (Course), April 20, 2007 (Exam)

Presented by

ACHMM - Thunderbird Chapter

Location: TBD



Thunderbird Chapter
ACHMM

Why CHMM Certification?

Environmental programs are vital to public health and safety. The management of hazardous materials requires proven and unquestionable skill and competence. Quality control over professionals involved in programs of national importance and public safety is best accomplished through professional certification. The CHMM is one of the most widely-recognized.

This 4-day course offers an intensive review of environmental laws, regulations and health and safety principles for Hazardous Materials Managers in preparation for CHMM certification. Many EH&S professionals take the **CHMM Overview Course** to satisfy training requirements, enhance competence, and obtain information regarding rules and regulations. Course instructors typically include practicing EH&S professionals who have been selected from business, industry, academia, and government agencies.

National CHMM Overview Course Topics include:

- Chemical and Physical Properties of Hazardous Materials
- Sampling and Laboratory Analysis of Hazardous Materials
- Environmental Assessments
- Waste Minimization and Pollution Prevention
- Environmental Laws and Regulations
- Resource Recovery and Conservation Act (RCRA)
- RCRA Corrective Action and Treatment Technology Selection Guidelines
- Underground Storage Tank (UST) Management
- National Environmental Policy Act (NEPA)
- Hazardous Materials/Hazardous Waste Transportation
- Toxic Substances Control Act (TSCA)
- Clean Water Act (CWA)
- Safe Drinking Water Act (SDWA)
- Clean Air Act (CAA)
- Groundwater Contamination and Hydrology
- Storm Water Discharge Regulations and Oil Pollution Prevention Act
- Toxicological Principles
- Industrial Hygiene
- OSHA Requirements for Hazardous Materials Managers
- Radiation Principles and Mixed Waste Management
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- HAZWOPER and Emergency Response
- Emergency Planning and Community Right-to-Know Act (EPCRA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
- Management Systems and Tools

Registration for the **CHMM Overview Course** is separate from the IHMM exam application process.

The registration deadline for the **Overview Course** only is **April 6, 2007**.

For details, applications, and course fees: www.thunderbirdchmm.org

or call Dwight Clark @ (602) 243-1600 or dclark@ninyoandmoore.com



CHMM Certification Exam

(Friday, April 20, 2007)

The **CHMM EXAM** application must be received by IHMM at least six (6) weeks before the date of the examination. The application deadline for this exam is **March 15, 2007**. For details: www.ihmm.org or call IHMM at (301) 984-8969

to obtain an exam application and for additional information.

The Application Fee (\$90) and the Exam Fee (\$150) are payable to IHMM and are separate from the Overview Course fee.

Roundup 2007

2-Day Conference

February 20-21, 2007

Reception with
live entertainment by
"Edible Shabby"
Band members are local
environmental professionals!
sponsored by
Romic Environmental
Technologies.

Chaparrel Suites Resort
5001 N. Scottsdale Road
Scottsdale, Arizona

Visit www.epaz.org or
www.thunderbirdchmm.org for current
agenda, conference registration and
sponsorship/exhibitor registration.

Building Bridges Gatekeeper Regulatory



Keynotes

Edward M. Ranger, ADEQ Administrative Counsel
"Environmental Impacts Due to Arizona
Border Issues"

Louis "Lou" B. Trammell, Director, Arizona
Division of Emergency Management;
Chair, Arizona Emergency Response Commission
"Government is From Mars; Industry is From
Venus: We're in This Universe Together!"

Contacts

Conference Chairperson, Brad Cross,
480-905-9311 or brad.cross@lfr.com

Conference Co-Chair, Dwight Clark,
602-243-1600 or dclark@ninyoandmoore.com

Sponsorship Coordinator, Mike Ford,
602-364-7417 or mcford@bryancave.com

Exhibit Coordinator, Lisa Culbert,
602-943-9565 or lculbert@mcphee-env.com

Conference Costs

Full Conference Registration – Members \$120 /
Non-Members \$140, One Day Registration –
Members \$65 / Non-Members \$75, Special
Course Offering: February 21st, OSHA 8 Hour
Hazwoper & RCRA Update \$120

Topics

Day 1 (dual tracks):
Air Quality Permitting, State Hazardous Air
Pollutant Program, Clean Water Act, AZPDES
Update, Vapor Intrusion, Soil Remediation,
RCRA Exemptions, Chemical Management from
an OSHA Perspective, DOD/DOT HazWaste
Shipping Protocols and more.

Day 2:
AZSERC Portal- Web Reporting Expansion/
Enhancements, Innovative Uses of Tier Two
information, Tribal Environmental/Emergency
Management Programs, Business Continuity
Planning, Building Partnerships/Public-Private
Advancements, Fire Department Perspectives,
EPCRA-Following the Rules, Spill Reporting
and more.

Sponsored By



JOURNAL OF Environmental Management ARIZONA

December / January 2006/7

Volume 4 Number 6

FEATURES AND ARTICLES

- 8 CATASTROPHIC INCIDENT PREVENTION**
MAQUILADORA EMERGENCY RESPONSE TRAINING
HAL BERKOWITZ
- 20 COMPANY FOCUS: LIQUID ENV. SOLUTIONS**
JOURNAL STAFF
- 24 LESSONS LEARNED**
AFTER 30 YEARS OF ENVIRONMENTAL CONSULTING
DAVID L. KIRTCHNER

COLUMNS

- 13 REGULATORY DEVELOPMENTS**
WATERS REMAIN UNSETTLED AFTER RAPANOS
MICHAEL C. FORD, ATTORNEY
- 17 SUSTAINABLE DEVELOPMENT**
TICKY-TACKY FEES DRIVE ME CRAZY!!
NICHOLAS R. HILD, PHD.
- 18 IT'S ALL ABOUT CHEMISTRY**
DESERTIFICATION
LARRY OLSON, PHD.
- 26 PROSPECTING: FOR ENV. BUSINESS**
THE ENVIRONMENTAL INDUSTRY'S "LONG TAIL" PART II
JOE C. HOLMES, ENVIRONMENTAL DATA MGMT.

DEPARTMENTS

- 6 FROM THE EDITOR**
- 10 NEWS BRIEFS**
- 11 ADVERTISERS INDEX**
- 14 ASSOCIATIONS PAGES**

Contents



Catastrophic Incident Prevention
page 8



Company Focus:
Liquid Environmental Solutions
page 20



RECOVERING TODAY'S RESOURCES FOR A CLEANER TOMORROW

We specialize in the treatment of non-hazardous liquid waste through physical separation, chemical treatment, biological treatment and sludge de-watering technologies.

- Waste disposal solution that is both economical and environmentally sound.
- On-site laboratory for profiling waste / sample technicians.
- After treatment, reclaimed water is returned to Arizona.
- Manage liquid waste for thousands of clients including some of Arizona's largest companies.
- Ask us about a cost effective alternative to your current waste disposal method.

liquid
ENVIRONMENTAL
SOLUTIONS

Call Us Today
602-278-3442 / 800-756-7084
www.liquidenviro.com

COVER: LIQUID ENVIRONMENTAL SOLUTIONS, PHOENIX FACILITY. SEE ARTICLE BEGINNING ON PAGE 20.

From the Editor



In the Journal's "Newsbriefs Section" we often include news about penalties received by Arizona companies that have violated environmental regulations. One reason I think it is important to publish this public information is to function as a "reality check" for businesses generating or handling hazardous materials.

That is, these articles remind us that Arizona businesses can and do face real consequences (fines and/or jail time) for violating environmental regulations. That is why, in this issue, it is really nice to be able to publish an article (see Newsbriefs Section, pg 10) that describes how the EPA has NOT fined four Arizona businesses because they took immediate and voluntary action to correct and disclose regulatory violations as soon as they were discovered. The penalties for these violations could have amounted to over \$155,000, but under EPA's self-disclosure policy, businesses that meet certain requirements may have the penalties reduced or eliminated by self-disclosing and correcting the violation. These four businesses can be commended for taking responsible action, and the EPA is to be commended for a sensible policy that encourages and rewards quick action by responsible businesses.

Company focus: we would like to write a "company focus" article on a manufacturing business, highlighting, for example, some of the environmental challenges that you may have faced in your business and how you handled them. If you are interested, please call me (480-422-4430 x42).

This issue completes the fourth full year of publication for the Journal. Thank you very much to all our readers, authors, columnists, and advertisers for being part of the Journal! Please let me know if there is anything we can do to make the Journal better for 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 *Managing Editor:* Position Open.

ADVISORS: *Editorial:* Nicholas R. Hild, PhD., Larry Olson, PhD., *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., *Arizona State University; Prospecting:* Joe C. Holmes, *EnvironmentalDataManagement.*

SUBSCRIPTIONS: Subscribe at ehshomepage.com or call 480-422-4430 x42.

RATES: FREE to Qualified EHS Professionals. Others, please call 480-422-4430.

MAILING ADDRESS: Journal of Env. Management Arizona, 3145 E. Chandler Blvd, Suite 110-641 Phoenix, AZ 85048. Phone & Fax: 480-422-4430

ADVERTISING Call 480-422-4430 x42. *The Journal is published 6 times a year.*

Copyright © 2006 by the Journal of Environmental Management Arizona. All rights reserved.




www.cartercare.com/care

- * Hazardous Waste Management
- * Pollution Prevention Programs
- * Environmental Consulting / Regulatory Support
- * Waste Reduction / Recycling Equipment
- * Compliance Audits / Training

(520) 323-1100
715 N. Belvedere Ave., Tucson, AZ 85711

DISASTER HAPPENS

WATER MOLD FIRE CONTENTS
ASBESTOS BIO HAZARD HVAC CLEANING

EMERGENCY RESTORATION EXPERTS

Phoenix: 480.507.9082 623.773.1111
Tucson: 520.743.4500
Statewide: 877.746.3443



ERexperts.net
"Disaster Relief, Guaranteed."



Transporting into space? If not, then why are you paying so much?

Diversified Transportation, Inc. provides Earth-bound transportation, great service, and at a fair price. Fully insured, just like the big guys, we work to meet our clients needs without endless change orders that so often drive "low bids" into space. Please call us today to discuss how we can bring your transportation costs back down to Earth.

DIVERSIFIED TRANSPORTATION, INC.

- HAZ • NON-HAZ
- Special Commodities
- 20 - 40 Yard Roll-Off Bins
- LiftGate Logistic Vans
- Partial or Full Loads
- 100% WDBE 8@ Certified

Call: 602-455-0350



  **WWW.DIVERSIFIEDTRANSPORTATION.US**

LEGAL DISCLAIMER Information presented in the Journal of Env. Mgmt. AZ originates from a variety of sources presumed to be accurate and complete. However, due to the rapidly changing nature of regulations and the law and our reliance on information provided by various sources, we make no warranty or guarantee concerning the accuracy or reliability of the content of the Journal. Readers are encouraged to contact authors, agencies, advertisers, and companies directly for verification and/or clarification. Material is for informational purposes only and should not be considered as legal or professional advice. Please consult your own legal counsel or environmental consultants with questions regarding your safety or environmental compliance matters.

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



Tools of the trade

We've built our reputation on a foundation of strong professional capabilities, honed project coordination and communication skills, and extensive statewide experience.

Our environmental services are a key part of that foundation. They include:

- Groundwater monitoring and restoration
- Technical oversight for remedial actions
- Fuels/PCBs/VOCs investigation/remediation
- Contaminant transport modeling
- Site assessments and property transfers
- Regulatory compliance/permitting

CLEAR CREEK ASSOCIATES
Practical Solutions in Groundwater Science

In Phoenix:

6155 E. Indian School Rd., Suite 200, Scottsdale, Arizona 85251
 (480) 659-7131, (480) 659-7143 fax

In Tucson:

221 N. Court Ave., Suite 101, Tucson, Arizona 85701
 (520) 622-3222, (520) 622-4040 fax

www.clearcreekassociates.com

Offering comprehensive, hydrogeologic services in five integrated areas:

Groundwater Development
 Groundwater Modeling
 Hydrogeologic Investigations
 Environmental Services
 Mining Support

Arizona's Leader in Industrial Hygiene and Emergency Response Supplies

McPhee offers customized spill kits
FEATURING Spilfyter® sorbent products



Enjoy the Superior Benefits of Spilfyter®
 State-of-the-Art multi-layering technology means:

- ✓ Superior Absorption Capacity
- ✓ Superior Wicking
- ✓ Superior Tensile Strength
- ✓ Superior Liquid Retention



McPhee
 Environmental Supply, LLC



1-888-608-4637

11460 N. Cave Creek Road, Ste #1 • Phoenix, AZ 85020
 (602) 943-9565 • FAX (602) 943-3194
www.mcphee-env.com

OSHA Standard 29 CFR 1910 requires workplaces to be clean, slip-free and void of excess debris and wetness. Wet floors and debris top the list of reasons for over 500,000 workplace accidents each year.

Also Available, Mercury Spill Kits • Battery Acid Spill Kits • Formaldehyde Spill Kits

Indoor Air Quality
 Mold Assessments
 Industrial Hygiene Services
 Environmental,
 Health, and Safety Training
 Environmental Site
 Assessments & Remediation
 Regulatory Compliance &
 Permitting Services
 Asbestos &
 Lead-Based Paint Surveys
 Stack Emissions Testing
 Air Pollution Consulting



*"We work for you
 and the environment"*

2801 South 35th Street
 Phoenix, AZ 85034
 ph 602.393.4800
 fax 602.393.4801
www.gecsab.com



Decontamination exercise during training. Photo courtesy of Hal Berkowitz.

Emergency Response Training for Maquiladora Workers

Catastrophic Incident Prevention (CIP)

Maquiladora workers, “first on the scene”, may avoid a catastrophic result with proper immediate action prior to arrival of public responders. CIP training shows them how.

Hal Berkowitz

The need to avoid catastrophic incidents at Maquiladoras along the Arizona-Mexico border resulting from industrial accidents, natural causes, or incidents involving

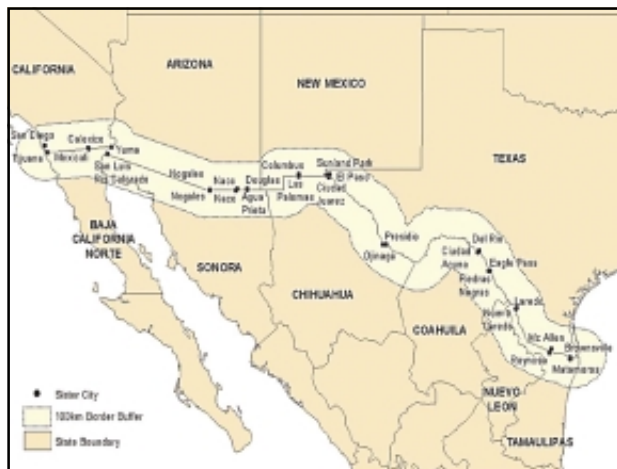
terrorist activities, is a major concern for those responsible for protecting the environment, and the health and safety of the population on both sides of the border.

Maquiladora workers who would normally be involved with industrial plant related incidents are truly the “first responders” since they are, in effect, the “first on the scene”. History has shown that the ability to respond properly in the first few minutes of an emergency incident will in many cases avoid a potential catastrophic result. Immediate action played a significant role, for example, in a recent incident that took place when tank cars containing sulfuric acid were derailed in Nogales, Sonora, and the acid entered the Santa Cruz River which flows into Nogales Arizona. Quick action by the railroad workers on the scene utilizing soda ash to neutralize the acid and notification to the Binational Task Force in Nogales Arizona who in turn diverted the flow of the river, avoided contamination of the river in Arizona. It is therefore essential that workers be adequately trained in order to take the appropriate immediate actions prior to the arrival of public responders.

Significant cooperative relationships with both the United States and Mexico have been accomplished over the past 23 years. Since 911, however, this concern has extended to the potential threat of terrorist activities including the use of chemical and biological warfare agents and weapons of mass destruction (WMD). Many cooperative agreements to protect the environment and the health and safety of the population were implemented during this period.

La Paz Agreement

The basic fundamental agreement was established in 1983 in La



LaPaz 100 km Border Buffer

Environmental Compliance Solutions, Inc.

Create your Emergency Response Plan on-line, in a user-friendly, secure SSL, web-based, environment. Be in compliance with local, state & federal emergency plan reporting requirements, while providing your EMERGENCY RESPONDERS with up-to-date, vital information about your facility. Visit our website at:



www.encompsol.com
Or, call us toll-free at 877.655.6952

"PROVIDING VITAL EMERGENCY RESPONSE INFORMATION IN THE 21st CENTURY"

EDDIE MARTINEZ

www.eddiesellshomes.com



Bus.: (480) 759-4300
Fax: (480) 706-0000
Mobile: (602) 708-9179
Eddiem4241@cox.net
4621 E. Chandler Blvd Suite 100
Phoenix, AZ 85048



"Personal Service With Integrity"

Paz, Baja California and became known as the "La Paz Agreement" or the "1983 Border Environmental Agreement". This agreement was signed by both President Ronald Reagan of the U.S. and

Miguel de la Madrid, president of Mexico. It became the legal basis for many of the subsequent agreements. The border was defined as the 2,000 mile (3,100 kilometer) distance between the United States and Mexico extending from the Pacific Ocean to the Gulf of Mexico. It has a total width of 100 kilometers (125 miles) and extends 62.5 kilometers on each side of the border. This area includes four U.S. states and 10 Mexican states, a total of 14 sister cities paired on each side of the border, 26 U.S. federally recognized Native American tribes, and a population of approximately 12 million people.

Border XXI Program

In 1996 the Border XXI program was initiated which set goals for the period 1996-2000. In October 1990, Congress also supported research funding for a consortium consisting of five U.S. and five Mexican universities, which became known as the "Southwest Consortium for Environmental Research and Policy" (SCERP). Their mission was to conduct research studies aimed at improving the environmental conditions inherent in the border cities. The U.S. universities included: Arizona State University; New Mexico State University, San Diego State University, The University of Texas at El Paso, and the University of Utah. The Mexican Universities included: El Colegio de la Frontera, Instituto Tecnológico de Ciudad Juárez, Instituto Tecnológico y de

Estudios Superiores de Monterrey, Universidad de Autonomía de Baja California, and the Universidad de Autonomía de Ciudad Juárez. Funding from SCERP during the Border 21 era enabled ASU to conduct: Five Day Hazardous Waste Operations and Emergency Response training in San Luis Rio Colorado, Mexicali Baja California, and Nogales, Sonora; 2 Day Hazardous Materials Transportation Courses in Nogales, Sonora, Ciudad Juárez, Chihuahua, Mexicali Baja California, and Nuevo Laredo, Tamaulipas; and Pollution Prevention Seminars in Nogales, Sonora, Agua Prieta, Sonora, San Luis R.C., and Mexicali Baja California.

Border 2012 Agreement

In April 2003 Border 2012 was initiated. It involved a joint agreement by the US EPA and SEMERNAT in Mexico to

Continued on page 12



*Specialist performing hazard assessment.
Photo courtesy of Hal Berkowitz*

Phoenix Rillito El Paso Mexico

Chemical Transportation, Inc.

... more than the name implies

As the environmental industry has grown more complex and the regulatory climate more demanding, CT's scope of service has grown to include:

- Transportation Services
- Waste Management Services
- On Site Services
- Industrial Vacuum & Pipeline Services
- Safety & Training Services

CT: maintaining a solid reputation for quality service.

CT inc.

Phoenix, Arizona Toll Free: 888-444-7077
El Paso, Texas Toll Free: 888-999-2260
Rillito, Arizona Toll Free: 800-634-4828








news briefs

Four AZ Companies Make Good-Faith Self-Disclosures & Avoid \$155,193 in Penalties

❖ US EPA Region 9 announced recently that four Arizona companies that voluntarily disclosed and corrected environmental violations had penalties waived by the U.S. Environmental Protection Agency, the result of EPA policies that have been successful in getting companies to make good-faith efforts in self-policing their own environmental compliance.

The recent 'self-disclosure' cases had potential penalties ranging from \$11,000

to \$74,000 for environmental violations that the agency determined caused no serious or actual harm to human health or the environment. Altogether, the four companies, located in Phoenix, Mesa and Goodyear, avoided \$155,193 in penalties.

"This is a win for communities, for business, and for the EPA," said Enrique Manzanilla, the EPA's Communities and Ecosystems Division director for the Pacific Southwest region.

"Checking for compliance, promptly disclosing violations found, correcting them, and acting to prevent future violations are the responsible actions for companies to take."

In the cases announced today, each company discovered the violations on its own and reported the violations to the EPA. Because the companies satisfied all of the conditions of the EPA's self-disclosure policies and there was no economic benefit gained, the EPA waived potential penalties.

The recent self-disclosure cases include:

Facility Name: Imsamet Inc.

Location: Goodyear, Ariz.

Business: Recycle aluminum

Violations: Failure to report ammonia for calendar years 2000-2003. **Potential fine: \$73,864**

Facility Name: Electronic Devices

Location: Phoenix, Ariz.

Business: Manufacture electronic components

Violations: Failure to report lead for calendar years 2001 and 2002. **Potential Fine: \$10,662**

Facility Name: Executive Door Company, Inc.

Location: Phoenix, Ariz.

Business: Manufacture interior and exterior doors

Violations: Failure to report xylene for calendar years 2001-2003. **Potential fine: \$17,448**

Facility Name: IR Epi Services, Inc.

Location: Mesa, Ariz.

Business: Manufacture semiconductors and related devices

Violations: Failure to report hydrochloric acid and hydrogen fluoride for calendar year 2004. **Potential fine: \$53,219**

Under the EPA's audit policy, the agency may reduce penalties up to 100 percent for violations that are voluntarily discovered through an audit or management system, promptly disclosed to the agency, quickly corrected, and satisfy other audit policy conditions. The policy excludes criminal acts, violations resulting in serious actual harm to public health or the



2445 N. Coyote Dr., #104
Tucson, Arizona 85745
520 882-5880
Fax 882-9788
www.turnerlabs.com

TURNER LABORATORIES, INC.
*A Full Service
Environmental Laboratory*
Celebrating Over 20 Years in Tucson

- ◆ Drinking Water, Waste Water, Hazardous Waste, Compliance Testing
- ◆ Inorganic, Organic, Microbiological Analysis
- ◆ MBE/WBE/SBE Laboratory
- ◆ Waste Water Sampling Services

Putting innovation into practice...

At ARCADIS, we believe successful innovation requires collaboration across many disciplines, including ex-situ and in-situ engineering, remediation hydrogeology, geochemistry, risk assessment and geotechnical science.

We foster the exchange of knowledge and harness the power of collective energies to create new and innovative solutions for our clients. We balance business and regulatory objectives with sound technical methods to deliver dynamic results, quickly and cost-effectively.

For the best solutions to your remediation challenges, count on ARCADIS.

www.arcadis-us.com

environment, and repeat violations.

Under the EPA's small business compliance policy, the EPA will eliminate or significantly reduce penalties for businesses with less than 100 employees that voluntarily discover violations of environmental law and promptly disclose and correct them.

Federal Law requires certain facilities using chemicals over specified amounts to file annual reports to the EPA and the state that estimate the amounts released to the environment, treated or recycled on-site or transferred off-site for waste management. The information is then compiled into a national database called the Toxics Release Inventory and made available to the public.

More information about the audit policy can be found at: <http://www.epa.gov/compliance/incentives/auditing/auditpolicy.html>. For more information on the small business policy, go to <http://www.epa.gov/compliance/incentives/smallbusiness/index.html>

Boeing Company Wins Award for P2 Achievements

❖ The Boeing Company accepted a Governor's Pride in Arizona Award on October 30 from the Arizona Clean & Beautiful organization. The statewide "Pride in Arizona" environmental



CRA Celebrates 30th Anniversary. Left to right, CRA Staff Members, Standing: Manfred Plaschke, Jessica Jeffery, Eric Mannlein, David Hilliard, Brian Newhouse, Michael Freid, Jeff Bryan. Seated: Bridget Whitney, Michelle Pearson.

Conestoga-Rovers & Associates Celebrates 30th Anniversary

❖ Conestoga-Rovers & Associates (CRA) recently celebrated its 30th anniversary in business. CRA has over 70 offices in the U.S. and worldwide. Staff and guests at the Phoenix CRA office celebrated with an open house on November 9th. (See photo above.) Manfred Plaschke, CRA Project Manager, can be reached at 602-749-9400, or by email at mplaschke@craworld.com.

Advertiser Index

Aegis Environmental Strategies	22
Aero Automatic Sprinkler Co.	16
Applied EnviroSolutions Inc.	16
ARCADIS	10
Az State University EH&S Seminars	19
Az State University E. Ofc. of Env. Tech.	2
Carter Affiliates, Inc.	6
Chemical Transportation, Inc.	9
Conestoga-Rovers & Associates	19
Clear Creek Associates	7
Diggins Safety Consulting, Inc.	16
Diversified Transportation Inc.	6
Eddie Martinez, Realtor	9
Environmental Response, Inc.	25
Emergency Restoration Experts	6
Env. Compliance Solutions, Inc.	9
Envirosure Solutions	19
Gatekeeper Regulatory Roundup	4
GEC SA&B	7
Grizzly Trackout Control	19
Hazard Prevention Institute	11
LFR Inc.	24
Liquid Environmental Solutions	5
McPhee Environmental Supply, LLC	7
MP Environmental	26
N. Weiss Associates, Inc.	19
National CHMM Overview Course	3
PSC	26
Romic Env. Technologies Corp.	27
Transwest Geochem	23
Trinity Consultants	22
Terracon	11
Turner Laboratories, Inc.	10
Univar USA Inc.	28
Verdad Group, LLC	23

awards recognize public and private sector commitments to the ecological qualities of Arizona. The Boeing facility in Mesa won the award for its achievements in the Pollution Prevention category. This award is the second environmental award that Boeing has won this year. In May, the Boeing facility won the 2006 Blue Sky Innovation Award from Maricopa County and the Arizona Association of Industries for its innovation in reducing air emissions.

In the April/May 2006 edition of the Journal of Environmental Management Arizona, the Boeing Company described how it "Re-energized its Pollution Prevention Program".

Environmental | Geotechnical | Construction Materials | Related Services

Terracon

Consulting Engineers & Scientists

Tucson, AZ
p: 520.770.1789

Phoenix, AZ
p: 480.897.8200

www.terracon.com

Hazard Prevention Institute (HPI)

Safety, Environmental & Emergency Management Solutions

Training & Consulting Services

Miguel A. Rodriguez
President

Office: (520) 887-0355
Cell: (520) 440-1352
Fax: (520) 887-0180; Toll Free: (800) 915-2492
E-mail: miguel@hazardprevention.com
Website: www.hazardprevention.com

Berkowitz: Catastrophic Incident Prevention:

Training Maquiladora Workers *Continued from page 9*

engage in a 10-year effort to improve the health and safety of the population and the environment on the U.S.-Mexican border. The impact of terrorist activities involving the use of chemical and biological warfare agents and weapons of mass destruction was also included in these efforts. Four major Regional Workgroups were established which included: California-Baja California; Arizona-Sonora; New Mexico-Texas-Chihuahua; and Texas-Coahuila-Nuevo Leon- Tamaulipas.

Arizona-Mexico Commission

The Arizona-Mexico Commission was initially established in 1959 to promote both business and social efforts to improve the quality of life on both sides of the border. The commission is currently chaired by the Governor of Arizona, Janet Napolitano. It contains 13 active committees that meet with the commission on a semiannual basis with the active participation of both Governor Janet Napolitano and the Governor of Sonora, Eduardo Borus. One of the primary goals of the Emergency Management Committee is to **"Reduce Public Exposure to Hazardous Materials From Accidental Releases or Terrorism."** which could occur along the Arizona - Sonora, Mexico border.

Arizona State University Providing Emergency Response Training

Arizona State University has been very active in providing emergency response training for maquiladora workers throughout both the Border XXI and Border 2012 periods. The emphasis has been on the need to train maquiladora workers and the emergency responders in order to minimize the potential for a catastrophic event that could affect both sides of the border. Much effort has been placed on Pollution Prevention, which is geared to eliminate the hazardous substance at the source, and these efforts have achieved much success. An example of this was at a large circuit board maquiladora in Sonora where an aqueous solder flux replaced a solvent flux in their wave soldering process, which resulted in a reduction of atmospheric pollution. Product substitution has proven to be a very effective tool in eliminating the use of hazardous solvents. The focus on the training programs for maquiladora workers and their responders conducted by Arizona State University is now designed to achieve **"Catastrophic Incident Prevention"** or **"CIP"**, in order to minimize the potential for a major incident impacting the population and the environment on both sides of the border.

Goals of Border 2012

One of the major goals of the Border 2012 program is to **"Reduce Exposure to Chemicals as a Result of Accidental Chemical Releases and/or Acts of Terrorism."** To meet this requirement the focus of the training programs conducted by ASU (Arizona State University) has been to conduct three day



Investigation of leaking drum during training exercise.

Photo courtesy of Hal Berkowitz

emergency response training for workers at maquiladoras located in Nogales and San Luis Rio Colorado, Sonora, Mexico. In addition to the maquiladora workers local responders such as: fire fighters; Red Cross; police; EMT; and municipal workers were also included in the training. The training curriculum included: knowledge of chemical and biological hazards and their health and safety effects; personal protective equipment; instrumentation; and key Mexican regulations relating to both worker safety and the environment. The classes are all conducted in the Spanish language and include a significant amount of hands-on activities. Hands on activities include donning and doffing of reparatory equipment (both atmosphere supply respirators and air purifying respirators); chemical protective clothing, and the use of field instruments. The curriculum also focuses on chemical and biological warfare agents and weapons of mass destruction, and their impact on the safety and health planning programs. Emergency response procedures are also emphasized. On the last day a field exercise is conducted where the participants form an emergency response team and respond in full protective gear to an emergency situation. The binational sister city plans are reviewed and in some cases the US fire fighters also take part in the incident. Funding support for the emergency response training was obtained from a grant administered by the National Institute of Environmental Health Services (NIEHS).

In conducting this training close coordination is maintained with the Emergency Preparedness Task Force of the Arizona Mexico Commission, the Binational Sister City Plans in Nogales and San Luis R.C.; the Arizona Governors Office of Homeland Security, and the Sonora Proteccion Civil.

Training Expansion a Priority

The need to expand these training programs is a major priority of the ASU Office of Environmental Technology. It is absolutely essential to meet the goals of Border 2012. These efforts will continue in coordination with the Emergency Preparedness Task Force.

Harold (Hal) L. Berkowitz, B.Ch.E, M.Ch.E, is Director of the Office of Environmental Technology at Arizona State University. Hal is an extensively experienced chemical engineer, consultant, and trainer in hazardous materials management, industrial health and safety, and site remediation. He can be reached at Hal.Berkowitz@asu.edu or by phone at 480-727-1323.



Michael C. Ford, Attorney

Regulatory Developments

Waters Remain Unsettled After *Rapanos*

The regulatory waters remain choppy in the wake of the United States Supreme Court's watershed decision last summer in *Rapanos v. United States*.¹ *Rapanos* addressed the long-contentious issue of the extent of agency jurisdiction under the Clean Water Act, and specifically involved the Corps's asserted jurisdiction over certain wetlands and tributaries under CWA § 404. The majority of the Justices rejected the "hydrologic connection" test adopted by the Corps and lower court (conferring agency jurisdiction over any water in any way hydrologically connected to a navigable-in-fact water). However, the Justices did not agree on what the correct criteria should be, instead offering two radically differing interpretations of CWA jurisdiction.

In Justice Scalia's opinion (joined by Alito, Roberts and Thomas), only "relatively permanent" bodies of water connected to interstate, navigable-in-fact waters are jurisdictional. On the other hand, under Justice Kennedy's opinion, a water body must have a significant ecological relationship with navigable waters, regardless of an actual hydrological connection. This "significant nexus" test must be determined on a case-by-case basis utilizing as-yet unspecified criteria.

The Corps and EPA initially acted quickly in the wake of *Rapanos*, committing to issuing joint guidance within a few weeks, and instructing its field staff to avoid jurisdictional determinations or the referral of enforcement actions in the meantime in cases not involving clearly jurisdictional *i.e.* navigable-in-fact waters.² The Corps stated that it anticipates the guidance will likely "make some changes in how we describe and document the justifications that underlie some of our CWA jurisdictional determinations,"³ suggesting it may view its response to *Rapanos* as simply involving more paper work rather than any substantive restriction on CWA jurisdiction. However, the Corps has understatedly acknowledged that *Rapanos* "raises questions about the jurisdiction of the Clean Water Act, including Section 404, over some intermittent and ephemeral streams and their adjacent wetlands."⁴

In Arizona (and the entire arid southwest), the ramifications of *Rapanos* are potentially very significant — more so than any other area of the country — due to the prevalence of intermittent and ephemeral

streams. Recognizing this, ADEQ sent EPA a letter in July requesting an opportunity to meet to discuss the decision and its potential impacts in Arizona, and even offered to facilitate meetings with water quality officials in arid western states to thoroughly discuss the issues prior to finalizing the guidance.

The courts have not waited for additional agency guidance, issuing several post-*Rapanos* decisions to date. The courts have struggled with the threshold question of which test to apply, and perhaps not surprisingly, have arrived at three different conclusions: Kennedy's "significant nexus," Scalia's "relatively permanent," and "either/or."⁵ The Department of Justice (litigation counsel for EPA and the Corps) has taken the either/or approach: CWA jurisdiction exists if the waters are "relatively permanent" or have a "significant nexus."⁶

It did not take long for *Rapanos* to torpedo an agency enforcement case. In the first post-*Rapanos* ruling, the district court in *U.S. v. Chevron Pipe Line Co.*, a case involving oil discharges into non-navigable, intermittent streams, first dismissed the significant nexus test as providing "no guidance on how to implement its vague, subjective centerpiece,"⁷ and appeared to rely primarily on the "relatively permanent" criteria (as well as existing Fifth Circuit law, which is notably restrictive of jurisdiction). The court found the unnamed tributary into which oil was spilled to be non-jurisdictional, thus absolving Chevron of liability.⁸ DOJ has reportedly elected not to appeal this case.

Jurisdiction was upheld by the Ninth Circuit in *Northern California River Watch v. City of Healdsburg*, over the City's sewage discharge to a water-filled rock quarry immediately adjacent to a river.⁹ The Court found a significant nexus between the quarry and the navigable-in-fact river based on several factors, including a seep from the quarry directly to the River; a surface connection when the River overflows; drainage from the quarry to the River; the presence at the quarry of wildlife observed in the River; and an increase in pollutant levels via the underlying common aquifer in the River due to the quarry.¹⁰ DOJ subsequently filed a motion requesting that the court clarify that the "relatively permanent" test should also apply *i.e.* adopt the "either/or" approach.

Beyond agency guidance and the case law, the waters could be whipped up further by agency rulemaking or legislative action. The Corps was roundly criticized in *Rapanos* for not issuing clarifying regulations, and urged to quickly do so, but for the moment, the agencies appear preoccupied with completing the promised guidance. The recent shift in the Congressional balance of power may also increase the possibility of legislation such as last year's stalled Clean Water Authority Restoration Act of 2005, which would counteract *Rapanos* by enshrining the broadest possible CWA jurisdiction as the law of the land.¹¹ So while the jurisdictional tide appears to be receding, it is still too early to tell how far it will go, or where it will end up.

1 126 S.Ct. 2208 (2006).

2 E-mail correspondence from Mark F. Sudol to Corp offices (July 5, 2006).

3 *Id.*

4 71 Fed. Reg. 56258, 56261 (Sept. 26, 2006).

5 *Northern California River Watch v. City of Healdsburg*, 457 F.3d 1023 (9th Cir. 2006) (significant nexus); *U.S. v. Gerke Excavating, Inc.*, 4 F.3d 723 (7th Cir. 2006) (significant nexus); *U.S. v. Chevron Pipe Line Co.* 437 F.Supp.2d 605, 611 (N.D. Texas 2006) (rejecting significant nexus test); *U.S. v. Johnson*, 2006 WL 3077422 (1st Cir. 2006) (either/or).

6 Statement of John C. Cruden, Deputy Assistant Attorney General, Environment and Natural Resources Division, Before the Subcommittee on Fisheries, Wildlife and Water, Committee on Environment and Public Works, U.S. Senate (Aug. 1, 2006) at 16.

7 437 F.Supp.2d 605, 611 (N.D. Texas 2006).

8 *Id.* at 612-13.

9 457 F.3d 1023 (9th Cir. 2006).

10 *Id.* at 1030-31.

11 Senate Bill S.912 § 4 (3) (amending 33 U.S.C. § 1362(23) introduced April 27, 2005; H.R. 1356.

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

Associations Pages

EPAZ



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.

Our November meeting featured Dan Roe, AZSERC Executive Director & Richard Eaton, AZSERC Programs & Projects Specialist; they provided an update on Tier II reporting in Arizona. Included in the discussion were the significant changes to the look and feel of the online reporting website and improvements to the functions and reporting process.

Our December speaker will feature Pat Collins from ISOLA. Pat will discuss the RoHS basics & application process. This international regulation is affecting many of our local industries.

EPAZ has begun to meet at a NEW location. Our monthly luncheon meetings are now held at the **ASU Mercado downtown** at **502 E. Monroe** (across from the Arizona Center). Parking is available at the garage directly South of the Mercado. Validation for parking is provided to all attendees.

It's time to renew your membership! Please visit our web site to renew or join for the first time. Online credit card processing through the website should be available by November 20th.

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.

*Eddie Martinez,
President*



American Society of Safety Engineers

Southern AZ Chapter

The "Safety Works: Safety Expo 2006" in Tucson October 17 and 18, 2006 was a great success. The keynote speaker, Chad Hynas, was injured in an accident and is now in a wheelchair. This remarkable speaker didn't just "speak" to our group, he "visited" with us. He pulled each one of us into his story and at the end of his presentation, we were filled with awe at his raw determination. What a "hit in the gut" reminder of how one moment, one movement, one little oversight can change your life and the lives of your family and friends forever.

For information on ASSE, please visit our website at <http://southaz.asse.org>.

*Shari Di Peso,
Secretary*



AZ Chapter Semiconductor Environmental Safety & health Association

For Info about a SESH Membership please visit us at: www.seshaonline.org

SESHA members and non-members attended the annual AZ SESH chapter min-conference in November at the Crowne Plaza San Marcos resort. The all day conference included speakers who addressed the group on emerging technologies/issues in product ecology, drought management, behavior modification techniques, nanotechnology and regulatory legislation. BCSP and ABIH boards both made available continuing education points for attending this conference to CSP and IH professionals. This event wound the down year for local SESH activities.

The year 2007 promises to be filled with local SESH chapter meetings and conferences. The local steering committee members are currently planning arrangements. Look for upcoming notices on SESH activities in the 1st quarter of the new year. AZ SESH leading strategic plan for next year will be to sustain and grow value for our current membership.

Happy and Safe Holidays to all!

*John Bucciarelli,
President*



EIA-AZ



Website:
info@eia-az.org

The Arizona Chapter of the Environmental Information Association (EIA-AZ) looks forward to the New Year. Our election for 2007 officers is underway. In 2007 we will incorporate quarterly dinner events with guest speakers presenting on topics that include current environmental issues, health and safety updates, asbestos and lead-based paint subjects, indoor air quality and many, many more.

The EIA-AZ will continue their free educational presentations throughout Arizona, New Mexico, Nevada and Utah. The free seminars cover asbestos regulatory compliance for renovation and demolition activities, AHERA compliance in schools and renovation contractor issues. EIA-AZ also provides "Lunch on Lead" seminars to educate the public on health concerns regarding lead-based paint exposure in child occupied

*Chris Gates,
President*



housing and are planning microbial seminars as well.

The above just provides a snippet of what can be expected in the upcoming year. We hope you can join us for our upcoming events. Happy Holidays!



Bob Estes,
President

Seasons Greetings!

SAEMS continues to be very active in the environmental community and we are gearing up for a number of events this winter and spring! Our regular January lunch meeting has been moved to the 24th, to accommodate the massive annual Gem & Mineral Show in Tucson. We will actually have

three events that day, all of which occur at The Manning House, located at 450 West Paseo Redondo in downtown Tucson. Lisa Hopper, with World Care, will be the speaker at our regular lunch meeting from 11:30 to 1:00. Her topic is "Recycling for Humanity". Immediately following the lunch meeting, SAEMS will hold the half-day Gatekeeper Seminar from 1:00 to 5:00 PM. We will then have a no-host reception for all seminar attendees and SAEMS members from 5:00 to 7:00 PM. Remember, this all happens on Wednesday, January 24, 2007.

We are looking forward to a SAEMS 20th Anniversary Celebration, the Earth Day Festival and our RCRA Seminar in the spring. We hope you can join us! Finally, on behalf of the Executive Committee, I extend our warmest wishes for a safe and happy holiday season.

SAEMS



If you have any questions
about SAEMS please VISIT
OUR WEBSITE AT
WWW.SAEMS.ORG



Dr. Peter Kroopnick, R.G.
President

The Arizona Hydrological Society awarded its 2006 Lifetime Achievement Award to Ms. Gail Cordy. Gail retired in 2005 from the U.S. Geological Survey where her recent research investigated the potential effects and management of salt accumulation in south-central Arizona. In addition, she worked with scientists at the U.S. Water Conservation Laboratory to investigate which pharmaceuticals and other organic wastewater

contaminants could be expected to persist during recharge of treated effluent. Besides her professional career, Gail has made considerable efforts to educate the general public about hydrologic issues. In 1999, Gail worked with the AHS Tucson chapter to prepare and participate in a series of public information sessions to educate the public on water issues in Tucson, in advance of an election that would determine the fate of CAP water in the city. Congratulations Gail!

Going forward, 2007 will be a big year for AHS which will be hosting an International Symposium on Management of Aquifer Recharge, in Phoenix in October; and an expanded Symposium being organized jointly with the University of Arizona's SAHRA to celebrate AHS's 20th anniversary, September in Tucson.

Arizona Hydrological Society



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



Chuck Paulausky,
President

Announcing the 2007 ACHMM Thunderbird Board of Directors:

President: Mike Ford, Bryan Cave; V. President/President-Elect: Dwight Clark, Ninyo & Moore; Secretary (2-year position): Holly Land, MWH America; Treasurer: Matt Jacobs, RMCAT; Directors-at-Large: Frank Sanchez, PSC & Laurie Preston, GAIC; Immediate Past-President: Chuck Paulausky, CPSE.

The new Board will take office effective Jan. 1, 2007.

CHMM Overview Courses- If you are interested in becoming a CHMM, or just want to broaden your environmental knowledge, the Thunderbird Chapter is once again offering the CHMM Overview Course at the end of February in Tucson and again next April in Phoenix. For details: dclark@ninyoandmoore.com.

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.

New meeting location! The ACHMM/EPAZ monthly lunch meetings are now being held at the ASU MERCADO, 502 E. Monroe Street (7th St, south of Van Buren) 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:

- Jan. 4, 2007 - Thunderbird Happy Hour, TBA
- Jan. 11, 2007 - Luncheon Meeting, TBA
- Feb. 1, 2007 - Thunderbird Happy Hour, TBA
- Feb. 20-21, 2007 Gatekeeper Regulatory Roundup, Scottsdale, AZ
- Feb. 26-March 1, 2007 CHMM Overview Course, Tucson, AZ
- April 16-20, 2007 CHMM Overview Course, Phx, AZ

Arizona Environmental Strategic Alliance



The alliance:
WWW.AZALLIANCE.ORG

arizona resource exchange:
www.azrex.org

The end of the year is a busy time for the Alliance, as I know it is for most of you. The Alliance Annual Meeting was held on November 29th. The board voted unanimously to re-elect by acclamation all officers. **Chairperson: Rob Barnett**, Ping; **Vice Chairperson: Larry Person**, City of Scottsdale; **Treasurer: Dan Casiraro, SRP**; **President: Jim Thrush**. The Advisory Council voted unanimously to re-elect **Beverly Westgaard** as AC Chairperson. Also, the board elected two new Advisory Council members: **Mitch Klein**, of Bryan Cave LLC; and **Sen. Amanda Aguirre**, of the Arizona State Senate. Both new members have impressive backgrounds in the environmental field in Arizona and will be a great asset to the organization!

*Rob Barnett,
Chairman*



Have you considered participating in Performance Track (PT)? There are significant regulatory incentives for PT participants, and the number of incentives is growing. To help educate businesses about PT, and to provide mentorship to guide you through the process, the Alliance is planning a Performance Track / Alliance Membership Event for **Tuesday, April 3, 2007**. Both **Wayne Nastri**, US EPA Region 9 Administrator, and **Steve Owens**, Director of ADEQ, are scheduled to speak. The event is free, along with a lunch. Please mark your calendars and save the date! Happy Holidays!

HOLMES: Prospecting:

Article Begins on pg 26

search tactics, web site navigation strategies and e-commerce allows companies to market their most obscure of product lines to interested buyers worldwide. Interestingly enough, these marketing strategies can also allow local firms to remain local by filtering out inquiries from outside their geographic area. Small distributorships can act like billion dollar companies or stay focused on a local market. It's all about choice! Search engine tactics provide a stunning level of filtering and keyword priorities that allow businesses to make their products and services available to those who are ready to buy and fine tune their strategy to fit any way they want to do business.

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

ADVERTISE in the JOURNAL!

The current Journal mailing list is now over 3400 EH&S Professionals in Arizona, and many of these issues are shared with co-workers, making the Journal the most effective way to reach professionals in the Arizona environmental market.

Why wait? Call 480-422-4430 x42

Jason Bolen

Cell 602.739.0083
jbolen@aerofire.com

623.580.7800

Fax 623.434.0029



21605 N. Central Ave.

Phoenix, AZ 85024

Applied EnviroSolutions, Inc.

Engineering Services

Testing • Compliance Review • Permit Strategies
Site Assessments • Investigation & Remediation
Asbestos • Mold • Lead



(480) 839-7000 • (800) 478-7611
www.aesaz.com



**DIGGINS
SAFETY
CONSULTING**
INC.

Sam Diggins, ASP
www.dsc-ehs.com

1409 East Verlea Drive
Tempe, AZ 85282
(480) 517-1674 office
(480) 510-7977 cell
sam@dsc-ehs.com



Sustainability and Sustainable Development

Nicholas R. Hild, PhD.

Ticky-Tacky Fees Drive Me Crazy !!

When you sit down to pay your bills, do you ever question those little “fees” that sometimes suddenly appear without explanation? It seems the computer age has made it more essential that we read billing statements item by item because there’s always the possibility that “accidental computer error” that results in erroneous charges creeping in. It happens all too frequently: the invoice has a “fee” you’ve never seen before, with absolutely no explanation for what it is. The kinds of businesses I’ve questioned recently about ‘extra fees’ which never appeared before, are those ‘full-service’ banks, mortgage loan institutions, electricity and water/waste water utility providers, cell phone companies, credit card companies and cable TV companies.

What got me thinking about this was a recent article in the newspaper by Rhonda Abrams, author of *The Owner’s Manual for Small Business*. Ms Abrams was lamenting the little “nickel-and-dime” expenses that consultants sometimes add to their billing statements for such things as long-distance phone calls and half-a-buck-per-page for copying documents when their “fee for services” are already more than \$150 per hour! Reading Ms. Abrams’ lament hit a nerve, probably because I had just opened my phone bill and saw several “fees” of a buck or two added in with no explanation for what they were for or why they suddenly showed up.

Of course, we all have become accustomed to these “added fees” when we purchase a new car—the

price you agree upon is always a ‘base-cost’ with the added fees for ‘options’ like license, dealer admin fees and destination fees; etc., etc., pumping your total outlay up several hundred dollars ‘out the door.’ But we feel better about those because we negotiated a good deal when we purchased the car...right? So, we accept the ‘extra fees’ and drive the car home with a smile.

But, what Ms Abrams is talking about are those little “ticky-tacky” fees that drive us all crazy. In her column, she opined that when you pay a consultant several thousand bucks to do a job, it’s really annoying to see an itemized bill that includes extra charges for phone calls they made to your office. What would be better, she said, especially for customer “service” purposes, would be to list those itemized expenses (to show they occurred) but to make special note they are each “*complimentary*” or “*no charge*”—just think how that would show the customer how valued their business is.

So how does all that relate to *sustainability*, you ask? Well, let’s think about it this way: if we can publicize how much an individual, or a company benefits by spending a little more initially for some *sustainable* features when we construct or remodel a facility, it will be like getting something for free, after the payback period elapses. For instance, there’s no charge for retrofitting a passive solar hot water system, (after a year or two of electricity savings) in most residential and factory applications. Wouldn’t it be nice to be able to bill that “service” out to yourself or to your employer by boldly adding, “*No Charge*” to the utility bill for hot water for the next ten years? Your company management and stockholders alike, need to know just how lucky they are to have you saving them money, as well as helping the company benefit the environment.

Or, if landscaping with low water plants which also act as shade for people-spaces around a building or campus parking lot which, in turn, allows for a reduction in water use and heat-island-effects too, shouldn’t we have a line item in the monthly utility bill that says, “*complimentary*” for positive environmental effect?

The thing is, if we don’t highlight these “fees” for amenities we are providing for free, people we are trying to entice to think more sustainably about their daily lives won’t ever get the message. They will, instead, always see the ticky-tacky “fee” item as an additional “cost” that comes out of their pocket. What that means is, it’s likely that we will never accomplish our goal of inculcating *sustainability* into today’s generation in order to make a brighter future 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.



Larry Olson, PhD.

It's All About Chemistry

Desertification

Did you know that 2006 was the International Year of Deserts and Desertification? Even though we live in one of the most arid states in the country, probably few of us are aware of the extent and the impact of increasing desertification around the world. 2006 was chosen to focus on the issue because it is the tenth anniversary of the UN Convention to Combat Desertification (UNCCD), which went into force on December 26, 1996. Currently, there are 191 parties to the Convention, making it one of the most widespread international agreements ever.

Deserts are inherently fragile ecosystems, that cover more than 1/3 of the earth's land surface. They may be hot or

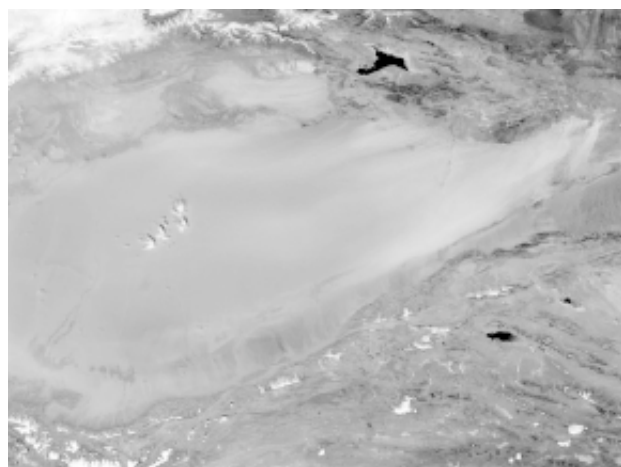
cold, may have substantial vegetation or just sand, and may be home to millions or just able to support a few nomads. But the one common characteristic is that deserts are dry. A common measuring tool is the Aridity Index, which is the ratio of rainfall/potential evapotranspiration. An Aridity Index < 0.65 is defined as a dryland, where production is typically limited by water instead of nutrients. Another common method to classify deserts is to use annual rainfall. No rainfall for 12 consecutive months is extremely arid, less than 250 mm rainfall is arid, and between 250 – 500 mm annual rainfall is semi-arid. At about 7.6 inches per year (193 mm) and evapotranspiration rates less than 0.35, Phoenix definitely qualifies as a desert.

Desertification can be defined as the degradation of formerly productive lands in arid, semi-arid, and dry sub-humid areas. Droughts can exacerbate the effects of desertification, but they aren't the real cause. Deserts have always had droughts, but now the effects of poor land management practices are making it impossible for these lands to recover. Activities such as overgrazing, deforestation, inappropriate farming and irrigation methods, and soil compaction by motorized vehicles or animals are examples of how man can disrupt the delicate balance in a dryland.

Over 250 million people are directly affected by desertification and over 1 billion people are at risk. Many of these are among the world's poorest, most politically powerless people. When the productivity of their land decreases, agricultural yields are reduced and become less predictable, and pastoral lands can support fewer animals. This leads to even more intense pressure on the land and a downward spiral. The income of these already impoverished people takes a further hit and in many cases they are forced to move. Of course, in a world of 6 billion people, there are not many places to move where someone is not already living, and thus desertification can be directly linked to political instability and armed conflict.

On a global level, desertification decreases carbon sequestration, results in loss of biodiversity in both plants and animals, and has a great impact on water quality. More sediments are found in rivers and creeks because lack of vegetation increases runoff. Windblown dust can also pollute surface waters. Compacting soils decreases infiltration and lowers ground water levels. This can cause intrusion of salt water into water tables near coastal areas, making it unusable.

What can be done? Unfortunately, success stories are few and far between and the pace of desertification has hardly slowed. One of the key provisions of the UNCCD is for each country to develop a National Action Program that identifies affected areas, surveys vegetation and geological features, and proposes specific actions and timetables. There is no single solution and concerted efforts have really only been in effect for a decade or so. In the next issue, we'll look at some of the strategies that are being employed. One of these is a "green belt" in northeastern China that at 2800 miles is longer than the Great Wall! It is said to be the largest ecological project in history.



Dust Storm in Taklimakan Desert, Western China

Photo courtesy of NASA at visibleearth.nasa.gov

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

GRIZZLY Trackout Control Device



The shaking of the vehicle as it drives across the Grizzly Trackout control Device knocks dust, mud, and other debris off the vehicle tires and chassis which falls into the free space below the grate making the trackout device virtually maintenance free.

Minimize Trackout from Your Construction Site!

- Patented method to minimize the trackout of dirt, mud, dust & debris*
- Recognized innovation that is an improved method to control trackout
- Reusable, transportable, and can be expanded to any length required
- Reduces the cost of clean-up on the road
- Promotes a safe construction site by slowing exiting traffic
- Helps control Particulate Matter (PM10) to help improve air quality
- Sizes available: 10 ft. & 20 ft. widths & any length in 8 ft. sections

*Patent numbers 6,981,818; 6,881,006; 7,059,799 & more patents pending



Grizzly Trackout Control • P.O. Box 10970, Tempe, AZ 85284
1-800-761-0056 • www.trackoutcontrol.com

N. Weiss Associates, Inc.

Environmental Compliance Services

Experience Counts

Contact: Norm Weiss @ (602) 870-5504

Web Site: www.nweissassoc.com



Phone 480-784-4621

Educating Industry On Environmentalty

- Chemical Inventories
- EHS Compliance
- EHS Management
- Safety Programs
- Hazardous Waste Mgmt & Disposal
- Storm Water & Spill Response Plans
- Environmental & Clean Construction
- Site Assessment & Remediation

1979 E. Broadway Road, Suite 2
Fax 480-784-2207

Tempe, Arizona 85282
www.envirosure.com

2,300 STAFF - OVER 70 OFFICES IN U.S., CANADA, MEXICO, BRAZIL, ARGENTINA, AND U.K.



CONESTOGA-ROVERS & ASSOCIATES

...The Way We Have Been, The Way We Will Always Be...

CRA was founded on a philosophy of providing Client Focus and Technical Excellence through Teamwork.

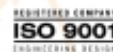
We thank our Clients for the opportunity to demonstrate Technical Excellence on their projects and our staff for upholding this standard over the past 30 years.



Local Offices:

4050 E. Cotton Center Blvd., Building 4, Suite 49
Phoenix, Arizona 85040
Phone: (602) 749-9400

1955 W. Grant Road, Suite 210
Tucson, Arizona 85745
Phone: (520) 623-9221



www.CRAworld.com

WORLDWIDE ENGINEERING, ENVIRONMENTAL, CONSTRUCTION, AND IT SERVICES

Environmental, Health & Safety Seminars

The Schedule for Training Courses is Available ONLINE at:
www.east.asu.edu/seminars/.



OSHA, DOT, and EPA COURSES

Courses provided include: HAZWOPER (40HR and 8HR REFRESHER); HAZARDOUS MATERIALS TRANSPORTATION (49 CFR AND IATA, initial and refreshers), RCRA; CLEAN AIR ACT; WATER QUALITY; AND EMERGENCY RESPONSE TECHNICIAN LEVEL.

For registration and a complete list of courses, fees, and course descriptions including site specific training, see our web site: www.east.asu.edu/seminars/.

FOR MORE INFORMATION CONTACT DENISE KOLISAR
480-727-1825 OR
HAL BERKOWITZ 480-727-1323.

Our 16th year of providing regulatory compliance training courses.





Photo 1: Liquid Environmental Solutions

Company Focus #4:

Liquid Environmental Solutions

Liquid Environmental Solutions (LES) owns and operates six wastewater treatment facilities in the U.S., including the Phoenix facility featured in this article, and specializes exclusively in the collection, treatment, and disposal of non-hazardous liquid waste streams.

The Phoenix facility, formerly Resource Recovery Techniques of Arizona,

was purchased by LES in February of 2005, and treats all types of non-hazardous liquid waste and works with waste generators throughout the Southwestern U.S. including Los Angeles, San Francisco, Las Vegas, and Arizona. Its customer base consists of waste transporters, brokers, environmental contractors and environmental consultants. LES also works directly with waste generators such as power and energy companies, transportation companies, manufacturers and petroleum companies.

THE WASTEWATER TREATMENT PROCESS

Liquid Environmental Solutions processes approximately 140,000 gallons of non-hazardous wastewater per day at its Phoenix treatment facility. This wastewater includes petroleum contaminated water, remediation waters, chemical rinses, process waste waters and other industrial waters. It also includes non-hazardous commercial waste streams, such as; interceptor waste, dry well sludge, septic waste and restaurant grease. The following is a highly condensed description of the treatment process.

Some of the LES Staff Members, Left to Right Top Row – Phil Harris, Vaha Koloamatange, Guillermo Deluna, Isaac Vasquez, Harold Burton, Patricia Generoso, Linda Mallory, Sonal Brahmbhatt, Brian Bidelsbach Bottom Row – John Billington, Brad Vandersee, Alan Charbonneau, Kevin Brandt

(Photo courtesy of LES)





Above: Photo 2: Employees sample incoming wastewater (Photo courtesy of LES)



Photo 3: LES Chemist operates ICP
(Photo courtesy of LES)

through a Filter Press to remove excess water, and the resulting material, called Filter Cake, is shipped offsite to a landfill as a non-hazardous waste.

Organic waste is addressed with a biological treatment process. Huge, 50,000 gallon Trickle Filter tanks [Photo 7] circulate organic bearing wastewater until the natural organisms break down contamination.

The Final Clarifier removes any remaining solids from the treated wastewater prior to discharge, then the fully treated wastewater is discharged from the facility to the city wastewater system through the Parshall Flume [Photo 8]. Wastewater is monitored to ensure it meets discharge requirements.

COMPANY PHILOSOPHY

"Our company is built on three pillars – Commitment to the Environment, Customer Service, and Safety and Compliance." LES believes that by committing itself to the most environmentally sound practices and having strict Safety and Compliance standards, "we will provide our customers with an 'environmental perspective' they can trust and feel confident that

Continued on page 22



Photo 4: Wastewater discharged into trench

Entering the facility off Van Buren near 51st Avenue [Photo 1], a daily parade of tanker trucks filled with wastewater pull into the Offloading and Staging Area. Prior to discharging, workers take samples from each tanker [Photo 2] to the Analytical Laboratory where they are quickly analyzed to ensure each meets the expected profile. LESOA uses an ICP (Inductively Coupled Plasma) [Photo 3], a GC (Gas Chromatograph), and other analytical instruments which allows them to very quickly profile the samples. Once a load is accepted, the wastewater is drained from the tankers [Photo 4] into a trench that flows first to a series of rough gauge filters (called Sweco Screens) to remove solid materials. [Photo 5].

Various treatment processes [Photo 6] are then used depending on the type of contamination in the wastewater. Oil bearing wastewater, for example, goes through a dissolved air flotation (DAF) system that removes oils and grease, while metals are removed from solution in the Chemical Flocculators. In the flocculating process, lime and other chemicals are added to adjust pH and cause metal contaminants to form insoluble hydroxides. These particles will then settle out of solution and are removed as a sludge. The sludge goes



Photo 5: Sweco Screens remove solids from wastewater

Changes are in the air.

- ◆ Transition to AERMOD
- ◆ Particulate Matter Standards
- ◆ New Source Review

Are You Ready?

trinityconsultants.com/AZ

11811 North Tatum Blvd., Suite 3031
Phoenix, AZ 85028
(602) 953-6648 ■ (800) 229.6655

Trinity
Consultants
Certified ISO 9001:2000

JOURNAL OF Environmental Management ARIZONA

SUBSCRIPTIONS are **FREE**
to Qualified Environmental and
Safety Professionals!

480-422-4430 x42



Photo 6: Treatment tanks

Liquid Environmental Solutions

Continued from page 21

they are making the right decision that will be a benefit to their business.”

WHAT'S NEW

When asked, “what’s new with Liquid Environmental Solutions?” Brad Vandersee, Industrial Sales Manager, answered “LES has experienced tremendous growth over the last year and a half which has allowed us to invest back into the company resulting in an expansion of our receiving capabilities and volumes and also allowing us to service additional geographical areas outside of Arizona.”

Brad goes on to add, “LES has established regional contracts with companies such as Jack In The Box and Sam’s Club/Walmart in which we service a combined 1,000 + store locations throughout the Southwest. We are the designated disposal facility for many fortune 500 companies including major power and energy companies, nationwide environmental companies and nationwide transportation companies.”

Aegis Environmental Strategies

Compliance Consultant

- Environmental Regulatory Compliance and Permits
- OSHA Safety Programs and Training
- Hazardous Waste Management
- TSCA Compliance
- ISO 14001 Programs / Environmental Management Systems

Greg Fisher
3305 E. Rock Wren Road
Phoenix, AZ 85044
gfisher@aegis-ehs.com
602-770-6961

Call today for an initial consultation - free to prospective clients www.aegis-ehs.com





Above, Photo 7: Trickling Tanks
(Photo courtesy of LES)



Photo 8: Parshall Flume

GIVING BACK

LES stays active in community affairs. Recently, for example, as did many Americans, the Liquid Environmental Solutions team wanted to offer its collective support to the relief efforts in New Orleans in the aftermath of Hurricane Katrina.

Working in concert with the Houston Restaurant Association, in which they are active associate members, Liquid Environmental Solutions offered to match dollar for dollar all personal contributions of their employees to the American Red Cross Katrina Relief Fund. The result was a contribution of \$22,442 to this critical relief effort.

Locally, LES stays involved with organizations including the Multi-City Pollution Prevention Association, Environmental Professionals of Arizona (EPAZ), and the Arizona Association of Industries (AAI).

Journal staff appreciates the time and contributions of Liquid Environmental Solutions staff, especially Brad Vandersee, in creating this article. Brad is the Industrial Sales Manager with LES. He can be reached at 602-278-3442, Ext. 232, or by email at brad.vandersee@liquidenviro.com.

- Full Service Environmental Laboratory
- Mobile Laboratories (screening & compliance)
- Sampling Services
- Testing for: CWA, RCRA, SDWA, TSCA

**TRANSWEST
GEOCHEM**

www.transgeo.com

Phone: (602) 437-0330 (Phoenix)
(520) 573-1061 (Tucson)
Toll Free: (800) 927-5183

3725 E. Atlanta Ave., Suite 2, Phoenix, AZ 85040
3860 S. Palo Verde Rd., Suite 301, Tucson, AZ 85714

**Environmental
Compliance and
Remediation Costs
Squeezing Your
Budget?**

Environmental Compliance Sampling and Data Collection
Groundwater and SVE Treatment System Installation, Operation, Maintenance and Repair
Well Field Maintenance and Pump Repair
Instrumentation and Controls
MSHA and HAZWOPER Certification



VERDAD GROUP, LLC
Environmental Remediation Contractors
520-743-8553
www.verdadgroupllc.com email info@verdadgroupllc.com
ROC169357 ROC169358 ROC182680



CLEAR SKIES (and compliance) AHEAD

Air quality consulting
Regulatory compliance
Title V/minor source permitting
BACT/LAER assessments
Dispersion modeling/risk assessment
Risk management planning
Continuous emissions monitoring
Indoor air/industrial hygiene surveys
Odor control
Process engineering

Contact Ned Overs or Sean Coury at 480.905.9311

14201 N. 87th Street, Suite 135
Scottsdale, Arizona 85260
480.905.9311/Fax 480.905.9353
www.lfr.com



LFR is a national environmental management and consulting engineering firm.

Lessons Learned

*After 30 years of
Environmental Consulting --
and galivanting across
the planet.*



David L. Kirchner

Just about every person who as ever held a career in business, government, or academia, realizes that the success or failure of any project -- large or small, simple or complex -- is a function of the people who are assigned to the efforts, and luck.

Right person(s): Success

Wrong person(s): Failure

Good Luck: Success

Bad Luck: Failure

There is a tremendous amount of luck involved in the environmental consulting business, just like there is in government, academia, and other businesses. In my view, luck is the simple matter of a person being in the right place at the right time (bad luck = is being in the wrong place at the right time). Opportunity is knocking all the time, but one must be prepared to seize it -- and then one must be lucky. For some reason, I have been very lucky in my career. Please know that I am most grateful for having had so much luck.

In 1974, I began my professional career as a hydrogeologist-environmental consultant. Shortly after I started that first paying job, President Richard M. Nixon resigned his prestigious "consulting assignment" as President of the United States -- this American tragedy occurred soon after Mr. Nixon famously exclaimed to the world, "**I am not a crook!**" Unfortunately for Nixon, the wrong persons were at the Watergate Hotel at the right time. Nixon quit his job; I did not quit mine.

Despite the fact that Nixon was a crook, he issued the presidential executive order that created The United States Environmental Protection Agency (EPA) -- and I believe that my career paths and my successes were created largely by this crook's actions -- and subsequent enforcements by the EPA.

One lesson that I learned early in my career is that being a consultant means never having a steady job. And it means not having so-called job security -- at least not that warm fuzzy blanket security that most workers define as security. But there probably is no better way to have job security than to be constantly honing one's skills and always looking for a new project assignment. When a person is employed as a consultant, he or she is working himself or herself out of a job.

It is rather plain and simple, consulting boils down to:
a) always working like crazy, b) always solving other persons'

Save the Date!

April 3, 2007

Performance Track / EMS Seminar

The Arizona Environmental Strategic Alliance in conjunction with U.S. EPA Region 9 and ADEQ will present a Performance Track and EMS Seminar on Tuesday, April 3, 2007. Attendance is FREE, but pre-registration is required.

Performance Track members and companies with established EMS systems will be on-hand to discuss their experiences and offer mentoring assistance to companies considering participating in Performance Track or becoming an environmental leader. Scheduled Speakers Include:

U.S. EPA Region 9 Administrator:
Wayne Nastri

Arizona Department of Environmental Quality Director:
Steve Owens

For information or to
register early please call
the Alliance office at:
480 - 422-7392





"Does it absolutely, positively have to get there overnight?"

problems, and c) always working one's self out of a job.

Technically, I have worked for only three companies during the past three decades. But in reality, I have worked for thousands of different employers - - or

thousands of different clients - - all of which were relying upon me and other team members to a) solve their unique groundwater or environmental problems, b) spend their money frugally, and c) disappear from their lives (i.e., quit sending them invoices).

Typically, I have been hired as a consultant after someone else failed to timely complete a project. On many occasions, I have been hired at the eleventh hour, when huge deadlines were looming, or long past dead, and when the client's monies already were spent.

After all, consulting fees come right-off the client's bottom line. Similar to legal and accounting fees, consulting charges erode profits and potential bonus pools of for-profit businesses. In such situations, stress levels can be extremely high for everyone involved. Essentially, the clients are expecting the consultants to throw a few Hail Mary passes, perform small miracles, and save the company lots of money. If the consulting services are done timely and properly, such services bring long-term value to the client's business - - and in some cases they help to keep corporate officers out of prison.

Following are additional lessons that I have learned after many years in the consulting business:

- Environmental consulting will not make anyone filthy rich, but it can provide for a comfortable life style. Such comfort can be achieved even if one remains ethical, honest, and law abiding.
- Like Richard Nixon, there are many crooks in the business world, in the government arena, and in the ivory towers of academia - - there are more bad eggs in the consulting business and the world than you could ever imagine.
- The Internet changed *everything* and the horrible events of September 11, 2001, made every task require more time - - and time is money.
- Cyber crooks are lurking *everywhere*
- Terrorism, espionage, and computer-based crimes are wreaking havoc on our free world.
- Most of the time, the environmental consulting business is a great deal of fun, but it's a long way from being like a James Bond movie.

- To survive as a consultant, one must continually learn new skills and listen and adjust.
- To survive as a consultant, one must be persistent, patient, disciplined, a good listener, and have strong oral and written communications skills.
- To survive as a consultant, one must possess many business-related skills, including finance, marketing, sales, recruiting, employment law, taxes, knowledge of numerous government regulations - - and have the best of good luck.
- To survive as a consultant, one must fight-off obsolescence (a daily battle).
- Deadlines are deadlines, unless you are an attorney or an entrenched government bureaucrat.
- Contrary to conventional wisdom, 95% of all FedEx packages do *not* need to be delivered absolutely positively somewhere else the next day. This is very good (quite lucrative) for FedEx, and it's bad (i.e., expensive) for everyone else.

My final lesson to share with you today is that - - no matter what else happens - - not one of us will live long enough to ever meet or to get to know Dr. Nick Hild's children's children's children. Nevertheless, we are duty-bound to every single one of them!

David L. Kirchner is president and founder of Basin & Range Hydrogeologists, Inc. David can be reached at 602-840-3333 or by email at kirchner@basin-and-range.com.

Arizona Contractor's Licenses B-General ROC 130187, ROC AE-101060,
 ROC C05-101110, EPA Haz. Materials Trans. Lic. # AZ0000303032



Environmental Response, Inc.

24-Hour Emergency Response

Soil Remediation

Hazardous Waste Trans. & Disposal

Facility Decontamination

Lab Packing

Excavation and Demolition

Mold Remediation

Lead Abatement

Landfill Closure

Household Haz. Waste Collection Events

Vapor Extraction System Installation

Brownfields Remediation







A Wholly Owned Subsidiary
of Spray Systems Environmental

2202 W. Medtronic Way, Suite 108, Tempe, AZ 85281

Arizona 24 Hours (480) 967-2802

www.spraysystemseri.com

PSC



PSC is the single source for industrial cleaning services:

- Hazardous Waste Disposal
- Labpack
- Household Hazardous Waste Services
- Soil Excavation/Remediation/Decontamination
- Vacuum Tankers
- Roll-off and Vacuum Bins
- Super Suckers and Jet Rodders

PSC provides nationwide industrial services, environmental services, transportation and container services, delivered by thousands of skilled and committed professionals throughout North America.

What does PSC stand for?
People, Service and Commitment. As the industry leader, we don't just promise these qualities. We live them every day.

PEOPLE. PERFORMANCE. PRIDE. PROMISE.
THIS IS PSC NOW.

PSC
2003 W. McDowell
Phoenix, AZ 85009
602.252.1186

www.PSCNow.com



7 Terminals
throughout the
Western states

Hazardous/Non-Hazardous Transportation
Environmental Remediation Services
Waste Management
Emergency Response Services - 24 Hrs



3045 South 51st Avenue, Phoenix, AZ 85043
602-278-6233 800-833-7602 Fax: 602-278-2884
www.mpenviro.com

PROSPECTING:

For Environmental
Business

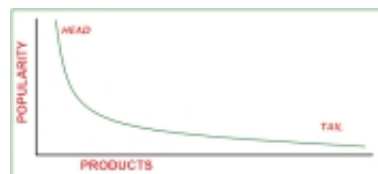
The Environmental Industries "Long Tail" Part II



In our last installment, we explored the concept of "Long Tail" Economics and in this issue Part 2 looks at how this evolution of economics applies to our industry.

First, a quick review. "Long tail" economics is a 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". "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". This unique supply and demand circumstance is made available through one means, the internet. Search engine technology provides consumers with unprecedented access to products and services and economists are surprised at the degree at which we gravitate to obscure, niche offerings in addition to popular items. This creates an exiting time for sellers.

The graph at right shows the relationship between popularity and products and the "Long Tail".



How does this translate to our industry? Have you ever been "talking shop" with a colleague and after learning more about the familiar firm's full capabilities said, "I never knew your company did that!" Those lesser-known business lines are now key growth areas thanks to the "Long Tail." Large firms who offer a wide variety of services, but have relied on their "core business" now find it viable to establish sales and marketing tactics designed to grow secondary business lines. For example, a traditional environmental consulting firm might have a small office who has established a niche in designing plating lines for specialty metal finishing processes. They now might find it worthwhile to establish a marketing effort leading with this service while taking advantage of their size and name recognition to back it up. Small, "boutique" consulting firms can put a sharp focus on their specialty by utilizing search tactics so their message is delivered to website visitors looking for a specific offering. The result is more, and better qualified prospects receiving your message on a global level.

For the products-related companies, the Long Tail is your new best friend and where the most significant impact can be realized. Since commodities are easy to purchase over the internet, the possibilities offered by a strategic search engine optimization campaign are exciting. The ability to utilize

Continued back on pg 16



Joe C. Holmes

RECYCLING FOR A BETTER ENVIRONMENT



ROMIC
ENVIRONMENTAL
TECHNOLOGIES CORP.

Industrial & specialty solvent & antifreeze recycling

Recycling for alternative fuels

Waste water treatment & recycling

Industrial services

Lab packing

On-site services/project management

Specialized recycling programs

Acid/base treatment

Transportation

Reclaim solvent and other commodity sales

Comprehensive waste management services

**The full service leader in waste management
through recycling and reutilization.**

ROMIC - SOUTHWEST

6760 West Allison Road, Chandler, AZ 85226-5130
(520) 796-1040 FAX (520) 796-6214 (800) 952-5760



A World Leader In Environmental Services and Chemical Distribution

**ChemCare® is a comprehensive waste management
and disposal service from Univar USA.**

You can depend on Univar to help you select the most economical and environmentally sound waste disposal technology available anywhere. We manage and dispose of your hazardous and non-hazardous waste products safely, quickly and efficiently.

Univar - Phoenix

50 S. 45th Street
Phoenix, AZ 85043-3907
1-800-909-4897

Univar - Tucson

3791 E. 43rd Place
Tucson, AZ 85713-5403
1-800-909-4897

For more information, please call us or visit our Web sites
www.univarusa.com or www.chemcare.com

