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Environmental Management

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ARIZONA

AIR QUALITY IN MARICOPA COUNTY:

WHAT'S REALLY GOING ON

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**ASSOCIATION PAGES,
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August / September 2012 Vol 10 No. 4

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2012 SAEMS P2 Seminar



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Time: Registration begins at 7:30 AM. Seminar from 8:00 AM to 5:00 PM

Place: **Hotel Tucson**, 475 North Granada Avenue, Tucson Arizona

www.saems.org

Being sustainable means designing your business to reduce or eliminate reliance on finite resources. This includes a wide range of activities including designing products that reduce waste and are recyclable, and buying materials that are recycled from other sources. Sustainable practices increase long-term efficiency, and provide long-term security. It is not only good public relations, it is also sound business sense and can save money.

P2 is a path towards sustainable growth. Excess emissions are waste. Waste can become wasted money and lead to an ever-increasing regulatory burden. Eliminating waste and increasing efficiency is a stepping stone toward carbon neutrality.

Please join us for this informative event to reduce your footprint through sustainable practices.

Selected Seminar Topics: (subject to change)

Waste Minimization; Water Conservation; LED Lighting Efficiency; Indoor Air Quality

Need more information? Contact:

Heather Shoemaker at (520) 770-1789 or hpschoemaker@terracon.com

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JOURNAL OF Environmental Management

ARIZONA

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WHAT'S REALLY GOING ON**
WILLIAM (BILL) D. WILEY, P.E., DIRECTOR OF THE
MARICOPA COUNTY AIR QUALITY DEPARTMENT

FROM THE EDITOR



Don't miss our feature article this issue: "What's Really Going On", by Maricopa County Air Quality Director Bill Wiley (see page 12). In this article, Bill presents the facts pertaining to the Air Quality in Maricopa County.

Several years ago we published a few crossword puzzles featuring environmental terms in our "Crossword Challenge" feature, and I received a somewhat limited, but very positive response — one reader wrote in, "More puzzles! More puzzles!". Since it's "better late than never", we present one more puzzle in this issue (see opposite page)! I hope you will enjoy it.

Journal subscriptions are free, as you know, to qualified environmental professionals, and I appreciate your loyal readership! But as a reader, you make the Journal possible through your interest in, and at times contact with our advertisers. If you enjoy reading the Journal please make a point this year of telling at least one of our advertisers that you appreciate his/her marketing in the Journal - thank you!

Sincerely,

Jim Thrush, M.S. Environmental Management
Editor & Publisher

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CROSSWORD CHALLENGE:

THEME: ENVIRONMENTAL KEY WORDS

For this issue we bring back the Environmental "Crossword Challenge". Let us know how you like this feature--we have had some very positive responses in the past! And if you have word suggestions for future puzzles, please email jimthrush@cox.net. Key on page 9.

Across

1. Not chronic, this brief type of exposure to a toxic substance may result in severe biological harm or death.
4. Unit of measurement.
6. Describes alkaline water containing dissolved salts.
10. These have the same atomic number of protons but different number of neutrons.
11. Home to bees.
13. Man-made watercourse.
15. Unit of measurement in chemistry
18. Form of H₂O, can affect vacation plans.
19. Unit of light measurement.
21. The functional role of a species in a community
23. A test for a particular chemical or effect.
25. This principle states that when information about potential risk is incomplete, decisions should be made with a preference for avoiding unnecessary health risks rather than avoiding economic expenditures.
26. The mineral content of a product remaining after complete combustion.
27. Submarine depression.
28. A layer of clay or other impermeable material installed over the top of a closed landfill to prevent entry of rainwater and minimize leachate.
32. Pesticide banned in the US in 1972 because of its persistence in the environment and accumulation in the food chain, has a half-life of 15 years.
33. Large natural body of standing fresh water
36. The heart of a nuclear reactor containing uranium
37. The _____ point is the lowest temperature at which evaporation of a substance produces sufficient vapor to form an ignitable mixture with air.
38. Refers to people's tendency to avoid allowing hazardous sites to be located near by.
40. Provision of the Clean Water Act which prohibits discharge of pollutants into waters of the United States without a permit.
42. O₂ 21%, N₂ 78%.
43. Submerged offshore ridge or mound of sand or gravel.
45. Used as an alternative automotive fuel, derived from grain and corn, usually blended with gasoline.
47. An underground geological formation containing water.
48. A site used to dispose of solid waste without environmental controls.
50. Synthetic washing agent used to remove dirt and oil, can contribute to

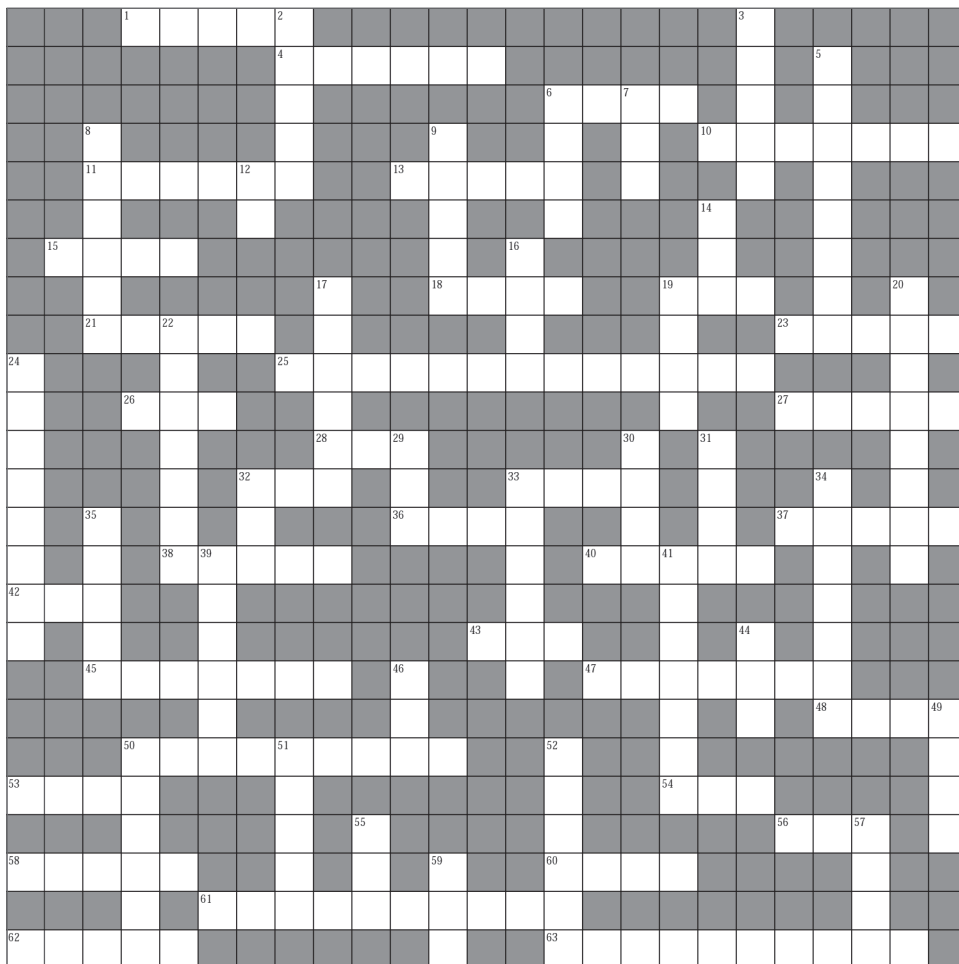
- algae growth in bodies of water.
53. Ether compound used to raise oxygen content of gasoline.
54. This type of facility requires a permit under the hazardous waste programs.
56. Form of H₂O found on plantlife at lower temperatures.
58. Rootless plants growing in sunlit waters.
60. Particles between .05 and 2.0 MM in diameter.
61. Capable of burning or causing a fire.
62. City where 160 nations agreed to reduce greenhouse gas emissions.
63. The letter "R" in RACT stands for this word.

Down

2. A drum is this when contents removed using common practices, and certain requirements met.

3. Federal agency responsible for developing recommended health and safety standards.
5. Ecosystems of several types in which rooted vegetation is surrounded by standing water during part of the year.
6. Refers to a thin area of ozone.
7. Untreated, as in untreated sewage.
8. Shallow pond.
9. Gas given off by solids or liquids at ordinary pressure and temperature.
12. The amount of hazardous waste released from a facility into the environment that must be reported immediately.
14. Quantity of heat.
16. Fine or intermediate sized mineral particles.
17. Under environmental law _____ liability for a violation means you are automatically guilty and liable, intent does not matter.
19. Good soil
20. A one-page form used by haulers transporting waste.
22. Small tank or storage facility used to store water for a home or farm.
24. Refers to mud and/or sand deposited by flowing waters.
29. A tough, environmentally indestructible plastic that releases hydrochloric acid when burned.
30. Makes an excellent fertilizer, an ocean weed.
31. A low wall than acts as a barrier to prevent a spill from spreading.
32. This structure impedes flow of water.
33. The word represented by the "L" in LD50.
34. Warning sign.
35. A measure of radioactivity.
39. The "I" in EIS, Environmental _____ Statement.
41. a long period when there is little or no rain
44. Reference Dose
46. An electrically charged atom or group of atoms.
49. partially decayed plant matter in swamps and bogs
50. Draw off the upper layer of liquid after the heaviest material has settled.
51. Radioactive, inert gas formed by decay of radium atoms in soil or rocks.
52. Thermal spring that ejects with force.
55. This container gets its name because of it's location in the ground.
57. Vertical structural element.
59. Area of water extending into land from lake or sea.

Answers: Find KEY to puzzle on page 9.



NEWS BRIEFS

DAVID GORDON JOINS CLEAR CREEK ASSOCIATES

❖ Clear Creek Associates announced recently that David Gordon has joined the organization. He is based in the Scottsdale office. Mr. Gordon is a highly regarded Environmental Consultant with over 20 years of experience. He provides project management and principal level professional services for contaminant investigations, remediation, water resource assessments, regulatory compliance, and permitting. He is formerly a Vice President at Arcadis, Inc.



David Gordon

R. Douglas Bartlett, RG, CHG, said, "Mr. Gordon's experience and professional interests further broaden Clear Creek Associates' expertise in these areas and we are excited to have David as an integral part of our team."

Contact David by calling the Clear Creek Associates Scottsdale office at 480-659-7131 or call his cell phone number: 602-363-7579. Clearcreek Associates maintains a website at www.clearcreekassociates.com.

MARICOPA COUNTY AQ DEPT HOLDS WORKSHOP TO DISCUSS SELF-REPORTING POLICY

❖ The Maricopa County Air Quality Department scheduled a public workshop to discuss a proposed Self-

Reporting Policy, on Thursday, August 30, 2012. A copy of the draft Self-Reporting Policy is currently available on the department's website.

The purpose of the proposed policy is to encourage greater compliance with Maricopa County Air Pollution Control Rules and Regulations. It promotes a higher standard of self-policing by providing mitigation of all or a portion of the civil penalties for violations that are voluntarily discovered and promptly disclosed and corrected. The proposed policy is consistent with the Arizona Revised Statutes Title 49 Chapter 10 Environmental Audit Privilege. Members of the public may provide oral or written comments to the department. Comments on the proposed policy will be accepted until Friday, September 14, 2012 at 5:00 p.m.

Additional information on the proposed policy may be obtained by contacting Jo Crumbaker at 602-506-6705 or by e-mail at jcrumbak@mail.maricopa.gov.

ADEQ ISSUES AQUIFER PROTECTION PERMIT TO ARIZONA SOLAR ONE LLC

❖ The Arizona Department of Environmental Quality announced recently that an aquifer protection permit has been issued to Arizona Solar One LLC to operate Solana Generating Station near Gila Bend, which is expected to be Arizona's largest solar electric generating station.

The 280-megawatt power plant is expected to begin operation later this year with a projected life of more than 30 years. About 1,700 jobs are expected to be added during the solar generating station's construction and the plant plans to use 85 full-time employees working in two shifts during the peak operating months.

"The Solana Generating Station is an excellent example of greening and growing Arizona's economy," said ADEQ Director Henry Darwin. "It will add hundreds of much needed jobs in a rural area while, at the same time, giving a major boost to the development of renewable energy in the state."

"This will be the first utility-scale concentrated solar power plant to operate in Arizona," said Leisa Brug, energy policy advisor to Governor Jan Brewer. "What's interesting about this project is that it offers a six-hour thermal storage option that extends electrical generation through peak load. In its 30-year lifespan, that aspect may play a key role in Arizona's energy future."

The generating station will concentrate solar power through parabolic mirrors and raise the temperature of a heat transfer fluid. The fluid will produce steam in solar steam generators connected to a steam turbine

Continued on page 11

Jason Bolen

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Larry Olson, PhD.

IT'S ALL ABOUT CHEMISTRY

A WORLD CLASS FIGHT - THE PEBBLE MINE IN BRISTOL BAY, ALASKA

I recently had the opportunity to visit Alaska for the first time and even though I only saw a small sliver of this immense state, it was enough to appreciate how untouched by human hands and how uninhabited much of it is. Alaska's 663,000 square miles are occupied by only 627,000 people compared to Texas with 20.8 million people in 268,000 square miles. So Alaska is America's last wilderness, with more intact ecosystems than anywhere else in the U.S., and for that matter much of the rest of the world.

And therein lies a problem. From the discovery of gold in the 1870s to oil in Prudhoe Bay in 1967, Alaska has depended upon exploitation of its incredible natural resources to provide an economic base for a growing population. The idea of "responsible resource development" has a mixed history in Alaska, as it does elsewhere. One example is Halibut Cove, a small island off the Kenai Peninsula. In 1911, the rich herring run in the area led to the development of a town, docks, and an industry employing more than 1000 people, to salt and ship the fish. But pollution from the saltries ultimately caused the herring to leave and by 1928 the boom was over and only a few hangers on were left in Halibut Cove. Today you can take a ferry to have dinner at the wonderful Saltry Restaurant, but there are only about 20 people that live there year round.

It's that type of experience that makes people nervous when they hear about the potential development of the Pebble mine, one of the world's largest discoveries of copper, along with gold and molybdenum, at the headwaters of the Kvichak and Nushagak Rivers which empty into Bristol Bay in southwest Alaska. This area is a world class commercial and sport fishery for Pacific salmon. The Bristol Bay watershed supports 46% of the

world's wild sockeye salmon population. The average annual inshore run of sockeye salmon is 37.5 million fish! (http://www.epa.gov/ncea/pdfs/bristolbay/bristol_bay_assessment_erd_2012_exec_summary.pdf). Although sparsely inhabited, EPA estimates that through commercial and sport fishing, sport hunting and tourism Bristol Bay generated \$480 million in 2009 and provided employment for 14,000 full and part-time workers. So there are a substantial number of people focused on protecting this unique resource.

Arrayed against them is The Pebble Partnership between Anglo American and Northern Dynasty Minerals. They promise to apply the best science and technology in a way that will protect the Bristol Bay watershed. They also promise to work with local Native Corporations and claim the mine will provide a sustainable economic base for decades for this region. Up to 3,000 jobs could be created during construction and 1,000 for operation of the mine. The potential amount of metals that could be extracted from the Pebble could reach 80 billion pounds of copper, 5.6 billion pounds of molybdenum and 107 million ounces of gold – worth more than \$500 billion. That's a lot of political muscle.

If built, Pebble would be North America's largest open pit mine. Up to 10 billion tons of waste could be generated that must be contained in perpetuity, because the tailings and other waste have the potential to produce acids, sulfides, and other toxic metals that could affect the watershed. An earthen dam 700 feet high will be needed to contain the tailings. Dredging and massive water use in mining activities have the potential to significantly impact wetlands that are the supporting foundation of the entire watershed. In order move the ore out of the region, a pipeline would need to be constructed to move a slurry of copper concentrate to a point on Cook Inlet where a new deep water port would be constructed. The environmental issues faced by the Pebble Mine dwarf those of our copper industry here in Arizona.

Where do things stand right now? No permit applications have yet been made and no specific plans have been put forward by the Pebble Partnership. But there is a political firestorm because EPA has issued a Bristol Bay Watershed Assessment that Alaska's Attorney General and Senator Murkowski see as a preemptive strike to assert federal jurisdiction through the Clean Water Act and marginalize the state's ability to develop its natural resources. Congressional Republicans, led by Congressman Darrell Issa, Chair of the House Oversight Committee, have vowed to block EPA's ability to intercede in the situation.

Meanwhile, you can't watch TV for an hour without being inundated with ads from both sides. Long term Alaskan residents are divided on the issue, and not always along political lines. Stay tuned to see how this battle turns out.

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 environmental management. He can be reached at 480-727-1499, or by email at Larry.Olson@asu.edu

ASSOCIATIONS PAGES

The Journal of Environmental Management Arizona invites environmental, health and/or safety organizations in Arizona to contribute news articles about their associations. Contact the editor at 480-422-4430 x42.



WWW.SAEMS.ORG

The 2012-2013 executive committee has been installed. President-elect: Dawn Weyer; Vice-president: Dan Williams; Secretary: Derek Koller; Treasurer: Barb Ricca; and Communication Coordinator: Sarah Hartwell.

The P2 Seminar, scheduled for September 26 at the Hotel Tucson in Tucson, provides a great day of sustainable topics and revenue to fund the scholarship program. SAEMS is looking to partner with Tucson Clean and Beautiful and the Arizona Native Plant Society on a community grant project. The projects are for schools or community groups in the pre-K to 12th grade ages with projects focused on the environment and group participation.

SAEMS members and family will participate in Adopt-A-Highway clean-ups in September and November.

Our annual meeting was held on June 20th. We recognized Cat Schladweiler for her hard work and dedication to the environment with the SAEMS volunteer of the year award. Monthly luncheons are held on the last Wednesday of each month at Hotel Tucson. We are in our annual membership drive. If you are interested in joining please visit our website.



Heather Shoemaker
President



WWW.EIA-AZ.ORG

The association has been busy planning the 2012 Regional conference that is to be held in Phoenix October 4-5, 2012. Some of the topics of presentations include the new regulations for Fracking, Soot Particulate Identification, City of Phoenix's IgCC Commitment, Carbon Dioxide Dewar Hazards, Environmental Insurance Pitfalls, and the history of asbestos abatement in Arizona and lead use and safety. We have a great program planned that will interest anyone who is involved or has interest in environmental issues. The conference will be at the Arizona Golf Resort located at 425 South Power Road, Mesa, Arizona. Please visit our website for additional information regarding these seminars.

Please visit our web site or contact the organization's president Mr. Joe Palermo at palermo@ihi-env.com for information on all upcoming events sponsored by EIA-AZ and for membership and sponsor opportunities.



Vicky Aviles
Past President



WWW.VALLEYFORWARD.ORG

SPOTLIGHTING ENVIRONMENTAL EXCELLENCE IN THE VALLEY

Despite a challenging economy, environmental stewardship is alive and well in the Valley. Valley Forward received more than 120 entries in its 32nd Annual Environmental Excellence Awards competition, demonstrating the high priority sustainable design and development has in our growing metropolis. Projects encompass: buildings and structures, livable communities, site development and landscape, art in public places, environmental technologies, environmental education/communication and environmental stewardship.

The environmental public interest group, in partnership with SRP, will recognize 17 first-place Crescoda winners and 29 Awards of Merit at a gala Sept. 29 at the Westin Kierland in Scottsdale. Professional jurists led by Chevy Humphrey, CEO and president of the Arizona Science Center, judged the entries. The awards set standards for achieving balance between the built and natural environment in the region's physical, technical, social and aesthetic development.

The awards showcase sustainability initiatives from public, private, educational and non-profit entities in and around Maricopa County. They have become powerful vehicles in advocating for preservation of natural resources – air, water, open space and our unique desert environment.



Diane Brossart
President



AHMP
THUNDERBIRD

WWW.THUNDERBIRDCHEM.ORG

A teacher once described the best teams this way – 'where people love both what they do and who they do it with'.

It's pretty bold to use the L-word in business, but that's not the only thing Tim Keck says that strikes a chord. His subject of choice is 'Bulletproof Teams' and he has been building teams as a former SWAT team leader and Chief of Police for over 20 years. Tim was the key instructor in the AHMP's Leadership Workshop, offered last spring in Denver.

Tim says that bulletproof teams require strong relationships: "Key elements are foundational trust, robust conflict, and sacrificial commitment to each other and the cause." I'm trying to decide if Tim's recipe is a challenge or an aspiration. Both, maybe.

For more challenge and aspiration, it's not too late to attend the AHMP National Conference in beautiful Anchorage this September. See AHMP's web page: <http://www.ahmpnet.org>.



Jeff Page
CHMM
Board Member



WWW.AZCHAMBER.COM

The Arizona Chamber of Commerce and Industry and the Arizona Manufacturer's Council is in the process of developing the organization's public policy priorities for 2013. The Environment Committee is the venue to submitting and vetting environmental legislative and regulatory issues of concern on behalf of member companies. Anyone wanting to recommend an environmental issue for consideration should contact me, Jeff Homer, at 480-441-6672 / jeff.homer@gdc4s.com.

The Environment Committee continues to host breakfast meetings on the second Wednesday of each month at the Phoenix Sheraton Hotel located at 1600 S. 52nd Street Tempe, AZ 85281. Check the Arizona Chamber's web page at www.azchamber.com for meeting details.



Jeff Homer
Chairman
Environment
Committee



WWW.AZHYDROSOC.ORG

The Arizona Hydrological Society (AHS) invites all environmental and water professionals and students to join us for the 25th Annual AHS Water Symposium being held at the Desert Willow Conference Center (DWCC) on Sept. 18-21, 2012, in Phoenix. Register by August 31 for only \$255! To view the technical program, please visit the symposium website at <http://azhydrosoc.org/2012Symposium/default.html>.

At this year's symposium, AHS is offering a unique opportunity to attend a free networking event and Symposium registration not required! Mingle with industry professionals and students from 5 - 8 PM on Tuesday, September 18, at the Desert Willow Conference center – visit the symposium website for details and RSVP instructions.

Additionally, the AHS Phoenix Chapter is soliciting applications for student registration scholarships to attend this year's Symposium. This is an excellent opportunity for students to meet and network with water resource professionals in Arizona and the greater Southwest. Don't miss out – visit the website for details!



Christie O'Day
Executive
Director

Arizona Chapter



American Society of
Safety Engineers

AZ.ASSE.ORG

The 2012-2013 chapter year theme is "Mentoring our Future Leaders" The Arizona Chapter hopes to strengthen and improve our current and future relationships with all of our schools, school districts, parents, children and teachers. Our future leaders need our help and guidance and most importantly, it is this generation that can hold their leaders, parents, guardians and mentors

accountable for their own personal safety.

I remember when I used to ride in the car with my dad. He never wore his seatbelt and we had a class that day at the elementary school about the new seat belt law. After attending the class, I nagged and nagged at my dad, and he eventually wore the seatbelt. We have the obligation to infiltrate all schools and communities to do the same thing with this generation, in effect; we have to send safety home. We have to get our children prepared to provide the same level of safety whether it is at work, at home, or on the road. We have to "Mentor our Future Leaders"

Our first chapter luncheon will be held at the Arizona Country Club on September 7th, 2012. The meeting will be held at 11:00am and I encourage you to arrive early for some very important networking opportunities with several of our chapter leaders.

Our board meeting will be held on September 6th, 2012 at 8:00 AM. Details are located on our website and everyone is encouraged to attend, so please stop by!

Let's have a fantastic chapter year, and I hope to see you at the meetings!



Tim
Page-Bottorff, CSP
President



WWW.AZAEPO.ORG

The Arizona Association of Environmental Professionals (AZAEP) invites professionals and students interested in environmental management to our monthly dinner meetings. In June, AZAEP and Air & Waste Management sponsored a well-attended meeting at which Colleen McKaughan, EPA Region 9 Assistant Director, Air Division, provided an update on EPA's permitting for the Navajo Generating Station.

Julia Fonseca, Environmental Planning Manager for Pima County, discussed the upcoming Fish & Wildlife new Multi-Species Conservation Plan at the July monthly meeting in Tucson. AZAEP holds its monthly meetings in Tucson several times a year.

AZAEP meetings are held the fourth Tuesday of the month. The meeting fee (member \$15; non-member \$20) covers the cost of dinner. AZAEP is also the local sponsor of NAEP webinars with nationally-recognized experts. Please go to our website www.AZAEPO.org to become a member, for more information and to be added to our distribution list.

The Board is recruiting for Secretary and an At-Large member; the positions are self-nominating by sending a brief statement of interest and resume to AZAEP President Ali Fakih at Ali@azsego.com.



Patricia
Mariella
Vice President



WWW.AZALLIANCE.ORG

Two of our organization's longest serving board members, Dan Casiraro, representing SRP, and Len Drago, representing Intel, have recently moved on to new positions and will



Photo: Dan Casiraro, SRP, presents Len Drago, Intel, with an Alliance Award of Appreciation in honor of Len's long service to the Alliance. The Alliance will present Dan with an Award of Appreciation for his service at a future date.

no longer serve as Alliance Member Representatives. Dan has retired from SRP and accepted an opportunity in Colorado, and Len continues with Intel but has moved on to new responsibilities. Both members have contributed greatly to our organization for many years. Alliance Members and Advisory

Councilors wish Dan and Len well in their new positions!

Dan's departure as Chair resulted in a few changes to our officer positions.

Members elected the following: Matt Conway, Chair; Greg Heard, Vice Chair; Mark Salem, Treasurer. Jim Thrush continues as President. For more information about the Alliance call our office at 480-422-7392.



Matt Conway
Chair

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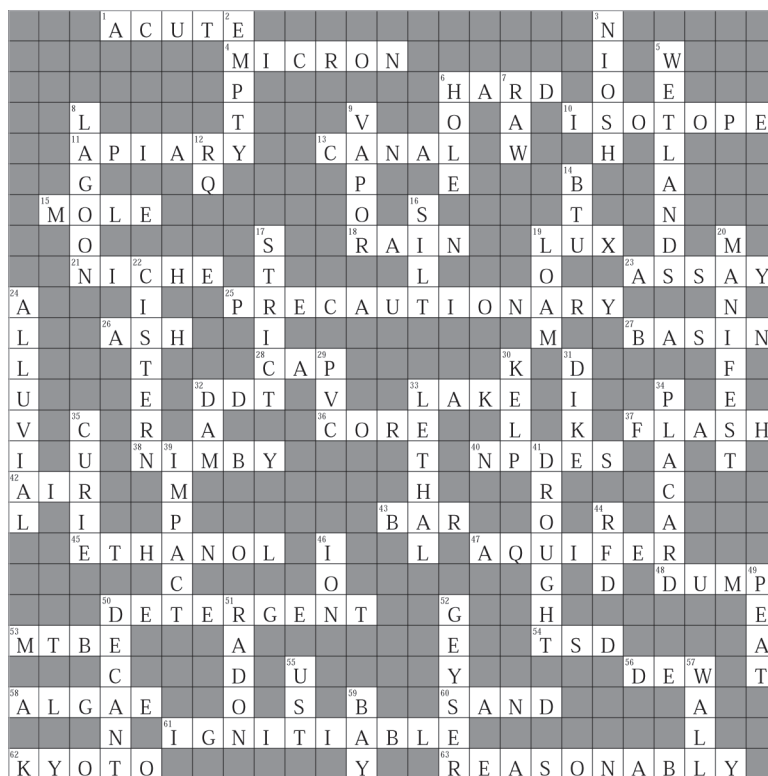
Experience Counts

Contact: Norm Weiss @ (602) 870-5504

Web Site: www.nweissassoc.com

CROSSWORD CHALLENGE PUZZLE KEY

SEE PUZZLE ON PAGE 5.





SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT

Nicholas R. Hild, PhD.

... TALKING THE TALK, WALKING THE WALK ... NOT!

The National Geographic Society (NGS) released the results of its fourth yearly GREENDEX survey that shows that—for the fourth straight year—even though many U.S. citizens *say* they want to continue to reduce their personal environmental footprint and live a more sustainable life style, they are not *actually* living that way! Who knew?

In a previous Journal column, the subject of green labeling was discussed and it was fairly obvious that, if the consuming public is going to make informed decisions about what products are the best choices for reducing their environmental footprint in their daily lives, it is up to us (environmental professionals) to help consumers know which green labels are legitimate. But, based on the NGS study results, it just might be time to examine our own buying decisions, to see if we are really walking the talk ourselves.

According to the survey results, we need to look no further than our own back yard: the worst offenders are U.S. consumers, who (if the survey results are accurate), include a significant percentage of people who can be categorized as “environmentally-knowledgeable.” And, it is likely that people who are *environmental professionals* fit in that category nicely, so if the shoe fits...

Following U.S. consumers, the next worst offenders—consumers who say they know how to walk the walk but choose not to more often than not—were Canadians, followed closely by Japan. All the worst offenders were from countries that are highly industrialized and that have well educated citizens that seem to know about the impact of their daily decision-making has on the environment.

Of course, a caveat observation about this survey: its also highly likely that the respondents to the survey in all countries

were ‘environmentally knowledgeable’ or else they would not have been ‘randomly’ targeted in the first place...but, that makes the results even worse—but, a subject for another day...

What is important to us here is, according to the NGS survey results, the incorporation of *actual* daily living habits that demonstrate a more sustainable life style are not being followed by U.S. consumers—and here is the worst result of the GREENDEX survey: the U.S. ranks dead last among 17 countries surveyed, when it comes to protecting the environment (by actions taken in their daily lives)! We just don’t seem to be walking the walk; just talking the talk.

The NGS (<http://environment.nationalgeographic.com/environment/greendex>), explains that GREENDEX is in its fourth year of partnering with survey company, GlobeScan, to develop an international research approach to measure and monitor consumer progress toward environmentally sustainable consumption. NGS further says, the key objectives of the surveys year over year, are to track the *quantitative* measures of consumer behavior and to promote sustainable consumption.

As you have seen here before, *‘if you can’t measure it, you can’t manage it!’* This is one organization that understands what that means and is doing something ‘*quantitatively*’ to measure our sustainable living habits across the globe.

To that end, this scientifically derived *consumption* index (with possible caveat bias noted above) of actual consumer behavior and material lifestyles across 17 countries has made a significant effort over the past four years to track consumer habits over time, including comparability across the selection of 17 countries representing both the developed and developing world.

The survey used data gathered from 17,000 people across those 17 countries to generate the Greendex score that basically is a report card about consumer sustainable behavior. In the 2012 survey, interestingly, the three lowest-scoring countries were Japan, Canada and the U.S., countries where expectations for a majority of well-educated people would be to be most aware of their own personal decisions making’s impact on the environment and for them to have a conscience that would make them want to live a continually sustainable lifestyle.

Not so, say the results: responses to questions about behavior effecting energy use and conservation, transportation choices, food sources, the relative use of green products versus conventional products, attitudes toward the environment and sustainability revealed that —*and, this is the bottom line*—47% of Americans who responded said their individual choices could make a difference in protecting the environment but just 21% said they felt guilty about the impact their choices had!

What this should say to the environmentally-conscious community is obvious: if we don’t walk the walk now, how will we ever defend our actions to our children’s, children’s, children?

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NEWS BRIEFS

CONTINUED FROM PAGE 6

generator to produce electrical power.

Arizona Public Service has agreed to buy all of the electricity generated at Solana and the station will generate enough electricity to serve 70,000 customers when operating at full capacity.

Solana will be APS' largest source of renewable energy. APS expects the plant to be fully operational in 2013. It is estimated that Solana will bring about \$1 billion of investment to the state of Arizona.

STREAMLINED WATER QUALITY CONTROL PERMITS NOW AVAILABLE

❖ The Arizona Department of Environmental Quality announced recently that two new streamlined water quality control permits are now available for operation of wastewater treatment plants (WWTPs) that discharge effluent to surface water throughout the state.

Coverage under the general permits will be available for those WWTPs releasing less than one million gallons per day to surface waters that flow only after rain or snow events, or to those surface waters that are dependent upon effluent discharges for their flow. Coverage will also be available for those WWTPs releasing less than 20 million gallons per day on a very infrequent or emergency-only basis.

Discharges to continuous and intermittent flowing surface water bodies that have been designated as "Outstanding Arizona Waters" due to their exceptional recreational or ecological significance are not eligible to discharge under these general permits.

A general permit is a cost-effective and efficient way for ADEQ to authorize discharges from a large number of similar facilities, while ensuring consistency in permit conditions for similar discharges. General permits also benefit an applicant by significantly reducing the cost and shortening the time necessary to obtain permit coverage. Individual permits previously costing as much as \$15,000 and taking up to a year to issue will now be available as general permits costing between \$1,500 and \$2,500 and be issued in much less time.

Further, as general permits are developed to restrict discharges at multiple facilities, the requirements are often more stringent than what would be required under an individual permit. Thus, cost and time savings do not come at the expense of environmental protection.

"We are continuously looking for ways to reduce permit processing times while maintaining the same or higher level of environmental protection," said ADEQ Director Henry Darwin. "It generally takes a wastewater treatment plant from nine to 12 months to receive an individual permit. These new general permits will only take four to six months to process and will offer the same or better water quality protection due to the comprehensive monitoring required."

Wastewater treatment plants already operating under individual permits may be eligible for one of the new general permits at the time of renewal if the requirements for coverage can be met. The applications for the new general permits are available online at <http://www.azdeq.gov/envirom/water/permits/gen.html>.

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EPA Method 9 Visible Emissions Training Fall 2012 Smoke School Schedule*

August 22:	Mesa, AZ (ASU Polytechnic)
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August 30-31:	Yuma, AZ
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September 6:	Cottonwood, AZ
September 19:	Gallup, NM
September 20:	Flagstaff, AZ
September 26-27:	Las Vegas, NV
October 2-3:	Kingman, AZ
October 9-10:	Glendale, AZ
October 12:	Safford, AZ
October 17-18:	Mesa, AZ (ASU Polytechnic)

* Please check our website for the latest dates and locations.

On-site classes for groups of more than 20 may be scheduled by contacting us with your group's needs.

Your Air Quality Permit may require opacity readings by a person certified in the proper use of EPA Method 9. Opacity training is recommended for air quality environmental consultants and environmental compliance personnel at construction sites and at any source of visible emissions.

Maricopa County area classes include a review of all Maricopa County Air Quality Department opacity standards.

To register or get more information:
<http://collaboratory.asu.edu/oet/smokeschool>
480.727.1825



AIR QUALITY IN MARICOPA COUNTY: WHAT'S REALLY GOING ON



PHOTO: A Haboob approaching Ahwatukee, Phoenix, Arizona.
Public domain image, Source: en.wikipedia.org.

by William D. Wiley, P.E.

Arizona is a land of great diversity and beauty, showcasing majestic valleys and mountains, vegetation from low desert to alpine, and sophisticated night life to pastoral ranch tranquility. Located in the center of the state, Maricopa County has easy access to all areas and serves as the economic and political hub of the region. With over 3.8 million people and growing, however, the county also has its air quality challenges.

The giant haboobs of 2011 stunned residents and national television viewers and illustrated one of our natural air quality issues. Unfortunately, these graphic images left many with the lasting impression that our air was not suitable for daily activities, let alone breathing.

JUST HOW BAD IS IT?

Although we hear a lot about these giant dust storms and have regular high pollution advisories for ozone and particulates or winter “No Burn days,” is our air really that bad? A 2012 American Lung Association report using 2008-2010 data ranks the Phoenix-Mesa metropolitan statistical area with an “F” for ozone pollution and “C” for fine particulate pollution. The Phoenix-Mesa area was also on the 25 worst lists for these two parameters¹. Similarly, the Maricopa County Air Quality Department (MCAQD) surveyed 404 residents and although 49% felt the air quality was the same, for those expressing a change, nearly 2 to 1 felt the air was getting worse (29% to 15%)².

SO WHAT DOES THE DATA SHOW?

WHAT IS PM_{10} ?

Coarse particulate matter less than 10 micrometers in diameter that are generally emitted from sources such as vehicles traveling on unpaved roads, materials handling, and crushing and grinding operations, as well as windblown dust.

The MCAQD monitors six criteria pollutants outlined in the Clean Air Act (CAA): carbon monoxide, lead, nitrogen dioxide, ground-level ozone, particulate matter (PM_{10} and $PM_{2.5}$) and sulfur dioxide. Data collected from a countywide network of 24 representative monitoring

sites is used to: 1) determine the region’s attainment with the National Ambient Air Quality Standards (NAAQS); 2) provide data for modeling of new sources; and 3) supply data to air quality forecasters³.

Nationally, the six criteria pollutants have decreased by more than 50% since 1970⁴. So what does the data show about the air quality in Maricopa County?

In Maricopa County, we meet air quality standards at all monitors nearly 90% of the time (see Figure 1). However, 2011 was a particularly difficult year due to the lack of rainfall and big dust events and 2012 appears to be following a similar pattern.

Now let’s look at each criteria pollutant in detail. Data utilized in this paper is the most recent “certified” data and generally extends through the end of 2011. Note, each chart that follows shows the number of exceedance days or the air quality trend based on how the standard is measured. Specifics for each parameter including the applicable standards are on each chart.

WHAT IS $PM_{2.5}$?

$PM_{2.5}$ is fine particulate matter less than 2.5 micrometers in diameter that result from fuel combustion from motor vehicles, power generation, and industrial facilities, as well as from residential fireplaces and wood stoves.

CARBON MONOXIDE

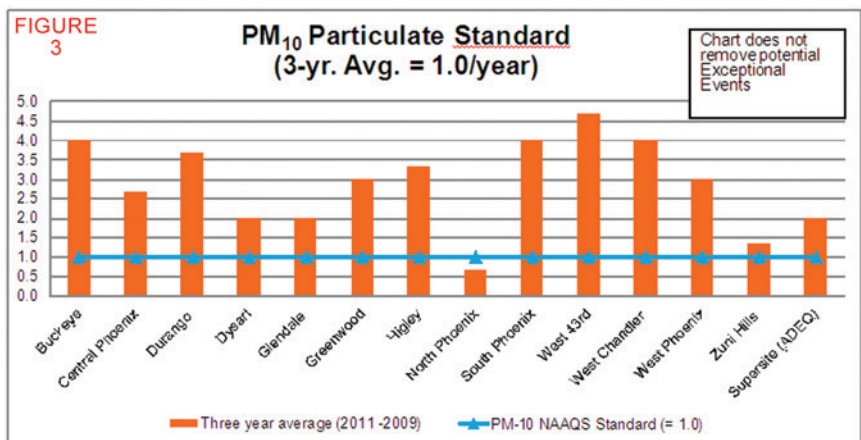
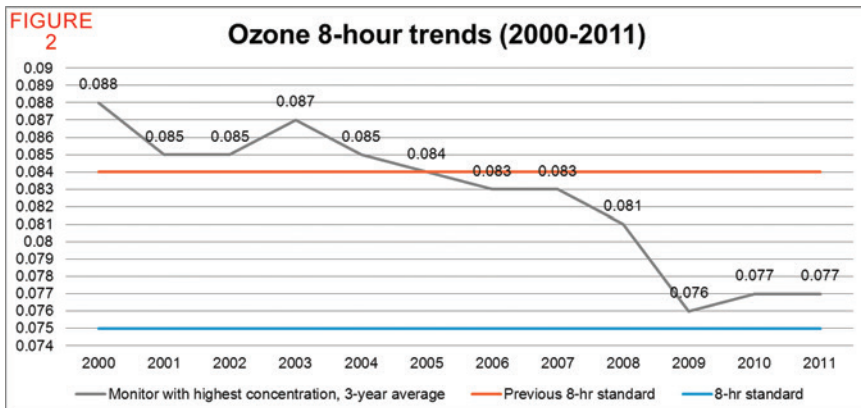
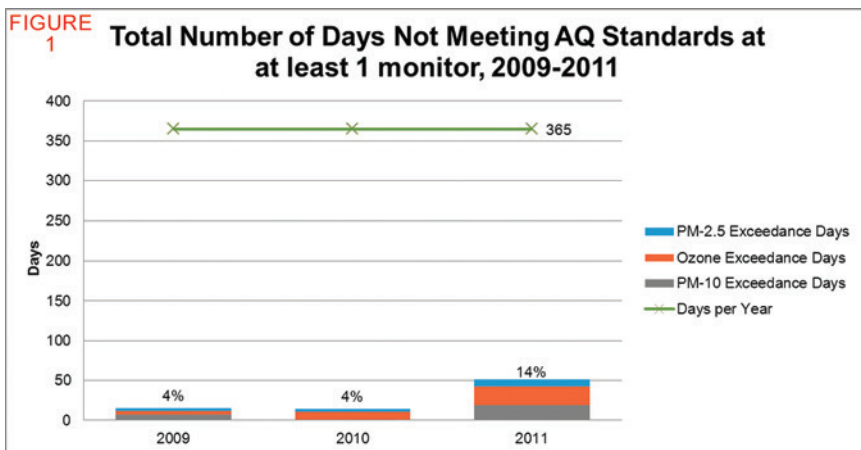
The valley has made substantial progress since the 1990’s on this parameter primarily due to cleaner fuels, a state of the art vehicle emissions program and cleaner vehicles. Maricopa County has been in compliance with the 9 ppm standard for 15 years.

OZONE

Again, ozone trends are down. We are currently meeting the 1997 0.080 standard, but not meeting the 2008 0.075 standard. Recently EPA has promulgated an expanded ozone nonattainment boundary and classified the area as “marginal” nonattainment for the 2008 standard⁵. Further lowering of the standard (in the range of 60 to 70 ppb to be proposed in 2013)⁶ may challenge the area (as well as much of the state and country).

LEAD

With the use of unleaded gasoline, the area has been meeting the current



lead standard ($0.15 \mu\text{g}/\text{m}^3$) for several years. Lead monitoring is currently only being conducted at the Deer Valley Airport as general aviation gas still contains some lead.

SULFUR DIOXIDE

The county has been well below the standard (30 ppb) since it was adopted. Reduced sulfur diesel fuel continues this downward trend even with increased

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mileage as the area has grown⁷.

PARTICULATE MATTER 10 (PM₁₀)

The PM₁₀ standard ($150 \mu\text{g}/\text{m}^3$) has been a challenge for the county for decades and a portion of the county has been designated serious non-attainment since 1996. Violations are based on having more than three exceedances of the standard over three years at a single monitor. Using raw data from the three years of 2009 – 2011, 13 of the 14 PM monitors shown in Figure 3 would violate the standard. If exceptional events (e.g., natural events such as dust storms) were removed from the analysis, however, we would be in attainment (Figure 4). Several exceptional events demonstrations have been sent to EPA requesting that they be removed from the attainment analysis.

FINE PARTICULATE MATTER

Fine particulate (PM_{2.5}) often comes from different sources than the coarse dust that we attribute to living in the desert. Primary contributors to the very small particles that embed deep in our lungs are diesel,

Continued on next page

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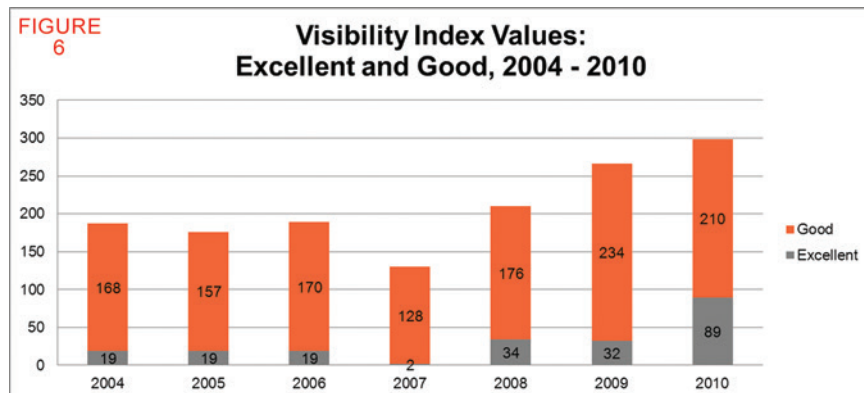
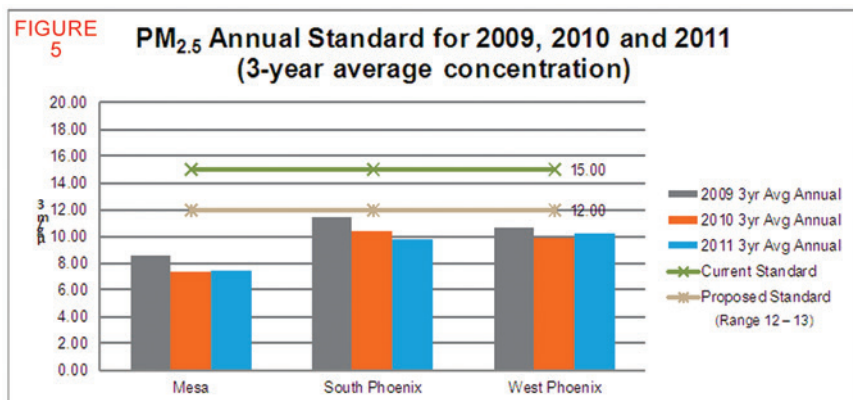
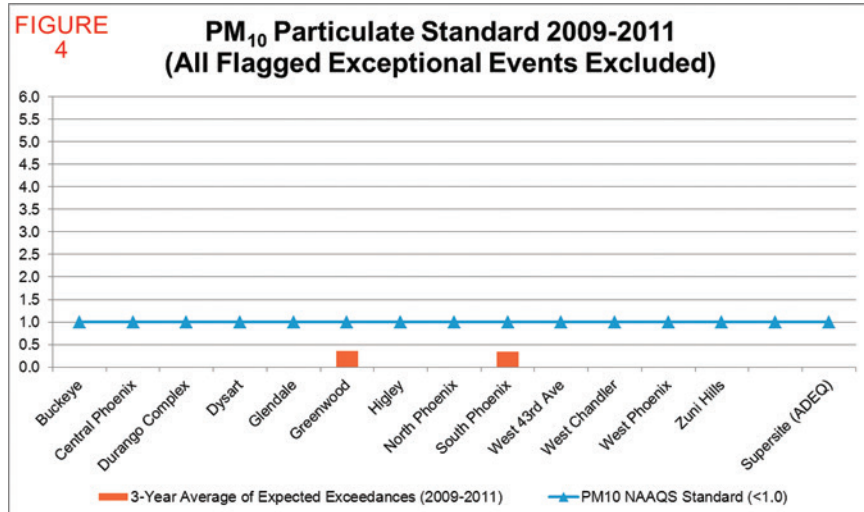
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AIR QUALITY IN MARICOPA COUNTY: WHAT'S REALLY GOING ON

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combustion, and fireplace emissions. Although we currently meet both the annual and the 24-hour standards, we have days where we exceed the 24-hour standard substantially. These typically coincide with winter holiday fireplace use⁸.

Figure 5 shows how close we would be to a proposed annual PM_{2.5} standard of 12 µg/m³.⁹

Note, EPA is currently under court order to revise the fine particulate standard and will propose a new standard by December 14, 2012.¹⁰ The proposed range for the annual standard is 12 to 13 mg/ml.

TABLE 1

Visibility Index	Deciview Scale
EXCELLENT	14 or Less
GOOD	15 to 20
FAIR	21 to 24
POOR	25 to 28
VERY POOR	29 or Greater

VISIBILITY

Although not a criteria pollutant, our brown cloud and visibility are what citizens and visitors see in the valley. ADEQ currently measures visibility at five locations in the Phoenix metropolitan area. Data is measured in deciviews (a measure of perceptible visible difference) with lower being better¹¹. Table 1 indicates how visibility is classified. Figure 6 shows the number of excellent and good days since 2004.

SUMMARY

Overall concentrations of nearly all pollutants have decreased substantially over the period of record. Likewise, visibility (data) shows dramatic improvement in recent years. In some years such as

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2011, weather and exceptional events (large dust storms) can adversely impact air quality. Changes in the health-based air quality standards particularly in the case of ozone and for particulates will continue to challenge the region.

William (Bill) D. Wiley, P.E., is Director of the Maricopa County Air Quality Department. Contact Bill at (602) 506-6443 or by email at WilliamWiley@mail.maricopa.gov. The Air Quality Department website is located at www.maricopa.gov/aq.

FOOTNOTES:

- 1 American Lung Association 2012 – Note although the Phoenix-Mesa area was on the 25 worst list for the fine particulate annual standard and for ozone pollution, Maricopa County was not. The Phoenix-Mesa area includes monitors in Pinal County.
- 2 Allison & Partners Clean Air Make More telephone survey on air quality conducted January 18 – February 15, 2012.
- 3 <http://www.maricopa.gov/aq/divisions/monitoring/Default.aspx>
- 4 <http://www.epa.gov/air/peg/pdfs/peg.pdf>
- 5 77 FR 30088 and 77 FR 30160
- 6 Statement of President, September 2, 2011
- 7 Diesel fuel standard is 0.015 ppm.
- 8 PM_{2.5} monitor exceedances occurred on December 24, 25 and 31, 2011 and on January 1, 2012.
- 9 American Lung Association vs. EPA (No. 1:12-cv-243). EPA is under court order to propose a new PM standard by June 14, 2012. Per court order it will be signed by December 14, 2012.
- 10 EPA particulate standard – 77 FR 38890, June 29, 2012.
- 11 <http://www.phoenixvis.net/vis-index.html> - see Table 1.

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