

June 2007



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# Lake Michigan States Section Air & Waste Management Association Newsletter<sup>®</sup>



## New Members

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Argonne National Laboratory

**Ken Comire**  
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**Barbara Coughlin**  
Environ

**John Dennison**  
Bureau Veritas North America

**Michelle Dupey**  
3M Industrial Mineral Products  
Division - Wausau

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## SUPREME COURT DECIDES TWO LANDMARK CASES UNDER THE CLEAN AIR ACT

### High Court Tackles PSD and Greenhouse Gas Emissions Issues

It is unusual for the United States Supreme Court to decide two Clean Air Act cases in the same year, let alone on the same day. But that is exactly what happened on April 2, 2007, when the Court issued its decisions in Environmental Defense v. Duke Energy Corp. and Massachusetts v. EPA. Each of these significant cases and some related developments are briefly discussed below.

- **Environmental Defense v. Duke Energy Corporation,**  
**127 S.Ct. 1423 (2007)**

Background: This case began in 2000 as an enforcement action against Duke Energy, brought in the United States District Court for the Middle District of North Carolina by the Department of Justice on EPA's behalf. The complaint alleged that, between 1988 and 2000, Duke had modified and subsequently operated many of its coal-fired electric generating units (EGUs) in violation of the Clean Air Act's Prevention of Significant Deterioration (PSD) regulations. Duke raised a number of defenses, including that its activities were exempt as "routine" maintenance, repair and/or replacements, and that no hourly increases in emissions had resulted from the changes.

In 2003, ruling on cross-motions for summary judgment, the District Court held that: (1) whether an activity constituted routine maintenance, repair or replacement would be based on an evaluation of whether the activity was routine for the source category, and not for the specific unit at issue; and (2) a net emission increase only would have taken place if there had been an increase in the hourly (not annual) rate of emissions, consistent with the approach used under the New Source Performance Standards (NSPS). United States v. Duke Energy, 278 F. Supp.2d 619. The United States Court of Appeals for the Fourth Circuit affirmed the District Court's decision, holding that Congress's decision in the Clean Air Act to define

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# 2007 Seminar Schedule

Below is the current conference schedule for 2007. If you are interested in assisting with any of the events please contact the conference chair or Programs Chair, Ferdinand Alido at (312) 836-3922 or [ferdinand.alido@nav-international.com](mailto:ferdinand.alido@nav-international.com).

In an effort to control costs, we are always interested in offers of meeting space at reduced or minimal costs. If you can provide meeting space for an event, please contact the conference chair.

Date	Title/Topic	Location	Event Chair/s
July 13, 2007	Zero Discharge Luncheon	Union League Club	Chris Blume (312) 541-4200 x271
September 2007	Greenhouse Gas	TBD	Lawrence Fieber (630) 724-3220
September 2007	Networking Reception	TBD	Robin Pelsis (847) 202-0418
November 1, 2007	Air Primer	Doubletree Hotel	Paul Farber (312) 269-2261
November 2, 2007	Annual Air Conference	Doubletree Hotel	Eric Boyd (312) 269-8903
November 2007	Criminal Enforcement	TBD	Jim Harrington (312) 849-8252
December 2007	Annual Holiday Recpt.	IIT Stuart	Robin Pelsis (847) 202-0418

One-hour training session are also being set up. Look for the first of these to occur the first week of September, with the Air Primer to follow in October. The tentative plan is to hold one of the one-hour training sessions the first week of each month.

Additional seminar subjects will be discussed at the Board of Directors meeting on July 18, 2007. If you have a suggestion or would like to assist with a seminar please contact Ferdinand Alido, Program Chair at (312) 836-3922 or [ferdinand.alido@nav-international.com](mailto:ferdinand.alido@nav-international.com), or join us at the Board of Directors meeting. **Board meetings are open to all members to attend. Your attendance and input are always welcome.**



Congratulations to the LM-A&WMA Student Scholarship winners:

Zaher Hashisho  
Ke Du  
Wang Wei  
Hamidreza Emamipour

Congratulations to the newest LM-A&WMA Board Members:

Bill Franek, Illinois EPA  
Debra Jacobson, WMRC - IL DNR  
Laura Mammoser - Mittal Steel USA Inc.

Each student is associated with the University of Illinois and presented their paper at the recent A&WMA Annual Conference & Exhibit.

See a synopsis of each of their papers beginning on page 13.

# Supreme Court Decides Two Landmark Cases Under the Clean Air Act (con't.)

“modification” in the PSD statutory provisions by cross-referencing the NSPS statutory provisions required EPA to interpret the term consistently in the two programs, i.e., using an hourly emissions increase approach. United States v. Duke Energy, 411 F.3d 539 (4<sup>th</sup> Cir. 2005). The Supreme Court granted the petition for a writ of *certiorari* filed by Environmental Defense, an intervenor-plaintiff in the lower court actions.

The Supreme Court’s Ruling: In a 9-0 decision, the Court held that EPA was not required to define “modification” identically in the NSPS and PSD regulations. That is, EPA could determine whether a PSD modification occurred by measuring increased annual—not hourly—emission rates. The Court also held that the Fourth Circuit’s attempt to conform the PSD regulatory definition of modification to the NSPS definition constituted an implicit (and inappropriate) invalidation of the PSD regulations.

## Related developments:

- ∅ On the enforcement front, the Duke case has gone back to the District Court for further proceedings. Other enforcement actions that had been stayed pending the Supreme Court’s ruling are likely to be reactivated, as well.
- ∅ On the rulemaking front, EPA has published a Supplemental Notice of Proposed Rulemaking to revise the emission test for EGUs subject to the PSD and non-attainment new source review provisions. See 72 Fed. Reg. 26202 (May 8, 2007). In the proposal, EPA interprets the Supreme Court decision as permitting an hourly rate approach, so long as there is a rational reason for doing so. The comment period ends July 9, 2007.

## • Massachusetts v. EPA, 127 S.Ct. 1438 (2007)

Background: In 1999, under Section 202 of the Clean Air Act, a number of organizations petitioned EPA to regulate greenhouse gas emissions—carbon dioxide, methane, nitrous oxide and hydrofluorocarbons—from new motor vehicles. In 2003, after considering almost 50,000 public comments, EPA denied the petition and concluded, among other things, that carbon dioxide emitted by automobiles was not an “air pollutant” under Section 202 of the Act. Massachusetts, along with 11 other states, three cities, an American Territory and numerous environmental organizations, challenged EPA’s denial in the United States Court of Appeals for the D.C. Circuit.

The appellate court issued three separate opinions, with two of the them upholding EPA’s action. Massachusetts v. EPA, 415 F.3d 50 (D.C.Cir. 2005). In the main opinion, Judge Randolph concluded that EPA had properly exercised its policy judgment in denying the petition by citing scientific uncertainty concerning the effects of greenhouse gas emissions and expressing its view that the Clean Air Act regulations might not be the best vehicle for addressing climate change. Although Judge Sentelle asserted that the petitioners lacked standing (because global warming affects “humanity at large,” making it a generalized grievance that is not justiciable in court), he joined Judge Randolph in the issuance of his judgment. But, in a sharp dissent, Judge Tatel maintained that EPA not only had the authority to regulate emissions of greenhouse gases, but a duty to do so. The Supreme Court granted the petition for *certiorari* filed by Massachusetts, along with a number of other state and local governments and environmental organizations.

*Continued on page 4.*

# Supreme Court Decides Two Landmark Cases Under the Clean Air Act (con't.)

The Supreme Court's Ruling: In a 5-4 decision, the Court overturned the D.C. Circuit. Through an opinion written by Justice Stevens, the Court held that: 1) given the potential for further loss of its coastal land from rising sea levels caused by climate change, the State of Massachusetts had standing to bring the lawsuit; 2) greenhouse gases were "air pollutants" with the meaning of Section 202 of the Clean Air Act; and 3) EPA's policy rationale for deciding not to regulate them was not grounded in the statute. The Court remanded the case back to EPA for further proceedings.

Justice Roberts wrote a lengthy dissent in which he asserted that Massachusetts had no standing to bring the action. He based this on, among other things, the relatively small amount of emissions at issue and the conjectural nature of the assertion that EPA regulation of new automobiles would prevent the loss of Massachusetts coastal land. He further opined that climate change was an issue best left to Congress and the President, not the federal courts.

Justice Scalia wrote a separate dissent which focused on the merits of the petition. Among the reasons for his disagreement with the majority was the belief that the Court should defer to EPA's decision not to initiate rulemaking and to its interpretation of the Clean Air Act's definition of "air pollutant."

## Related Developments:

- Ø President Bush has issued an Executive Order directing federal agencies to create a policy for reducing greenhouse gases from motor vehicles; his "20-in-10" plan would result in cutting U.S. gasoline consumption by 20 percent over 10 years.
- Ø Congress has before it various proposals addressing greenhouse gases, including Delaware Senator Tom Carper's bill that would control power plant emissions of mercury, sulfur dioxide, nitrogen oxides and carbon dioxide.

- Ø The State of California has applied under Section 209 of the Clean Air Act for a waiver of federal preemption to permit enforcement of the State's new motor vehicle emission standards. A number of other states have indicated their intention to apply for a similar waiver.
- Ø Parties have filed a judicial challenge to EPA's failure to regulate greenhouse gas emissions in its February 26, 2006 power plant NSPS. New York v. EPA, No. 06-1322 (D.C.Cir.). On May 2, 2007, the petitioners requested that the Court vacate the rule in light of Massachusetts v. EPA.
- Ø There are numerous non-governmental efforts related to greenhouse gas emission reduction. These include the U.S. Climate Action Partnership, in which four environmental groups have formed an alliance with 19 U.S.-based companies to push for quicker action against global warming; and the Chicago Climate Exchange, a voluntary carbon trading market.

The recent Supreme Court opinions in Environmental Defense v. Duke Energy Corp. and Massachusetts v. EPA provide valuable judicial insights into some of today's most significant and thorny Clean Air Act issues. While it is far too early to determine the ramifications of these decisions, they are likely to be as complex and contentious as the matters they seek to address.

**Article submitted by: Louise Gross**

*Louise Gross is an Associate Regional Counsel at U.S. EPA's Region 5 office and an Adjunct Professor of Law at Chicago-Kent College of Law. The views expressed in this article do not necessarily represent the views of U.S. EPA or the United States.*

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# THE ZERO DISCHARGE ENVIRONMENT

## *The Technological Heritage of the International Space Station and Future Challenges of Planetary Exploration*

**Friday, July 13, 2007 12:00 - 1:30 p.m.**  
Union League Club of Chicago  
65 W. Jackson Blvd. Chicago, Illinois

The establishment of the International Space Station Freedom (the “ISS”) has led to numerous discoveries and developments related to how traditional environmental science and engineering principles must be adapted to the extreme demands of Environmental Control and Life Support (ECLS) systems. Such systems provide clean air and water to the ISS inhabitants and effectively operate in a “closed-loop” mode, with infrequent and limited mass discharge.

As the international community collaborates on future planetary exploration projects, the lessons learned from implementing ECLS for the ISS will serve as a foundation for conceptualizing, designing and implementing analogous, “zero discharge” systems; such as the new Italian Bioregenerative Life Support Program.

Please join the Lake Michigan States Section of the Air & Waste Management Association for this unique opportunity for an interesting and informative luncheon presentation by:

*Cesare Lobascio*, Head of Functional Architecture & Environment, Thales Alenia Space Italia S.p.a.

Mr. Lobascio is a European authority on ECLS who will be visiting Chicago for the 37<sup>th</sup> International Conference on Environmental Systems.

Space is limited, so Contact Robin Pelsis today at 847-202-0418 or robin@lmawma.org to make your reservation!

Who Should Attend: Engineers, scientists, project managers, other interested parties

Cost to attend:       \$30 for A&WMA Members  
                              \$35 for non-members  
                              \$20 for government employees

*free* for registered students

Make your reservations by **July 6th** to guarantee your seat. Space is limited.

*Also, please note* the Union League Club has a dress code of “Business Casual” - no jeans are allowed.

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## Other Clean Air Act Decisions

### **Implementation of the 8-hour Ozone Standard**

*South Coast Air Quality Management District vs. EPA* in the United States District Court of Appeals for the District of Columbia decided December 22, 2006; rehearing denied *South Coast Air Quality Management District v. EPA*, (D.C. Cir., No. 04-1200, 6/8/07).

This case overturned the USEPA implementation rules for the eight-hour ozone standard. First, the court said, “that the 2004 Rule violates the Clean Air Act insofar as it subjects areas with eight-hour ozone in excess of 0.09 ppm to Subpart 1. We further hold that the EPA’s interpretation of the Act in a manner to maximize its own discretion is unreasonable because the clear intent of Congress in enacting the 1990 Amendments was to the contrary.” This effectively said that all nonattainment areas had to be subject to the full weight of nonattainment rules no matter how close they were to attainment.

The court went on to hold that the USEPA rule stating that the one-hour ozone standard had been revoked for those areas that had not yet achieved attainment was in error and that therefore the one-hour standard remained in effect until achieved and in particular the anti-backsliding limitations remained in effect. Thus, the new source review triggers and provisions of the one-hour standard appear to be in place (Slip Op. at p.34); “section 185 penalty must be enforced under the one-hour NAAQS” (Slip Op. at p.37); and “one- hour contingency plans must remain in place even after transitioning away from the one-hour standard.” (Slip Op. at p.38).

The court concluded by vacating the 2004 Rule and remanding the matter to the USEPA.

USEPA and the States are still wrestling with the meaning of the court’s opinion and what they need to do while USEPA continues its legal challenge. This leaves open many questions such as the triggers for implementing new source review in one-hour ozone nonattainment areas. On rehearing, the court sustained the earlier opinion but limited the reversal and remand to that portion of the rules that had been

overturned. It said, “EPA is urged to act promptly in promulgating a revised rule that effectuates the statutory mandate by implementing the eight-hour standard which was deemed to protect the public health a decade ago.” (Slip Op. at p.7-8).

### **Boiler MACT**

*Natural Resources Defense Council et al vs. EPA*, in the United States Court of Appeals for the District of Columbia, decided June 8 2007, (D.C. Cir., No. 04-1385, 6/8/07).

Continuing a trend coming out of the U.S. Supreme Court to restrict the traditional broad discretion given to USEPA to interpret the Clean Air Act, the D.C. Court of Appeals found that the USEPA Boiler MACT rules and the related Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Stationary Sources: Commercial and Industrial Solid Waste Incineration Units were both invalid. The court found that the Clean Air Act mandated that any unit combusting waste, including general household waste, not specifically exempted by Congress had to be subject to the more stringent rules for Commercial and Industrial Solid Waste Incineration Units even if the primary purpose of the unit was for heat recovery. This means that units of any size burning such waste will need to meet the Boiler MACT rules for both hazardous pollutants and conventional pollutants. The court vacated and remanded both the CISWI Definitions Rule and the Boiler Rule.

It is too early to know whether USEPA or others will seek a rehearing or how this issue will proceed from here. If not overturned by the entire D.C. Circuit Court or the U.S. Supreme Court, the decision could have a profound impact on the ability to use any “waste” as a fuel for any purpose.

**Article submitted by: James Harrington**

*James Harrington is a Partner with McGuireWoods, LLP in Chicago, Illinois. Mr. Harrington can be reached at (312) 849-8252 or [jharrington@mcguirewoods.com](mailto:jharrington@mcguirewoods.com).*

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## IDEM Announces New Soil Sampling Procedure

On April 17, 2007, IDEM's Office of Land Quality held "Consultants Day" in Indianapolis. This was an informational session held by IDEM to review and answer questions on topics related to the environmental consulting industry in the State of Indiana. One of the items discussed was the use of EPA SW-846 Method 5035A for the sampling / analysis of Volatile Organic Compounds (VOCs) and Gasoline Range Organics (GRO) in soil samples. This method utilizes a closed system purge & trap process for the analysis of VOCs and GRO. The process involves collecting an approximate 5 gram sample of soil using a coring device. This approximate 5 gram sample is then placed into pre-weighed and pre-preserved vials. The sample is kept sealed in the vials from the time of collection and throughout analysis, therefore reducing the amount of volatilization or biodegradation of the analytes of interest. As of May 1, 2007, IDEM is requiring that soil samples for VOCs and GRO analysis be taken in accordance with EPA Method 5035A. Prior to this date, IDEM recommended but never required samples to be collected per Method 5035. In April of 2000, IDEM published a non-rule document called "Indiana Modified Method 5035". This modified method was similar to the official EPA SW-846 5035A method with the following exceptions: The Indiana modified method did not use the Sodium Bisulfate (Na<sub>2</sub>SO<sub>4</sub>) preservative, but instead required the Na<sub>2</sub>SO<sub>4</sub> vials to be frozen upon receipt at the laboratory and a 7-day holding time be applied.

IDEM has now indicated that this "Indiana Modified 5035" method is being removed and that the official EPA Method 5035A will replace it. The official EPA 5035A method requires the use of Sodium Bisulfate (Na<sub>2</sub>SO<sub>4</sub>) as a preservative for low level analysis and Methanol (MeOH) as a preservative for medium or high level concentrations. Samples collected in accordance with this method have a 14-day holding time. Since IDEM previously did not require samples to be taken via method 5035A or the Indiana Modified Method 5035, a good portion of samples

were received at the laboratory in 2oz or 4oz jars. At the laboratory, these jars were opened and an aliquot of the sample was removed and analyzed. However, by opening the sample jar, there is potential for volatilization and also contamination of the sample. By sampling using the 5035A method, the potential of volatilization and biodegradation is minimized.

There are different types of sampling devices that are acceptable when sampling via the 5035A method. **Microbac Laboratories** recommends the use of the pre-weighed and pre-preserved vials and syringe system. Using this system, the sampler is provided with (2) preweighed vials with Na<sub>2</sub>SO<sub>4</sub>, (1) preweighed vial with MeOH, sampling syringe and a syringe handle. Approximately 5 grams of sample is put into each of the vials using the syringe and the syringe handle. The vials are capped once the sample is put into the vials and then delivered or shipped to the laboratory on ice. The sample is then analyzed at the laboratory by purging the volatiles from the sample as the sample remains inside these same vials, therefore eliminating the loss of volatiles due to exposure to the atmosphere. The use of Encore samplers is also acceptable per the method, however they are more expensive and the sample must be transferred to a vial once it arrives at the laboratory, therefore exposing the sample to the atmosphere. It is also important to remember that IDEM requires soil samples to be reported on a dry-weight basis. Therefore a separate 2oz or 4oz jar should be provided with the 5035 vials so the laboratory can perform moisture analysis and report results on a dry-weight basis. You can find IDEM's supplemental guidance document and the EPA Method 5035A at <http://www.in.gov/idem/programs/land/risc/announces.html>.

*Article submitted by: Ronald J. Misiunas,*

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# Supreme Court Rules That Any Person Can Bring a CERCLA Cost Recovery Action

On June 11, 2007 The Supreme Court ended the confusion as to which parties could recover their costs under CERCLA, ruling in *U.S. v. Atlantic Research Corp.* (Slip Op. June 11, 2007) that any person can bring an action to recover response costs under Section 107 of CERCLA. The unanimous decision, authored by Justice Thomas resolved the uncertainty created by the court's decision in *Cooper Industries v. Aviall Services* ("Aviall") regarding the ability of Potentially Responsible Parties ("PRPs") to bring cost recovery actions. In so doing, the court also clarified the distinction between cost recovery actions and contribution actions under CERCLA.

This case was an outgrowth of the firestorm created by the Court's *Aviall* decision. Under CERCLA there were two apparent methods for parties to recover their costs for remediating contaminated sites. Under Section 107 parties could bring *cost recovery actions* against PRPs in which liability among the PRPs was generally joint and several, meaning that any individual PRP could be completely liable for the entire cost of remediating the site. The second method was a *contribution action* under Section 113(f) in which a PRP could sue other PRPs to allocate the costs among them according to their relative contribution to the site.

Prior to *Aviall*, courts had generally ruled that PRPs must bring contribution actions in order to use the equitable allocation process to fairly allocate all the costs among all the PRPs. As a result numerous courts specifically ruled that PRPs could not bring Section 107 cost recovery actions since they might be able to use the joint and several provisions of that section to unfairly avoid all liability for their own responsibility at the site. The Supreme Court's decision in *Aviall* that PRPs could not bring a contribution action unless they had been sued (or settled a suit) for cost recovery created the unpleasant and unlikely prospect that PRPs that

voluntarily remediated sites could not sue other PRPs to recover their costs. As a result, two Circuit Courts essentially reversed their prohibition against PRPs bringing cost recovery actions while the Third Circuit stood firm, creating the conflict which required the Supreme Court to review this issue.

In selecting the *Atlantic Research* case, the court took perhaps the most far reaching of the three disputes in that it involved the United States as a defendant. Atlantic Research had been a defense contractor which leased property at a U.S. Naval Ammunition Depot. Atlantic Research remediated the site and sued the United States both for cost recovery and for contribution. Atlantic Research withdrew its contribution claim in light of *Aviall* and the District Court dismissed the cost recovery claim based on precedent that PRPs could not bring cost recovery actions. The Eighth Circuit reversed the dismissal, finding that under the Supreme Court's understanding of contribution actions under *Aviall*, that PRPs should be able to bring cost recovery actions.

As in *Aviall*, the Supreme Court relied solely on the language of the statute without reviewing any policy or legislative history. The court noted that Section 107(a)(4)(B) indeed states that "any other person" can bring a cost recovery action and held that the language and structure of this section requires an expansive rather than limited reading of who "any other person" is. The court rejected the U.S. arguments that "any other person" referred to the list of PRPs in Section (a)(4), holding that the antecedents for "other" were the parties identified in Section 107(a)(4)(A). The court also rejected arguments that its ruling would allow PRPs to avoid equitable allocation when it sued other PRPs for cost recovery since the other PRPs could counterclaim for contribution and require an equitable allocation of costs among liable parties.

*Continued on page 9.*

## Supreme Court Rules

The only open issue after the court's decision is how it will affect contribution protection provided in settlements with the United States. Section 113(f)(2) and EPA model consent decree preclude "contribution actions" against parties which settle with the federal or state government and thus would not preclude a cost recovery action. While the Court believes that courts could use their equitable powers to determine that a party which had settled with the EPA should not have to pay more this obviously creates an extra step of litigation and proof which the contribution protection is designed to avoid. While the practical reality is that such a situation would be rare, this does potentially create issues for PRPs seeking settlements.

In short, PRPs may now bring cost recovery actions against other PRPs and may only seek contribution if they have been sued or settled under CERCLA. As a result, PRPs which voluntarily remediate contaminated sites are now legally entitled to sue other PRPs to recover their costs.

*Article submitted by: David L. Rieser*

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## 2007 Annual Air Quality Management Conference

It's time to pull out your calendar and reserve the date. This year's LM-A&WMA 2007 Annual Air Quality Management Conference will be held on **Friday, November 2, 2007** at the Doubletree in Oak Brook.

**Steve Rothblatt** has accepted our invitation to be the keynote speaker and **Laurel Kroack** has confirmed to lead off the State Air Directors Panel. The Conference Committee is busy working to make this year's conference the biggest success yet, so you don't want to miss it.

## All Appropriate Inquiries Update – June 2007

As All Appropriate Inquiries (AAI) enters its 7th month as the EPA's standard for due diligence under CERCLA, several trends are emerging:

1. Nearly all large corporations have begun to require AAI-compliant Phase I reports
2. It is now estimated that 35-45% of all Phase I's ordered nationwide are AAI compliant
3. Gabriel has seen approximately 20-25% of its orders require AAI protocol (we are one of the largest providers of Phase I's in the Midwest)
4. Many banks are changing their Phase I due diligence protocol to determine when and if AAI-compliant reports should be ordered. Gabriel has reviewed and helped implement protocols at several area banks.
5. AAI-compliant Phase I's are costing 35-120% more and taking 1.5 - 2 times as long as non-compliant Phase I's

### When To Use AAI/1527-05 Protocol:

- Required by bank policy
- Known hazardous materials were used at a site or generated

### When To Use ASTM-1527-00 Protocol:

- Low hazardous chemical/waste risk sites
- Most smaller residential and commercial sites
- When cost is a factor and risk is low

*Article submitted by: John Polich, P.E.*

*John Polich, P.E. is President of Gabriel Environmental Services. Mr. Polich may be contacted with any questions at 773-486-2123 or jpolich@gabrielenvironmental.com.*

# EPA Explores Audit Policy Incentives for New Owners

The U.S. EPA (EPA) has requested comments on whether and to what extent the Agency should consider offering tailored incentives to encourage “new owners” to discover, disclose, correct, and prevent the recurrence of environmental violations; comments in writing are due no later than July 13, 2007.

Any tailored incentives for new owners would be beyond those offered in EPA’s April 11, 2000 policy on “Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations,” commonly referred to as the “Audit Policy”. These incentives would be designed to enhance implementation of the Audit Policy and encourage its use in the “new owner context”, but would not constitute a change to the Policy overall.

EPA’s recent experience with corporate-wide auditing agreements following a corporate merger or acquisition has heightened the Agency’s interest in exploring whether offering incentives to new owners would help EPA increase the number of self-disclosures that have the potential to yield significant environmental benefits and improve compliance with Federal environmental requirements. New owners may be particularly well-situated and highly motivated to invest in making a “clean start” for their new facilities by:

- doing thorough self-audits of their new facilities;
- disclosing any violations found;
- promptly correcting the violations; and
- making the substantial improvements that will enhance their ability to remain in compliance going forward.

The Agency is also interested in whether offering such tailored incentives may have unintended adverse consequences with respect to, for example, discouraging appropriate due diligence, timely compliance and a level playing field, or other negative effects.

As one example of how EPA regards the new owner context, consider “Audit Policy: Frequently Asked Questions (2007)”, in which EPA specifies that

“[n]ew owners may be eligible for penalty mitigation under the “Audit Policy” for violations at newly acquired facilities which are discovered as part of a compliance examination agreed to be undertaken prior to the 1st annual certification under Title V of the Clean Air Act, or which are disclosed before that time.” Previously, CAA violations discovered as part of Title V permit certifications were categorically ineligible for penalty mitigation under the Policy because they are discovered as part of a legally mandated monitoring or sampling requirement and, thus, are not considered “voluntary”.

Some of the more compelling topics for which EPA is seeking comments are:

- To what extent do pre-acquisition due diligence reviews reveal environmental noncompliance?
- Would it be appropriate to require new owners to perform a certain level of pre-acquisition due diligence to qualify for tailored incentives, and if so, what should that level be?
- What are the potential effects on environmental compliance and on due diligence reviews that might result from offering tailored incentives for new owners?
- To what extent are environmental noncompliance liabilities reflected in purchase price, and should tailored incentives take this into account?
- How should EPA take indemnification agreements into account in designing any tailored incentives?
- What constitutes a “new owner” and how long after an acquisition is an owner still “new” for the purpose of being offered tailored incentives?
- How should the Agency treat different acquisition transactions (e.g., acquisition, merger, post-bankruptcy reorganization)?
- How should economic benefit be calculated for disclosures by new owners (when should the clock start running when calculating economic benefit)?
- Should the economic benefit calculation take into account whether, and the extent to which, the seller has indemnified the buyer?

*Continued on page 11.*

## EPA Explores Audit Policy Incentives for New Owners

- In calculating economic benefit, should the Agency allow the new owner to offset the cost of the audit?
- Should the Agency provide recognition to new owners who self-audit and disclose under the Audit Policy?

If the Agency decides to develop a policy for tailored incentives for new owners, EPA intends to develop a three-year pilot program to test the effectiveness of such incentives.

For information regarding new owner incentives, visit the following USEPA webpage:

<http://www.epa.gov/compliance/incentives/auditing/newowners-incentives.html>

For information regarding the EPA's current "Audit Policy, visit the following USEPA webpage: <http://www.epa.gov/compliance/incentives/auditing/auditpolicy.html>

*Article submitted by: Chris Blume*

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## Introducing the New Career Center

Looking for the perfect job match? Then turn to the new online, interactive job board: the A&WMA Career Center. The Career Center is your online resource for employment connections. Employers receive targeted access to quality environmental professionals, along with quick and easy job posting and online job activity reports. Job seeking professionals can make sure their resumes are being seen by those in the industry who matter most. The Career Center offers job seekers free and confidential resume posting, automated weekly e-mail notification of new job listings, and the ability to save jobs for later review.

To find a job or fill a position, visit the Career Center (<http://careers.awma.org/>) today.

## Indiana's Development of Clean Marina Program

In 2006 the Indiana Department of Natural Resources (IDNR) and the Indiana Department of Environmental Management (IDEM) began a collaborative effort to develop a Clean Marina Program. The Indiana Clean Marina Program will be part of a larger effort to reduce nonpoint source pollution throughout waters of the state. The program will first be piloted in the Lake Michigan coastal area where the state's largest marinas exist. This voluntary and incentive based program will encourage marinas and recreational boaters to engage in clean boating practices and use environmentally sound operating and maintenance procedures. Those marinas that meet a minimum number of Best Management Practices (BMP's) will be designated as Indiana Clean Marinas. A significant component of this program will be the development of a Clean Marina Guidebook. This guidebook will provide background information on a number of pollutants typically generated by marinas and recreational boaters as well as the BMP's that can be implemented to prevent those pollutants from entering our waterways. A few of the pollutants typically generated by marinas and recreational boaters include: hydrocarbons from fueling, pathogens from overboard sewage discharge, and toxic metals and compounds from hull and boat maintenance. Additionally, the guidebook will provide information on how recreational boaters can prevent the spread of aquatic invasive species. The IDNR hopes to have the guidebook and associated outreach available to the marinas and recreational boaters by fall 2007. For more information on the Indiana Clean Marina Program, please contact Joe Exl, Coastal Nonpoint Coordinator with the IDNR's Lake Michigan Coastal Program at 219-921-0863 or [jexl@dnr.in.gov](mailto:jexl@dnr.in.gov).

*Article provided by Great Lakes Regional Pollution Prevention Roundtable.*

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## MEMBER NEWS

**Boelter Associates Inc.**, a licensed engineering firm which provides environmental, health and safety solutions to industry, insurance companies, developers and law firms has announced that **Gordon A. Vos, Ph.D.** has joined the firm as Director of Applied Engineering Services.

**Dr. Vos** is an industrial hygienist and ergonomist with a PhD in Interdisciplinary Engineering from Texas A&M University. He has 10 years experience within high tech manufacturing, petrochemical industries and has been a researcher and Assistant Professor at Texas A&M University. He was president of Intech Software Corporation which published several commercial applications including LogNorm2 which is widely distributed within the industrial hygiene community. He also was a partner in the consulting firm of Congleton & Vos, LLC which specialized in industrial hygiene, exposure reconstruction, data analysis, ergonomics and safety engineering.

**Dr. Vos** is well published with several peer reviewed journal articles and book chapters. He is a voting member of the American Industrial Hygiene Association's Exposure Assessment Strategies Committee and is a peer reviewer for the *Journal of Occupational and Environmental Hygiene and Applied Ergonomics*.

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**Burns & McDonnell** is pleased to announce **Eduardo Gasca, PE** and **Timothy J. Gilles** have joined the firm as senior environmental engineers.

**Mr. Gasca** has over 17 years of environmental consulting experience. Throughout his consulting career, he has been involved in multiple environmental projects from inception, conceptual design development, detailed design, implementation and monitoring of environmental systems. His experience includes water, wastewater and environmental remediation systems, including groundwater remediation and emergency response. His recent experience includes design, implementation and O&M monitoring of two soil vapor extraction systems. He is also supporting a groundwater gradient control project with associated groundwater treatment and evaluation of multiphase LNAPL extraction for a Fortune 100 Client.

As chair of the Safety and Emergency Planning Committee of the Illinois Section of the American Water Works Association, Mr. Gasca has supported the development and secured funding for Homeland Security training for water utilities and annual seminars in Illinois since 2002.

**Mr. Gasca** has a master's degree in environmental engineering from the Illinois Institute of Technology in Chicago. He is a registered professional engineering in Illinois.

**Mr. Gilles** has almost 10 years of experience in Phase I and Phase II environmental site assessments, development and implementation of remedial approaches for environmental problems, management of soil and groundwater remediation and emergency response activities, and oversight of risk management, remedial action, landfill construction, and building demolition. His regulatory experiences include Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Illinois EPA Site Remediation Program (SRP), Leaking Underground Storage Tank (LUST) Program, and Emergency Response Program.

**Mr. Gilles** is experienced in ex-situ and in-situ biotreatment, stabilization, neutralization, offsite disposal, underground storage tank removal and management, compliance verification and the appropriateness of construction materials, overseeing geotechnical testing, and sampling, monitoring, and evaluation of soil vapor extraction and groundwater treatment systems.

**Mr. Gilles** earned his bachelor's degree in biology from Benedictine University.

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**GaiaTech** is pleased to announce the promotion of **Chris Blume** to **Director of Air Quality Services**. This appointment formalizes the organization of GaiaTech's air quality practitioners into a single national practice. Under Blume's leadership, the group will continue to offer specialized due diligence and compliance services by providing timely, practical advice to decision-makers about managing and mitigating the risks associated with the complex technical and regulatory requirements of the Clean Air Act and analogous state-level requirements.

# Student Scholarship Papers

## Ground-based Lidar Measurements of Dust Plumes Generated from Unique Military Activities

Ke Du<sup>1</sup>, Mark J. Rood<sup>1</sup>, Byung J. Kim<sup>2</sup>, Michael R. Kemme<sup>2</sup>, Ram Hashmonay<sup>3</sup>, and Ravi Varma<sup>4</sup>

<sup>1</sup>University of Illinois, Urbana, IL, USA, <sup>2</sup>U.S. Army ERDC, CERL, Champaign, IL, USA, <sup>3</sup>ARCADIS, Durham, NC, USA, and <sup>4</sup>National University of Ireland, Ireland

Unique military activities, such as firing of artillery and movement of tracked vehicles on unimproved roads in arid regions, emit particulate matter (PM) to the atmosphere. Both visual air quality and public health can be adversely affected by PM emissions. Remote methods to quantify the mass of PM emitted from these fugitive sources are not well established. In this study, a novel method using optical remote sensing (ORS) and an anemometer was developed to quantify mass concentrations and emission factors for PM that is emitted to the atmosphere during select military activities. The ORS devices consist of a ground-based Micro-Pulse Lidar (MPL), two Open Path Fourier Transform Infrared (OP-FTIR) spectrometers and two Open Path Laser Transmissometers (OP-LTs). An algorithm was formulated to compute PM extinction profiles along each of the plume's cross-section from the MPL signals. Size specific PM mass emissions were then calculated by integrating the MPL's extinction

profiles with particle mass distributions determined by the OP-FTIR, OP-LT, and the dust's particle density and refractive index. In addition, this method quantifies the spatial and temporal variability of the plume's PM mass concentration across each of the plume's cross-section. This method was evaluated in the field during the generation of dust plumes from back-blasts of artillery firings and movement of tracked vehicles. Dust emissions from the back-blast of two types of artillery (M549A1 and M107) were characterized at Yuma Proving Ground (YPG) in Arizona. Also, dust emissions from the movement of three types of tracked vehicles (M-113, Bradley, and M-1) were characterized at Yakima Training Center (YTC) in Washington. Horizontal dimension, temporal variability of mass concentration, extinction profiles, and transmittance of the dust plumes were determined for the activities of the above weapons using this novel method.

*Congratulations to **Eric Boyd**  
recipient of the  
2007 Perry Fisher Award.*

*The Perry Fisher Award is  
awarded yearly to a Lake  
Michigan States Section of the  
A&WMA member for their  
outstanding dedication and service  
to the Association.*



*Chris Blume congratulates Eric Boyd on being awarded the 2007 Perry Fisher Award.*

# Student Scholarship Papers

## Steady-State Desorption of Organic Vapor from Activated Carbon with Electrothermal Swing Adsorption

Hamidreza Emamipour<sup>1</sup>, Zaher Hashisho<sup>1</sup>, Mark J. Rood<sup>1,2</sup>, Deborah L. Thurston<sup>1,2</sup>, Patrick Sullivan<sup>3</sup>, James Hay<sup>4</sup> and Byung J. Kim<sup>4</sup>

<sup>1</sup>Department of Civil & Environmental Engineering, University of Illinois, Urbana, IL 61801 USA,

<sup>2</sup>Industrial & Enterprise Systems Engineering, University of Illinois, Urbana, IL 61801 USA,

<sup>3</sup>Air Force Research Laboratory, Tyndall AFB, FL 32403-5323 USA,

<sup>4</sup>ERDC-CERL, Champaign, IL USA 61826-9005 USA

Variable concentrations of organic vapors make it challenging for biofilters and oxidizers to effectively remove these vapors from gas streams. In this research a bench-scale electrothermal swing adsorption (ESA) system with activated carbon fiber cloth (ACFC) as the adsorbent was used to adsorb methyl ethyl ketone (MEK) from air streams. Direct electrothermal heating was then used to desorb the organic vapor to generate select constant set-point vapor concentrations at a reduced total gas flow rate. Dynamic-tracking desorption was also achieved with carefully controlled yet variable set-points between 250 ppmv and 5,000 ppmv, while also allowing the flow rate of the carrier gas to change by 100%. Simultaneous adsorption/steady-state desorption of MEK from air stream with variable inlet concentration was then tested for both dry and humid gas streams. These results demonstrate that steady-state and dynamic-tracking desorption of organic vapor can be readily achieved with ESA technology to provide a gas stream with a readily controlled gas flow rate and organic vapor concentration, even if

there is a rapid change in total gas flow rate. These gas streams could then be treated at a much lower flow rate by biofiltration or oxidation, in a more efficient and sustainable manner, which is not possible without such pretreatment. Results also demonstrate that highly humid gas streams can readily be treated with this novel technology. A comprehensive mathematical model to simulate steady-state desorption of organic compounds from activated carbon was also developed and evaluated with independent experimental data. The simulated results describe steady-state desorption of MEK from the ACFC to generate air streams at controlled concentration set-points of 500 ppmv and 5,000 ppmv. Simulations describing the temperature of the cartridges, temperature of vessel wall, and power applied during the regeneration cycles were compared to the experimental data. Agreements between model predictions and experimental results are very encouraging, and can be used later with optimization tools to optimize and scale-up the system.

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# Student Scholarship Papers

## A Closure Study: Real Refractive Index of Aerosol Particles

Wei Wang and Mark J. Rood

Department of Civil and Environmental Engineering,  
University of Illinois, Urbana, IL, 61801 USA

Accurate determination of the real part of the refractive index ( $n$ ) for atmospheric aerosols is important in reducing the large uncertainties related to aerosol radiative forcing. Motivated to reduce such uncertainty, a closure evaluation between measurement and a semi-empirical approach is presented for the first time as it pertains to the hygroscopic response in  $n$  for mixtures of inorganic and organic compounds.

Aerosols composed of pure inorganic salts, dicarboxylic acids, and their simple mixtures composed of an inorganic salt and an organic acid, are studied for their relative humidity (RH) dependence of  $n$ . Parallel measurements were made with two optical devices, an ellipsometer and a refractometer, for sub-saturated aerosol solutions by treating aqueous solutions at select mass fractions

of solute ( $mfs$ ) as a hydrated particle at a certain RH. The predictions were compared with a semi-empirical approach for the solutions at extended solute mass fractions with the partial molar refraction (PMR) method and the Zdanovskii-Stokes-Robinson (ZSR) mixing rule based on previously determined thermodynamic data. Closure between the optical measurements and the ZSR-PMR predictions was evaluated for sub-saturated aerosol solutions and the agreement was within 2%. Extrapolated  $n$  values from the linear regressions based on the optical measurements and the ZSR-PMR approach were observed representative of at least 93% of the  $n$  values within 0% and 100% RH. Sensitivity of the top of the atmosphere-aerosol radiative forcing efficiency to changes in  $n$  are also quantified. Finally, strengths and limitations of these approaches are discussed.

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## Membership Update

Members of the LM-A&WMA Board recently participated in an A&WMA Membership Web Cast that highlighted the various membership options and benefits of membership. Some of the information discussed during the web cast included:

- There are currently 70-80 active Sections/Chapters in A&WMA.
- There are currently 6255 International members.
- Members get both the *EM* and the *Journal* – one in hard copy and the other one accessible electronically.
- The *EM* has a dedicated column on the interests of Young Professionals.
- One of the biggest benefits of maintaining memberships is networking.
- Members can pay for two years up front and receive a discount on their membership cost.
- A deluxe membership provides both the *EM* and the *Journal* in hard copy.
- Students receive one year free membership upon graduation (they must contact membership and request this).
- An Affiliate Membership (\$93) is available for the young professional who is 27 years of age or younger. The membership is limited to three consecutive years or the age of 27.
- An Unemployed Membership is available to current members who become unemployed. The Unemployed membership waives the membership fee for one year so that the individual can continue professional development and networking during his/her job search.

## Student Scholarship Papers

### Dampening Concentration Fluctuations Upstream of Biofilters and Oxidizers using Concentration and Flow Rate -Controlled Desorption of Activated Carbon

Zaher Hashisho<sup>1</sup>, Hamidreza Emamipour<sup>1</sup>, Diego Cevallos<sup>1</sup>, and Mark J. Rood<sup>1,2</sup>, and Deborah L. Thurston<sup>1,2</sup>, K. James Hay<sup>3</sup> and Byung J. Kim<sup>3</sup>, Patrick D. Sullivan<sup>4</sup>

<sup>1</sup>Department of Civil & Environmental Engineering, University of Illinois, Urbana, IL 61801 USA, <sup>2</sup>Industrial & Enterprise Systems Engineering, University of Illinois, Urbana, IL 61801 USA,

<sup>3</sup>ERDC-CERL, Champaign, IL USA 61826-9005 USA,

<sup>4</sup>Air Force Research Laboratory, Tyndall AFB, FL 32403-5323 USA

Fluctuations in concentration of organic vapors in gas streams that are treated by devices such as biofilters or oxidizers make it challenging to remove the vapors from the gas streams in an efficient and economic manner. Combining adsorption with concentration-controlled desorption provides an active buffer between the source of vapors and the control device for better control of concentration and flow rate of the gas stream that is treated by the secondary control device, hence further enhancing the performance or reducing the size of the devices.

Activated carbon fiber cloth (ACFC) was used with a bench-scale microwave swing adsorption (MSA) system and with an electrothermal swing adsorption (ESA) system to initially remove methyl ethyl ketone (MEK) from air streams. The MEK was then desorbed from the ACFC to provide readily controllable feed streams of MEK in air at a specified concentration and gas flow rate. MEK was adsorbed from air streams with a collection efficiency > 99.8% up to 5% breakthrough and was then desorbed at constant outlet concentrations between 170 ppmv and 5,000 ppmv. Total gas flow rate during the desorption cycle was 20% of the gas flow rate during the adsorption cycle. The systems then operated with the dynamic-tracking mode to demonstrate their ability to respond to a range of outlet concentration set-points between 170 ppmv and 5,000 ppmv. The controlled outlet concentration rapidly and accurately followed the concentration set-points. Such capability of the systems will allow secondary control devices such as a biofilter or an oxidizer to be optimized for tailored organic vapor concentrations and at a lower total gas flow rate that is not possible without such pretreatment. The results are published in *AWMA 2007* conference proceedings and *Environmental Science and Technology*.

1. Hashisho, Z., *et al.* (2007) Rapid Response Concentration-Controlled Desorption of Activated Carbon for Dampening Fluctuation in Concentration in Gas Streams. *Environ. Sci. & Technol.*, 41 (5), pp 1753 – 1758.
2. Emamipour, H., *et al.* (2007) Steady-State and Dynamic Desorption of Organic Vapor from Activated Carbon with Electrothermal Swing Adsorption. *Environ. Sci. & Technol.*, (in press).



### New Members (con't.)

**Tom Dupont**  
Tesa Tape Inc.

**Hamidreza Emamipour**  
University of Illinois

**Erin Galbraith**  
University of Illinois - Chicago

**Rich Gnat**  
KPRG and Associates, Inc.

**Cynthia Hicks**  
ERM Inc.

**Hong Huo**  
Argonne National Lab

**Shelley Huskey**  
Archer Daniels Midland Co.

**Julie Johnson**  
Huff & Huff, Inc.

**Pam Kelly**  
TestAmerica/STL Laboratories

**Staci LeFurge**  
Grand Haven Board of  
Light & Power

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University of Illinois

**Patricia Ludewig**  
Caterpillar

**Gail MacMillan**  
Exelon

**James Mallison**  
CH2M Hill, Inc.

**Stephen McClure**  
Gardner Denver, Inc.

*Continued on page 18.*

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# Help Wanted

## Senior Staff / Manager of Environmental, Sustainability, Safety, and Security Audit and Advisory Services

Ernst & Young has two openings in Chicago for an engineer with business background and an understanding of accounting principles regarding environmental remediation and construction. The successful candidate will have experience in consulting and delivering excellent client service. These positions exist within Ernst & Young's innovative Fraud Investigative & Dispute Services (FIDS) practice, which advises corporations and their outside legal counsel on complex business matters that involve financial and forensic investigations.

### Responsibilities

Work on multiple client engagement teams performing assessments and investigations involving environmental, sustainability, safety, and security issues including financial and economic analyses. Responsibilities include:

- Maintaining a strong client focus and developing productive working relationships with our clients;
- Leading project teams from start to finish. Taking responsibility for managing and successfully delivering results on several projects simultaneously;
- Leading financial and operational field assessments and investigations in the area of environmental, sustainability, safety and security;
- Providing environmental subject matter expertise to other Ernst & Young practices;
- Staying informed of current business/economic developments and their impact to our clients;
- Helping to develop potential business opportunities resulting in increased growth; and
- Managing, mentoring and developing staff.

### Qualifications

Qualified Senior Staff and Managers will possess the following:

- Bachelor of Environmental, Civil or Chemical Engineering; MBA preferred; CPA and/or CFA a plus
- Auditing experience – financial, regulatory or operational
- 5+ years of work experience in consulting or in industry
- Excellent writing and communication skills with demonstrated ability to communicate with senior client professionals
- Excellent leadership, teamwork, and project management skills
- The ability to travel extensively
- Strong writing and communication skills.

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