

zephyr® **Currents**

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Zephyr is pleased to introduce the first stage of its newly redesigned quarterly newsletter, *Currents*. In addition to more color, readers will notice that our popular News Briefs section on pages 2 and 3 has been divided into Texas and Federal sections. This change reflects the opening of Zephyr's Mid-Atlantic office in Ellicott City, Maryland. Look for more changes in the future!

Currents is also available online! To access this issue or visit our *Currents* Archive, please log on to <http://www.zephyrenv.com/fr-news.html>.

For more information about Zephyr or *Currents*, please contact us at 512.329.5544 or send us an email at zephyr@zephyrenv.com.

Condensible PM: The back half steps forward

PM₁₀ is PM₁₀.... right? Unfortunately not. Until recently, the regulated community only had to differentiate particulate matter (PM) according to its size (e.g., PM₁₀ versus PM_{2.5}). However, lately another category of particles known as *condensible* PM is receiving considerable attention. And its implications for the regulated community are significant; certain sources of PM may face additional, costly hurdles in obtaining permits to construct because of having to account for a form of PM typically ignored in past stack tests.

In general, the characterization of certain combustion and process unit PM emissions has been based on in-stack measurements of PM collected on filters ("filterable" PM) in stack sampling equipment, sometimes referred to as the sampling "train." In reality, PM can be classified as either

"filterable" or "condensible." Basically, filterable PM can be captured on filter media at the front of the sampling train. Condensible PM, on the other hand, is a gas at stack temperatures that condenses into a liquid or solid within a few seconds of leaving the stack. In terms of stack testing, condensible PM passes through the filter media and is captured in solution-filled impingers at the back of the sampling train. Condensible PM is classified as "fine" PM, having a diameter less than 2.5 microns (μm).

Condensible PM can be composed of both organic and inorganic compounds. Sulfate compounds, primarily sulfuric acid (H_2SO_4), make up the largest category of inorganic compounds. These compounds are the most widely recognized forms of condensible

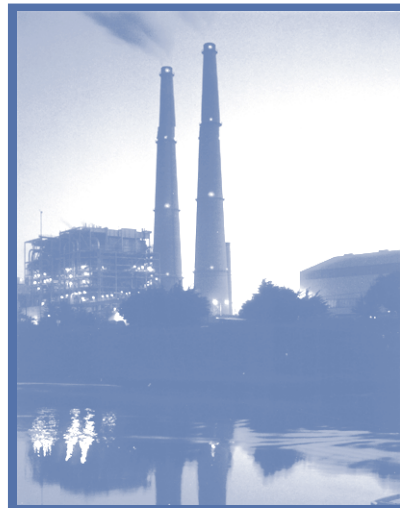
PM emitted by combustion sources, especially coal-fired power plants.

The regulatory stack test methods for measuring PM with diameters less than or equal to 10 μm (PM₁₀) – Methods 201 and 201A – focus on filterable PM sampling. The sampling train impinger solution must be analyzed separately according to another method – EPA Method 202 (40 CFR Part 51, Appendix M) – to determine the condensible fraction. Once quantified, the

condensible PM₁₀ can then be added to the filterable PM₁₀ to estimate the true total PM₁₀. Although federal rules (e.g., NSPS) do not require the use of Method 202 for any specific source category, a few states, such as New Jersey, require significant sources of PM to apply Method 202. A handful of other states, such as Texas, require sources to account for condensible PM using state-developed impinger solution analysis methods.

The use of Method 202 and other similar state-developed methods is not without controversy. According to various researchers, these impinger solution analysis methods can yield results that are positively biased, indicating more (sometimes significantly more) condensible PM than is actually emitted by the source.

Condensible PM can account for a significant portion of the total PM₁₀ emissions from fossil fuel combustion units. Based on a limited set of Method 201/201A and Method 202 results, the condensible fraction of the emissions can reach 50 percent for oil- and gas-fired boilers, 69 percent for oil- and gas-fired turbines and 76 percent for coal-fired boilers. In other words, for some sources, accounting for condensible PM could more than double current PM₁₀ emission rates!



TNRCC Approves Houston/Galveston Ozone Plan

The controversial plan for achieving compliance with the 1-hour ambient ozone standard in the Houston-Galveston (HGA) area was approved by the TNRCC Commissioners on December 6th. This plan is designed to achieve overall reductions in nitrogen oxide (NO_x) emissions of 75 percent and volatile organic emissions of 40 percent in the 8-county area, with the goal of bringing the region into compliance by 2007. Central to the plan are 1) a required 90-percent reduction in major industrial source NO_x emissions, 2) a program for capping, banking, and trading NO_x emissions, 3) speed limit reductions, and 4) bans on use of heavy duty construction equipment during morning hours. For more information, contact Bob Henderson at (713) 977-8787 or bhenderson@zephyrenv.com.

NO_x Permit Hold is Lifted

On October 30th, the TNRCC Commissioners lifted the temporary hold on the review of air permit applications for new and increased emissions of nitrogen oxides in the HGA ozone nonattainment area. As a result of this action, the TNRCC is proceeding with the review of permit applications that have been on hold since September 18th. The Commissioners, however, authorized the Executive Director to place another hold on the review of permit applications if it is later determined that unforeseen increases in NO_x emissions in the HGA area could affect the integrity of the state's ozone standard compliance plan. For more information, contact Bob Henderson at (713) 977-8787 or bhenderson@zephyrenv.com.

Standard Permit for Small Electric Generating Units Nears Completion

The TNRCC expects to issue a new standard permit for small electric generating units in early 2001. It will contain emission limitations

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Zephyr is a professional services firm providing consulting, training and software to the industrial, commercial and public sectors. The firm's major areas of practice focus on environmental permitting, compliance and corrective action, incident management, occupational health and safety, risk assessments, ISO 14001 implementation, audits and regulatory tracking.

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Bush Nominates Christie Todd Whitman as EPA Administrator

It appears that the chief environmental position in the Bush Administration may be held by Ms. Christie Todd Whitman. As Governor of New Jersey since 1994, she has taken an aggressive stance on cleaning up the state's forests and shorelines, combating urban sprawl, and encouraging recycling and pollution prevention. However, she has been criticized by environmentalists for cost savings achieved by reductions in the staff of the State's environmental agency. Considering her record, Ms. Whitman is expected to bring a balanced approach to her job as EPA Administrator. For further information, contact Julian Levy at jlevy@zephyrenv.com or (410) 312-7900.

EPA Lowers TRI Reporting Threshold for Lead

EPA has lowered the annual Toxic Release Inventory (TRI) reporting threshold for lead to 100 pounds or more for each facility emitting lead and lead compounds. Previously, facilities were not required to report lead and lead compound emissions to the air, water and land unless they manufactured or processed more than 25,000 pounds annually or used more than 10,000 pounds annually. The new requirements for lead will apply to 2001 emissions to be reported in 2002. Under the new rule, there will be significantly more reporting of environmental releases of lead under EPA's community right-to-know program. For further information, contact Elena Rivera at (512) 329-5544 or erivera@zephyrenv.com.

OSHA Adopts Final Ergonomics Standard

A new OSHA Ergonomics Program Standard (29 CFR §1910.900) went into effect on January 16th, addressing the significant risk of employee exposure to ergonomic hazards in the industrial workplace. If a work-related musculoskeletal disorder (MSD) incident occurs, the employer must determine whether the employee's job has risk factors that meet the standard's action trigger. The employer must then establish an ergonomics program for any job that meets the action trigger. The standard provides employers with objective criteria for identifying MSD hazards and several options for evaluating and controlling risk factors in jobs covered by the ergonomics program. For more information, contact Jeanne Yturri at (512) 329-5544 or jyturri@zephyrenv.com.

EPA Clarifies Policy for Defining Major Sources of HAPs

EPA has issued guidance on how to apply the major source threshold for hazardous air pollutants (HAPs) that are listed as specific chemicals as well as included in an aggregate group. For example, "xylenes", as well as three specific isomers of xylene, are all listed on the Title III HAP list. According to EPA guidance, the 10 ton-per-year major source threshold applies to each chemical separately, as well as to the entire aggregate group of HAPs. With this guidance change, more existing and new sites will be subject to federal air programs and standards (e.g., Title V and MACT) which apply to major sources. For more information, contact Jennifer Seinfeld at (410) 312-7900 or jseinfeld@zephyrenv.com.

EPA to Regulate Mercury Emissions from Electric Generating Units

On December 14th, EPA Administrator Carol Browner announced the Agency's intention to regulate power plant emissions of mercury. After extensive study, EPA has concluded that mercury in the emissions from power plants poses a significant public health risk and must be reduced. Coal- and oil-fired units will be addressed in the regulations; however, gas-fired units (other than combustion turbines) will not be targeted. EPA expects to propose regulations by 2003 and issue final regulations in 2004. For more information, contact Celeste Wiley at (512) 329-5544 or cwiley@zephyrenv.com.

DOE/EPA to Build High Efficiency, Zero Emissions Power Plant

The most efficient electric generating unit ever – a revolutionary fuel cell-gas turbine “hybrid” power system – is slated to power the EPA's Environmental Science Center at Fort Meade, Maryland, starting in 2002. The DOE/EPA-sponsored energy plant, combining an all solid-state fuel cell and a microturbine, will be the largest of its type in the world. Fueled by natural gas, it will generate 1,000 kilowatts of electricity at nearly double the efficiencies of conventional power plants. Because there is no combustion, it will produce virtually none of the traditional air pollutant emissions of a power plant. The fuel cell/turbine hybrid could be the forerunner of a new class of distributed power generation, where small generating units are located near the electricity user. For more information, contact Lou Corio at (410) 312-7912 or lcorio@zephyrenv.com.

Consolidated at Last: The Final SOCM I Air Rule

On December 14th, EPA issued the long-awaited consolidated federal air rule (40 CFR §§60, 61, 63, and 65) for the Synthetic Organic Chemical Manufacturing Industry (SOCMI). Major portions of several New Source Performance Standards (NSPS) and National Emissions Standards for Hazardous Air Pollutants (NESHAPs) applicable to storage vessels, process vents, transfer operations, and equipment leaks were consolidated into the integrated rule to simplify, clarify, and improve implementation of and compliance with the existing rules. The consolidated rule offers an optional compliance alternative for SOCM I sources. For more information, contact Maria Gou at (512) 329-5544 or mgou@zephyrenv.com.

EPA Issues Corrective Action Guidance

EPA has made available for public comment its draft *Results-Based Approaches to Corrective Action Guidance*. The *Guidance* is part of the RCRA Cleanup Reforms that were announced by EPA on July 8, 1999 and is considered to be one of the key elements in changing the culture of the RCRA Corrective Action Program. EPA is developing the *Guidance* to enable EPA and State regulators and owner/operators to routinely incorporate results-based approaches into site cleanups, as appropriate. EPA intends for the results-based approach to help project managers and owner/operators identify releases and risks and to increase the cleanup pace. For more information, contact Joe Zupan at (512) 329-5544 or jzupan@zephyrenv.com.

comparable to those for recently permitted or constructed central station generating units. Under proposed amendments to Chapter 116, small electric generating units would have to be operated under the standard permit once it is issued or obtain conventional pre-construction authorization. For further information, contact David Cabe at (512) 329-5544 or dcabe@zephyrenv.com.

TNRCC Amends Definition of Solid Waste

In response to concern expressed by the regulated community over the stigma associated with using the term “solid waste”, the TNRCC is proposing to change its definition of “solid wastes” to exclude certain recycled non-hazardous wastes. Currently, non-hazardous solid waste materials that are recycled through land application can only be exempted from the definition of “solid waste” on a case-by-case basis. The proposed amendment would provide a blanket exemption for such materials, doing away with the need for the case-by-case exemptions. For more information, contact David Sorrells at (512) 329-5544 or dsorrells@zephyrenv.com.

Annual Waste Summary Reporting Changes

TNRCC no longer requires generators to report the following waste streams on their Annual Waste Summary Reports (AWSRs): recycled waste oil; organic paint, ink, lacquer or varnish (hazardous paint related waste); metal scale, filings or scrap and non-terne plated filters (recycled scrap metal); empty or crushed metal drums or containers; and batteries or battery components that are recycled. Since these waste streams are no longer reportable, they can be inactivated on the Notice of Registration. Any of these waste materials that were not recycled or were generated prior to the effective date of the Universal Waste Rules must be reported on the AWSR. The AWSR is due January 25, or March 1 if reporting by STEERS. For more information contact Jeanne Yturri at (512) 329-5544 or jyturri@zephyrenv.com.

TNRCC Proposes Storm Water General Permit

The TNRCC has issued a draft of the proposed general permit authorizing discharges of storm water associated with industrial activities. The Texas Pollutant Discharge Elimination System (TPDES) general permit is intended to replace the EPA Multi-Sector General Permit (MSGP) for storm water coverage in Texas. Public comments were due in December and are currently being considered by the TNRCC. For more information, contact Jerry Kung at (512) 329-5544 or jkung@zephyrenv.com.

Whether or not the condensible fraction is counted in estimating total PM_{10} emissions can have serious implications in Prevention of Significant Deterioration (PSD) permitting activities. For example, adding the condensible fraction to the filterable fraction could trigger PSD review and require detailed dispersion modeling, visibility impairment assessments, and ambient monitoring requirements. And these additional requirements could significantly increase the time and expense involved in obtaining the required air permits.

Because of condensible PM_{10} , regulators could cast their compliance assessment "nets" beyond sources actively seeking permits or permit modifications. Witness the actions taken by New Jersey in the mid-1990s, directing that certain permits (both PSD and non-PSD) issued after the Method 202 promulgation date (December 17, 1991) be reopened if condensible PM had not been previously considered. This reopening involved revising PM_{10} emission limits to account for condensible PM emissions and modeling with the revised limits to assess compliance with the National Ambient Air Quality Standards (NAAQS) and the PSD increments.

If a NAAQS for $PM_{2.5}$ (fine PM) is ultimately promulgated, future new source permitting will become even more problematic, especially if condensible PM is to be included in any compliance demonstration. Emissions of condensible PM can make a significant contribution to ambient air quality levels of fine PM. In particular, sources of condensible PM located in regions of relatively high fine PM background concentrations (e.g., eastern Texas and the northeastern U.S.) and/or in the vicinity of other significant sources

of fine PM (urban/industrial areas in general) could have difficulty complying with a $PM_{2.5}$ NAAQS. Note that EPA has made available a draft "preliminary method" for determination of in-stack fine particulate emissions; however, only filterable PM is measured. In all likelihood, regulatory authorities will require measurement of condensible PM in determining total $PM_{2.5}$ emissions.

The regulatory community is taking a harder look at all forms of fine PM emissions, based on the potential human health implications. Various public and private organizations are devoting significant resources to better understand the formation and measurement of condensible PM. In fact, some researchers are attempting to develop alternative approaches to measure in-stack condensible PM that will eliminate the positive bias phenomenon associated with the federal method. In the meantime, will other states that traditionally have not required permit applicants to quantify condensible PM emissions (or have required the use of their own "home-grown" method) follow in New Jersey's footsteps? Sources of fine PM emissions should stay tuned — the implications for the air permitting process are serious.

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For some sources, accounting for condensible PM could more than double current PM_{10} emission rates!

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