

zephyr®

Currents

a quarterly publication of zephyr environmental corporation

Compliance Surprises in Store with PM_{2.5}

You're thinking about constructing a natural gas-fired combined-cycle power plant in an area currently meeting all National Ambient Air Quality Standards (NAAQS). It's a gas plant, after all, so Prevention of Significant Deterioration (PSD) permitting shouldn't be a problem. You're proposing best available control technology for project emissions and committing to burn only natural gas. Compliance with any NAAQS and PSD increments for particulate matter (PM) is a given — right? Hold on! What once was taken for granted is not such a “slam dunk” anymore. To begin to understand the potentially daunting compliance demonstration challenge facing such projects, read on.

BACKGROUND

In July 1997, EPA revised the NAAQS for PM, establishing new annual and 24-hour standards for fine PM or PM_{2.5} (particles with diameters less than or equal to 2.5 micrometers). In October 1997, EPA issued the guidance document *Interim Implementation for the New Source Review Requirements for PM_{2.5}*, which stated that sources would be allowed to use a PM₁₀ program as a substitute for meeting PM_{2.5} New Source Review requirements until certain technical issues are resolved.

EPA revised the PM_{2.5} NAAQS in October 2006, lowering the 24-hour standard from 65 to 35 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) and retaining the existing annual standard of 15 $\mu\text{g}/\text{m}^3$. Two years later EPA proposed PSD increments, significant impact levels (SILs), and a significant monitoring concentration (SMC). In particular, EPA is considering PSD increments for most areas in the country of 4 to 5 $\mu\text{g}/\text{m}^3$ on an annual basis and 9 $\mu\text{g}/\text{m}^3$ on a 24-hour basis. These compare to the current PM₁₀ PSD increments for annual and 24-hour periods



of 17 $\mu\text{g}/\text{m}^3$ and 30 $\mu\text{g}/\text{m}^3$, respectively. As of the date of publication of this article, the increments, SILs, and SMC have not been finalized.

In May 2008, EPA issued its final NSR implementation rule for PM_{2.5}. Of special note, this rule allowed exclusion of condensable PM (CPM) emissions from the calculation of PM_{2.5} emissions for major NSR applicability determinations until January 1, 2011 (the end of the rule-designated transition period), or sooner, if certain technical issues are resolved. During the transition period, the PM₁₀ surrogate policy continues to apply, with permit applicants demonstrating compliance with the PM₁₀ NAAQS and PSD increments in lieu of providing PM_{2.5} modeling demonstrations.

THE COMPLIANCE DEMONSTRATION CHALLENGE

Dispersion modeling is the major component of any PSD compliance demonstration. Any dispersion modeler will tell you that model output is only as good as model input, and a key

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FROM THE TRENCHES

Dead Plant Walking

Before joining Zephyr in August, I was the Responsible Care Manager for a chemical plant in Baltimore. The plant had a long and remarkable history of petroleum refining and petrochemical manufacturing dating back to 1915, but unfortunate market conditions brought that history to an end in 2007. Over the following twelve months, I worked with a shrinking team to decommission the plant. Given that the plant contained thousands of pipelines and hundreds of vessels and tanks filled with chemicals such as corrosives, benzene and other hydrocarbons, the decommissioning project was no small task.

Those who are familiar with chemical plant commissioning know that a systematic check-out process must be followed to ensure that each piece of equipment is ready to be placed in operation. Chemical plant decommissioning — if done well — is similar; it needs to include a line-by-line, vessel-by-vessel clean-out and verification process to ensure that everything has been adequately decontaminated.

At the outset of the project the team established standards for equipment decontamination to ensure compliance with applicable legal requirements and to minimize other risks. Since the standards were the cornerstone of the project, we sought out expert legal and technical advice in developing these standards. In the process we decided that the standards needed to *exceed* applicable legal requirements to account for process and sampling variability and other considerations.

The plant team initially used standard shutdown procedures to decontaminate the equipment. These procedures were designed to prepare equipment for safe opening and maintenance and, in many instances, proved to be inadequate to achieve the decommissioning standards. For example, the task of meeting hazardous waste toxicity characteristic requirements was even more difficult than meeting the safety and health standards for workers involved in the decommissioning, requiring extended steaming and water and nitrogen purging of equipment.

Verification that equipment had been decontaminated was a critical part of the project. We visually inspected every interior surface that could be accessed. Every interior surface that could not be observed, such as process piping, was rinsed and sampled. We opened all low point valves and pipe connections to systematically verify that process fluids and rinsate had been removed. To ensure quality control, only designated staff performed the verification tasks. Because the company's primary objective was 100-percent compliance with decommissioning standards, the

plant team checked *everything* on-site, including equipment that had been previously shut down but not demolished.

Information management was another critical part of the project. We established a database to record and track information for every vessel, line, and other significant piece of equipment. This database contained information such as dates of shutdown, clean-out and inspection, decontamination procedures used, rinsate sampling points, and analytical results. The database was more than just an historical record of the project; it was a tool we used to track the progress of the project and to identify lines and equipment that might have been overlooked.

The decommissioning team had to develop strategies for shutting down equipment and plant utilities in the proper sequence. In some ways, this was similar to painting the floor in a room and finishing at the door; some equipment and utilities were interdependent, and their shutdown would have impacted other equipment that still needed to operate. In some areas of the plant we had to develop alternative operating schemes and construct a considerable amount of temporary piping and utilities.

Raw materials, intermediates and residuals were removed from the plant and either reused, recycled, treated, or disposed at other locations. During the project we shipped more than 500 loads of unused raw materials and supplies, process intermediates, byproducts and wastes. In many instances we had to use means of transportation we had never used before, such as marine and rail shipments of light VOC-containing materials. The decommissioning process also created new and unique materials that we had to manage. And the FBI somehow learned that we were cleaning out a chemical laboratory and wanted assurance that the glassware wouldn't end up in an illegal drug factory.

It was a surprise to some personnel that most EHS compliance activities needed to continue as before, even *after* the plant was shut down. For example, VOC leak detection and repair activities continued until VOCs had been removed from the equipment, which was often weeks or months after the initial plant shut down. Furthermore, decommissioning activities required new EHS compliance activities, including the need to secure environmental permits. At the outset of the project, the team performed a requirement-by-requirement analysis to determine when each compliance activity could be terminated; we did everything possible to make sure that personnel didn't unilaterally stop performing essential activities.

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The Texas Shootout Over SIP Gaps

To determine the air quality permitting requirements with which they must comply, Texas companies usually begin with the Texas Commission on Environmental Quality's (the "TCEQ") rules. Historically, stopping at this point has not been a problem for companies, even for TCEQ rules that have not been approved by the Environmental Protection Agency (the "EPA") as part of the Texas State Implementation Plan¹. Companies, however, are now finding that the gap between TCEQ issuance of a rule and the approval of that rule by EPA (often referred to as a "SIP Gap") is making the job of achieving compliance increasingly difficult. There are numerous TCEQ air permitting rules in the SIP Gap that companies have used frequently, such as the TCEQ's qualified facilities authorizations and flexible permit rules.

Currently, the SIP Gap rules that are causing the most uncertainty and potential problems are the flexible permit rules. The saga regarding them began in November 1994, when the Texas Natural Resource Conservation Commission (the predecessor agency to the TCEQ) adopted the flexible permit rules. A flexible permit issued under those rules allows a company to operate under a pollutant-specific emissions cap for its site, rather than the traditional pollutant-specific emissions limits for each particular emissions source at the site. Under a flexible permit, a company is authorized to increase the emissions from one source under an emissions cap and decrease the emissions from another source(s) under the cap as long as the overall emissions do not exceed the cap. In essence, a flexible permit allows an entity to over-control one emissions source to avoid having to add emissions controls to another.

Texas submitted the flexible permit rules to the EPA as a proposed revision to the Texas SIP in November 1994, and, since that date, Texas has issued flexible permits to 120 industrial sites. However, 14 years later, the EPA has yet to approve (or disapprove) the Texas flexible permit rules as a SIP revision.

In late 2005, EPA Region 6 began expressing concerns to the TCEQ that the flexible permit rules may not meet federal requirements. Then, in September 2007, the EPA notified the 120 companies operating under flexible permits that they are still strictly subject to the federal requirements of the permits and rules that applied prior to the issuance of their flexible permits since the TCEQ flexible permit rules have never been approved by the EPA. In addition, in March 2008, the EPA took steps signaling that it might bring federal enforcement against eight of the companies operating under flexible permits when it sent them letters inquiring how they have complied with the federally approved

permitting rules that were in effect prior to the issuance of the companies' flexible permits.

In response, a contingent of companies and trade associations in Texas served the EPA with notice on May 27, 2008 of their intent to file suit against the EPA under the "citizens suit" provisions of the federal Clean Air Act. According to the notice, the suit would be based on EPA's failure to make a decision on whether the Texas flexible permitting rules should be approved as a SIP revision. In addition, that notice of intent to sue also addressed EPA's failure to decide whether to grant SIP approval for about 30 other Texas air quality rules that the TCEQ has submitted to the EPA for SIP approval over the past up to 13 or so years.

When the EPA failed to take the action requested in the notice of intent to sue, the companies and trade associations filed a citizen suit against EPA on August 25, 2008, based on Clean Air Act provisions that require the EPA to affirmatively act to fully approve, partially approve, or disapprove any proposed SIP revision within 18 months of the date a state submits a SIP revision. In this suit, the court will not be able to dictate what decisions the EPA must make regarding approving the proposed SIP revisions, but will only be able to impose deadlines for when the EPA must make decisions on the TCEQ rules in the SIP Gap. In the midst of this suit, the TCEQ and the EPA are continuing discussions regarding whether they can resolve their differences over the Texas flexible permit rules and the other rules caught in the SIP Gap. In the meantime, companies with flexible permits seem to be taking a "wait and see" approach as the SIP Gap issues unfolds in court and in the negotiations between the TCEQ and the EPA.

We encourage you to follow the SIP Gap issues because their resolution likely will have broad impact on companies in Texas who are subject to TCEQ air permitting requirements. ✨

Derek Seal
Keith Courtney
Winstead PC

¹ The State Implementation Plan or "SIP" is a compendium of air quality rules that are designed and adopted by the state to help the state meet federal air quality standards. Before any new state rules become federally enforceable, they must be submitted to, and approved by, the EPA as a SIP revision.

News Briefs

national news

Court Vacates Clean Air Interstate Rule

On July 11, the DC Court of Appeals vacated the Clean Air Interstate Rule (CAIR) as part of its decision in a suit filed against EPA by the State of North Carolina. The Court deemed EPA's approach to be fundamentally flawed, primarily because EPA did not provide for an accounting of the quantitative contributions of ozone precursor emissions from surrounding states to ozone levels in other states, and sent EPA back to the drawing board to revamp the rule. The NO_x SIP Call program will continue in the absence of CAIR because it was only terminated by EPA as part of the CAIR rulemaking. Affected industry and trading markets must now await word from the regulators regarding how to deal with ozone standard compliance uncertainties left in the vacuum of the CAIR vacatur. For more information, contact Jamey Woodall at 512.879.6625 or jwoodall@zephyrenv.com.

EPA Negative on Regulation of Greenhouse Gases Under Clean Air Act

In a July 30 response to the Supreme Court's ruling in *Massachusetts v. EPA* related to the regulation of greenhouse gases (GHGs) under the Clean Air Act, EPA has responded that the Act is an outdated law, ill suited for regulating GHGs. This position, presented in EPA's advance notice of proposed rulemaking (ANPR), was generally supported in letters included with the ANPR from the Office of the President, and the Departments of Agriculture, Commerce, Transportation, and Energy. Through the ANPR EPA is seeking input from the public on how to further respond to the Court's requirement that EPA consider how to regulate GHGs and is accepting public comments through November 28. For more information, contact Brett Davis at 512.879.6628 or bdavis@zephyrenv.com.

EPA Proposes to Regulate Underground Storage of CO₂

Geologic sequestration is one of several options that could be used to reduce CO₂ emissions to the atmosphere and help to mitigate climate change. On July 25, EPA proposed rules that would govern the underground injection of CO₂ for long-term subsurface storage. The rules would create a new class of injection well and establish minimum technical criteria that owners

or operators of such wells would have to demonstrate will be met in order to protect underground sources of drinking water. Underground injection wells are already regulated under the Safe Drinking Water Act. For more information, contact Paul Moore at 512.879.6642 or pmoore@zephyrenv.com.

Recovery Credit System Rolled Out for Threatened and Endangered Species

On August 1, the U.S. Fish and Wildlife Service (USFWS) rolled out its recovery crediting system — a new tool for promoting conservation activities on non-federal lands while protecting endangered species from collateral adverse effects. With this tool, the government will “bank” credits for conservation actions that benefit imperiled species and will use these credits, as needed, to offset adverse effects on the same species. The USFWS, along with other federal and state agencies, has demonstrated the effectiveness of this approach in pilot conservation and restoration projects that benefited the endangered golden-cheeked warbler in the Fort Hood, Texas area. For more information, contact Patrick Kainer at 512.579.3816 or pkainer@zephyrenv.com.

OSHA Proposes to Track Certain Violations on a Per-Employee Basis

On August 19, OSHA proposed to modify its standards related to personal protective equipment (PPE), respiratory protection, and training to clarify that “each” employee must be provided the appropriate protection and required training. OSHA believes that each instance where an employee is not supplied with PPE or the necessary training is a separate violation and, through this rule change, will be able to assess penalties on a per-employee basis. Employers affected by this proposed rule are those regulated by OSHA standards for General Industry, Shipyards, Marine Terminals, Longshoring, and Construction. For more information, contact Bonnie Blam at 512.579.3817 or bblam@zephyrenv.com.

EPA Publishes Audit Policy for New Facility Owners

On August 1, EPA published its *Interim Approach to Applying the Audit Policy to New Owners*. This notice describes EPA's audit policy for new owners of regulated facilities seeking to address environmental noncompliance that existed prior to acquisition. EPA hopes that this policy will encourage new owners to audit newly acquired facilities, self-disclose violations, and promptly correct excursions. EPA is accepting comments on the interim approach until October 30. For more information, contact Becky Luman at 281.668.7343 or rluman@zephyrenv.com.

Court Rules States Can Supplement Title V Monitoring

On August 19, the DC Circuit Court ruled that state and local agencies may supplement Title V permits with more stringent monitoring requirements for stationary sources. In a 2-1 decision, the Court overturned a 2006 EPA ruling to the contrary, thus providing state and local regulatory agencies the authority to supplement an inadequate federal monitoring requirement with a separate permit monitoring requirement to assure compliance. For more information, contact Louisa Preston at 512.879.6646 or lpreston@zephyrenv.com.

EPA Amends NESHAP for Semiconductor Manufacturing

On July 15, EPA finalized amendments to its Subpart BBBBBB hazardous pollutant emissions standards for semiconductor manufacturing. These amendments, effective July 22, add separate process vent definitions for organic, inorganic and combined air toxics process vent streams and also add an emission limit of 14.22 parts per million by volume (ppmv) for combined air toxics process vents. For more information, contact Jennifer Junker at 512.879.6639 or jjunker@zephyrenv.com.

Comment Period Extended for Portland Cement NSPS Proposal

On August 13, EPA extended until September 30 the public comment period on the proposed amendments to the Standards of Performance for Portland Cement Plants. EPA granted this extension in response to a request from the Portland Cement Association. The Association cited that the proposed amendments address two pollutants not currently regulated under the rule and that additional time will be needed to gather data to review the proposal. The original deadline for comments on the proposal was August 15. For more information, contact Lynne Spector at 410.312.7906 or lspector@zephyrenv.com.

EPA Issues HAP Standards for Metals Fabrication and Finishing

On July 23, EPA issued emission standards for control of hazardous air pollutants emitted from nine metal fabrication and finishing area source categories. The new Subpart XXXXXX establishes management practices and equipment standards for new and existing operations of dry abrasive blasting, machining, dry grinding and dry polishing with machines, spray painting and other spray coating activities, and welding operations. The rule applies to area sources that use or have the potential to emit compounds of cadmium, chromium, lead, manganese, or nickel from metal fabrication or finishing operations. For more information, contact Celeste Wiley at 512.879.6645 or cwiley@zephyrenv.com.

Regulatory Requirements Waived for Border Fence Construction

On April 1, the Department of Homeland Security signed a Notice of Determination waiving the requirements for compliance with a variety of environmental laws and regulations to

ensure the expeditious completion of the security fence between the United States and Mexico. This notice waives requirements to comply with numerous provisions of the Clean Air Act, the Clean Water Act, the Endangered Species Act, and the Wild and Scenic Rivers Act, among others. This action allows the immediate construction and operation of sources such as concrete batch plants and rock crushers that would otherwise require environment permitting, environmental reviews, and public notice, with the goal of expediting the construction of the border fence. For more information, contact Kevin Ellis at 512.879.6647 or kellis@zephyrenv.com.

State Regulators Call for Lower Emission Limits on Boilers

In June, the National Association of Clean Air Agencies (NACAA) issued a report calling for lower emissions limits on boilers subject to the recently vacated Subpart DDDDD Boiler MACT. Based on surveys from boilers in 13 states, NACAA contends that EPA's limits for carbon monoxide and particulate matter are too high and do not meet the regulatory criteria for determining MACT levels. Of particular interest is NACAA's proposal that the CO limit for gas fired boilers be set at 3 to 10 ppm, as compared to the 400 ppm limit in the MACT DDDDD rule that was originally promulgated on September 13, 2004. For more information, contact Ed Fiesinger at 281.668.7353 or efiesinger@zephyrenv.com.

state news

Corps to Begin Requiring Revised Wetland Delineation Protocol

The Galveston District of the Corps of Engineers will soon begin requiring that all pre-construction notifications, permit applications, and determination/delineation submittals be based on new methodologies described in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*. The regional supplement presents wetland indicators, delineation guidance, and other information that is specific to the Atlantic and Gulf Coastal Plain Region and is part of the Corps' effort to address regional wetland characteristics and improve the accuracy and efficiency of wetland-delineation procedures. The new methodologies were developed with recommendations from the National Academy of Sciences. For more information, contact Clay V. Fischer at 512.879.6629 or cfischer@zephyrenv.com.

EPA Approves Maryland Rules for Controlling Vessel and Barge VOC Emissions

On July 18, EPA approved a revision to the Maryland ozone air quality plan, requiring reasonably available control technology (RACT) on marine vessel and barge loading. These rule changes

will affect gasoline terminals and other gasoline facilities that have barge loading capabilities, ethanol plants, and other facilities that transfer various blends of gasoline and ethanol or other VOCs. Under the changes, 90 percent of VOC vapors will have to be eliminated if emissions from barge or vessel loading equal or exceed 25 tons per year in the Baltimore/Washington area or loading emissions equal or exceed 50 tons per year in the rest of the State. For more information, contact Roger Brower at 410.312.7907 or rbrower@zephyrenv.com.

TCEQ Issues Standard Permit, Repeals Three Permits by Rule

In July, the TCEQ issued a new standard permit for permanent rock crushers and revised the existing Standard Permit for temporary rock crushers. The Standard Permit for permanent crushers requires publication of notice, but does not allow for a contested case hearing. In conjunction with the issuance of the Standard Permits, the Permit by Rule (PBR) for rock crushers has been repealed. As part of the same action, the TCEQ repealed the PBRs for asphalt plants and saw mills, both of which have existing Standard Permits. For more information, contact Kevin Ellis at 512.879.6647 or kellis@zephyrenv.com.

EPA Proposes to Designate DFW Area as Attaining 1-Hour Ozone Standard

On July 11, EPA proposed to determine that the four-county Dallas/Fort Worth (DFW) 1-hour ozone nonattainment area meets the 1-hour ozone air quality standard based on ambient air monitoring data collected between 2004 and 2008. If EPA finalizes the proposal and monitoring data continue to demonstrate attainment, EPA will suspend requirements for Texas to submit an attainment demonstration, a 5-percent "Increment of Progress" plan, a reasonable further progress plan, contingency measures, and other actions related to attaining the standard. However, the decision by the D.C. Circuit Court in *South Coast v. EPA* requires that new major sources or major modifications to sources in the 1-hour ozone nonattainment area also comply with Nonattainment New Source Review requirements for the 1-hour standard until EPA develops and promulgates rules to address the court's concerns. For more information, contact Curtis Harder at 512.879.6643 or charder@zephyrenv.com.

EPA Approves VOC and NOX SIP Revisions for Nine-County DFW Area

On July 17, EPA approved a revision to the Texas air quality plan to extend the emission reduction requirements for certain VOC sources in DFW's four-county 1-hour ozone nonattainment area to the other five counties in DFW's 8-hour ozone nonattainment area. The affected VOC sources in the newly added counties will be subject to the same emission limitation, control, monitoring, testing, recordkeeping, and recording requirements already in effect in the original four counties. EPA's approval of the DFW 1997 8-hour ozone attainment demonstration plan is contingent

upon Texas submitting an approvable plan revision that establishes a contingency measures plan in case the VOC reductions fail to result in attainment of the current ozone standard. For more information, contact Curtis Harder at 512.879.6643 or charder@zephyrenv.com.

Houston Petitions EPA to Improve Emissions Calculations

On July 9, the City of Houston, at the direction of Mayor Bill White, petitioned EPA to change how it calculates emissions of hazardous air pollutants and VOCs from chemical plants and refineries. Stating that the current EPA emission factors have been proven by direct observations to be inaccurate, unreliable, and biased toward undercounting, the City is asking EPA to 1) revise the factors based on accurate data including direct observation, 2) require the use of direct observation using available technologies, 3) require the use of fence-line monitoring to confirm reported emissions, and 4) require the use of direct observation to document claimed reductions. The City's request was made under the Data Quality Act and EPA's Information Quality Guidelines. For more information, contact Ed Fiesinger at 281.668.7353 or efiesinger@zephyrenv.com.

EPA Funds LIDAR Measurement of Houston Air Toxic Emissions

On June 15, EPA awarded the City of Houston \$600,000 to measure air toxics in the Houston ship channel area. The study, to be conducted from January 2009 through April 2009, will utilize DIAL Differential Absorption Light Detection and Ranging Technology. DIAL employs laser light to identify and quantify the concentrations of multiple, specific volatile organic compounds in the air over a one kilometer distance. The results of the study will be used to identify new or previously underestimated emissions sources, validate emissions estimates, and help identify and prioritize emissions reduction opportunities. For more information, contact Pete Stevenson at 512.879.6619 or pstevenson@zephyrenv.com. ✨

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model input is the emission rate. Accurate quantification of PM_{2.5} emissions is especially important for gas-fired turbines, since substantially all of the particles are emitted as PM_{2.5}.

Under the current PM₁₀ surrogate policy, a PSD permit applicant models the source's PM₁₀ emissions and compares model-predicted concentrations (plus a background concentration) to the PM₁₀ NAAQS, a 24-hour level that is significantly higher than the corresponding PM_{2.5} NAAQS. Even though higher PM₁₀ emission rates may have been examined in the model, this current approach allows significantly more 'breathing space' for compliance. The thought of having to soon compare modeling results to the much lower PM_{2.5} NAAQS has prospective PSD applicants worried.

EPA has recommended that sources, such as gas-fired turbines, use EPA "AP-42" emission factors to estimate PM_{2.5} emissions. However, these factors can significantly overestimate the actual rate of emissions. In particular, the emission factors for CPM have been developed based on EPA Test Method 202 data, which tend to result in an erroneously elevated estimate of the condensable fraction of PM_{2.5} emissions due to the presence of SO₃ measurement artifacts. Therefore, the use of AP-42 emission factors must be carefully considered in any compliance analysis for gas-fired turbines.

EPA has been evaluating modifications to Method 202 to address the measurement artifact issue. In fact, EPA intends to formally propose a revision to Method 202, based on procedures in the recently-developed Other Test Method 28 (the "dry impinger" method) by the end of 2008. Although EPA plans to revise the test method for CPM, there is no indication that it intends to revise its AP-42 emission factors for gas-fired turbines any time soon.

Even with the most accurate possible emission factors available, demonstrating compliance with the PM_{2.5} NAAQS will be difficult for sources located in most areas since PM_{2.5} background concentrations are often a significant fraction of the standard. For example, although all of Texas recently was designated by EPA to be in attainment of the 24-hour PM_{2.5} NAAQS, the latest ambient monitoring data for the Houston area show annual and 24-hour values of 15.8 and 31 µg/m³, leaving almost no margin for a new source's modeled contribution.

Of course, similar concerns apply to PSD increment consumption modeling analyses as well. And, as an additional complication, EPA has reiterated that mobile source emissions, which typically

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FROM THE PRESIDENT

Zephyr – A Best Firm to Work For

EBJ/CE News



In a bit of a departure from the environmental news of the day, I have some great news about Zephyr to share with our clients and friends.

Earlier this year, we entered the company in a national competition sponsored by *Environmental Business Journal* and *CE News* for a ranking

of "Best Environmental Services Firm to Work For." In order to be considered, we first provided extensive data about our policies, programs, benefits, working environment, etc. Then, all of our employees completed an anonymous on-line survey to gauge their perceptions about how satisfied they are with various aspects of their working lives at Zephyr.

May I get a drum roll please? Out of 46 entrants, including many of our worthy competitors, Zephyr ranked in the Top Ten! All of us are very proud of this honor. By the way, the firm that won first place apparently has a putting green in their hallway and hosts frequent water skiing parties. Um, we'll let them have that first-place honor!

Several of my partners and I attended the "Best Firms Conference" in San Francisco last month, which included many sessions on how to ensure that a firm attains and maintains the status of "Best Firm". We got a lot of validation on many things that we're doing well and some ideas of how we might improve even more in the future.

I wanted to share this good news with our clients and friends because, after all, you are part of what makes Zephyr a "Best Firm" as well. My favorite quote that I heard at the Best Firms Conference: "If you keep your shoulder to the grindstone long enough, the grindstone becomes a flywheel!" I think that sums up our 15-year history very nicely. ✨

Joe Zupan
President

Zephyr is a professional services firm providing worldwide consulting, training and data systems to the industrial, commercial and public sectors. The firm's major areas of practice are air and water quality, waste issues, worker and community safety, and incident management.

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In addition to the actual process of decommissioning equipment, we had to plan for and work through a host of other concerns during the project, with human factors at the top of our list. After the announcement that the plant was shutting down, some personnel performed magnificently, and some didn't. Decisions involving personnel exit dates were critical to the integrity of the project, as well as the cost and schedule. The simplest advice I can give in this regard is that such decisions need to take into account the morale and productivity of the remaining workforce, rather than just cost.

Many *positive* things can be said about the experience. The project required a high level of creativity, which was both intellectually stimulating and enjoyable. It was exciting to be able to create strategies, processes, and management systems from scratch. Teamwork and morale actually improved as the project progressed, despite the on-going exit of long-time co-workers. Difficult circumstances and pride in doing an excellent job brought people together. And, at the end of the day, we were able to accomplish what we set out to do: to maintain compliance with environmental regulations during the complex process of decommissioning the plant. ✨

David Mahler
Senior Project Engineer

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have not been accounted for in PSD increment consumption modeling demonstrations, need to be included in such analyses. Accounting for these emissions in a compliance demonstration with a highly restrictive PM_{2.5} PSD increment could be problematic for companies applying for PSD permits for even the best controlled facilities.

Given these obstacles, permit applicants and regulators will be challenged to demonstrate compliance with the PM_{2.5} NAAQS and PSD increments, especially in urbanized areas of the country. Even emission units considered "clean" by air emission standards, such as modern, efficient gas-fired turbines, will not be immune to this challenge. ✨

Lou Corio
Senior Air Quality Scientist

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