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The Clean Air Visibility Rule: Can EPA Make It Any Clearer?

The long-term goal of improving visibility in national parks and wilderness areas was given a big boost with EPA's amendments to its Clean Air Visibility Rule (CAVR). These changes, adopted in June, provide guidelines to states and tribal air quality agencies for determining what industries and utilities emitting visibility-degrading pollutants should be better controlled. They bring to a close the protracted rulemaking phase of regional haze control and usher in the challenging rule implementation phase. But it still remains to be seen whether CAVR will make a clear difference.

Regional haze is a national problem. In the national parks of the west, where, 50 years ago, visual ranges of 100 miles or more were the rule, visitors can no longer count on such clear vistas. On some days, the haze in the Grand Canyon is so thick that the visitor cannot even see from one rim to the other. And the problem is not limited to traditionally pristine natural areas; in portions of the southeastern U.S., the median visual range has decreased from about 15 miles in 1950 to less than 8 miles today.

What has caused this visibility degradation? Of course, natural sources such as dust, forest fires, and volcanoes have always played a part. The unsettling trend over the last 50 years in reduced visibilities, however, cannot be laid at the feet of nature; studies show that emissions from industrial facilities, power plants, vehicles, and other sources significantly contribute to the trend. The pollutant of most concern is $PM_{2.5}$, that is, the class of fine particles with diameters less about 2.5 micrometers.

For years, the protection and improvement of visibility, especially in the national parks, has been a goal of Congress. But it wasn't until 1977,

with amendments to the Clear Air Act, that EPA received clear direction to take action. In response, EPA identified a number of especially natural and scenic areas that should receive the highest level of protection from the effects of air pollution. Called Class I areas, they include national parks and wilderness areas in 35 states and the Virgin Islands.

In 1990, Congress directed EPA to establish "visibility transport commissions" (VTCs) to provide recommendations for improving visibility in Class I areas. The attention of these VTCs was first directed at reversing the trend of visibility degradation at the Grand Canyon, but EPA subsequently took their input to adopt a wider scale regional haze rule in June 1999.

Soon after the rule went into effect, several parties challenged the basis for establishing emissions control requirements for sources. These requirements, called "best available retrofit technology" or BART are aimed at retrofitting emissions controls to existing air contaminant sources believed to be the primary causes of visibility impairment in Class I areas. In May 2002, the DC Circuit Court ruled that aspects of EPA's BART approach were inconsistent with the Clean Air Act and vacated related parts of the rule. Two years later, EPA re-proposed a

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FROM THE TRENCHES

My Summer Audit of an Oil Platform

Most environmental professionals have been involved with, or at least heard of, an Environmental Management System (EMS). An EMS is a continual cycle of planning, implementing, reviewing, and improving the processes and actions that an organization undertakes to meet its business and environmental goals. I've worked on EMS projects for a variety of industry sectors, but until this summer I had never worked on an oil and gas production platform, and boy was it fun!

When one of Zephyr's oil and gas clients called looking for someone to audit at an offshore platform, I quickly volunteered. What they specifically wanted was a new one on me . . . they said they needed a SEMP audit. I quickly learned that SEMP stands for Safety and Environmental Management Program and is the American Petroleum Institute's recommended practice (RP 75 to be exact) for developing a safety and environmental management program for offshore operations and facilities. I purchased API's Recommended Practice 75, and with SEMP audit protocols developed by the Minerals Management Service in hand, I was whisked off in a helicopter to the platform.

A UNIQUE FACILITY

During the chopper ride, I realized that every platform is uniquely configured, which allows an experienced pilot to recognize each by sight. The one I would be auditing (and living on for a few days) is actually three platforms linked by catwalks. It stands 60 feet off the water approximately 30 miles off the coast of Louisiana. Landing on the helipad was pretty exciting since it looked way too small during the approach. Those chopper trips are routine and, typically, uneventful to the pilots and the crews that work on the platform, so I tried to hide my nervousness. Another scary moment occurred when I climbed down from the helipad. Almost all of the platform flooring is metal grate, so you have to be comfortable looking down at the water through the grating. Every thing seems likes it's moving, but I soon got used to it. The crew quarters were homey . . . the main room, which is right next to the galley serves as a living room, conference room, and training room. Next to it is a small control room where computers continually monitor the production process at the platform. The platform crew works around the clock every day of the year, and this room never sleeps.

I enjoyed touring the entire platform where it seemed like there were miles of pipe, along with tanks, dehydrators, heaters, separators, generators . . . much like a compressor station on stilts. I spent a lot of time reviewing process and safety flow diagrams, data books that contained specifications on every piece of equipment, and the platform's operations and procedures. As you would imagine, a platform has unique emergency procedures and equipment, including an escape pod and a manned rescue boat that is continually moored a quarter mile away that doubles as a "taxi" for the crew to visit the satellite wells.

SOME NUANCES TO A SEMP

Like all successful EMS models, the SEMP is based on establishing a safety and environmental policy, planning, implementation and operation, verification and corrective action, management review, and continual improvement. If you're EMS-savvy, the 12 SEMP program elements will look familiar. However, there are some nuances associated with a SEMP. For example, offshore facilities are expected to set very specific performance measures based on common definitions and formulas, so that safety and environmental performance can be compared from year to year and with industry averages. Based on the performance data I reviewed, which point to the offshore oil and gas industry's superior safety and environmental record, it appears that an effectively implemented SEMP really works.

SEMP Program Elements

- Safety and Environmental Information
- Hazards Analysis
- Management of Change
- Operating Procedures
- Safe Work Practices
- Training
- Assurance of Quality and Mechanical Integrity of Critical Equipment
- Pre-Startup Review
- Emergency Response and Control
- Investigation of Incidents
- Audit of SEMP Elements
- Documentation and Record Keeping

A SEMP requires that a hazard analysis be performed on a new or modified facility, for all process equipment, and any production-related task. The purpose of this analysis (which takes the place of the environmental aspects and impacts identification process in other EMS models) is to identify, evaluate, and where unacceptable, reduce the likelihood and/or minimize the consequences of uncontrolled releases and other safety or environmental incidents.

Because contractors are used so often in the offshore oil and gas industry, RP 75 requires that they be familiar with the operator's

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AN ATTORNEY'S PERSPECTIVE

Recent Developments in the Regulation of Excess Emissions in Texas

The Federal Clean Air Act requires states to prepare State Implementation Plans (SIPs) for demonstrating attainment and maintenance of the National Ambient Air Quality Standards (NAAQS). The original SIPs of the early 1970s focused almost exclusively on emissions from facilities during steady-state or batch operations. As such, they did not address emissions from normal maintenance, startup and shutdown, intermittent process fluctuations and activities, and malfunctions because such events were believed to be rare and difficult to quantify.

Reflecting the old approach to regulating emissions, the EPA-approved SIP for Texas provided an automatic exemption from compliance with the emissions and opacity limitations during startup, shutdown, maintenance (SSM) activities and malfunctions (provided notice and certain other criteria were met) for over 30 years. However, in the past five years, EPA has aggressively forced the issue of regulating non-routine emissions, beginning with its refusal in 1999 to approve the Texas Title V operating permit program until the TCEQ eliminated the automatic exemption. In response, the TCEQ adopted rules in 2002 and 2004 to eliminate this exemption, establish criteria for an affirmative defense[1], clarify that authority of EPA or citizens to take enforcement action was not limited, and specify that the source or operator has the burden of proof to demonstrate that emissions were not excessive and that the criteria in the rule had been met. The rules were scheduled to expire on June 30, 2005, and it was hoped that the TCEQ and EPA could reach a more acceptable compromise.

Hopes for quick resolution, however, were short-lived. Although, EPA granted limited approval of the revised SIP on March 30, 2005, it made it clear that the TCEQ's attempts to correct its excess emission rules (codified in Chapter 101, Subchapter F of the TCEQ's rules) were inadequate. Specifically, EPA found that the revised rules 1) were ambiguous as to whether they address only state enforcement discretion, 2) might be interpreted to provide exemptions to SIP permitting requirements, and 3) might be interpreted to provide an affirmative defense from scheduled maintenance activities. EPA indicated that upon the June 30, 2005 expiration date of TCEQ's rules related to excess emissions event demonstrations, all emissions in excess of applicable limitations during SSM activities would remain violations of the SIP, subject to enforcement action.

[1] *In the context of the TCEQ's excess emissions rules, an "affirmative defense" is, basically, a satisfactory demonstration that a company should be excused from penalties due to excess emissions based on its meeting certain objective criteria."*

In response, the TCEQ asked EPA in an April 5, 2005 letter to approve a revision to the SIP that would extend the effectiveness of the rules to June 30, 2006, provided the TCEQ submits a SIP revision to address EPA's concerns by January 15, 2006. EPA granted final approval of the extension on August 26, 2005. However, EPA advised the TCEQ that the existing Texas rules will expire automatically (at least in EPA's view) on January 15, 2006, unless they are revised to satisfy certain criteria. Should the TCEQ's rules expire, EPA would consider all excess emissions resulting from SSM activities in Texas to violate the SIP, and regulated entities would be subject to EPA enforcement and citizen suits.

What does EPA expect from TCEQ in terms of an acceptable SIP? In an August 8, 2005 letter, EPA Region 6 identified the following requirements:

1. The SIP revision must clearly state that the affirmative defense does not exempt sources from compliance with any federal requirements including New Source Performance Standards or National Emission Standards for Hazardous Air Pollutants.
2. The TCEQ must justify its position that an affirmative defense for a malfunction should apply if "the malfunction could not have been reasonably avoided by technically feasible design, operation, and maintenance practices consistent with good engineering practice."
3. The SIP cannot provide for a blanket affirmative defense for scheduled maintenance activities.
4. The affirmative defense must not apply to scheduled or planned activities that are routine and predictable.
5. Any affirmative defense for scheduled startup or shutdown activities must include the underlined terms:
   - Periods of unauthorized emissions from the activity were <u>short and infrequent</u> and could not have been prevented through <u>careful</u> planning and design.
   - The facility and air pollution control equipment were operated consistent with good practices for minimizing emissions <u>at all times</u>.
   - The frequency and duration of operations resulting in authorized emissions were minimized <u>to the maximum extent practicable</u>.
   - Actions during the period of unauthorized emissions were documented by <u>properly signed</u> contemporaneous operating logs or other relevant evidence.
   - <u>All possible steps were taken to minimize the impact of excess emissions on ambient air quality</u>.

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News Briefs

national news

EPA Proposes Changes to TRI Reporting

On September 21 EPA announced its intent to reduce reporting requirements under its Toxic Release Inventory (TRI) rules by expanding the number of facilities that can report information with the shorter Form A in lieu of the lengthy Form R. EPA is required under EPCRA to notify Congress whenever it plans to modify the rules related to the reporting frequency for facilities subject to TRI requirements. By statute this rulemaking will occur no sooner than 12-months and no later than 24-months after notifying Congress. For more information, contact Ed Fiesinger at 713.977.8787 or *efiesinger@zephyrenv.com*.

EPA Proposes Plan to Cut Power Plant Emissions under CAIR

In August, EPA proposed a federal implementation plan (FIP) to require power plants in 28 states and the District of Columbia to participate in cap-and-trade programs to reduce SO_2 and NO_x emissions. EPA also proposed the FIP for New Jersey and Delaware, based on a proposal to include those states in the Clean Air Inter-state Rule (CAIR) for reducing emissions of fine particles ($PM_{2.5}$). FIPs are designed to ensure that the required emission reductions under the CAIR are achieved, while not limiting states' flexibility in meeting their CAIR requirements. EPA would withdraw the FIP for any state once the state's own plan meets the CAIR requirements. For more information, contact Lou Corio at 410.312.7912 or *lcorio@zephyrenv.com*.

DOT Revises HazMat Rules to Clarify Concept of "Offeror"

Due to confusion about who is considered an "offeror" and thus subject to the Hazardous Materials Regulations (HMR), DOT has added a definition to its HMRs. With this change "person who offers or offeror" is defined as any person who performs any pre-transportation function (e.g. packaging, labeling, filling out shipping papers or manifests, etc.) required by the HMR or who makes the hazardous material available to a carrier for transportation in commerce. The amendments also clarify that there may be more than one offeror of a hazardous material and that each offeror is responsible only for the specific pre-transportation functions that it performs or is required to perform. The final rule went into effect on October 1, 2005. For further information, contact Kiley Taylor at 410.312.7905 or *ktaylor@zephyrenv.com*.

EPA Reports Progress in Reducing Eastern U.S. Air Pollution

EPA reports that the "NOx SIP Call," which directs 21 eastern states and the District of Columbia to reduce NOx emissions during the summer months, has reduced 2004 emissions from power plants and other large combustion sources to levels 30 percent lower than in 2003. Factoring in the effects of other air quality regulations, NOx emissions are down 70 percent from 1990 levels. EPA expects NOx emissions to be reduced even further over the next ten years due not only to the NOx SIP Call, but also to the Clean Air Interstate Rule. For more information, contact Bill Jones at 410.312.7910 or *bjones@zephyrenv.com*.

Northeastern States Agree on Reducing Power Plant CO_2 Emissions

Led by Gov. George Pataki of New York, officials from 9 northeastern states have tentatively agreed to freeze power plant CO_2 emissions at current levels and then reduce them by 10% by 2020. This first-of-its-kind regional initiative would establish a market-driven cap-and-trade system to control CO_2 emissions from more than 600 power plants in Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont. CO_2 emissions would be capped at 150 million tons a year beginning in 2009. Final agreement and enactment of the plan is considered likely and is expected by the end of the year. For more information contact Lou Corio at (410) 321-7901 or *lcorio@zephyrenv.com*.

EPA Signs Hazardous Waste Combustion MACT Final Rule

On September 14, EPA signed the Final Standards for Hazardous Air Pollutants for Hazardous Waste Combustors, setting emission standards for incinerators, cement kilns, light weight aggregate kilns, boilers, process heaters, and hydrochloric acid production furnaces. These new emission standards are aimed at reducing emissions of hazardous air pollutants including lead, mercury, arsenic, dioxin and furans, hydrogen chloride and chlorine gas, and particulates. Compliance with the new rule must be achieved within 36 months of the *Federal Register* publication date. For more information, contact Ed Fiesinger at 713.977.8787 or *efiesinger@zephyrenv.com*.

EPA to Clarify MACT SSM Plan Requirements

In response to a 2003 petition, EPA has proposed amending its MACT rules related to the development of startup, shutdown, and malfunction (SSM) plans. In its July 29 proposal, EPA clarified that (1) MACT sources have a general duty to minimize emissions during periods of SSM; (2) MACT sources must prepare SSM plans as part of this general duty, but the plans themselves are not applicable requirements for Title V permits; (3) an SSM plan is neither a compliance plan nor a schedule of compliance, as defined by the Clean Air Act (CAA); and (4) the public does not have unlimited access to a facility's plans unless EPA has previously obtained them under Section 114 of the CAA. For more information, contact Curtis Harder at 512.329.5544 or *charder@zephyrenv.com*.

NSPS Proposed for Stationary Diesel Engines

On July 11, EPA proposed a New Source Performance Standard (NSPS) to reduce emissions from new or modified and reconstructed stationary compression ignition (CI) internal combustion engines (stationary diesel engines). This rule, added as Subpart IIII, to the NSPS, would require the use of technologies and fuel sulfur limits to reduce emissions from new engines ordered after July 11, 2005 and manufactured after April 2006, and existing engines modified and reconstructed after the date the final rule is published in the *Federal Register*. Engines modified and reconstructed would meet the emission standards for the model year in which they were originally constructed. For more information contact Pete Stevenson at (512) 329-5544 or *pstevenson @zephyrenv.com*.

Court Holds EPA Not Required to Regulate Mobile Source Greenhouse Gas Emissions

In response to a lawsuit brought by about a dozen states, three cities and several environmental groups, the U.S. Court of Appeals for the DC Circuit ruled, on July 15, in favor of EPA's decision not to regulate CO_2 emissions from mobile sources. However, the ruling did not decide the broader question of whether EPA has the general authority to regulate global warming pollution or whether CO_2 is a pollutant. The states will likely request the full appeals court to rehear the case or seek Supreme Court review. For more information, contact Roger Brower at 410.312.7907 or *rbrower@zephyrenv.com*.

EPA Provides Update on AERMOD Status

At the 8th Air Quality Modeling Conference held in September, EPA staff confirmed that the addition of the new generation dispersion model, AERMOD, to its *Guideline on Air Quality Modeling* is imminent. AERMOD will replace ISC3 as the preferred air quality model for short-range impact assessments of emissions sources. When asked about the reason for the long hold-up, EPA staff reported that there are no remaining obstacles to AERMOD's approval. Even in those situations in which AERMOD is the more appropriate model to use, EPA will allow the use of ISC during the first year after AERMOD is formally added to the *Guideline*. For more information, contact Roger Brower at 410.312.7907 or *rbrower@zephyrenv.com*.

state news

TCEQ Launches New Air Quality Study

In August the TCEQ resumed its East Texas air quality studies, aimed at gathering additional data to be used in developing plans to solve the Houston-area ozone problem. Known as Texas Air Quality Study II (TXAQS II), it will build on the work done in 2000 when TXAQS I was conducted. TXAQS II will be conducted over a 14-month period, with fieldwork planned to update the results of TXACS I and to more thoroughly characterize emissions of ozone precursors as well as concentrations of ozone and its precursors in the atmosphere. Whereas TXAQS I covered only the Houston/Galveston area, TXAQS II will cover most of the eastern half of Texas. The total budget for the study is anticipated to be $32.7 million, covering the period from 2003 to 2008. For more information, contact Ed Fiesinger at 713.977.8787 or *efiesinger@zephyrenv.com*.

EPA Approves Ozone Attainment Demonstrations for Central Texas Areas

In August and September, EPA formally approved demonstrations contained in ozone compliance plans for the Austin and San Antonio areas, concurring that photochemical modeling has demonstrated that the control strategies developed for these two regions will provide for attainment and maintenance of the 8-hour air quality standard for ozone. These demonstrations of compliance are based, in part, on Early Action Compacts (EACs) developed earlier between EPA and local planning groups. In a another recent action, EPA has extended the date for nonattainment designations for San Antonio and thirteen other areas in the country operating under EACs until December 31, 2006. Unlike San Antonio, Austin is designated as in attainment for the standard and, thus, is not affected by this extension. For more information, contact David Cabe at (512) 329-5544 or *dcabe@zephyrenv.com*.

Austin Begins Vehicle Emissions Testing

On September 1, Austin-area vehicle inspection stations begin the testing of vehicle emissions, using the Two Speed Idle (TSI) method for 1995 model years and older and the On-Board Diagnostics II (OBDII) system for 1996 model years and newer. These tests are required as conditions of the Early Action Compact between the Austin, the TCEQ, and EPA for maintaining compliance with the 8-hour ozone standard. Gasoline powered vehicles (excluding motorcycles) that are 2 through 24 model years old and registered or primarily driven in Travis and Williamson Counties must undergo this testing in conjunction with annual safety inspections. For more information, contact Louisa Preston at 512.329.5544 or *lpreston@zephyrenv.com*.

TCEQ Proposes General Permit for Small Municipal Separate Stormwater Discharges

As an alternative to the use of an individual permit, the TCEQ has proposed a new General Permit for Phase II (small) municipal

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separate stormwater sewer systems (MS4s). When issued, General Permit TXR040000 will authorize the discharge of storm water to surface waters of the state from MS4s serving populations of less than 100,000. Small MS4 operators choosing to obtain authorization under this general permit must submit a storm water management program and a completed notice of intent (NOI) form to the TCEQ. For further information, please contact Elena Rivera at *erivera@zephyrenv.com* or (512) 329-5544.

TCEQ Awards Emission Reduction Grants

The TCEQ announced that it is awarding more than $127 million in emission reduction grants to help reduce NO_x in cities or counties that are at risk of not meeting, or currently do not meet the federal air quality standard for ozone. The grants will help businesses, individuals, and governmental organizations replace, re-power, or retrofit older heavy-duty vehicles and non-road equipment that contribute to high levels of NO_x. For more information, contact Kimberly Brandt at 512.329.5544 or *kbrandt@zephyrenv.com*.

Railroad Commission Revises Pipeline Contamination Reporting Rules

On September 1, the Railroad Commission of Texas revised its rules to require pipeline owners, operators, and common carriers to report historical petroleum-based contamination discovered when placing, repairing, replacing or providing maintenance to any pipeline if 1) hydrocarbons are present on the surface of the water, 2) at least 5 linear yards of soil have been affected, or 3) soils affected by hydrocarbons extend beyond the face of the excavation in which contamination is observed or detected. In addition, new spills meeting these criteria must also be reported. Affected entities must report this information to the Railroad Commission and to the landowner within 24 hours after it is discovered. For more information, contact David Sorrells at 512.329.5544 or dsorrels@*zephyrenv.com*.

TCEQ Proposes to Add Federal NSR Reform Features to Air Permit Rules

In September, the TCEQ proposed to amend its Chapter 116 air permitting rules to include changes to the federal rules recently adopted by EPA under its New Source Review (NSR) reform initiative. Federal NSR reform is aimed at limiting the instances when Prevention of Significant Deterioration and Nonattainment New Source Review is required of facilities undergoing modifications, and the TCEQ is proposing to streamline its permitting rules through the adoption of features of this program. In particular, TCEQ has proposed rule changes related to the use of plant-wide applicability limits, the actual-to-projected actual emissions test, emissions baseline determinations, and the pollution control project standard permits. For more information, please contact Jennifer Seinfeld (410-312-7915 or *jseinfeld@zephyrenv.com*).

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rule in response to the court's ruling, providing a process by which states can consider an individual facility's contribution to regional haze when determining whether to require BART for that source. The rule was revised, after additional Court input, and finalized as the CAVR in June 2005.

The CAVR requires states to determine BART for older facilities that have the potential to emit more than 250 tons per year of any air pollutant. Many of these old plants, including steam boilers, pulp mills, refineries, and Portland cement plants, have never been subject to any federal pollution control requirements. The CAVR however, focuses on regulating emissions of sulfur oxides and nitrogen oxides, substances involved in fine particle formation, and has set presumptive standards for larger electric generating units.

With the BART issues addressed, the regional haze rule/ CAVR is now complete. Under the CAVR, states have until the end of 2007 to identify the facilities required to install BART controls and to submit their control plans to EPA. Upon approval of the state plans, affected facilities will have five years to put the required controls in place. Depending on the approach taken by the states, BART reductions would begin to take effect in 2014, with full implementation by 2018.

A key aspect of the CAVR is the option to use an alternative to BART if the alternative will achieve a greater improvement in visibility. An emission trading program is the primary type of alternative under consideration, and in July 2005, EPA outlined the necessary steps that a state must take to add this approach into its SIP. States that adopt such a program for NO_x and SO_2 emissions will benefit from the alternative program flexibility built into the CAVR. EPA's analysis shows that a cap-and-trade program for electric generating units subject to the CAIR will do a better job than BART of improving visibility in natural areas.

Visibility improvement is not the only plus to the CAVR; EPA projects that it will also significantly benefit human health and welfare. Under one scenario, EPA estimates that BART controls could reduce annual NO_x and SO_2 emissions by about 600,000 and 400,000 tons, respectively, preventing an estimated 1,600 premature deaths and 2,200 non-fatal heart attacks each year. This comes in addition to an estimated value of $240 million EPA places on the expected visibility improvements in southeastern and southwestern parks.

EPA's analysis shows that the CAVR will have a positive impact on the regional haze problem that has plagued our national parks and wilderness areas for decades. However, will the predicted improvements go far enough to meet Congress's initial mandates and satisfy the visitors to these natural treasures? At this time, it's not clear.

Lou Corio
Senior Project Scientist

FROM THE PRESIDENT

BRAVO for Big Bend

Most of us who work in the environmental field have developed a deep appreciation for nature and its beauty. Like most American citizens, most of the EHS professionals I know make it a point to visit scenic areas. But beyond aesthetic appeal, tourism in this country is very, very big business.

Last spring, I had the opportunity to visit the Big Bend National Park in Texas once again. Even though I was born and raised in Colorado, Big Bend never fails to amaze and inspire me — the contrast of an alpine ecosystem rising majestically out of the Sonoran desert is something to behold. From an elevation of less than 2,000 feet along the Rio Grande to nearly 8,000 feet in the Chisos Mountains, Big Bend includes massive canyons, vast desert expanses, and the entire Chisos Mountain range.

Even though Big Bend is in a very remote and "empty" part of the country, the scenic beauty of Big Bend National Park is often spoiled by haze that obscures its many vistas. In addition, Big Bend is one of the few national parks where haze has been increasing since the late 1980s. In 1999, the National Park Service and the EPA conducted the Big Bend Regional Aerosol and Visibility Observational (BRAVO) study in an attempt to determine what causes the haze at Big Bend. Other participating agencies were the Texas Commission on Environmental Quality and the Electric Power Research Institute.

The BRAVO study involved four months of intensive monitoring from July through October 1999, followed by a data analysis and modeling effort. As Lou Corio explains in this month's feature article, haze is caused by scattering and absorption of light by suspended particles that can remain in the atmosphere for many days and be transported for hundreds of miles. The composition of the particles varies, depending on their human and natural sources. Sulfate particles are the single largest contributor to haze at Big Bend, accounting for about half of the haze on the average and on the haziest days. Sources of sulfates in the atmosphere include coal-fired power plants, smelters, refineries, and other industrial processes. Dust from the suspension of soil particles and carbonaceous material from forest fires also affect haze at Big Bend. The haze in the park peaks in the spring months when both sulfate and carbonaceous particles are the dominant contributors and in the late summer and early fall when sulfate particles alone dominate. The least hazy conditions occur during the winter.

The findings from the BRAVO study include the following:

- On average, during the study period more than half of the sulfate at Big Bend came from the U.S., in particular from the eastern U.S. and Texas.
- On average, Mexican sources contributed just over a third of the sulfate.
- The Carbon I and II power plants in Mexico contributed about one-fifth of the total sulfate measured at Big Bend National Park.
- Eastern U.S. and eastern Texas sources were the largest contributors to peak particulate sulfate episodes during BRAVO.
- Airflow from eastern Texas and the eastern U.S. is most frequent during late summer and early fall months, when sulfate contributes most to haze.
- Mexico and the western U.S. were the largest contributors on the least hazy BRAVO days.
- The least hazy conditions occur during the winter months.

The Clean Air Visibility rule and related regulations should reduce sulfur dioxide emissions throughout the United States and make significant progress toward improving visibility at Big Bend. There have been partnerships between agencies in Mexico and the U.S. to address transport of pollution — such a partnership could also go a long way to improving visibility conditions at Big Bend. Hopefully, one day soon we will notice these improvements at Big Bend and at other natural areas we treasure around the country!

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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SEMP. My client includes the work performed by contractors in their "safe work program" so that every task performed at the platform is evaluated for potential safety hazards and environmental impacts.

A SEMP must be audited within two years of initial implementation and at no more than four year intervals thereafter. Although personnel from the Minerals Management Service had visited this platform many times, their audits don't count towards this periodic audit requirement. Even though I had never been to a platform before, my familiarity with land-based oil and gas facilities, knowledge of environmental and safety regulations, and EMS experience (along with my fresh eyes) helped to improve my client's SEMP.

THE REALLY FUN STUFF

Oh . . . where to begin. The chopper rides, the sunsets, the star-filled sky, and water as far as you can see. Of course there's the good food . . . platform cooks are famous for it. Being a woman I was provided my own private quarters, where I slept like a baby to the low, soft hum of the generators. And, then there's the fishing. I heard a rumor that you're not supposed to fish off a platform. I guess that's because all of the engineering controls, equipment safety devices, and a well-tuned SEMP make fishing with a pointed hook and a sharp knife the most hazardous operation you can engage in at an offshore platform. I forgot to ask if they've documented a hazards analysis on that. Oh darn, I may just have to go back!

Jeanne Yturri
Principal

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6. Emissions from scheduled maintenance activities must be included in a preconstruction permit for the facility that is renewed, amended or issued within two years of the effective date of the SIP revision. In other words, the affirmative defense for scheduled maintenance activities will expire within two years.

The Commissioners will address these issues at its Agenda Meeting on November 30, 2005 in Austin. They may also be reviewing proposed revisions to Agency's Permit by Rule (PBR) rules that would 1) clarify that emissions from certain predictable or planned normal SSM activities are already authorized; 2) clarify that SSM emissions are not authorized under individual PBRs unless those activities are specifically referenced in the PBR; and 3) authorize unexpected emissions that a well-maintained, operated and managed facility could not eliminate entirely.

At this meeting, the Commissioners will also consider whether to adopt proposed rules that address EPA's concerns about the Texas approach to emissions events and maintenance activities. This proposal would eliminate the affirmative defense for scheduled maintenance activities at facilities operating under PBRs within the next two years.

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