McVehil-Monnett Associates, Inc.

Air Quality Newsletter

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Welcome to the first issue of the McVehil-Monnett Associates Air Quality Newsletter. The purpose of the newsletter is to keep you, our clients, associates and friends up-to-date with air quality related issues that affect permitting, compliance, modeling and monitoring activities. We will particularly focus on those air quality issues affecting the mining and metallurgical, natural resource development, electric utility and general manufacturing industries. We will endeavor to distribute at least one newsletter every other month and more often if significant current events so dictate. It is our intent to provide you with useful, interesting information that will assist you in your routine air quality activities and future planning. To that end, we would appreciate any comments or criticisms of the newsletter, including any new features that you would like to see. Please e-mail your comments to bmonnett@mcvehil-monnett.com or give us a call at (303) 790-1332

McVehil-Monnett Associates is also on-line at www.mcvehil-monnett.com. When fully operational our site will provide technical information and links to other resources that we hope prove valuable to you in your everyday permitting and compliance efforts. On the website you will find postings of our current and past newsletter, notices of new regulations, EPA and State decisions, policy changes and enforcement actions, and more extensive discussion of timely topics. The site will also offer links to the air quality regulations of all 50 States and to various EPA and State sites for emission factors, conversion tables, sampling schedules, modeling and monitoring guidelines and other useful information. After you have visited mcvehil-monnett.com we would greatly appreciate your feedback, comments and recommendations for improving the site. We want this site to be as useful tool for all of you.

EPA OVERRULES ISSUANCE OF TITLE V PERMIT-IMPLICATIONS FOR MAJOR SOURCES THAT HAVE BEEN IN EXTENDED SHUTDOWN

In a recent administrative decision (June 11, 1999), EPA Administrator Carol Browner prohibited the State of Louisiana for issuing a Title V permit to a power plant that had been in a state of extended shutdown. EPA overturned Louisiana's issuance of the permit on grounds that the power plant owners had not obtained a Prevention of Significant Deterioration (PSD) permit prior to re-starting the unit. EPA's decision, if left unchallenged, could have major permitting implications for any major sources placed on inactive status for an extended time period.

EPA, in responding to a petition from an environmental group, decided that the simple act of re-starting the plant constituted "…a change in the method of operation" of the major source. Because the actual baseline emissions from the facility were zero over the five year period prior to re-start, the potential emissions from the facility at operation would be well in excess of the PSD significance levels for major modifications. On this basis, EPA concluded that re-starting constituted a major modification to an existing major source, thereby triggering a PSD permit requirement.

In its decision, EPA also considered whether the reactivation of a facility from a period of extended shutdown (eleven years in this particular case) would trigger PSD review as "construction" of a "new" major sources. EPA articulates what it refers to as its "Reactivation Policy", which consists of several internal EPA memoranda spanning a period of over 20 years. That policy apparently treats reactivation as a new source if the shutdown was "permanent". Permanency depends on the "…intention of the owner or operator at the time of the shutdown based on all facts and circumstances. Shutdowns of more than two years, or that have resulted in the removal of the source from the state's emission inventory, are presumed to be permanent. In such cases, it is up to the facility owner or operator to rebut that presumption."

In the Louisiana case, EPA did not make a final determination with regard to whether re-starting of the facility constituted a new source under the reactivation policy, in part because the owner took various overt steps to keep permits current, pay annual maintenance fees and conduct minimum maintenance. EPA viewed those actions as evidence that the owner never intended to permanently shutdown the plant. However, EPA's decision with regard to major modification essentially rendered this issue moot.

For the complete text of the decision, including how EPA viewed NSPS applicability in this case, please see our website at www.mcvehil-monnett.com
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AERMOD-A NEW AIR QUALITY MODEL

In 1991 the American Meteorological Society (AMS) and the U.S. Environmental Protection Agency (EPA) began a collaborative effort to accelerate the inclusion of up-to-date science into regulatory dispersion models. Their efforts are embodied in the new AERMOD dispersion model, which is expected to be approved for regulatory use later this year.

Modeling System Overview:

AERMOD is based on the current regulatory modeling workhorse, ISC, but includes numerous and extensive modification. AERMOD includes new or improved algorithms for:

- Dispersion in both convective and stable boundary layers,
- Plume rise and buoyancy,
- Plume penetration into elevated inversions,
- Treatment of elevated ad surface sources,
- Computation of vertical profiles of wind, turbulence and temperature, and
- Treatment of receptors in all types of terrain.

AERMOD (Continued)

AERMOD incorporates two preprocessors called AERMAP and AERMET. AERMAP is a terrain processor and AERMET is a meteorological data processor.

AERMAP can use Digital Elevation Model (DEM) data to determine location, terrain height and terrain height scale for each receptor in a receptor grid. That information is used within AERMOD to determine the dividing streamline height for each receptor so that there is no need to define complex and intermediate terrain regimes.

AERMET can use standard National Weather Service (NWS) surface and sounding data augmented with surface albedo, roughness length and Bowen ratio to calculate hourly estimates of surface parameters, including Monin-Obukhov Length, friction velocity, heat flux, convective scaling velocity, and mixed layer heights. That information is passed to AERMOD where, using similarity (scalling) relationships, vertical profiles of wind direction, wind speed, turbulence and other parameters are estimated.

Implications for the Regulated Community:

Assuming that AERMOD gains regulatory approval, it is likely that it will become the preferred air quality model of most regulatory agencies for most situations. Problems could arise for the regulated community when regulatory agencies require the use of AERMOD for new permitting when previous permitting decisions were based on ISC. This is because, as you might expect , the models do not yield identical modeling scenarios.

Model comparisons indicate that, for terrain below stack top, the models predict similar ambient pollutant concentrations most of the time. However, in a few cases, AERMOD predictions differed by up to a factor of three or more (both higher and lower) from ISC. This could cause a real problem for regulated sources that have historically produced impacts that are close to the ambient limits.

For regulated sources in complex terrain (above stack top), the news is better. Comparisons have shown that AERMOD consistently predicts lower concentrations than ISC.

7th Modeling Conference:

AERMOD will be a primary topic of discussion at EPA's upcoming 7th Modeling Conference (not yet scheduled), MMA will be attending the conference in order to keep abreast of developments concerning AERMOD and other air quality modeling issues.

According to EPA sources, permit applicants will be required to use AERMOD for most regulatory permitting requirements within one year of its formal endorsement (at the conference) by EPA as a preferred regulatory model. In the interim, please look to MMA's webpage, www.mcvehil-monnett.com, for updates and model comparisons as we accelerate our efforts to determine the impact this model will have on our clientele. bpeterson@mcvehil-monnett.com

UPCOMING McVEHIL-MONNETT ASSOCIATES EXHIBITS

As a reminder, you are invited to visit our booth at these upcoming professional meetings:

2000 SME Annual Meeting & Exhibit (Booth #1348), Salt Palace Convention Center, Salt Lake City, UT, February 28-March 1, 2000

Air & Waste Management Association, 93rd Annual Meeting & Exhibition (Booth #1145), Salt Lake Palace Convention Center, Salt Lake City, UT, June 19-21, 2000