



THE CHIEF NEWSLETTER

— THE CLEARINGHOUSE FOR INVENTORIES AND EMISSION FACTORS —

EUROPEAN AND INTERNATIONAL EMISSION INVENTORY ACTIVITIES

On March 25-27, J. David Mobley attended the meeting for the United Nations Economic Commission For Europe (UNECE) Task Force On Emission Inventories, held at Keble College in Oxford, England. The meeting was attended by 95 people from 23 countries. Mobley was the only attendee from the United States and was Co-chair of the Verification Expert Panel with Tinus Pulles of The Netherlands.

The main purpose of the meeting was to celebrate finalizing the *UNECE Atmospheric Emission Inventory Guidebook*. This *Guidebook* was also adopted for use by the European countries participating in CORINAIR and for the development of the CORINAIR94 Emission Inventory which is now under

compilation. The *Guidebook* utilizes and conforms to the US Environmental Protection Agency (EPA) procedures and AP-42 emission factors to the maximum extent possible. The UNECE procedures also form the basis for reporting to the United Nations (UN).

CORINAIR94 is scheduled to be completed by the end of 1996 and will include sulfur dioxide, nitrogen oxide, ammonia, nonmethane volatile organic compound, methane, carbon monoxide, carbon dioxide, heavy metals (cadmium, mercury, and lead), and some Persistent Organic Pollutants (polycyclic aromatic hydrocarbons, polychlorinated biphenyls, dioxin/furans). There are numerous other persistent organic pollutants under consideration for inclusion in the emission inventories but these appear to be the initial set. The timing for compilation of the data set has been shortened considerably over previous efforts (CORINAIR85 and CORINAIR90). This denotes improved tools, techniques, and more knowledgeable personnel as well as recognition that it has taken too long to develop and compile previous emission inventories.

The UN Secretariat reported much improved compliance with emission data reporting protocols over previous years. This reflects the overall progress made in development of emission inventories and the increased priority and attention associated with emission inventories. Data from the East European countries appears to be emerging now also.

With completion of the *Guidebook*, the organization, focus, and leadership of the Task Force's activities was examined, and numerous changes were adopted. The *Guidebook* will remain a key focus, but activities will be on maintenance and enhancements rather than development. In addition, application and assessments of the data will be highlighted as opposed to developing estimation procedures. In this regard, projections and validation activities are likely to be highlighted along with air quality modeling applications. The next meeting is targeted for June 1997 in The Netherlands and will be hosted by the TNO at Aberdoorn.

Mobley also attended the Fuel Combustion Workshop on Greenhouse Gas Emission Inventories, which was also held in Oxford, England in March. The Workshop was attended by 47 individuals from 25 countries of 6 continents and was sponsored by the Organization for Economic Cooperation and Development (OECD), the Intergovernmental Panel on Climate Change (IPCC), and the International Energy Agency (IEA).

(Continued on p. 2)



**THE EMISSION INVENTORY:
Key To Planning, Permits,
Compliance And Reporting**



The sixth annual U.S. Environmental Protection Agency-Air & Waste Management Association (EPA-AWMA) Emission Inventory Conference will be held at the DoubleTree Hotel in New Orleans, Louisiana, September 4-6, 1996. The conference will provide a useful forum for the exchange of ideas and information on the use of emission data between industry, EPA, state agencies, and the public. Topics from emission estimation methods to compliance reporting will be covered and will provide some information related to the improvement of the emission inventory process and utilization of emission data in national and regional control strategies. Papers that relate industrial experiences and concerns with inventories of air pollution emissions and the methods used to estimate emissions will also be presented.

Panel discussions related to OTAG, EIIP (see related articles in this newsletter), international, permit and other inventory related development are also planned. Continuing education courses—including the use of computerized emission estimation tools—and an exhibit of related products and services will be held in connection with the conference technical program.

For additional information, please contact the Registrar, Air & Waste Management Association, (412) 232-3444 extension 3142.

A FAREWELL NOTE FROM JIM SOUTHERLAND

April 1, 1996 will leave a mark in my mind forever. This is the effective date of my break from US PHS/US EPA after 29 years (of course, taking into account that EPA has only existed since 1970). There have been a lot of projects and efforts put forth over those years and some have been successful, some not, but because of the great people I have had the opportunity to work with, they have almost all been enjoyable. This includes the fellow "working folks" at EPA, the State and local representatives I have worked with, industry representatives and consultants. Most particularly, I have had the opportunity in recent years, to work under the direct supervision of two individuals (Ed Lillis and David Mobley) who have been uplifting and supportive professionally and personally. Emission factor and emission inventory work will go on as well after I leave as before, as their vision and guidance, as well as that of many other individuals, are left behind to "watch the flock."

I look back and see the progress we have made and am astounded. I look forward to all the potential on the horizon and am awe struck. I see states making their data available to the public by Internet; I see integrated GIS data bases that clearly show both professionals and novices the infinite details of each emission source and surrounding territory; I see emissions data used daily in routine ways for valuable purposes that we had not even realized were possible. I even see the budgeters and planners realizing that they can not go forward with a creditable program without first having a reliable emission inventory to use for tracking progress. Emission inventories lead to success!

I am also looking forward to working with Russell Hageman and Brock Nicholson and all the staff with the North Carolina Air Quality Section in Raleigh. If you want to join forces to work toward some common goals (and gang up on those Feds! Chuckle?), give me a call in Raleigh at 919 715-7566 or e-mail at jim_southerland@aq.ehnr.state.nc.us. Let's hope we can make as much progress and have as much fun in the next 30 years as the last!



UNECE (Continued from p. 1)

The purpose of the Workshop was to develop modifications to the OECD/IPCC Guidelines for National Greenhouse Gas Inventories, adding estimation procedures to the Energy Chapter for methane and nitrous oxide as well as ozone and aerosol precursors. In the course of this modification, the OECD/IPCC Guidelines were harmonized with the UNECE Guidebook, EPA procedures, and AP-42 emission factors. A draft of recommended enhancements had been prepared by IEA and all issues concerning this draft were addressed. The final versions of the recommendations will be forwarded to IPCC member countries in August for acceptance or rejection at their September 1996 meeting. To the maximum extent possible, the IPCC Guidelines are consistent with the UNECE and EPA procedures for emission inventories.

The emission inventory activities worldwide are increasing at a significant rate. Ozone, acid rain, and emerging air toxic issues are keeping US and Canada emission inventory activities at a high level. The UNECE protocols and air pollution issues in Europe are advancing emission inventory activities in Western Europe and linkage within Eastern Europe are extending activities into those countries. Greenhouse gas emission inventory activities and the Rio Convention are stimulating emission inventory activities worldwide. These are increasing demand for emission factors, emission estimation procedures (simple but accurate), and verification techniques to ensure that estimates are consistent and accurate. This is contrasted with limited resources available to do the work with the quality desired by the users and developers. It should be an interesting and challenging time to work in the emission inventory program.

LETTER TO JIM SOUTHERLAND

I want to commend you, an original member of EPA/OAQPS, for your many years of service in the nation's efforts against air pollution. We all value your dedication to the Agency's work, especially in the production and improvement of emission factors, the necessary means of estimating both the sources and the scope of air pollution. Under your direction, EPA's oldest and most often requested publication series, the *Compilation Of Air Pollutant Emission Factors*, AP-42, has long been a "best seller" at the Government Printing Office and now is at work in many thousands of copies almost literally everywhere. Your work with the series has led to the worldwide use of emission factors, with the current mail list for it encompassing 63 countries.

Also, your ideas for *CHIEF*, the Clearinghouse for Emission Inventories And Factors, have expanded the availability of AP-42 well beyond its printed volumes and have led OAQPS in the development and use of modern electronic media, including the *CHIEF* electronic bulletin board, the *TANKS* emission calculation software, the *Air CHIEF* CD-ROM, the *FIRE* database, *Fax CHIEF*, and on to the Internet. Your efforts here have improved the quantity, quality, and availability of emission factors for 30 years.

I wish you well in your new position with the North Carolina Department Of The Environment, Health, And Natural Resources. OAQPS will miss you.

— John Seitz, OAQPS Director

EIIP: PAYING DIVIDENDS NOW AND IN THE FUTURE

As the Emission Inventory Improvement Program (EIIP) begins its third year of existence, the benefits of the program are already evident. The volume of guidance chapters in final or external draft form continues to grow. Although the formal implementation of the guidance was planned to begin in the next phase, some EIIP products are already being put to use at the state level. For example, the Data Attribute Rating System (DARS) was recently endorsed in a California Air Resources Board newsletter as a means of selecting the most reliable method for estimating emissions.

The EIIP is producing guidance that will result in higher quality data for air emission inventories. By pooling resources and working cooperatively, state and local agencies, EPA, and industry are reducing the cost of producing inventories. Furthermore, the EIIP empowers state and local agencies by providing the knowledge and peer support system needed to make sound decisions.

High Quality Emission Inventory Data

Having high quality data in air emission inventories is important because these data are the foundation of many decisions. Emission inventories are used for assessing air quality, developing control regulations, and as a basis for issuing air permits. Mistakes in the emission inventory affect all subsequent calculations and decisions further along in the process. Correcting emission inventories to address problems caused by early mistakes can be costly and even embarrassing when the agency is held publicly accountable for the quality of the work. Furthermore, errors in emission inventories may result in unrealistic regulations, leaving an agency open to challenges from the public and from the regulated industry.

Cost Savings

In these days of budget cuts at federal and state levels, it is even more important that the remaining money be spent wisely on programs that can be justified. By consolidating resources through the EIIP, the costs of developing emission inventory guidance and of transferring emission inventory technology are shared among and directed by the states. This reduces the overall cost for emission inventory technology to state and local agencies as well as to the country.

State And Local Agencies In The Lead

Implementation of environmental regulations is now falling more and more to state and local governments. At the same time, the funds to support development of guidance, factors, and QA tools at the federal level is dwindling. State and local regulatory agency personnel are leading the EIIP process by transferring knowledge that fosters improved decision-making.

A very important benefit of the state and local leadership within the EIIP is the formation of a peer support system. The sharing of common problems and their solutions has been one of the primary benefits to those who have participated in developing the guidance and tools. EIIP participants place great value in the guidance and procedures that they have developed together. That collective wisdom is being incorporated in common guidance from state and local agencies, industry, and the EPA.

EIIP's Future

As EIIP looks beyond this year, it is clear that the next phase is to do more to implement the guidance in the real world. Several ongoing activities have been identified as opportunities to put EIIP guidance into action: sharing program activities with regional or interregional air quality programs such as OTAG, the Grand Canyon Visibility Study, SAMI, MARAMA, and others; developing emission control strategies; facilitating the permitting process; providing a basis for emission trading requirements; and providing the tools needed for more consistent and defensible environmental impact assessments. A basic need of these activities to share consistent emission inventory data sets will also be supported with the EIIP's recommendation of a standard data transfer format and transfer protocol.

Because EIIP is not a regulatory body, the success of this program depends on how much and how well other agencies or programs use the guidance. The EIIP procedures documents provide a selection of methods for estimating emissions. While some are clearly identified as "preferred", the EIIP has no authority to require that they be used. Rather, the guidance documents can be used as a reference for any group requiring an emission inventory; that group can specify that a particular EIIP method (or set of methods) be used that fits with the data quality objectives of their program.



TANKS VERSION 3.0 IS NOW AVAILABLE

At long last, *TANKS* 3.0 has been posted on the *CHIEF* Bulletin Board System under emission estimation software. *TANKS* 3.0 uses the same FoxPro software used for *TANKS* Versions 1.0 and 2.0 but incorporates many new features.

A “readme” file posted along with the model catalogues the significant new features of *TANKS* 3.0. Some of the more significant changes are:

1. New estimating equations and fitting factors applicable to both internal floating roof tanks (IFRTs) and external floating roof tanks (EFRTs).
2. Fitting factors for additional configurations for slotted and unslotted guidepoles have been added.
3. A new rim seal loss estimating equation and corresponding loss factors have been added.
4. A fitting wind speed correction factor has been added to account for the shielding effect of the tank shell on the wind induced losses from external floating roof deck components.
5. An option for estimating emissions from domed external floating roof tanks has been added.
6. A heated tank option has been added.
7. New chemicals have been added to the chemical database.
8. Users can now add new deck fittings and rim seals and their associated loss factors.

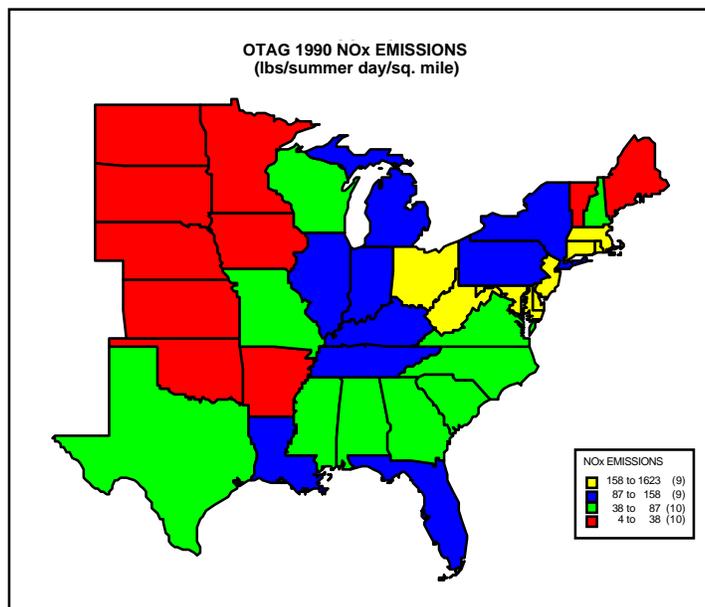
Test method and laboratory certification programs are now under development by the American Petroleum Institute to allow the development of reliable loss factors for vendor specific rim seal and deck fitting designs. *TANKS* 3.0 has been developed with this process in mind and allows the user to input loss factors for rim seals and deck components. This is a departure from earlier versions of *TANKS* which required use of loss factors developed for generic equipment designs. Our goal is to establish uniform and repeatable procedures to determine loss rates specific to individual vendor equipment designs and thereby promote the development of improved rim seals and deck component designs.

Any questions regarding the revisions to *TANKS* 3.0 should be directed to Dennis Beauregard of the Emission Factor and Inventory Group at (919) 541-5512.

THE OTAG EMISSION INVENTORY DATABASE

The Ozone Transport Assessment Group (OTAG) was formed in May 1995 at the request of the Environmental Commissioners of the States (ECOS). The mission given to OTAG was to develop a program to understand the transport of ozone and its precursors across state boundaries. To address this transboundary transport problem in its entirety, rather than on a state-by-state basis, investigators need to know both the amount of pollutant being emitted and its origin. This information will be used in emission and air quality models to determine the extent of pollutant transport and to test various proposed control strategies.

Emission data needs for the OTAG modeling program requires information for each county for each state in the domain. To meet this condition, data from two sources were used to build the OTAG emission inventory. Each state was responsible for compiling their data, checking for errors, and submitting to OTAG (via EPA contractors). States supplied, at a minimum, data for their nonattainment areas. Other statewide data were provided if available. For any county not represented by state data, the EPA “Interim Inventory” was used.



The assembled OTAG data are available from several sources in different formats. All data are available via anonymous FTP (‘earth1.epa.gov’ in the directory /pub/gopher/EmisInventory). File names are NEI90AR*.ZIP and NEI90PT*.ZIP for DOS users. UNIX users should download the files NEI90AR*.TXT.Z and NEI90PT*.TXT.X. Note that “*” indicates the version number of the particular file (Version 2 is the current version). Summary data in the “Tier format” can be found on the TTN under OTAG Bulletin Board. The file OTAG-EI.ZIP can be downloaded from the Modeling and Assessment subdirectory under Emission Inventory. The data also can be accessed via Internet at “<http://www.epa.gov/tut>”.

LATEST *Air CHIEF* CD-ROM FINALIST FOR AWARD

The latest version (4.0) of the *Air CHIEF* compact disc, by the Emission Factor And Inventory Group (EFIG), was recently a finalist in competition for a national award as "Best Help Desk/Technical Reference Application" of 1996. This award is given annually to infobase applications by Folio Corporation, the creator of *Folio BoundViews*®, the interface software ("platform") used on the *Air CHIEF* and many other CD-ROMs. Nominations for this award recognize innovative ways to search, annotate, and otherwise navigate the "infobase set", the material on the CDs. Among other considerations for the award are user support and training, custom documentation, on-line help, and visual appeal of the disc. EFIG is pleased to receive this recognition.

The *Air CHIEF* CD-ROM appears annually, through cooperative efforts between the Emission Factor And Inventory Group and Radian Corporation.

SURFACE COAL MINE EMISSION FACTORS

In the *Clean Air Act Amendments of 1990*, Section 234 directs EPA to review and revise the apparent overprediction resulting from the use of available surface coal mine emission factors and dispersion models. Efforts were undertaken by EPA to evaluate the emission factors and to make revisions to the models normally used. Initially, a need for over \$5 Million was identified for conducting the work. Unfortunately, this level of resources was not available from the EPA budget nor from the effected industry. Subsequently, a reduced emission factor development effort was initiated that was focused on the perceived major source, mine haul roads. Work was also carried out to make revisions to the model and conduct some field validation work.

The emission factor work and modeling work have both been completed and reported in several final reports. Discussion continues, however, on the final status and appropriate information to include in AP-42. Substantial progress has been made toward improving the technical credibility of both the factors and the model (the "statistics" are much improved). However, the results of the field work and generally low ambient concentrations near the mines, indicate that there is still overprediction of PM-10 emissions by the combined use of the new factors proposed for AP-42 and the model. In view of this, decisions are being made as to what will be published in AP-42 on the short term (post-Supplement A) and what can be done in a longer time frame with and without more resources. A proposed revision to the AP-42 section is on the *CHIEF* BBS.

WHERE TO CALL FOR EMISSION ESTIMATION AND INVENTORY TOOLS

AP-42 CONTACTS

AP-42 Chapter	Contact	Telephone
1. External Combustion	Roy Huntley	(919) 541-1060
2. Solid Waste Disposal	Roy Huntley	(919) 541-1060
3. Internal Combustion	Roy Huntley	(919) 541-1060
4. Evaporation Loss Sources	Ron Ryan	(919) 541-4330
5. Petroleum Industry	Ron Ryan	(919) 541-4330
6. Organic Chemical Process Industry	Dennis Beauregard	(919) 541-5512
7. Liquid Storage Tanks	Dennis Beauregard	(919) 541-5512
8. Inorganic Chemical Process Industry	Ron Myers	(919) 541-5407
9. Food And Agricultural Industry	Dallas Safriet	(919) 541-5371
10. Wood Products Industry	Dallas Safriet	(919) 541-5371
11. Mineral Products Industry	Ron Myers	(919) 541-5407
12. Metallurgical Industry	Ron Myers	(919) 541-5407
13. Miscellaneous Sources	Ron Myers	(919) 541-5407
"Adopt-A-Factor"	Tom Pace	(919) 541-5634

<i>Info CHIEF</i>	General information, technical support.....	(919) 541-5285
<i>Fax CHIEF</i>	AP-42, technical memos, newsletter.....	(919) 541-5626 or -0548 (fax)
<i>CHIEF BBS</i>	AP-42, database software, documents.....	(919) 541-5742 (modem)
<i>CHIEF BBS FTP site</i>		134.67.104.11
<i>EFIG Internet Web Page</i>	www.epa.gov/oar/oaqps/efig/tools.html	
<i>TTN Helpline</i>	TTN technical support.....	(919) 541-5384
<i>EPA Library</i>	General EPA document or information requests.....	(919) 541-2777
<i>U. S. GPO</i>	AP-42, <i>Air CHIEF</i> CD-ROM.....	(202) 512-1800
<i>NTIS</i>	EPA documents.....	(800) 553-6847

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SPRING 1996

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