



## THE CHIEF NEWSLETTER

— THE CLEARINGHOUSE FOR INVENTORIES AND EMISSION FACTORS —

### THE EMISSION INVENTORY: APPLICATIONS AND IMPROVEMENT

*Conference Impressions By Bryan Fricke*

The fourth International Conference on Emission Inventory Improvement was held in Raleigh, NC, November 1 - 3, jointly sponsored by the U. S. Environmental Protection Agency (EPA) and the Air & Waste Management Association (A&WMA). This year's meeting, attended by over 300 people, highlighted the substantial progress made in emission inventories over the past few years, while emphasizing the continuing need for improvement.

The conference addressed a wide range of inventory topics, including air toxic emissions, biogenic emissions, electronic data processing, computerized tools, motor vehicle emissions, regional and international emission programs, and new developments in stationary source emissions. Recent strides in inventory-related matters were discussed in a number of sessions that dealt with improvements in data management systems, inventory techniques, and analytical methods. Nevertheless, concerns about the use of dubious emission factors in some inventories and disagreement on the amount of detail needed in a national emission inventory were reminders of the need for more inventory improvement.

The conference started off energetically as J. David Mobley, General Conference Co-chair and Leader of the Emission Factor And Inventory Group (EFIG) of EPA's Office Of Air Quality Planning And Standards (OAQPS), welcomed the conference attendees and introduced keynote speaker, John Seitz, the Director of OAQPS. Seitz's address dealt in large part with his support of the emission factor and inventory programs as well as the Aerometric Information Retrieval System (AIRS), the current national emission inventory data system. Seitz addressed data management issues, the most popular topic at the meeting. He asserted that it may be necessary to use less detailed data than what is currently being required.

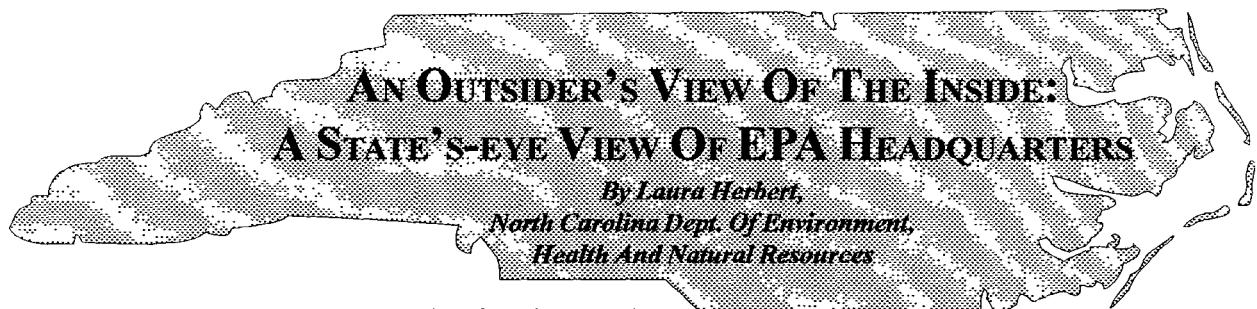
Other notable speakers at this conference included Mary Nichols, the Assistant Administrator of EPA's Office Of Air And Radiation, and David Hawkins, of the Natural Resources Defense Council. Nichols's luncheon address underscored the

importance of emission inventories in the Agency's overall air quality program. Hawkins's luncheon address not only agreed with the importance of emission inventories, but it also called for a number of improvements. In contrast to Seitz, Hawkins expressed the need for more detailed emission inventories extending down to the process-specific level. Hawkins also expressed a need for higher confidence levels in the accuracy of emission inventories. Moreover, he suggested that inventory-related data should be made readily available to the public in an electronic format.

The Emission Inventory Improvement Program (EIIP), a joint EPA/state/local effort to improve the collection and reporting of emission data, also had a forum at the conference. In a panel session, each co-chair of the seven committees that make up the EIIP (area source, point source, mobile source, biogenic source, data management, interactions, and quality assurance) gave a presentation concerning the goals of his/her committee and the progress made thus far. These presentations were followed by a question and answer session that allowed conference attendees to direct their inquiries either to individual committee co-chairs or to the panel as a whole.

The conference concluded with a "Wrap-up Panel", which allowed a number of panelists to give their perspectives on the substance of the conference, as well as their views on the challenges that lie ahead for those in the emission inventory field. Following these speeches, conference attendees were once again invited to address questions to the panelists and also to give their perspectives on issues raised during the conference. Challenges cited for the future include:

- Development and implementation of products from the EIIP
- Improved data management
- Enhanced quality assurance and quality control
- Greater coordination and communication across programs
- Continued improvement of emission factor and inventory methodology



*In Search Of Excellence* while *Thriving On Chaos* — these are but a couple of the book titles I encountered while serving a three-month assignment with the Emission Factor And Inventory Group (EFIG). My permanent employer and pre-EPA point of reference is NC's Air Quality Section, so my mission while at EPA was simple: "Go where no NC Air Quality employee has ever gone before, and seek out intelligent life forms in that distant giant nebula named EPA". What a *task!* Others, more familiar with military jargon, just called it covert operations. Tongue and cheek aside (and foot out of mouth, I hope), the three months I spent at the top of the regulatory food chain were very enjoyable and insightful.

I am normally a state permit engineer, with additional duties including compliance inspections and point source emission inventories. From this reference point, my exposure to *the* national level decision making and analysis process was heady. I can now say, with conviction, that the EPA Emission Factor And Inventory Group does an amazing amount of work under severely resource-starved conditions. Prior to my rotation, I had envisioned this group as a huge machine made up of many-peopled cogs. I suppose I had jumped to that conclusion after weighing the AP-42 volumes, mentally assigning a person-to-pound factor, and multiplying. In fact, I am still amazed at the small number of people involved in this "heavy" activity. More so, even, after Jim Southerland told me that the stack of supporting documentation for AP-42 reaches as high as the Mutual Building (the 12-story location of OAQPS Headquarters just down the road in Durham). Now don't ask me how Jim knows this, but he has had plenty of practice developing numbers that depict such abstract concepts (better known as emission factors) . . . .

So, now the hard question: What exactly did I do (please don't substitute that "accomplish" word) while at EPA/RTP? To be perfectly honest, I acted as a sponge for the spoken and written word! And, every now and then, I would blurt out a statement that was obviously driven by state agency sentiments.

Actually, I learned all about the EPA telephone system, EPA LANs, the federal government's compressed work schedule, the EPA, the OAQPS reorganization, and, oh yeah, emission factor and inventory development. Sometime into the last month of my rotation, I finally learned how to save and retrieve my phone messages. But, I never did memorize my phone numbers. That's right, numbers. During five years with the State Of North Carolina, I have had only one phone number. Three months with EPA, and I had the opportunity to have *two* different numbers. At that rate, I calculate that I should have changed my telephone number 40 times during my time with the state. So out there, I wasn't actively avoiding anyone in not returning your calls, I probably had just switched numbers.

During my three-month experience, I worked on the preliminary guidance for the Emission Factor Development Initiative ("Adopt-A-Factor"), and I probably talked to many of you along the way. As a result of my three months, I am currently finishing a client analysis of EFIG's emission estimation tools and services (which include the *CHIEF* Bulletin Board System and this newsletter). This project provided me with an excuse to play for many entertaining hours on the OAQPS Technology Transfer Network and with the *FIRE* data base. If you are not familiar with these diamonds of information, I recommend that you take the time to learn where things are in the EPA electronic warehouses. The amount of information available through the bulletin board and miscellaneous CD-ROMs is incredible. If EPA wrote it, said it, or did it, chances are it is up there in electronic format. Now, if only the states could have a bulletin board . . . . We will have to be happy with the *CHIEF* Bulletin Board System's public forums for the time being.

When I started my assignment with EFIG in October — which, by the way, was recently renamed from the Emission Inventory Branch (EIB) — I actually got to know some of the people I had previously harassed weekly on the phone. I tried not to remind them, and hoped that they would not recognize my name. In the future, I will be nicer. During my stay at EPA, I also had the opportunity to attend the EPA/Air & Waste Management Association specialty conference "The Emission Inventory: Applications And Improvement"; to sit in on numerous conference calls (*the* meeting medium of choice for EPA); to hear all about Russia during luncheon seminars by the RAMP folks (The Russian Air Management Program); to read memoranda and documents I would never have seen while working with the state; and to talk on the phone with very important people, such as the EPA Regional Air Branch Chiefs.

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All in all, it was a wonderful time, and I would like to thank Jim Southerland and David Mobley for giving me the opportunity to spend time at EPA. I would also like to thank my bosses at North Carolina, Paul Muller and Alan Klimek, for allowing me three months away from the very important business of writing permits, inspecting facilities, and fortifying the office for the onslaught of Title V and Title III. I highly recommend this type of exchange between EPA and the states, and think it was beneficial to both of us. I am sure that this experience gave me a depth of understanding and purpose that I did not have previously. There is no doubt that I will be able to serve the State of North Carolina better, with a renewed sense of purpose and direction. If any of you would like to know more about worming your way into the heart of EPA, just give me a call at the Air Quality Section in Asheville, (704) 251-6208. ☐

## INTERNATIONAL INVENTORY CONFERENCE

NOVEMBER 13-16, 1995 ~ RALEIGH, NC

### CALL FOR PAPERS

The Emission Inventory: Programs and Progress, an international specialty conference sponsored by the Air & Waste Management Association and the U. S. EPA will be held November 13-16, 1995 in Raleigh. The conference will address the development, use and improvement of emission inventories, and will focus on evolving methods and issues in the inventory development process. Papers are invited on these and other related topics for both oral and poster presentations:

- Motor vehicle emissions
- Regional and international emission programs
- Inventory quality and uncertainties
- Collecting and managing emission-related data
- Electronic data processing and computerized tools
- New developments in stationary source emissions
- Implementing Federal and State legislation
- Biogenic emissions
- Air toxics emissions

Authors should submit a 200-300 word summary of objectives, scope of paper, current status of work and application of results. Include the paper title, author's name(s), title, affiliation and mailing address, and include whether the paper is an oral or poster presentation. Send two copies of your abstract by April 14, 1995 to: Garry Brooks, Radian Corporation, 1600 Perimeter Park Drive, Morrisville, NC 27560; (919) 461-1360 or fax, (919) 461-1416. ☐

## PROPOSED FUNDING FOR THE EMISSION FACTOR DEVELOPMENT INITIATIVE

The Emission Factor Development Initiative is a new program proposed in EPA's FY 1996 budget that would encourage state and local control agencies to develop emission factors for processes and sources of clear state and regional interest. This program, the "Adopt-a-Factor" program, has been proposed with an initial funding of \$4.5 million, to grow annually through the year 2000. It is proposed to include these funds in Section 103 grant money, and participating states will be required to provide 5 percent matching funds.

With this program, states can target emission factors from processes and sources that have been ignored previously because of resource limitations at the federal level. Whether it involves criteria pollutants from point sources, hazardous pollutants from area sources, or other regulated mobile source pollutants, many opportunities for States/Locals are expected from the proposed program. These agencies may choose to develop ("adopt") factors from existing data, to obtain additional data through source testing, or to utilize contracting to develop an emission factor. Whatever the chosen route, the state or local agencies will be overseers of the efforts and therefore can focus on their own specific needs. This program will afford agencies the opportunity to actually contribute to the factor development process, including the widely used final products such as AP-42 and the FIRE data base.



If this proposed program continues in the budget, the funds will be available through Section 103 grant programs in FY 1996. If funds are allocated, your EPA Regional Grants Contact will be the person to call. For more information on the Adopt-A-Factor program, contact Jim Southerland at (919) 541-5523. ☐

## COSTLY DATA REQUESTS

Karla Smith of Texas Natural Resources Conservation Commission reports that Texas made a study of costs for complying with emission inventory data requests. There are 2,500 reporting plants in Texas, and their estimates of the cost of providing compliance data range from \$3,000 to \$200,000 per source. The cost per plant averaged \$7,500 for a statewide total of \$18,750,000. ☐

## EMISSION FACTOR HUMOR

At the recent Air & Waste Management Association Emission Inventory Conference, Jim Southerland concluded a presentation on the "Uses and Misuses of Emission Factors" with the following tongue-in-cheek definitions for emission factors.

"Let me end by quoting an old philosopher who is well versed in emission factor technologies. This person defined "An Emission Factor" as follows:

'An emission factor is a number which passes as an accurate approximation of emissions and is developed with prolific fortitude from extremely incomprehensible information and calculated with microscopic precision using extremely vague assumptions which are based on debatable figures acquired from inconclusive tests and quite incomplete experiments carried out with instruments of problematic accuracy by persons of doubtful reliability and rather dubious mentality' (adapted from the definition of "engineer", *University of Tennessee Civil Engineer*, 1965).

"However, an equally well-versed authority has made the following observation:

'In the beginning, God created the heavens and the earth. Then, man was created and given dominion over the plants, animals and minerals on earth. The ten commandments were soon promulgated to regulate man's actions. Shortly thereafter, emission factors were developed to characterize the impact of man's actions on the atmospheric environment. These emission factors were canonized in AP-42 and it was good. The Emission Factor And Inventory Group of the U. S. Environmental Protection Agency is now empowered to maintain and update AP-42, and it is still good' (Mobley).



"Where you stand on emission factors and inventories often depends upon where you sit. In any case, it is important to keep the realities and uncertainties of estimating emissions in mind when faced with the situation of making the best and most reasonable estimates, and that the reason for making the estimates be considered heavily in the decision process." ☐

### RECENT GUEST FROM SOUTH KOREA

Dr. Yong-Joon Kim, Senior Researcher with the Korea Environmental Technology Research Institute (KETRI) of Seoul recently spent several days in the United States on a fact-finding trip to prepare for an upcoming emission inventory effort in his country. He visited EPA, state and local agencies in North Carolina and California, in addition to Carolina Power and Light (our local utility company) and several consultants. Dr. Kim was also able to attend the Air & Waste Management Association Emission Inventory Conference in Raleigh. We wish Dr. Kim well in his ventures and appreciated the opportunity to assist him in his effort. We hope he will be able to give us an update and report at the Emission Inventory Conference in November 1995.

Thanks to Dr. Kim, we now have a copy of AP-42 in hand that has been translated into Korean. We also have one in Dutch that was given to us some years ago. If anyone else has copies of AP-42 that have been translated into other languages, we would appreciate a copy here at EFIG. Please send others to Jim Southerland, U. S. EPA, MD-14, Research Triangle Park, NC 27711. ☐

### A&WMA EMISSION INVENTORY WORKSHOPS

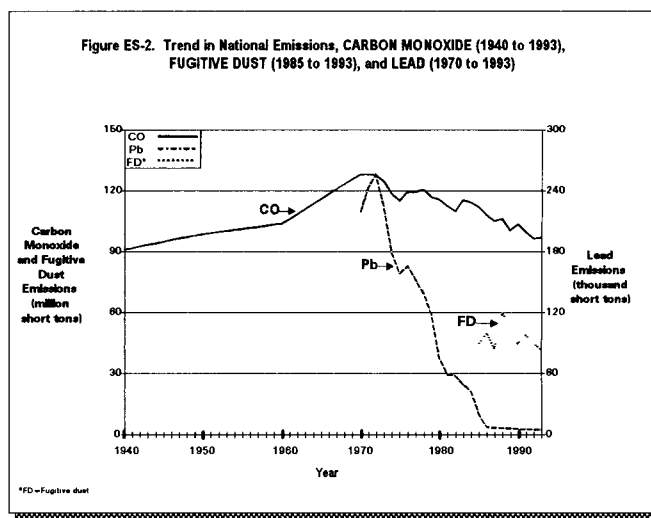
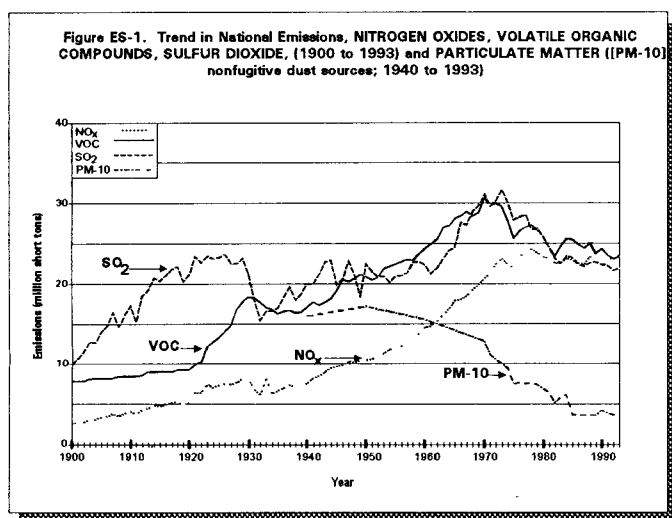
There have now been three emission inventory workshops presented by the Air & Waste Management Association (A&WMA). The first two were in San Francisco and Pittsburgh last fall, and the latest ones were in Atlanta in December and Denver in January. Three faculty members from the private consultant world prepare and present the bulk of the sessions; EPA has supported the development of the information to be presented and has provided on-site support through either David Misenheimer or Jim Southerland. These sessions are primarily to introduce the private sector to the world of emission estimation and emission inventories, and they are fairly basic in nature.

Most of the sessions have had over 100 attendees, many of whom have reported that they have gained valuable information and a better understanding of the inventory needs and processes. If your organization would like to see more of these sessions, please voice your opinion by contacting the A&WMA. Another two-day workshop is scheduled for March 6-7 in Chicago. Anyone interested in attending any future workshops should contact the A&WMA registrar in Pittsburgh at (412) 232-3444. ☐

## 1994 TRENDS REPORT AVAILABLE

*The National Air Pollutant Emission Trends, 1900-1993*, EPA-454/R-94-027, October 1994, is now available. This year's report includes emission estimates from 1900 to 1993, with categories re-estimated back to 1985 to reflect the latest data. The mobile source category (on-road and non-road) has been revised back to 1970 to reflect a consistent methodology through 1993. The on-road portion is based on vehicle miles traveled (VMT) data from the Federal Highway Administration's highway performance monitoring system (HPMS) data base (specified by state, vehicle type and roadway type), emission factors calculated with the *MOBILE5a* model, state/monthly temperature data from the National Climatic Data Center, and other data obtained from the Office Of Mobile Sources (OMS). New wildfire data were obtained from the U. S. Forest Service and utility data from the Department of Energy. Solvent emissions were based on production data from *Minerals Yearbook* and *Current Industrial Reports*. Most other categories were "grown" with the Economic Growth Analysis System (EGAS) growth factors.

Also included in this year's report are data on greenhouse gases, toxics and international emissions, with newly estimated emission projections out to 2010. Copies can be obtained from EPA Library Services, (919) 541-2777.



### Trends Procedures Document

A procedures document that explains the methodology behind the *National Air Pollutant Emission Trends, 1900-1993* is now available on the *CHIEF* BBS under the "Inventory Databases" menu item. This document can be downloaded in sections, depending on the year and topic of interest — Chapter 2 covers 1900-1939, Chapter 3 covers 1940-1984, Chapter 4 covers 1985-1993, and Chapter 5 covers Lead Methodology. Estimating methods are explained by source category. Hard copies can also be obtained from *Info CHIEF*. For more information, contact Sharon Nizich, (919) 541-2825. ☐

The *CHIEF* Newsletter is produced quarterly by the Emission Factor And Inventory Group, Emissions, Monitoring And Analysis Division, of EPA's Office Of Air Quality Planning And Standards. Its purpose is to enhance communication within the emission factor and inventory community by providing new and useful information and by allowing for the exchange of information between and among its readers. Comments on the Newsletter and articles for inclusion in it are welcome and should be directed to Emission Factor And Inventory Group (MD 14), US EPA, Research Triangle Park, NC 27711; telephone (919) 541-5493.

The contents of The *CHIEF* Newsletter do not necessarily reflect the views and policies of the Agency, neither does the mention of trade names or commercial products constitute endorsement or recommendation for use.

## INFO CHIEF'S MOST FREQUENTLY ASKED QUESTIONS

Here are some hot topics with information on each.

### AP-42

Q: I need to get a hard copy of AP-42, but when I called GPO, I was told that they do not have it available. How can I obtain a copy?

A: We are in the process of revising the AP-42 document and the new Fifth Edition is expected to be available in Spring 1995. In the meantime, you can download all current sections and updates from the *CHIEF* BBS. These sections can also be retrieved from *Fax CHIEF* by calling (919) 541-0548 or -5626 from your fax machine. If you still wish to purchase the hard copy, there are private companies, such as Environmental Publications & Information in Dublin, Ohio, (614) 823-4425, that are selling copies of AP-42.

### CD-ROM

Q: I have heard that AP-42 is available on CD-ROM. How can I obtain it?

A: We will have a new version of *Air CHIEF* CD-ROM (version 4.0) in Spring 1995 which will be available for purchase from GPO. Version 3.0 of *Air CHIEF* is out of stock and will no longer be produced in anticipation of the new version. The new *Air CHIEF* will require *Microsoft Windows*® and will include the entire Fifth edition of AP-42 Volume I, plus the *FIRE* database, all 26 *Locating And Estimating* . . . documents, the Registry Of Toxic Effects Of Chemical Substances, and the entire list of Source Classification Codes.

### TANKS2

Q: My colleague and I are both working on estimating air emissions from storage tanks using two separate copies of the *TANKS2* program. How can we combine the data from both databases into one?

A: Unfortunately, the *TANKS2* program only allows for one database file which will be replaced if you attempt to import a data file from another copy of the *TANKS2* program. Thus, the *TANKS2* program does not support the consolidation of two separate data sets. However, it is possible to export the information into another database such as *FoxPro*® and combine the data within the database program if you have a good working knowledge of how to use it. Plans for *TANKS* version 3.0, expected to be released in Summer 1995, will address this shortcoming.

### BBS

Q: Every time I try to download AP-42 sections from the *CHIEF* BBS, the graphics are distorted. How can I get good copies of the graphics?

A: Sometimes modems and communication software packages will distort graphics files when downloading. A useful alternative for obtaining graphics from AP-42 is the *Fax CHIEF*, which transmits all text and graphics for AP-42 Volume I (Stationary Sources). ☐

The *Info CHIEF* help desk phone number is (919) 541-5285.

— More Q & A's in the next issue! —

## NEED MORE INFORMATION ABOUT EMISSION ESTIMATION TOOLS?

Complement your training classes and conferences with pamphlets on the Emission Factor And Inventory Group's Emission Estimation tools. *Info CHIEF* can provide pamphlets on these topics:

- *FIRE*
- *TANKS2*
- *Tools* (general information)
- *Fax CHIEF*
- *CHIEF BBS*

These brochures are free to all organizations and may be duplicated as needed. Also, pamphlets will soon be produced for the *Air CHIEF* CD-ROM and EFIG Guidance Documents. For more information about EFIG documents and information tools, call *Info CHIEF* at (919)541-5285.

A lot is happening here, or should I say already happened. We had a successful emission inventory conference in Raleigh in November; OAQPS has reorganized, including the transformation of the Emission Inventory Branch into the Emission Factor And Inventory Group; I am no longer a Section Chief (There are no Sections. . .sigh), and more. We have lost Joe McSorely, Dennis Shipman, Susan Curtis, Anne Pope and Michael Hamlin to other groups and causes, and have gained Roy Huntley and Tom Pace as members of the Group. We are in the process of learning about "self-directed work teams" and are trying to bring some order to that process. Our budget has been slashed once again, and it remains a disaster area. Needless to say, we are doing a lot of rethinking, reinventing and prioritizing. We have received some input from you, our "customers", but not much, so we are trying to place ourselves in our clients' shoes and include their needs with the things we are otherwise on the hook to deliver. Things may be a bit difficult for a while, but we are sure to come out leaner and meaner and still able to provide many of the tools and services you have come to expect from us.

It was a bittersweet personal decision for me to choose to exit the management/supervision side of the operation, but will hopefully give me more time to do "real" work. We will still have team leaders, so the "chief" role is not gone completely, just greatly transformed. If you have general questions related to the AP-42 team, please feel free to continue to call me or the *Info CHIEF* help desk and support area, (919) 541-5285. I will continue in a team leader and coordinator role here.

We have had some delays on the production of the Fifth Edition of AP-42 and related updates of *FIRE* and the *Air CHIEF* CD-ROM. There have been problems and resource difficulties encountered in getting our electronic files transformed as needed to get the new Fifth Edition formatted so that information in it and *FIRE* are not in conflict. We have been making many improvements in internal consistency and uniformity and in restructuring the entire document, so all of this has bogged us down longer than expected. We hope to finish up this process in January and be able to "push the buttons" and be ready to send the paper copy to the printer so that it will be available to you by April 1. The updated *FIRE* file for toxics is already on the *CHIEF* BBS, but the criteria pollutant file can't be generated till January or February, at which time it will be placed on the *CHIEF* BBS. When the new electronic version of AP-42 is complete, then the *Air CHIEF* CD-ROM can be generated and should come out in the February/March window. Cross your fingers that no more gremlins come out of the woodwork to mess up this process. We are trying hard to get these all in sync and to make much needed improvements and we hope that you will bear with us during these delays. ☐

— Jim Southerland

### AND THE WINNER IS. . .

Congratulations are in order for the Delaware Air Quality Management Section Program for being the only State agency in the United States to have perfect agreement between its 1990 O<sub>3</sub>/CO SIP Emission Inventory data in hard copy submittals and the data in AIRS. Although this has been an objective of the EPA's emission inventory program since the passage of the *Clean Air Act Amendments of 1990*, it has been a difficult goal to achieve for most states. The Emission Factor And Inventory Group would like to thank the Delaware Air Quality Management Section Program for their hard work and support of the SIP Emission Inventory Data program. ☐

### EPA DIRECTORY AVAILABLE FROM GPO

Be the first on your block to own the U. S. EPA's 645-page directory, *Access EPA*, which lists agency information services, resources, and other helpful tidbits concerning public access to the EPA organization. You can buy this invaluable reference tool for \$24 from the Government Printing Office (GPO), 701 N. Capitol Street NW, Washington, DC 20401, or phone (202) 783-3238. For those who prefer traveling on the information superhighway, you can take advantage of free on-line computer access to the directory (data base or text file) by dialing via modem (919) 549-0720. ☐

# NEW PROJECTION SOFTWARE TOOLS

By Sue Kimbrough

Emissions And Modeling Branch, Air And Energy Engineering Research Laboratory,  
Office Of Research And Development

## Economic Growth Analysis System (EGAS)

Section 182(e)(2)(A) of the *Clean Air Act Amendments of 1990* (CAAA) require that extreme, severe, serious, and multi-state moderate ozone nonattainment areas use photochemical grid modeling to demonstrate future attainment of the National Ambient Air Quality Standard (NAAQS) for Ozone. Section 182(b)(1)(A) of the amendments requires that these extreme, severe, serious, and moderate ozone nonattainment areas submit Rate-Of-Progress (ROP) plans demonstrating a 15% reduction in emissions from 1990 to 1996. In addition, the ROP plans (i. e., inventories) for extreme, severe, and serious areas must include demonstration of a 3% annual reduction (averaged over 3 years) from 1996 until attainment is achieved [Section 182(c)(2)(B)]. A key component of these ROP inventories and photochemical grid modeling demonstrations will be the development of credible growth factors for the existing inventories. Credible growth factors will require accurate forecasts of both economic variables and the activities associated with them. In order to meet these requirements, the Economic Growth Analysis System (EGAS) has been designed and developed.

EGAS is a menu-driven system that guides the user through a series of screens that collect information for adapting the model to the user's needs. User input is limited to selecting menu items and to setting parameters by entering data in text boxes.

To reduce both the number and run time of the models in EGAS, eight models were developed. Separate models were developed for EPA Regions 1, 2 & 3, 4, 5, 6, 7, 8 & 10, and 9. Each of the eight models includes all extreme, severe, serious, and multi-state moderate areas, as well as each state and partial state in a region.

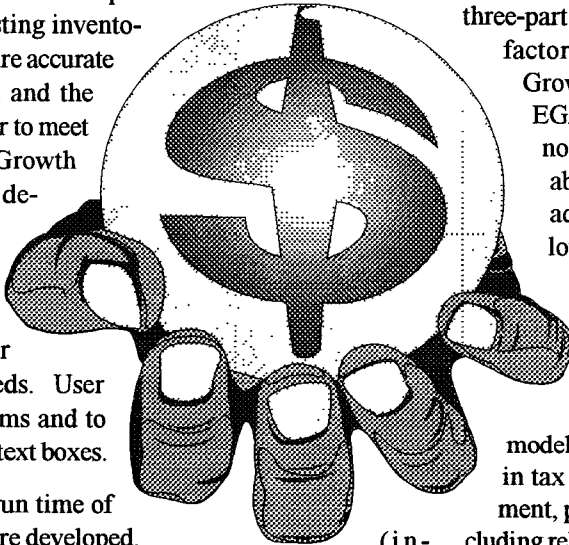
The EGAS modeling system contains three tiers. Tier 1 includes available national economic forecasts that are used to drive the regional economic models. Tier 2 includes regional economic models for Urban Airshed Model modeling areas and for states in the Regional Oxidant Modeling regions. Tier 3 estimates fuel consumption, physical output, and vehicle miles traveled (VMT), based on Tier 2's regional economic forecasts. The tiers must be sequentially executed, since data are created by, and passed from, early tiers for transfer to later tiers. The three-tier structure of EGAS allows the user flexibility in modeling. While some tiers must be run before proceeding to later tiers, the system allows the models to be rerun at the user's discretion. For

example, a user may run a variety of national models before performing regional modeling on the last national model run.

The national Regional Economic Models Inc. model (REMI) allows the user to create a national-level growth projection. It is Tier 1 of the three-part process of creating estimated growth factors, and it generates data to drive the regional REMI Model (Tier 2). This tier may be rerun any number of times before proceeding to Tier 2. Two national forecasts of output, by industry, are available for the user from the Bureau Of Labor Statistics and Wharton Econometric Forecasting Associates.

The regional REMI Model allows the user to develop a regional growth simulation. This is Tier 2 of the three-part process of creating estimated growth factors. It generates data to drive the Growth Factor Module (Tier 3). In the EGAS model, more than 100 regular economic policy variables, translator variables, and population variables can be adjusted. Changing these variables allows the user to simulate the economic effects of anticipated changes in government policy, markets, or other exogenous aspects of the regional economy. These variables are accessed from the REMI EDFS-14 model, and they offer scenarios for changes in tax rates (corporate, equipment, investment, personal income, and property), costs (including relative production, import, and export), wage rate, employment transfer payments, purchasing power, and final demand. This tier may be rerun any number of times before proceeding to Tier 3.

The Growth Factor Module, where growth factors are generated and written to files in the "EGAS" subdirectory, is Tier 3. This module translates economic activity level changes from the most recent regional forecast into growth factors for physical output, fuel consumption, and VMT. These growth factors will be developed for two-, three-, and four-digit Standard Industrial Classification (SIC) levels, depending on available data for developing and disaggregating the factors. These SIC-level growth factors will be matched with Source Classification Codes (SCC). The user is given a choice of file formats, either as the Emissions Preprocessor System (EPS) or as an ASCII text file. The file is output by year, county level, and SCC.



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EGAS Version 2.0 is currently available. The reference manual (EPA-600/R-94-139a) and user's guide (EPA-600/R-94-139b) are both available for download from the *CHIEF* Bulletin Board System (BBS). The program files may be obtained by calling Sue Kimbrough at EPA, (919) 541-2612.

### Multiple Projections System (MPS)

The CAAAs call for Reasonable Further Progress (RFP) inventories to be submitted to the Agency for the purpose of demonstrating strategies by which a 15% emission reduction in volatile organic compound (VOC) emissions will be achieved by 1996 in extreme, severe, serious, and moderate ozone nonattainment areas. Also, extreme, severe, and serious areas must demonstrate at least a 3% annual average reduction beginning in 1996 and continuing thereafter until attainment is achieved. These RFP inventories are currently termed Rate Of Progress (ROP) inventories. In order to meet Sections 182(b)(1) and 182(c)(2) requirements, state/local agencies would benefit from a computer system capable of both performing "what-if scenario analysis" and reporting the final results (i. e., ROP inventory) to EPA through AIRS. This system has been based upon the 3% RFP Tracking System developed in FY 92/FY 93. The 3% RFP Tracking System is a *Microsoft Windows*<sup>®</sup> application, and enhancements to convert the 3% RFP Tracking System to a Multiple Projections System (MPS) have continued to be within the framework of a *Windows*<sup>®</sup> application. The system will support ROP inventories for ozone and carbon monoxide (CO) and thus will contain data for VOC, oxides of nitrogen (NO<sub>x</sub>), and CO. The most significant change from the original 3% RFP Tracking System to the MPS is the ability to submit a "final" projection emissions inventory in the format required by the AIRS Facility Subsystem (AFS) and the AIRS Area And Mobile Source Subsystem (AMS).

**System Requirements** – The prototype MPS was developed using Superbase 4, a *Microsoft Windows*<sup>®</sup> data base package that can be compiled and distributed as a stand-alone product. The MPS user will be referred to the *Microsoft Windows*<sup>®</sup> manual for information on general operating procedures. Additionally, a computer with a 386SX or better microprocessor is suggested as the platform on which to run the prototype. Because the system was developed using a *Windows*<sup>®</sup>-based product, it has been configured to run entirely using a mouse to point and click on various buttons to perform commands or functions. However, all functions can also be accessed by the keyboard. A hard disk drive is required to store all input and output data files. Disk space required will depend on the number and size of geographic areas to be studied.

One advantage of developing the system using a *Windows*<sup>®</sup>-based product is that certain tasks can be performed in the "background" with the multi-tasking capability of a 386SX or better platform. Thus, when the system is performing disk- or processor-intensive tasks (such as file imports or emission

projection calculations), the program can be reduced to an icon, and the user can do word processor or spreadsheet work until the task is complete. The system will beep when these tasks are complete, and the icon's title will reflect that the task is complete. At that point, the user can return to the program and continue the analysis.

The Multiple Projections System is capable of projecting emissions, in one-year intervals, out to the year 2010. MPS can also make projections in the form of percent reduction relative to base year emissions. The system is designed to accept input data from either the AIRS FS or AMS. Output from the system is in the form of tables or graphs, which can be directed both to the computer screen and to a printer. Tabular results can also be output to an ASCII file, allowing the user subsequently to import the reported information into other software for further analysis (either numeric or graphic). Data contained in the output file can also be exported to *Lotus 1-2-3*<sup>®</sup>, *dBaseIII*<sup>®</sup>, or *Excel*<sup>®</sup>. As indicated above, the principal output types are batch transactions in AIRS FS and AMS format.

**Overview** – As was stated earlier, the purpose of MPS is to facilitate the projection of future emissions of CO, VOCs, and NO<sub>x</sub>. To this end, the interactive mode of MPS was created with the following basic capabilities:

- import emissions data for 1990 and control efficiency (CE), rule effectiveness (RE), rule penetration (RP), and growth factor data for 1990 and later years;
- import 1990 activity level data, projected growth factors, and projected emission factor data for on-road mobile sources;
- allow for an alternate base year;
- accept user-specified criteria for selecting imported records;
- allow editing of imported CE, RE, RP, and growth factor data before projecting future emissions;
- project future emissions for the selected records based on these data;
- export projected emissions data as *dBaseIII*<sup>®</sup>, *Lotus*<sup>®</sup>, and *Excel*<sup>®</sup> files;
- generate graphs and tabular reports of projected emissions out to 2010; and
- generate batch transaction files of projected emission data for import into AIRS FS or AMS.

The user must provide files containing 1990 emissions data and the CE, RE, RP, and growth factor data for future years. EGAS will generate the projected growth factor file.

MPS Version 2.0 is now available, and the user's manual (EPA-600/R-94-215a) and program files are on the *CHIEF* BBS. For assistance or more information, call Sue Kimbrough, (919) 541-2612. ☐

# HEADQUARTERS INVENTORY CONTACTS

WINTER 1995

## EMISSION FACTORS

	<b>AP-42 Chapter</b>	<b>Contact</b>	<b>Telephone</b>
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2.	Solid Waste Disposal	Ron Myers	(919) 541-5407
3.	Internal Combustion	Roy Huntley	(919) 541-1060
4.	Evaporation Loss Sources	Ron Ryan	(919) 541-4330
5.	Chemical Process Industry		
	Organics	Dennis Beauregard	(919) 541-5512
	Inorganics	Ron Myers	(919) 541-5407
6.	Food And Agricultural Industry	Dallas Safriet	(919) 541-5371
7.	Metallurgical Industry	Ron Myers	(919) 541-5407
8.	Mineral Products Industry	Ron Myers	(919) 541-5407
9.	Petroleum Industry	Ron Ryan	(919) 541-4330
10.	Wood Products Industry	Dallas Safriet	(919) 541-5371
11.	Miscellaneous Sources	Ron Myers	(919) 541-5407
12.	Storage Of Organic Liquids	Dennis Beauregard	(919) 541-5512
	Lead	Ron Myers	(919) 541-5407
	General information, Newsletter, Bulletin Board, <i>FIRE</i> , <i>SPECIATE</i> , <i>Air CHIEF</i> CD, Publications, <i>Fax CHIEF</i>	<i>Info CHIEF</i>	(919) 541-5285

## EMISSION INVENTORIES

1990 O <sub>3</sub> /CO SIP Inventory Status	Sharon Nizich	(919) 541-2825
O <sub>3</sub> /CO Periodic Inventories	Bill Kuykendal	(919) 541-5372
Biogenic Inventories	Steve Bromberg	(919) 541-1000
Emission Statements	Mary Ann Warner	(919) 541-1192
PM-10/Lead Inventories	Bill Kuykendal	(919) 541-5372
Toxics Inventories	Dennis Beauregard	(919) 541-5512
Emission Trends	Sharon Nizich	(919) 541-2825
Emission Projections	Mary Ann Warner	(919) 541-1192
Quality Assurance	Bill Kuykendal	(919) 541-5372
AIRS Area And Mobile Subsystem (AMS)	Lee Tooly	(919) 541-5292
AIRS Facility Subsystem (AFS)	Steve Bromberg	(919) 541-1000
PM-10 SIPS		
OAQPS/AQSSD	Robin Dunkins	(919) 541-5335
O <sub>3</sub> /CO SIPS		
OAQPS/AQSSD	Tom Helms	(919) 541-5527
Office Of Mobile Sources	Mark Wolcott	(313) 668-4219
Lead SIPS		
OAQPS/AQMD	Laura McKelvey	(919) 541-5497

# REGIONAL OFFICE INVENTORY CONTACTS

## WINTER 1995

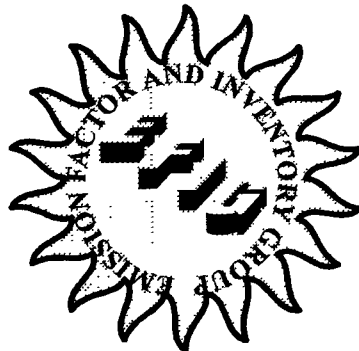


— PM-10 —	Contact	Telephone
Region I	Matt Cairns	(617) 565-4982
II	Kristeen Gaffney	(212) 264-8722
III	<i>Vacant</i>	
IV	Randy Terry	(404) 347-3555 ext.4212
V	John Summerhays	(312) 886-6067
VI	Mark Sather	(214) 665-7258
VII	Lisa Haugen	(913) 551-7877
VIII	Dale Wells	(303) 293-0957
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— O <sub>3</sub> /CO —		
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## EFIG NEEDS A NEW LOGO!

We are trying to design a new logo for the Emission Factor And Inventory Group, and we could use your help. Here are a few ideas that we've created so far. Give us your input on these, or send your own design to U. S. EPA, MD-14, Research Triangle Park, NC 27711.



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