



THE CHIEF NEWSLETTER

— THE CLEARINGHOUSE FOR INVENTORIES AND EMISSION FACTORS —

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Emission Inventory Conference To Be Held In New Orleans

by Bill Palermo, Louisiana Section of the A&WMA

The Emission Inventory: *Key to Planning, Permits, Compliance & Reporting* to be held September 4-6, 1996 in New Orleans, Louisiana is the sixth in a new series of Emission Inventory specialty conferences that are targeted toward those who prepare emission estimates for facilities or other affected operations. The conference is sponsored jointly by the U.S. Environmental Protection Agency (EPA) and the Air & Waste Management Association (A&WMA). It will be of value to agency personnel responsible for reviewing facility inventories and will also be a useful forum for the exchange of ideas and information on the use of emission data between EPA, state/local agencies, industry, and the public.

Conference & Course Registration

Full registration to the conference includes admission to the technical sessions, the exhibition, two lunches, the Wednesday evening reception, refreshment breaks and a copy of the conference proceedings. One-day continuing education course registration includes a course manual, lunch and refreshment breaks. Half-day course registration includes a course manual and morning refreshments. Discounted advance registration fees are available to registrations (and fees) received before August 12, 1996. Information and registration forms can be obtained from the A&WMA Registrar at (412) 232-3445 or (412) 232-3444, extension 3142.

Hotel Information

The conference will be held at the DoubleTree Hotel, 300 Canal Street, New Orleans, LA 70130. Make reservations directly with the hotel by calling (504) 581-1300. Single and double occupancy is \$95, plus applicable taxes. A limited number of rooms are available at the government rate. The conference rate is available three days before and three days after the conference. To ensure availability and rate, make your reservations before August 12, 1996. After that date, the reserved hotel block will be released for general sale. Be sure to mention the A&WMA Emission Inventory conference to receive the reduced rate.

Mississippi Riverboat Dinner/Jazz Cruise

A special optional event has been planned for Thursday evening, September 5. Come aboard for a share of history and heritage on a Mississippi River excursion right to the heart of the signature culture and lifestyle of New Orleans and Louisiana. Buses will depart from the hotel at 6:00 pm for cruising from 7:00-9:00 pm. The cost for this unique event is \$35 per person and includes riverboat cruise, creole-style dinner, jazz music and transportation to and from the hotel.

— Session topics —

Implementing Federal & State Legislation
Role of Inventories in Permits
Collecting & Managing Emission Data
Preparation of Industrial Emission Factors & Estimates
Electronic Data Processing & Computerized Tools
Motor Vehicle Emissions
Tools for Use in Emission Inventory Development
International Emissions Programs
Air Toxics
Air Quality Modeling Emission Inventories

— Course Information —

In conjunction with the conference, the Air & Waste Management Association is offering four leading-edge continuing education courses on Tuesday, September 3, 1996. The courses have been chosen for their timeliness, content, instructors and relevance to the needs of today's environmental professional.

AIR-151: Introduction to Emission Inventory Concepts (half day course)

AIR-152: Overview of EPA Air Emission Tools (one-day course)

AIR-153: Estimating VOC Emissions from Petroleum Industry Sources (one-day course)

AIR-154: Estimating Evaporative Emissions from Storage Tanks (one-day course)

New Orleans *(Cont. from p. 2)*

New Orleans Attractions

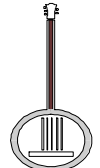


New Orleans is an internationally recognized top convention and tourist destination offering some of the world's finest cuisine and restaurants. It has nationally recognized tourist attractions such as the zoo and Aquarium of the Americas, jazz, cajun and blues clubs, the historic French Quarter and a history rich with multi-cultural influences. For international visitors, Louisiana offers tax free shopping. New Orleans is also a port for cruise lines offering Caribbean cruises, normally with Saturday departures. Information about New Orleans found on the Internet at <http://www.nawlins.com>. Take advantage of the availability of the special hotel rate *before* or *after* the conference to fully enjoy the culture and ambience of the city of New Orleans.



Emission Factors and Inventories Featured at A&WMA's Annual Meeting in Nashville

by Bill Barnard, E. H. Pechan and Associates, Inc.



The Air & Waste Management Association's (A&WMA) 89th Annual Meeting & Exhibition was held in Nashville, Tennessee on June 24-28th. Sessions relevant to emission factors and inventories included information about VOC and Hazardous Emissions Controls, Control of Toxic Particulates, Biological Treatment of Gaseous Emissions, Fugitive Emissions from Contaminated Water and Surface Soils, Emission Factors from Defense Operations, PM-10 (and Smaller) Emission Factors and Inventories, Innovative Emission Estimation from Stationary Sources, and Air Emissions—Characterization at Chemical and Petroleum Sources.

The session on PM-10 (and Smaller) Emission Factors and Inventories was particularly well attended. The session was held over two days and included a total of 13 papers related to various aspects of PM-10 emissions. Several paper presentations addressed innovative methods for controlling or assessing controls on fugitive dust sources. These papers included assessments of street sweeping of blowsand in the western U.S., increasing the control efficiency of sweeping operations following road sanding and salting operations by using magnesium chloride as a de-icing/binding agent on paved roads, and an assessment of the emissions from paved and unpaved roads, including the first evaluation of emissions from unpaved shoulders next to paved roadways. Innovative controls of windblown dust areas in the western U.S. were presented along with new information concerning the PM-2.5/PM-10 ratio for various fugitive dust sources.

Reprints of all papers presented at the A&WMA annual meeting are available from A&WMA, and for the first time ever, the entire set of reprints can be obtained on CD-ROM. For more information, call the Air & Waste Management Association at (412) 232-3444, extension 3142.

AP-42 Supplement B Sections Available!

EFIG now has AP-42 Supplement B sections available on the *CHIEF* BBS and *Fax CHIEF*. New, complete Supplement B sections that are currently available include: **9.7—Cotton Ginning**; **11.7—Ceramic Clay Manufacturing**; and **12.20—Electroplating**. Sections **9.12.1—Malt Beverages** and **11.23—Taconite Ore Manufacturing** are expected to be available in August. These sections can be found under the "Supplement A & B to 5th Edition" menu item under the "AP-42" menu item on the *CHIEF* BBS. Also look for a new draft section on Wood Preserving under the "Draft Sections Under Review" menu item. If you have questions, call *Info CHIEF*, (919) 541-5285.

EFIG Hangs Ten on the 'Net!



The Emission Factor and Inventory Group (EFIG) has joined the revolution of the Information Age and is making waves on the Internet World Wide Web! EFIG now has several web pages to make access to our publications and software faster and easier. Many of you may already be reading this newsletter online from our *CHIEF Newsletter* web page, (<http://www.epa.gov/oar/oaqps/efig/chiefnl.html>) and we hope that more Internet users will discover this convenient way to stay abreast of emission factor and inventory news. Here is a brief overview of what we have available so far.

Emission Estimation Tools Page

The EFIG Emission Estimation Tools Page gives an overview of tools that EFIG provides to the public for estimating air emissions from stationary sources. This page includes links to the Factor Information Retrieval (*FIRE*) database, which contains emission factor and Source Classification Code (SCC) information, and the *TANKS* database, a calculation program for estimating volatile organic compound (VOC) emissions from storage tanks. There is also a link to the *CHIEF Newsletter* and will soon be a link to the *Compilation of Air Pollutant Emission Factors* (AP-42) document. The Emission Estimation Tools Page can be found at <http://www.epa.gov/oar/oaqps/efig/tools.html>.

National Air Pollutant Emission Trends Report Page

One of EFIG's most popular documents, The *National Air Pollutant Emission Trends, 1900-1994*, is now available in its entirety on the web. This document primarily summarizes national data concerning criteria air pollutants (NO_x, SO_x, VOC, particulate matter, and CO) and also gives information about non-attainment areas, air toxics, and CORINAIR (European atmospheric inventory). The *National Air Pollutant Emission Trends* report can be found at <http://www.epa.gov/oar/emtrnd94/emtrnd94.html>.

The Ultimate Truth Web Page

The Ozone Transport Assessment Group (OTAG) has compiled an emission inventory database consisting of data submitted by state agencies, which offers complete VOC, NO_x, and CO county level inventory for each state in the United States. This database is called "TuT", or The Ultimate Truth, and is broken into two parts, the Point Source File and the Area/Mobile Source file. If you are interested in obtaining this information, go to <http://www.epa.gov/tut/index.html>.

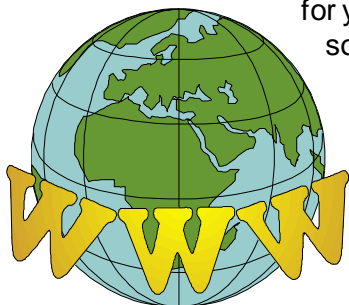
The EIIP Web Page

The Emission Inventory Improvement Program (EIIP) is a jointly sponsored effort of STAPPA/ALAPCO (state and local agency associations) and EPA, and is an outgrowth of the Standing Air Emissions Work Group (SAEWG). The EIIP Steering Committee and technical committees are composed of state, local, and EPA representatives. EFIG is currently working on a web page that will give information about this program and provide links to EIIP documents. Stay tuned to the EFIG web pages and the *CHIEF* BBS to find out more!

We realize that there are currently a lot of addresses to remember to get to all the EFIG web pages. We are working to link all of this information (including a link to the TTN BBSWeb—see *next page*) to a single EFIG home page, which will make finding information about emission inventories and factors much easier on the Internet.

CHIEF on the New TTN BBSWeb Site

The CHIEFBBS, as part of the OAQPS TTN, has a new address! We are pleased to announce the opening of an Internet World Wide Web (WWW) site on Monday, July 15th. The web site is the final piece of a whole new information system — TTN2000. TTN2000 consists of three main services: the TTN BBS, the TTN FTP site, and the new TTN2000 web site. From the user's viewpoint, this means that users can now access the TTN by FTP, through the World Wide Web, or as the bulletin board that has been available for years now. Each component of the TTN2000 system is tied to a central filebase, so you can be assured of getting the same files, regardless of how you access us. We have recreated the TTN BBS in the WWW medium as the "TTN BBSWeb". You will instantly recognize the structure of the current BBS, but with "point and click" menus and download areas.



The TTN2000 web site is online at <http://ttnwww.rtpnc.epa.gov>, except during the maintenance period (Mondays, 8:00 am to 12:00 pm EST). Please contact the TTN help desk at (919) 541-5384 if you have questions or comments.

EFIG Staff Receive Award From A&WMA

by Tom Pace, EFIG

Please join us in congratulating both Jim Southerland and Tom Pace, who were recently named Fellow Members at the Air & Waste Management Association's (A&WMA) Annual Meeting in Nashville in June.

Tom has been with EFIG since September, 1994 and works on a variety of emission factor and inventory projects. Prior to joining EFIG, Tom initiated and managed the Russia Air Management Program (RAMP), Office of Air Quality Planning and Standards' (OAQPS) assistance program to help Russia improve its air management approach and capabilities. Tom has been in OAQPS for 22 years and has spent most of his time working on technical and implementation aspects of particulate matter.

Jim retired from EPA in Spring 1996. He spent 29 years in Federal Service and joined EPA when it was formed in 1970. He is currently with the Air Quality Division of the North Carolina Department of Environmental Health and Natural Resources in Raleigh, NC. After several field assignments, Jim began working on the *Compilation of Air Pollutant Emission Factors*, AP-42 and is generally regarded as the "godfather" of that document. His most recent accomplishment was to shepherd the publication of the AP-42, Fifth Edition.

1996 Periodic Emission Inventory

by Bill Kuykendal, EFIG

The 1990 Clean Air Act Amendments established the requirement for periodic emission inventories for ozone and carbon monoxide nonattainment areas. The next of these periodic inventories are due for 1996. The Emission Factor and Inventory Group (EFIG), in cooperation with the EPA Regional Offices, is developing guidance material that will detail specific requirements for these inventories. A key item under development is an Action Plan which will detail schedules and responsibilities for the various parties to ensure a smooth process in the submission and review of these inventories and accompanying data. EPA plans to use the data collected to update information in the National Emission Trends database. States will be encouraged to report statewide emissions data where available in addition to the required reporting for nonattainment areas. These inventories will offer the first opportunity to apply the emission inventory procedures developed under the Emission Inventory Improvement Program (EIIP).

1990 O3/CO SIP Emission Inventories on CD-ROM

by David Misenheimer, EFIG

In response to the 1990 Clean Air Act Amendments, a large effort was devoted to preparing 1990 baseline emission inventories (EI) for ozone and carbon monoxide State Implementation Plans (SIP). 1990 EI's for nonattainment areas in Connecticut, Louisiana, Maine, Massachusetts, Missouri, Rhode Island, Texas, and Tennessee (Nashville only) can now be obtained on a single Compact Disc-Read Only Memory (CD-ROM) disk.

Contained on the 1990 SIP EI CD-ROM is documentation describing how the inventory was prepared, summary results of the inventory, detailed emissions data (where available), and MOBILE model input and output (where available). The inventory information is formatted with the *Folio® Infobase Viewer* software which operates in the *Microsoft Windows®* environment. In addition to supporting on-screen viewing, the *Folio® Viewer* software supports printing, word searches, and insertion of notes and bookmarks in a "shadow-file" format. Data and text files are also included on the 1990 SIP EI CD-ROM in their native format.

Minimum equipment requirements to operate the 1990 SIP EI CD-ROM include a computer with a 486 processor running at 33 megahertz with 6 megabytes extended memory, a CD-ROM drive, an interface card, *Microsoft®* CD-ROM Extensions, and vendor-specific drivers and other files for operation of the CD-ROM drive. The Emission Inventory CD-ROM runs on *Microsoft Windows®* Version 3.0 or later and requires a mouse for effective operation.

Copies of the 1990 SIP EI CD-ROM will be available by September. Because of budget shortfalls, there are no plans to add additional emission inventories to the CD-ROM.

Emission Inventory Improvement Program (EIIP)

by Steve Bromberg, EFIG



The Emission Inventory Improvement Program is beginning a series of meetings across the country to acquaint the inventory community with procedures developed by its committees. EPA Regional Offices will be hosting these meetings. The day-long session will concentrate on presentations describing how to use and implement EIIP documents. Meetings have been scheduled in Regions 6, 9, and 10. Additional meetings will be scheduled as time and resources permit.

As part of the EIIP outreach program, in addition to the Regional Office meetings, a series of introductory materials will be prepared and mailed to the inventory community. The first two issues will describe the overall EIIP program, its goals, and the importance of the Program to being able to develop an inventory of known quality and consistency. Subsequent issues will feature articles from each of the operating committees. The articles are intended to raise the awareness of the importance of having defensible emission estimates and how the EIIP approach can assist in meeting this need.

EIIP is preparing to publish its completed documents by the end of the calendar year. Current estimates are that the entire set will contain approximately 2500 pages. Because of the expense of printing such a large volume, and because the document will be continuously updated as new chapters are added and improvements made to current procedures, alternate means are being investigated for distributing the material. An EIIP Home Page is currently under development and new material is expected to be available for downloading from the Internet by the end of 1996.



Info CHIEF's Most Frequently Asked Questions

**Call (919) 541-5285 or e-mail info.chief@epamail.epa.gov
if you have questions!**

Q: While trying to enter TANKS 3.0, I got an error message that said "Unable to open program databases". How can I get back into the program without losing my data?

A: Sometimes the TANKS 3.0 program will "crash" due to negative or zero value data or a computer system failure (such as a power outage) will cause damage to some TANKS 3.0 index files. If you are unable to get into the TANKS program as a result of this, you will need to manually delete the index (*.CDX) files from the DATA and TANKDATA subdirectories (you may also need to delete the *.CDX files from user-created directories). Once these files have been deleted, the system will then automatically recreate the index files when you re-enter the system. As a rule of thumb, it is a good idea to save the data files (*.DBF) from these subdirectories to a temporary directory outside of the TANKS3 directory. This will ensure that you do not lose any data, and if deleting the *.CDX files does not work, you can reinstall TANKS 3.0 and then import the *.DBF files back into the reinstalled copy. If you do not feel comfortable with following these instructions, you can always call the Info CHIEF help desk and we will "walk" you through the procedure.

Q: Why does the TANKS 3.0 program give me a vapor pressure error?

A: The program cannot handle liquids with a vapor pressure greater than the atmospheric pressure because this means that they are boiling. Conversely, the vapor pressure of a liquid in a fixed roof tank may be too low for the program to handle. If this is the problem, try setting the pressure/vacuum vents to zero.

Q: How can I get training for EPA electronic emission estimation tools, such as Air CHIEF?

A: EFIG and Info CHIEF staff always conduct a training course at the Air & Waste Management Association's (A&WMA) Annual Meeting and the A&WMA/EPA Emission Inventory Conference. We also provide training to EPA Regional Offices when funding allows. For the remainder of the year, we have plans to conduct training at the A&WMA/EPA Emission Inventory Conference in New Orleans, LA on September 3 (see page 1) and regional/state training in Raleigh, NC on December 1. We also have tentative plans to do a training session in Charlotte, NC for the Carolinas Environmental School, sponsored by the Charlotte Chamber of Commerce in early October. We can provide training to agencies that can provide funding; if you are interested, please call Info CHIEF for information.

Q: When will the next version of the Air CHIEF CD-ROM be available, and will it include Supplement A for AP-42?

A: Unfortunately, EFIG has experienced setbacks due to budgetary constraints and will not be able to fund the production of a new version of Air CHIEF this year. We expect to produce a new version of Air CHIEF sometime around Fall 1997, which will include Supplement A and B for AP-42, TANKS 3.0, the latest version of FIRE, and the Emission Inventory Improvement Program (EIIP) documents. Check the CHIEF BBS, the listserver, web pages and this newsletter for more information in the future.



EFIG Compiles the National Air Toxic Inventory

by Anne A. Pope, EFIG and Darcy Wilson, Eastern Research Group

A National Toxics Inventory (NTI) of U.S. HAP emissions was developed and is maintained by EPA's Emission Factor and Inventory Group (EFIG) to meet requirements in the Clean Air Act (CAA). The CAA, as amended in 1990, requires the U. S. Environmental Protection Agency (EPA) to develop significant new air quality programs and enhance existing programs for hazardous air pollutants (HAPs). These programs require inventory data to identify sources and to assess the public health and environmental impacts of HAPs. The NTI will support EPA efforts to meet the mandates of 1990 Amendments to the CAA, such as:

- * Evaluation of health and environmental effects in support of emission standards development
- * Assessment of petitions for HAP source category and pollutant additions or deletions
- * Evaluation of source categories and HAPs related to development of special studies (Mercury Study, Utility Study)
- * Identification of source categories of seven listed HAPs to develop standards under Title III, Section 112(c)(6)
- * Assessment of health effects and health risks associated with emissions standards (residual risk)
- * Characterization of the nature and magnitude of the air toxics problems in urban areas under Title III, Section 112(k)
- * Development of national and regional strategies and programs for air quality management based on assessments of health and ecological effects and exposure and risk (Great Waters Program, etc.)
- * Tracking of ozone depleting substances under Title VI.

EFIG is including NTI data in its 1996 TRENDS report. Other potential stakeholders include state and local agencies, regional authorities, general public, and industry and trade associations. The data needed to support the many air toxics programs can be shared between stakeholders. For example, data gathered to develop emission standards (MACT) for an industry may be used to assess air toxics emissions in urban areas, or assist a facility in developing its Title V permit. Alternatively, facility-specific information provided by a facility in its Title V permit may be used by EPA to estimate emissions for an entire source category.

The NTI contains estimates of mobile and stationary source emissions. Emissions are allocated at the county level in the inventory. Approximately 350 pollutants and 800 source categories are included in the inventory. Source specific data are used when available. EFIG has obtained state and local inventories to incorporate into the NTI. Version 2.0 of the NTI contains inventory data from the California Hot Spots Program (point source), Chicago five county/Illinois area source inventory, Puget sound area source inventory, Houston area source inventory (HASTE), and recent Phoenix and Tucson inventories (point, area, & mobile sources). When state and local inventory data are unavailable, data used to develop MACT standards are incorporated for selected source categories (glycol dehydrators, pulp & paper, petroleum refinery, utility data, consumer solvents, etc.). The Toxic Release Inventory (TRI) data are used if state and local inventory and MACT data are unavailable. If these three sources of HAP data are unavailable, then estimates are generated using emission factors and source activity data. The NTI is a work in progress

(Cont. on p. 9)

Air Toxics *(Cont. from p. 8)*

and additional data to improve NTI estimates include MACT and state and local inventory data and Title V permit data. Other potential improvements to the NTI include gap-filling in source/pollutant data, and better correlation between monitoring and emission inventory data.

Version 2.0 of the NTI estimates that 4.4 million tons of HAPs (list of 189 as defined under Title III of CAA) are released to the air. Area sources account for approximately 31 percent of HAP emissions, mobile sources account for 39 percent of HAP emissions, and point sources account for 30 percent of HAP emissions. TRI data in NTI account for only approximately 15 percent of the total 4.4 million tons emissions of HAPs. The use of non-TRI data has been particularly important in presenting a more complete picture of the magnitude and contributing sources of HAP emissions.

EFIG Projects on the Horizon

by Roy Huntley, EFIG

The EFIG staff is continually revising and updating the *Compilation of Air Pollutant Emission Factors* (AP-42) and the *Locating and Estimating* (L&E) document series on air toxics. Below are some brief descriptions of projects that are currently funded. We always welcome comments about the value of our efforts, and we especially welcome data. Call *Info CHIEF*, (919) 541-5285 for questions or comments.

Projects currently underway:		New Starts:
Abrasive Blasting	Grain Elevators	Mercury L&E document
Alumina	Hot Mix Asphalt	Update Internal Combustion Engines
Arsenic L&E document	Lead L&E document	Update Natural Gas Combustion
Bread Baking	Municipal Solid Waste Landfills	Update Boiler NOx (emission factors from the Acid Rain Program)
Brick & Related Clay Products	Organic Liquid Storage (TANKS)	Steel Manufacturing
Coke Production	Paved Roads	
Distilled Liquors	Surface Coal Mining	
FIRE Update	Unpaved Roads	

OTAG Emission Inventory

by Steve Bromberg

The OTAG Emission Inventory Workgroup is nearing completion of its effort. As the data are beginning to be used by the Modeling Workgroup, some errors are being discovered. When these are brought to the attention of the respective states, corrections are made and the revised data are incorporated into the inventory. Version 3 is now the latest OTAG inventory available. It can be downloaded from the FTP site [earth1.epa.gov](http://earth1.epa.gov/pub/gopher/EmisInventory) in the directory `/pub/gopher/EmisInventory`.

The A&WMA/EPA Emission Inventory Speciality Conference to be held in September will feature a session that describes how the inventory was developed, the development of future year inventories based on the 1990 data, and how state data were combined with the EPA Interim Inventory to build the OTAG 1990 Base Inventory. A separate OTAG publication that provides details for all of the inventory activities should be completed by the end of 1996.



National Emission Trends CD-ROM Viewer

by Bill Barnard, E.H. Pechan and Associates, Inc.

Through a contract with E.H. Pechan and Associates, Inc., EFIG has developed a CD-ROM version of summary level data from EPA's National Emissions Trends data base. The National Emission Trends CD-ROM Viewer was developed to provide easy access to summary emissions data. Emissions for the years 1985-1994 are stored by tier category and by Standard Industrial Class (SIC) at the county, nonattainment area, state, and national levels.

Software developed using *Microsoft Access*® allows the user to generate emission reports, by choosing the source-type grouping (SIC, Tier 1, etc.), geographic basis (county, state, etc.), year, or report destination (screen, file, or printer). The summary emission tables may also be exported into *dBase IV*® format. Although the summary tables contain data for multiple years, users may opt to export a single year's data, rather than all years. The first edition of the CD-ROM viewer should be available in August or September.

PAMS Could Benefit Emission Inventories

by Tom Pace, EFIG

The Photochemical Assessment Monitoring System (PAMS) fulfills a requirement of the *1990 Clean Air Act (CAA)* to monitor ozone and its precursors in ozone nonattainment areas with the most difficult problems. In this monitoring system, ozone, ground level and upper air meteorology, and 55 species of volatile organic compounds (VOC) are routinely measured at 3 or 4 sites per metropolitan area. The potential benefits to the VOC and nitrogen oxide (NOx) emission inventory programs are significant. The 55 species include key tracers for biogenic and mobile source emissions and the meteorological information permits comparison between the inventory and measurements of key species emitted from major sources. More elegant mathematical procedures such as the Chemical Mass Balance can also be used to interpret the data.

In July 1996, the first of a series of workshops was held in Philadelphia to discuss ways in which emission inventories and other ozone issues could benefit from analysis of the PAMS data. The workshop was quite successful and similar workshops are planned to be held in Boston and New Orleans in the near future. Contact Tom Pace, (919) 541-5634, Mark Schmidt, (919) 541-2416 or James Hemby, (919) 541-5459 for more information.



The CHIEF Newsletter
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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) 541-5285.

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