



# THE CHIEF NEWSLETTER

— THE CLEARINGHOUSE FOR INVENTORIES AND EMISSION FACTORS —

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## Emission Inventories Take On the “Big Easy”

New Orleans was the site of the sixth annual Emission Inventory Conference, jointly sponsored by the U.S. Environmental Protection Agency (EPA) and the Air & Waste Management Association (AWMA). The theme of this year's conference, “The Emission Inventory: Key to Planning, Permits, Compliance, and Reporting”, focused on industrial participation. Of the 283 attendees, 15% were from industry, which indicated a significant increase over last year. Of the remaining attendees, 30% were from state and local agencies, 30% were consultants, 15% were from EPA, 5% from academia and 5% were from foreign countries.

The technical program consisted of nine sessions over the two and one-half day conference. The foreign dignitaries added interest to the conference with their perspectives from Canada, The Netherlands, Mexico, Russia, Slovakia, Taiwan, and Great Britain. As in past years, there were also continuing education courses taught on the day before the conference.

The welcome and keynote address was given by Gus Vonbedugan of the State of Louisiana. Gus highlighted the tremendous progress that has been made in the emission inventory program over the past few years but noted the tremendous challenge facing the program with the increased needs from emission inventories in planning, regulatory, compliance, and permitting activities.

The two luncheon talks highlighted the role of emission inventories in planning activities and permit program. Jerry Golden of the Tennessee Valley Authority alerted attendees to the potential implications of regulations from the Ozone Transport Assessment Group as well as the new regulations resulting from the revised National Ambient Air Quality Standards for ozone and fine particulate matter. Jerry noted that good emission inventories are essential to ensuring that cost effective control strategies resulted from these regulatory activities. Mike Trutna of EPA's Permits Program, also highlighted the importance of emission factors in determining permit fees and the importance in the linkage of data collection efforts from the permit and emissions inventory programs.

The exhibits were also very good this year and they stimulated much interest along with the Poster Session. As expected, New Orleans provided an excellent backdrop for the conference, with good weather, good food, and plenty of entertainment, including the enjoyable Riverboat Cruise. Overall, the conference was a success and attendees are already anticipating next fall's conference to be held in Research Triangle Park, NC.



### Computing in Environmental Resources

— Research Triangle Park, NC —

Courses: December 1, 1996

Conference: December 2-4, 1996



The US EPA and the Air & Waste Management Association will be co-sponsoring a conference entitled, “Computing in Environmental Resources”, to be held at the Sheraton Imperial Hotel in Research Triangle Park, NC. The conference will be held December 2-4, 1996 and the continuing education courses will be held on December 1, 1996. The conference will focus on computing and network technology as integral parts of environmental management.

Session topics for this conference will include data management, remote on-line access, artificial intelligence, expert systems, geographical information systems, modelling and visualization. A two-day exhibition featuring technical theme displays will be a networking opportunity for both environmental experts and information system experts alike. This conference will also feature a tour of the US EPA Scientific Visualization Center. For more information about this conference and registration, please call the Air & Waste Management Association registrar, (412) 232-3445 or (412) 232-3444, ext. 3142.

# Introducing the New EFIG Home Page!

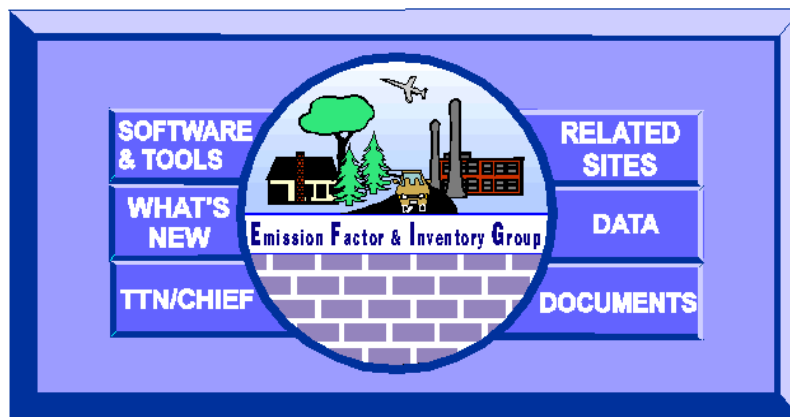
by Mary Anne Barckhoff, Lockheed Martin

EFIG now has a home page that contains links to access any information related to emission factors and inventories! Our previous web page on Emission Estimation Tools (<http://www.epa.gov/oar/oaqps/efig/tools.html>) has been replaced by this new home page which is your one-stop gateway to a whole new universe. All you need is one address: <http://www.epa.gov/oar/oaqps/efig/> to link to many useful and informative web pages that allow you to download emission estimation and modelling software, documents, and to link to other related web sites. Here is an overview of the EFIG Home Page features:

## Software & Tools

Download databases such as the Factor Information Retrieval database (FIRE), TANKS, or the Landfill Air Emissions Estimation Model. Also link to informative pages about how to obtain our CD-ROM products such as Air CHIEF and the National Emission Trends Viewer CD-ROM.

<http://www.epa.gov/oar/oaqps/efig/>



## TTN/CHIEF

Users can link directly to the old familiar CHIEF BBS, but now in web page format!

## What's New

This web page keeps you up to date with the latest and greatest news about Emission Factor and Inventory Group activities and features of EFIG web pages.

## Related Sites

This page contains links to many EPA web pages such as the Great Lakes National Program Office web page and all the EPA Regional Offices. You can also link to Associations and Other Organizations, such as the Air & Waste Management Association and the Environmental Professional's Home Page. Use this page to link to International & Foreign Organizations, such as Environment Canada and the United Nations Environment Program or to go to any State Agency web pages.

## Data

The EFIG Data web page can link you directly to web sites that contain useful data pertaining to emission factors and inventories. You can go directly to The Ultimate Truth (TUT) Web Page, which allows you to search the Ozone Transport Assessment Group's (OTAG) database of emission inventory data. Web surfers can also access the Aerometric Information Retrieval System (AIRS) home page from here.

## Documents

The EFIG Documents web page includes links to our most popular downloadable documents, such as the Compilation of Air Pollutant Emission Factors (AP-42), the National Air Pollutant Emission Trends, Emission Inventory Improvement Program (EIIP) documents, and the CHIEF Newsletter, with informative descriptions of each. In addition, you can learn about Fax CHIEF, EFIG's automated document delivery system.

For questions or comments about the EFIG Home Page, call the Info CHIEF help desk at (919) 541-5285, or e-mail [info.chief@epamail.epa.gov](mailto:info.chief@epamail.epa.gov).

# Emission Inventory of Section 112(c)(6) Pollutants: A Draft Review

by Ann Ingram, Lockheed Martin

On October 16, 1996 the Environmental Protection Agency (EPA) released a draft review for public comment on Section 112(c)(6) of the Clean Air Act Amendments of 1990. Due to the short comment period and a reduced budget, the review draft is available only in electronic format via the CHIEF Bulletin Board System (BBS) and the CHIEF BBS web page.

## WHAT IS SECTION 112(c)(6)?

Section 112(c)(6) of the Clean Air Act Amendments (CAAA) of 1990 requires that the EPA identify sources of alkylated lead compounds, polycyclic organic matter (POM), mercury, hexachlorobenzene, polychlorinated biphenyls (PCB), 2,3,7,8-tetrachlorodibenzofurans (TCDF) and 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). These identified sources will account for not less than 90% of the aggregate emissions of each pollutant subject to standards under Subsection 112(d)(2) or 112(d)(4). Standards must be developed for sources of these hazardous air pollutants (HAPs) by EPA not later than ten years after the date of enactment.

## BACKGROUND

In order to meet the requirements of Section 112(c)(6), national inventories of sources and emissions of these seven specific pollutants are needed. These inventories will provide the reference basis for the development of a national strategy to control the Section 112(c)(6) pollutants. These same national inventories will prove equally useful as input to the urban area source program pursuant to Section 112(k) of the CAAA, should any of these pollutants also be selected under that program as presenting a threat to public health in urban areas. Because the seven specific pollutants in Section 112(c)(6) are of particular interest to the Great Waters program, these inventories will also prove useful in the context of implementing Section 112(m), dealing with the protection of the Great Lakes and coastal estuaries.

## HOW TO DOWNLOAD THE REPORT

The review draft report can be downloaded in a compressed WordPerfect® 5.1 format or an Adobe Acrobat® format from the "Emission Inventory Guidance" Section of the CHIEF BBS web site. Use the EFIG Home Page (<http://www.epa.gov/oar/oaqps/efig/>) to access the CHIEF BBS web page, or dial up to the CHIEF BBS at (919) 541-5742. The compressed file names are 112c6\_a.zip and 112c6\_b.zip. The Adobe Acrobat® file names are 112c6\_a.pdf, 112c6\_b.pdf, and 112c6\_c.pdf. For assistance with downloading these files, call the Info CHIEF help desk at (919) 541-5285.

Comments concerning the draft review of Section 112(c)(6) are encouraged. Comments may be provided in writing, electronically through e-mail, or verbally. Comments and all questions on the document should be directed to one of the following persons:

Ms. Anne Pope, Emission Factor and Inventory Group, U.S. EPA, Mail Drop 14  
Research Triangle Park, North Carolina, 27711.  
Phone: (919)541-5373  
E-mail: POPE.ANNE@EPAMAIL.EPA.GOV

Ms. Laurel Driver, Visibility and Ecosystem Protection Group, U. S. EPA, Mail Drop 15  
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The comment period will run from October 16 - November 30, 1996. There will be no extensions of the comment period beyond November 30 for any reason.

## Supplement B of AP-42 in the Works

The periodic update of AP-42 is underway. Those of you who have followed the document's progress over the years know that sometimes the sections included in supplements are new, some are revised thoroughly, and some just correct our typographical errors. One discussion that inevitably arises is how to let you know which type of update is involved. With Supplement B several of our sections will contain a new feature detailing what has changed from previous editions. This information will be placed between the text and the references. Please give us your feedback on the usefulness of this new feature.

Another change you will see in this supplement is the date convention used on updated pages. Henceforth, we will adjust the date for the entire section for any change no matter how minor. This means that if you use the paper copy supplements to insert into your previous edition, you may want to add the new date to the pages that do not change. Complete sections available on the Fax CHIEF, CHIEF BBS and web pages will have the latest date on all pages.

The following sections will be included in Supplement B:

- 1.1 Bituminous and Subbituminous Coal
- 1.2 Anthracite Coal Combustion
- 1.3 Fuel Oil Combustion
- 1.4 Natural Gas Combustion
- 1.5 Liquid Petroleum Gas Combustion
- 1.6 Wood Waste Combustion
- 1.7 Lignite Combustion
- 1.8 Bagasse Combustion in Sugar Mills
- 1.9 Residential Fireplaces
- 1.10 Residential Wood Stoves
- 1.11 Waste Oil Combustion
- 2.1 Refuse Combustion
- 3.1 Stationary Gas Turbines for Electricity Generation
- 3.2 Heavy-duty Natural Gas-fired Pipeline Compressor Engines
- 3.3 Gasoline and Diesel Industrial Engines
- 3.4 Large Stationary Diesel and All Dual Fuel Engines
- 6.2 Adipic Acid
- 9.7 Cotton Ginning
- 9.9.4 Alfalfa Dehydration
- 9.12.1 Malt Beverages
- 11.7 Ceramic Clay
- 12.20 Electroplating
- 13.1 Wildfires and Prescribed Burning
- 14.1 Emissions from Soils--Greenhouse Gases
- 14.2 Termites--Greenhouse Gases
- 14.3 Lightning Emissions--Greenhouse Gases

Sections in progress include the following:  
(\* indicates greenhouse gas information)

- \*4.3 Waste Water Collection, Treatment, and Storage
- \*8.8 Nitric Acid
- \*9.4.5 Animal Waste Lagoons
- \*9.17 Enteric Fermentation
- \*9.18 Flooded Rice Fields
- 9.10.1.2 Sugar Beet Processing
- 9.12.3 Distilled Spirits
- \*9.17 Enteric Fermentation
- \*9.18 Flooded Rice Fields
- 10.8 Wood Preserving
- 11.1 Hot Mix Asphalt Plants
- 11.3 Bricks and Related Clay Products
- 11.9 Surface Coal Mines
- 11.12 Concrete Batching
- 11.23 Taconite Ore Processing
- 11.29 Alumina Manufacturing
- \*\*.\*\* (TBD) Abrasive Blasting

### FIRE Version 5.1b

Updated modules for both Criteria and Toxic pollutants for the Factor Information and Retrieval System (FIRE) should be available on the CHIEF BBS and web page by the end of November. FIRE is a database system containing EPA's recommended criteria and hazardous air pollutant emission factors. The updated modules will be labeled as version 5.1b, and will contain new and revised emission factors from Supplement B to the Fifth Edition of AP-42. The current operating software (version 5.1) will not change for the November release, however, we are in the process of developing a design document for a Microsoft Windows® version of FIRE. Contact Ron Ryan at (919) 541-4330 for details or to provide your comments about FIRE and look for the draft design document on the CHIEF BBS and web page by early 1997.

# National Emission Trends (NET) Database and Report

by Sharon Nizich, EFIG

The 1996 National Air Pollutant Emission Trends Report is scheduled for publication in November 1996. This year the report is in abbreviated form, due to the government shutdown and budget crisis this year. Despite the shortened format, enhancements were still added. They include tables of the Ozone Transport and Assessment Group (OTAG) and Grand Canyon Visibility Transport Commission Study (GCVTC) emission inventory data, with discussion on their upcoming incorporation into the NET database, biogenic emission data results from BEIS2 for the years 1988, 1990, 1991, and 1995, updated air toxics information from the National Toxics Inventory (NTI), and updated 1990 Canadian emission estimates.

Emissions data for 1995 have been loaded onto the NET database maintained by EFIG. Currently we are transferring the NET database to an ORACLE platform, which will make it easier to provide a link to the database via the World Wide Web (WWW). We will soon be testing the process of importing state emission inventory data using the EIIP data transfer mechanism and will be incorporating data from the OTAG, GCVTC, and 1996 periodic SIP emission inventories.

The National Air Pollutant Emission Trends Report—along with national emission summaries—will be on the WWW in November. Check the EFIG Home Page (<http://www.epa.gov/oar/oaqps/efig/>) under “Documents” for more information.

Copies of the report will be also be available through the Government Printing Office (GPO) at (202) 512-1800. Ask for publication number EPA-454/R-96-007. The NET database will soon be available via FTP and in summary format on CD-ROM (includes years 1985 through 1995) from GPO. Ask for CD-ROM publication number EPA-454/C-96-002.

## EIIP on the Road

by Steve Bromberg, EFIG

The Emission Inventory Improvement Program (EIIP) began its outreach effort by organizing information sessions with state and local agencies hosted by their respective EPA Regional Offices. One to two day meetings were held in Regions 5, 6, 9, and 10. Bill Gill and Mike Fishburn from Texas NRCC, Paul Kim from Minnesota PCA, Sally Otterson from Washington DE, and Dennis Goodenow and Dale Shimp from California ARB helped with the presentations. Excellent representation from 31 agencies were present at the meetings with a total attendance of approximately 100. As federal travel funds permit, meetings will be scheduled for other state and local agencies through the appropriate Regional Offices.

Several general observations emerged from the meetings:



EIIP must remain current, not only by standardizing new estimation methods, but by moving into new areas (e.g., making sure that toxic estimation techniques are included in the EIIP procedures).

The biggest obstacle state and local agencies have in implementing the EIIP is overcoming resistance to change within their respective organizations. Everyone agreed that the EIIP approach was sound, but that instituting the needed procedures would be a challenge.

The meetings attendees emphasized the importance of having high quality emission inventories.

The EIIP Home Page is now live. All final documents are posted under the appropriate topic and are available for downloading. The address is <http://www.epa.gov/oar/oaqps/eiip/>. The EIIP Update, a periodic summary of EIIP progress and products is also available through the Home Page.

## Using PAMS Data to Improve Emission Estimates

Using Photochemical Air Monitoring System (PAMS) data to improve the emission estimates of ozone precursors was a topic of discussion in two recent forums. The first forum was a series of workshops being conducted on PAMS data analysis -- the pilot workshop was held in Philadelphia in August and another is will be held in Texas in December. The second was an AWMA meeting on Emission Factors and Inventories, held in New Orleans in September. Hopefully, the discussions will evoke interest among EPA Regions and States to exploit ambient databases like PAMS to gain important information about nearby sources and emissions. This information in turn could be used to evaluate and improve emission inventories for ozone precursors. Such analyses and studies can reveal missing sources or suggest improvements to the spatial or temporal resolution of the emissions inventory. They can also determine the need for better emission factors or activity inputs to emission models or factors.

The concept of using ambient measurements to improve emission models, factors and inventories is not new, having been first used to evaluate particulate matter inventories in the 1970's. Historically, several interpretive techniques have been used to link the emissions inventory with the PAMS data. Screening analyses include hydrocarbon / NO<sub>x</sub> ratios, association of certain compounds with transport direction, time series analyses, and chemical species associated with certain events or episodes. Multi-variate models (e.g., factor analysis, Source Apportionment by Factors with Explicit Restrictions (SAFER) and Chemical Mass Balance (CMB)) can also be used to interpret the data. However, special consideration should be given to the reactivity of the species and the spatial representativeness of the Emission Inventory (EI). Both of these issues can limit the usefulness of the comparison unless they are appropriately considered. Analyses conducted in Texas, Southern California, Atlanta and other locations have already provided useful information to local air agencies. For more information, call Tom Pace in the Emission Factor and Inventory Group at (919) 541-5634.

## AP-42, Supplement A is on the Web

by Ann Ingram, Lockheed Martin

In its latest endeavor to provide access to emission factor information, the Emission Factor and Inventory Group has put Supplement A of AP-42 on it's own web site. The recently updated chapters and sections of this popular document are available in an Adobe Acrobat® PDF file format. The conversion to PDF allows the documents to be viewed on screen or printed as they appear in the final document. The files require the Acrobat Reader®, which is freely available from Adobe. A link to the Adobe web site is provided on the AP-42 Supplement A web site and the software can be downloaded from there.

The address to the web site is <http://www.epa.gov/oar/oaqps/efig/ap42/ap42supa.html> and it links to and from the EFIG home page. Additionally, the entire Fifth Edition of AP-42 is available from the TTN Internet web site at <http://tnwww.rtpnc.epa.gov>. If you have questions or comments about these web sites, please contact the Info CHIEF help desk, (919) 541-5285 or e-mail [info.chief@epamail.epa.gov](mailto:info.chief@epamail.epa.gov).

### EPA's Green Book

For those who may need to keep tabs on the status of nonattainment areas or to refer to summaries of the air quality standards, there is a web page that contains the EPA Green Book. From the initial page, users can access information on nonattainment area names, classifications, maps and pertinent Federal Register excerpts. Summaries of the air quality standards and their health and environmental effects can also be accessed from the Green Book page. The EPA Green Book web page is located at: <http://www.epa.gov/oar/oaqps/greenbk/>.

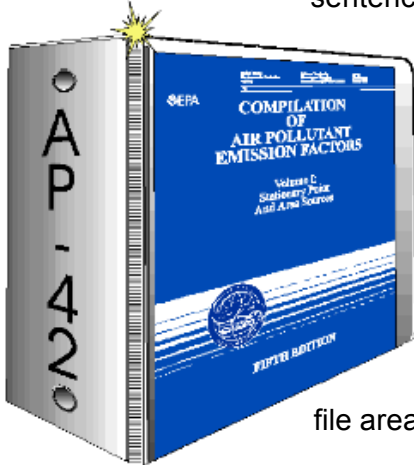
# AP-42: Changes to be Documented in Supplement

by Roy Huntley, EFIG

For supplements A and B, Chapters 1 and 3 were reviewed to identify technical inadequacies and areas where state-of-the-art technological advances need to be incorporated. In addition, EFIG looked for errors by comparing the current emission factors in AP-42 with the background document information. If discrepancies were found, the appropriate AP-42 references were reviewed. In some cases, the factors could not be verified with the information in the background document or the reference materials, in which case the factors were not changed. Several errors were found and emission factors were corrected.

Clarifying language as needed was added throughout AP-42. For example, the following italicized sentence was added in the footnote of Table 1.1-2 of AP-42 (italics added);

“Emission factor would be calculated by multiplying the weight percent sulfur in the coal by the numerical value preceding S. For example, if the fuel is 1.2% sulfur, then S equals 1.2.” Apparently, many people were not sure if “S” was supposed to be 0.012 or 1.2. This example should eliminate that confusion. A similar footnote is added for formulas using “A” as a variable, where “A” is the weight percent ash.



Supplement A to the Fifth Edition of AP-42 was issued in February 1996 and most Supplement B sections are currently available on the CHIEF BBS, web page and Fax CHIEF. A complete list of changes in Supplement A and B can be found on the CHIEF BBS in the ERRATA file area. Look for the files named SUPA\_CHG.TXT and SUPB\_CHG.TXT.

## Removal of Metric Units from AP-42

Previously, AP-42 has presented emission factors in a variety of units for the convenience of the user. Unfortunately, this practice has led to many inefficiencies. With the number of source categories, the number of factors, and the number of users increasing every year, it has become more difficult to track multiple presentations of the same emission factor. One way to reduce the inefficiencies is to present them only once in one set of units. At this time, since the EPA database known as the Aerometric Information Retrieval System (AIRS) uses English units and the majority of our customers (States, local agencies) use English units, AP-42 will use English units. When sections undergo revision, metric units will be removed. Footnotes will be added with conversion factors to convert the factors to metric as well as other English units, such as lb/MMBtu. Contact Roy Huntley of the Emission Factor and Inventory Group, (919) 541-1060, if you have questions or comments.

## Greenhouse Gases in AP-42

By Roy Huntley, EFIG

The Emission Factor and Inventory Group has been planning to incorporate greenhouse gas emission factors into the Compilation of Air Pollutant Emission Factors, AP-42. This seems like a logical progression, as AP-42 has grown from including only process descriptions and criteria pollutant emission factors, to then include hazardous air pollutants (HAPs) and now to include greenhouse gases. Carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) emission factors have been incorporated as appropriate into Chapters 1 and 3, and will also be incorporated into other appropriate chapters as well. In addition, a new chapter, Chapter 14, will be added to include greenhouse gas sources (such as lightning emissions) that do not fit logically into other pre-existing AP-42 chapters. CO<sub>2</sub> emission factors are determined using a carbon balance and assuming that a certain percentage of the fuel carbon is completely oxidized to CO<sub>2</sub>. N<sub>2</sub>O and CH<sub>4</sub> emission factors were determined from emissions data.





## Info CHIEF's Most Frequently Asked Questions

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

Q: My computer has a fax modem. Can I use this to get documents from Fax CHIEF?

A: Unfortunately, you cannot use a fax modem. Fax CHIEF is an automated system that can only be used if you have a fax machine with a phone receiver or a speaker phone and a touch-tone keypad. The system works much like voice-mail, so you must be able to hear the recorded instructions and respond to them through your touch-tone keypad. In addition, the system will automatically send the faxed document to the machine from which you are calling, which means that you cannot call from a telephone and then "program" it to send the document to your fax machine. Please use the CHIEF BBS or EFIG Web Page to obtain documents through your computer.

Q: I'd like to keep up to date on EFIG activities. If I call and give you my e-mail address, can you put me on the EFIG List server?

A: The EFIG List server is one of our newest ways to communicate important information from the EPA's Emission Factor and Inventory Group, and is also a way for you to automatically receive the electronic (ASCII text) version of CHIEF Newsletter. Because the EFIG List server is on a fully automated system, it is not possible for us to take your e-mail address and put it on the list for you. The only way for you to get on the List server is to subscribe by sending an e-mail message to [listserv@unixmail.rtpnc.epa.gov](mailto:listserv@unixmail.rtpnc.epa.gov) and then typing in the body of the message "subscribe CHIEF firstname lastname", using your first and last name.

Q: Is the Air CHIEF CD-ROM version 4.0 (July 1995) the latest version? If so, when will the next version be available?

A: Yes, version 4.0 is the latest version. Due to the Government shutdown in early 1996 and a shorter budget, we have not been able to update the Air CHIEF CD-ROM this year. We expect to resume development of the new Air CHIEF CD-ROM soon and hope to have a new version available by the end of 1997. The new CD will include TANKS 3.0, AP-42 Supplements A and B, the latest FIRE criteria and toxic emission factors, and Emission Inventory Improvement Program (EIIP) documents.



### Latest version of 1990 National Emission Inventory

The 1990 National Emission Inventory has been compiled under a joint effort by the Ozone Transport and Assessment Group and the EPA. The latest version of this inventory is currently available on the anonymous FTP server: [earth1.epa.gov](ftp://earth1.epa.gov) under the `pub/gopher/EmisInventory` directory (be sure to use upper/lower case letters as shown). Please review the text file (`nei90fmt.txt`) for more information and notify the respective state contact listed in this file if you have any questions regarding the specific data. If you have questions regarding the methodologies used to generate the inventory or about the data format, please call either Chet Wayland, (919) 541-4603 or Steve Bromberg, (919) 541-1000 at EPA.

## Info CHIEF Update

by Angela Andrews, Lockheed Martin

The Info CHIEF help desk is always evolving. We are now constructing HTML pages for the new Emission Factor and Inventory Group (EFIG) Web Pages, converting electronic documents to Adobe Acrobat®, and beginning some work in Computer Based Training (CBT) for a new EFIG CD-ROM. We're still here to answer your phone calls (between 500 and 1000 per month), to assist you with the Fax CHIEF, the CHIEF BBS and Web Page, and EFIG software such as FIRE and TANKS. Our training classes this year took us to Charlotte, Nashville and New Orleans; in December we'll conduct a class right here in our office building in Research Triangle Park, NC. Ongoing projects continue as we get more sophisticated

at creating an online newsletter and better looking brochures while trying to keep up with your document requests and referrals. Our Fax CHIEF system gets about 300-400 downloads a month, and the CHIEF BBS, FTP, and Web Page gets about 2,500 downloads a week! Your comments are always welcome; we really enjoy serving you. We are often tied up helping other customers, so we encourage you to leave a message on our voice mail if you cannot get through to us right away. We are usually able to return your call within minutes.



## Treatment of Non-Detects in Developing Emission Factors

by Roy Huntley, EFIG

When developing hazardous air pollutant (HAP) emission factors for AP-42, handling non-detects can be difficult because many of the toxics are either not present in the stack gas or they exist in concentrations very near the detection limit. Although there is no true convention for this, EFIG has developed an approach which seems fairly mainstream. Briefly, our protocol is as follows: Where analysis has been conducted and compounds have been below detection limits, report the compound as "less than" the detectable limit. Where compounds have been detected in some tests but not detected in other tests, use one half of the detection limits as the value for the purposes of averaging between the two tests. There are some finer points, and for a more in-depth discussion of this subject, chapter 4 of the Procedures for Preparing Emission Factor Document—an EFIG document currently under construction—will have more details. Look for the Procedures document to be available on the CHIEF BBS and web page in March 1997.



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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.

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.