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THE CHIEF NEWSLETTER

— THE CLEARINGHOUSE FOR INVENTORIES AND EMISSION FACTORS —

EMISSION INVENTORY IMPROVEMENT PROGRAM SEEKS VOLUNTEERS

At their meeting recently in Jackson Hole, WY, the STAPPA/ALAPCO membership passed a resolution to adopt the Emission Inventory Improvement Program (EIIP), a major effort to improve the quality and quantity of emission data. The resolution proposed that:

- STAPPA, ALAPCO, and EPA undertake a joint effort to develop the EIIP,
- a steering committee be appointed to begin program development, and
- \$105 grant funds in the amount of \$750K per year be used to operate the program.

The EIIP Program will match well with EPA's new approach to giving state/local agencies more operating responsibility, specifically in influencing the development

of procedures for compiling inventories. For the program to be successful, it is essential that the agencies having data gathering experience help in developing the guidance which will be used by the entire community.

The EIIP steering committee has been formed and is in the process of setting up subcommittees (Preferred Methods, Quality Assurance, EPA/State/Local interactions, Data Reporting and Handling) which will oversee developing the various standard procedures. The first meetings of the subcommittees are scheduled for September and October.

Anyone interested in being a member of any of these subcommittees should call Roger Westman, Allegheny County, PA, Health Department, (412) 578-8103; or Steve Bromberg at the Newsletter, (919) 541-1000. ♣

"NOW THAT YOU'VE TALKED ME INTO A CD-ROM READER"

"Air CHIEF is wonderful, and we can't live without it, but what else can I use this CD-ROM drive for?" This is a recurring question on the *Info CHIEF* help line, and we have some suggestions. Here are just a few of the CDs we've seen around our office. If you know of others that would be useful to Newsletter readers, please notify the *Info CHIEF*, Angela Andrews, (919) 541-5285; through the BB E-mail: andrews.angela@epamail.epa.gov.

CDs from EPA:

- *Air CHIEF* – Contains the stationary source volume of AP-42, the *Locating And Estimating* series, *FIRE* and *SPECIATE*. For nonprofit organizations, free from *Info CHIEF*; for others, the Government Printing Office (GPO), (202) 783-3238, \$15. Annual updates.
- *Toxic Chemical Release Inventory (TRI)* – Data reported by facilities that manufacture, process, or use over 300 designated toxic chemicals. Contact person is Lisa Capozzoli (202) 260-1531; from GPO, \$28; or NTIS, (800) 553-6847, \$45.
- *EPADOC* – EPA policy and procedures manuals and guides. EPAers call Tom Clemmer (919) 541-1057; others, GPO, \$15.

- *Risk Assessment Library* – Prototype disk containing over 150 documents on human exposure to a wide variety of chemicals. Available to EPA only! Call Richard Walentowicz, (202) 260-8922. Limited distribution for review and comments.

From elsewhere:

- *US Code* on CD – Full-text of all 50 titles of official compendium of US laws in effect as of Jan 1991. GPO, \$30. Annual updates.
 - OSHA Regulations, Documents, Technical Information – From GPO – single issue \$28; year's subscription, \$88.
 - *FAR/FIRMR in CD-ROM* – From GPO. Single issue \$33; year's sub, \$106.
 - *TAURUS* (Technology Acquisition Resource & Update Service) – This is the "Acquisition Toolbox". Contains laws, regulations, guides, checklists, etc. for the procurement process. Call (703) 719-7602 or NTIS (800) 553-6847 – year's sub, \$2495. Quarterly updates.
- Catalogs:
- *Electronic Information Products: CD-ROM* – From GPO, (202) 783-3238.
 - National Technical Information Service – Request "NTISPR888" and NTISPR827", (800) 553-6847.

CD Catalogs (cont.):

- *CD-ROMs In Print* – An international guide to CD-ROM, CD-I, CDTV and Electronic Book Products. Call Meckler Publishers, (800) 635-5537; year's sub \$165.
- *SelectWare* – "The ultimate software demonstration system" – This is really a lot of fun. A CD-ROM on-screen magazine to keep up with the ever changing worlds of CD-ROM and Multimedia; call (800) 342-

3366; year's sub \$99.

- "SIGCAT Compendium", by Jerry McFaul, in March 1993 *Computers In Libraries*.

In case you haven't discovered it yet, your CD reader will play your audio CDs from home. It installs well as a WordPerfect Office® menu item. You can even load the driver as a TSR (resident program) and then hot key from other programs when it's time to change the music. ♣

IN THE CHIEF'S CORNER

Here we are again, marking the passage of another quarter. Time has a fleeting way when one's under the gun to get things done, to meet schedules and to make progress while taking care of all those daily chores and frequent "emergencies" that just show up at the door. We're proceeding with our cover-to-cover revision of AP-42, busily reviewing lots of new and updated sections. We're trying to run a stack testing program to get more data for factors; pressing forward with the technology transfer elements of our program; limping along trying to get a complicated air toxics inventory effort going in the right direction – all this with too few resources, and generally taking on more than we can get done. Needless to say, the negative surprises usually overwhelm the positive ones, and our ambitious plans get 'way behind. *Supplement F* is still expected to come out toward Summer, and the new Fifth Edition of AP-42 will follow this Winter. *Supplement F* will have fewer sections than we had hoped. We'll keep at it, and it'll be on its way to you as soon as humanly possible.

This Newsletter now goes to more than 5000 people in 52 countries, and we're always interested in your comments and suggestions regarding it. The *CHIEF* bulletin board use is still growing. Over the last quarter, more than 900 registered

users have logged on over 4500 times to read alerts, browse new material, communicate electronically with other users, and download documents and programs. Let us know what you think about the BB, especially how it can be of more use to you in your work.

We've ordered a new gadget to help speed things up – another way of helping our users get what they need and want. It's a facsimile machine that will hold up to 5000 pages in its "memory", so that users may dial in, fax themselves the machine's menu, and then have it transmit AP-42 back to them – a section or sections, or any portion they can use. We have so many people calling us for such information, and often they want just a few pages. With this new device, perhaps a "less threatening" conveyance, even folks without a pc/modem to load from the *CHIEF BB* will be able to get information from the latest AP-42. It'll be quite easy, and certainly less time-devouring for us!

Getting this machine on line blends with Total Quality Management (TQM) – more and better service to the customer, easier and at lower cost. We'll announce the phone lines for this new capability in the next issue, with details on what's needed to make use of it. ♣

Jim Southerland

Chief, Emission Factor & Methodologies Section



THE CHIEF NEWSLETTER is produced quarterly by the Emission Inventory Branch, Technical Support 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 Whitmel M. Joyner, Editor, Emission Inventory Branch (MD 14), US EPA, Research Triangle Park, NC 27711; commercial phone (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. ♣

✓ FIRST, CALL INFO CHIEF!

— (919) 541-5285 —

Info CHIEF is your answer to the question "Who ya gonna call?" (Actually, whom you gonna etc.) Since May 1992, the *Info CHIEF* help desk has been available to satisfy your thirst for information about air emissions estimation tools. Angela Andrews, our esteemed on-site contractor, resided at this number, and she can help you with any of these:

- Directing your technical questions to the right EIB expert .
- Helping you acquire such EIB products as the *Air CHIEF* CD-ROM, the *TANKS* calculation program, etc.
- Supporting you in the installation and use of those programs.
- Helping you locate guidance documents such as the *Locating & Estimating . . .* series, AP-42, etc.
- Helping you use the *CHIEF Bulletin Board*, including registration, downloading, etc.

We are averaging almost 200 calls and 430 requests every month, so if you don't get an immediate response, please be patient. Leaving a voice mail message is encouraged. ♪

NEW FROM NADB:

AIRS Graphics (AG) —

A new utility is available that maps where to locate things in AIRS, with other graphics depicting AIRS data. The system is fast, intuitive and easy enough to use with little or no training, even for a manager.

AG is menu-driven SAS/GRAPH application developed for the National Air Data Branch (NADB), specifically for use with AIRS data. A series of selection screens prompts AG users for certain criteria to build maps at U. S., regional, state and county levels that will locate certain kinds of air quality monitors and emission point sources, and will give selected attributes of the monitors. AG doesn't have the sophistication of ARC/INFO or other multilevel Geographic Information Systems, but it will meet many AIRS users' basic mapping needs, with no need for additional training. *AIRS Graphics* operation will be familiar to AIRS subsystem users. The program is able to create graphics from new and existing AIRS subsystems. AG outputs include color hard copy, metafiles for export to pc software such as Freelance® and Harvard®, bitmap screen files for repeat viewing and sharing with other catalogs and more.

What do you need to do AG?

- Basic knowledge of AIRS and its architecture
- National Computer Center (NCC) Timeshare Account
- NCC User ID
- 3270 Connection via hardware, software or LAN
- Time Sharing Option access
- A graphics terminal or a pc with software that can make the PC 'think' it's a graphics terminal.

For more information about *AIRS Graphics*, call the AIRS Hotline (800-333-7909) and ask for a graphics specialist.

AIRS Executive (AE) —

AE is a pc program developed for NADB and AIRS users to provide portability of summary mainframe data. AE is designed for managers who need quick answers about AIRS data, such as what is the largest SO₂ source in the USA? Or which monitor recorded the highest ozone concentration reading in 1989? or 1991? *AIRS Executive* also provides the user with various tools for using AIRS data sets with popular pc programs such as Lotus® and dBase®. AE is targeted for the 'casual' or infrequent user of AIRS, needing perhaps high-level, summary statistics. Others might consider using AG.

New data sets and program enhancements for AE will be generated on the AIRS Bulletin Board the last Thursday of each month. Users also may install separate versions of the software for each month, which will allow for monthly trend analysis. Later in FY93, work will be begin on rendering AE in the CD-ROM format which will allow for larger data sets for more years, and a more comprehensive selection of maps from AG.

A new Windows® 3.1-compatible version of *AIRS Executive* is nearing completion, with a beta version expected this Summer. AE software soon will be available on the AIRS electronic bulletin board. For more information, call Virginia Ambrose at the National Air Data Branch, (919) 541-5456. ♪

UPCOMING MEETINGS AND CONFERENCES

— Comparative Risk Analysis And Priority Setting Of Air Pollution Issues, 7-11 June 1993, Keystone, CO. Contact Marci Mazzei, AWMA, Box 2861, Pittsburgh, PA 15230, phone (412) 232-3444

— 86th Annual Meeting of AWMA, 13-18 June 1993, Denver, CO. Contact Lisa Bradley, AWMA, Box 2861, Pittsburgh, PA 15230, phone (412) 232-3444.

— AWMA Specialty Conference, "The Emission Inventory: Perception And Reality", 18-20 October 1993, Pasadena, CA. Contact Patricia Velasco, CA Air Resources Board, Box 2815, Sacraments, CA 95812, or Kathy Hsiao, South Coast AQMD, 21865 E. Copley, Diamond Bar, CA 91765. ♪

EIB OFFERS COURSES ON EMISSION ESTIMATION

The Emission Inventory Branch (EIB) is using new high technology in offering several hands-on emission estimation courses this Spring. The courses will cover tools such as the *Air CHIEF* CD-ROM, the *FIRE* factor data base, and the *TANKS* pc calculation program, and will deal with using the *CHIEF* electronic bulletin board. The courses, sponsored by the Air And Waste Management Association (AWMA), will be distributed by satellite from EPA's Air Pollution Training Institute (APTI) and will be presented at two EPA Regions or state agencies.

The satellite courses will be presented on a two-way network in which live courses can be downloaded to EPA Regional Offices and to 60 state/local agencies. Participants will receive EIB tools and materials before the courses begin. Any questions that arise during the courses may be called in on an 800 number. Industry can participate in the courses by satellite transmission linking. We encourage you to "attend" these courses through the new technology, as a very affordable way to learn about EIB's products.

Courses, dates, locations:

- May 13, 25: Guidance on 15% Rate-Of Progress Plans & Attainment Demonstrations, APTI satellite course.
- May 15: *TANKS*, AWMA Training Institute, Houston, TX.
- May 16: EIB Emission Estimation Tools, AWMA Training Institute, Houston, TX.

- June 2: *TANKS*, APTI satellite course.
- June 3: EIB Emission Estimation Tools, APTI satellite course.
- June 12: *TANKS*, AWMA Annual Meeting, Denver, CO.
- June 13: EIB Emission Estimation Tools, AWMA Annual Meeting, Denver, CO.

- Sep. 28-30: Emission Inventory Issues, APTI satellite course.

For more information on the AWMA courses, contact Beth O'Toole, AWMA, (412) 232-3444. Regarding the APTI courses, contact Charles Pratt, (919) 541-2355.

EIB also has funds that will provide two additional courses at Regional or state/local offices. We have just completed a course with Region I and the State Of Massachusetts. Any State/local or Region interested in hosting a course should request it in writing to Anne Pope, at the Newsletter. ♣

⑧ QUIZ CORNER ⑧

George Leney, head of the EI section of the Allegheny Cy. Health Dept. in Pittsburgh, is on a roll. George was first in with the correct answer to the October puzzle, and now we congratulate him again. Close on his heels were **Geary McMinn**, of the Chapel Hill office of TRC; and **Ken Sentlal**, of the Massachusetts agency. The answer was "Happy Holidays From EIB".

Now get out the calculators. Here's another challenge, by Keith Baugues and Tom Pierce, which requires knowledge of biogenic emissions. Send responses to Whit Joyner at the Newsletter, phone (919) 541-5493.

< 🌳 🌳 🌳 ARBOR DAY SPECIAL 🌳 🌳 🌳 >

- 1) How many full grown oak trees does it take to emit one ton/hour of biogenic hydrocarbons, in full sun, at 75° F?
- 2) *Ceteris paribus*, how many @ 95° F?
- 3) How many full grown pine trees will emit one ton/hour of biogenic hydrocarbons, in full sun, at 75° F?
- 4) Ditto @ 95° F?
- 5) How many full grown corn stalks will emit one ton/hour of biogenic hydrocarbons, in full sun, at 75° F?
- 6) Ditto @ 95° F?
- 7) How many full grown tobacco plants will emit one ton/hour of biogenic hydrocarbons, in full sun, at 75° F?
- 8) Ditto @ 95° F? ♣

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

ALL THINGS ARE UNCERTAIN . . . *EVEN EMISSION FACTORS!*

EIB is continuing a study of the uncertainty in emission factors. Historically, factor uncertainties have been addressed by assigning each factor a subjective quality rating, ranging from "A" to "E". While this system has served well over the years, current developments in emission factor use keep asking for a rating system that gives the user a clearer idea of the quality or the uncertainty of AP-42 factors. For example, instead of rating a process emission factor "A", we might have enough information about the process to rate the factor "A ($\pm 25\%$)".

Originally, the purpose of AP-42 emission factors was to estimate total annual emissions from a large group of facilities, and thence the quality rating criteria were developed. Because evolving environmental regulations and policies are expanding the need for emission estimates, we find that these emission factors are frequently used to develop estimates for single facilities over short time periods, often under atypical operating conditions. Also, rather than being applied as a large-scale planning tool, emission factors are now used to develop permit limits, to generate emission statements for individual sources, and to develop regulations for relatively small nonattainment areas. A quantitative estimate is needed of the uncertainty (inaccuracy and/or

imprecision) of these emission factors to clarify their quality when used in these emerging applications.

In real situations, many industries have asked for emission factors that range over the wide variations in their processes rather than for single values that cloud that variability. Also, some individuals have asked for the high or low end of the range of measured value to be included in an operating permit. Other people have asked, "How reliable is the emission factor?", wanting to know how confident we are that the assigned value is the true average.

At this time, we would expect that only a few of our "A" rated factors are supported by a large enough number of emission tests to allow for this new expanded rating system. There are just not enough data on whole source categories. Nevertheless, our study will be looking for ways to estimate the uncertainty of the factors.

We are asking you, the community of AP-42 emission factor users, to give us your thoughts on such a new rating system. More importantly, we want to know what kinds of emission information will satisfy your needs (other than the present single value that represents an average). If you have thoughts or suggestions on this topic, please contact Ron Myers at the Newsletter, (919) 541-5407, or send him a message on the *CHIEF BB*. ♣

R A M P:

THE RUSSIAN AIR MANAGEMENT PROGRAM

The Office Of Air Quality Planning And Standards (OAQPS) has begun working with the Russian Ministry Of Environmental Protection And Natural Resources to explore alternative ways of approaching air quality management in Russia. This cooperative effort, the RUSSIAN AIR MANAGEMENT PROGRAM (RAMP), will emphasize helping the Russians decide "what to do" and "how to do it" in working toward air quality, and **not** deciding or doing it for them. The RAMP approach will be one of people helping people, with substantial involvement from OAQPS air policy and technical people, as well as experts from the EPA Regions and state agencies. RAMP is being overseen by a management team comprising EPA Program Manager Thompson G. Pace of OAQPS, representatives of the Russian Ministry, St. Petersburg's Scientific Research Institute Of Atmospheric Air Protection, and the City Of Volgograd Environmental Services Administration (VESA).

The RAMP team will advise and assist in (1) assessing and ranking Russian air pollution problem areas, (2) demonstrating specific alternatives to the current air quality management system through a pilot program in Volgograd, and (3) strengthening their federal air quality management capabilities. Thus, RAMP is to be a comprehensive project,

helping the Russians to set priorities and to strengthen federal legislation, programs and policies.

Volgograd was chosen by all participants for the pilot city effort, because of its progressive and environmentally enlightened local government, diverse industrial base, and relatively healthy economy.

Through RAMP, EPA's Technical Support Division will directly assist the Russians as they evaluate their emission factors and inventory methods. Pending approval by the Russians, RAMP plans to:

- Determine the basis of emission factors and estimation methods used in Russia
- Review the current Russian national inventory (sources, methods, completeness)
- Define future emission inventory needs and users
- Review inventory quality assurance procedures
- Assess emission factors and inventory procedures and guidance, and revise as appropriate
- Evaluate the Volgograd inventory and revise procedures to produce an inventory usable for dispersion modeling.

For more information about RAMP, contact Tom Pace, at (919) 541-5634; or David Misenheimer, at the Newsletter, (919) 541-5473. ♣

JEIOG CONSIDERS AIR TOXICS DATA SYSTEM

The Air Toxics Subcommittee of the Joint Emission Inventory Oversight Group (JEIOG) is interested in determining the need for a computerized data base management system to help state and local agencies handle air toxics inventory data. Being considered are 1) a relational data base system in a client/server UNIX environment, 2) a stand-alone pc-based system, and 3) a pc system that could function as a front end for a client/server data base. The Subcommittee, comprising people from both the Office Of Air Quality Planning And Standards and the Office Of Research And Development, wants to hear from all possible

users of such a system. To facilitate discussion, they have developed a prototype pc system that can perform basic data entry and can report air toxic output functions for both point and area sources. This prototype does not mesh with other emission estimation models for calculation purposes, but we are considering at least an interface with EIB's Factor Information Retrieval (FIRE) program.

JEIOG wants to determine the need for a working version of this pc prototype for use by state/local agencies. If you are interested in this topic or have comments, please contact Chuck Mann at (919) 541-4593. ♣

⌘ TECH NOTES

⌘ — **EMISSION INVENTORY SUBMISSIONS** – To date, EIB has received final emission inventories for approximately 88% of the O₃/CO nonattainment areas expected to submit. Inventory components that are expected include point, area, mobile and biogenic (for O₃) data; documentation; and the computerized data submissions to EPA's Aerometric Information Retrieval System (AIRS). For more information, contact Lee Gabele at the Newsletter, (919) 541-5292.

⌘ — **CALL FOR PAPERS** – A symposium on Optical Sensing For Environmental Monitoring, sponsored by AWMA and the International Society For Optical Engineering, will be held in Atlanta October 11-15, 1993. There will be 10 conference sections, with parallel technical sessions, and commercial products will be on display. Also, 3 courses will be available on Oct. 10. Emphasis will be on the developments in optical spectroscopy, sensing and diagnostic technology and its applications, and regulatory methods development. For conference information, contact AWMA, Box 2861, Pittsburgh, PA 15230, phone (412) 232-3444. Submit papers to Ormand A. Simpson, MDA Scientific, Inc., 3000 Northwoods Pkwy, Suite 185, Norcross, GA 30071, phone (404) 242-0977. **Abstracts are due by May 14.**

⌘ — **AIRS FACILITY SUBSYSTEM (AFS)** – The 8th quarterly AIRS/AFS Status Report has been distributed. This report summarizes the States' progress (or lack of it) in completing their annual data update to AFS regarding point sources emitting 100 tons per year or more. At the time of the report, only 46% of the subject plants have 1990 or 1991 as the latest year of record. Given the importance of the 1990 Base Year Inventory activities, we are urging the States to pay more attention to this issue. For more information, contact Lee Gabele at the Newsletter, (919) 541-5292. ♣

1993 IS THE YEAR OF EMISSION INVENTORY REVIEW & IMPROVEMENT!

**FINAL EMISSION INVENTORIES FOR O₃/CO NONATTAINMENT AREAS
WERE DUE TO EPA BY 11/15/92.**

HEADQUARTERS INVENTORY CONTACTS

April 1993

— EMISSION FACTORS —

AP-42 Chapter	Contact	Telephone (919) 541-
1. External Combustion	Joe McSorley	4796
2. Solid Waste Disposal	Ron Myers	5407
3. Internal Combustion	Michael Hamlin	5232
4. Evaporation Loss Sources	Ron Ryan	4330
5. Chemical Process Industry		
Organics	Dennis Beauregard (on rotational assignment)	5512
Inorganics	Ron Myers	5407
6. Food And Agricultural Industry	Dallas Safriet	5371
7. Metallurgical Industry	Dennis Shipman	5477
8. Mineral Products Industry	Ron Myers	5407
9. Petroleum Industry	Ron Ryan	4330
10. Wood Products Industry	Dallas Safriet	5371
11. Miscellaneous Sources	Dennis Shipman	5477
12. Storage Of Organic Liquids	Anne Pope	5373
Other Toxics	Anne Pope	5373
Lead	Dennis Shipman/Ron Myers	5477/5407
General information, Newsletter, Bulletin Board, XATEF, SPECIATE, Air CHIEF CD, Publications	Info CHIEF	5285

— EMISSION INVENTORIES —

1990 O ₃ /CO SIP Inventory Status	Sharon Nizich	2825
Inventory Guidance		
PM-10, Lead	Bill Kuykendal	5372
O ₃ /CO	David Misenheimer	5473
AIRS/AFS Emissions Data Quarterly Report	Lee Gabele	5292
AIRS Area And Mobile Subsystem (AMS)	Lee Gabele	5292
AIRS Facility Subsystem (AFS)	David Misenheimer	5473
Biogenic Inventories	Steve Bromberg	1000
Emission Statements	Mary Ann Warner-Selph	1192
Mobile Sources	Mary Ann Warner-Selph	1192
Modeling-related Inventories	Mary Ann Warner-Selph	1192
PM-10/Lead	Bill Kuykendal	5372
Quality Assurance	Sharon Nizich	2825
Tracking Reasonable Further Progress	Mary Ann Warner-Selph	1192
SIP Air Management System (SAMS)	David Misenheimer	5473
Toxics Inventories	Anne Pope	5373
Emission Trends	David Misenheimer	5473
Other	David Misenheimer	5473

— PM-10 SIPS —

OAQPS/AQMD	Larry Wallace	0906
OAQPS/SSCD	Chris Oh	(202) 308-8732

— O₃/CO SIPS —

OAQPS/AQMD	Laurel Schultz	5511
OAQPS/SSCD	Vishnu Katari	(202) 308-8717
Office Of Mobile Sources	Mark Wolcott	(313) 668-4219

— LEAD SIPS —

OAQPS/AQMD	Tom Pace	5634
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THE EMISSION INVENTORY BRANCH

J. David Mobley, Chief
(919) 541-4676
Sherry Russell, Secy.

EMISSION FACTOR AND METHODOLOGIES SECTION

Jim Southerland, Chief
(919) 541-5522
Dennis Beauregard (on rotational assignment)
Michael Hamlin
Whit Joyner
Joe McSorley
Ron Myers
Anne Pope (7am - 2pm)
Ron Ryan
Dallas Safriet
Dennis Shipman
Mary Taborn, Secy.

INVENTORY GUIDANCE AND EVALUATION SECTION

David Misenheimer, Acting Chief
(919) 541-0875
Steve Bromberg
Lee Gabele
Bill Kuykendal
Tom McMullen
Sharon Nizich
Mary Ann Warner-Selph
Susan Curtis, Secy.