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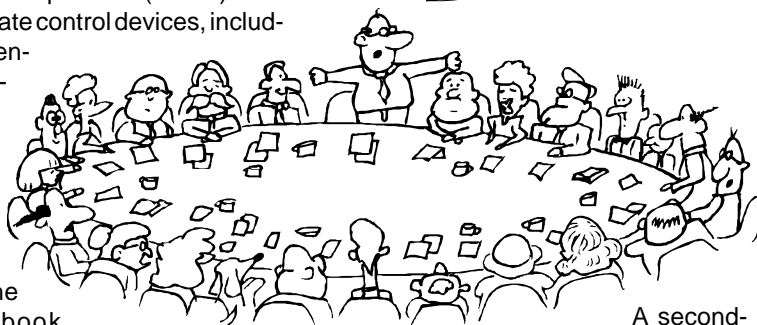
HAP-PRO VERSION 2.0 NOW AVAILABLE!

By Joe Steigerwald
CTC,ITG,OAQPS

Version 2.0 of HAP-PRO is now available from the CTC BBS. The program file and the User's Manual are downloadable items within the Downloading Software and Other Items area of the BBS. The User's Manual is on the BBS in an ASCII text format, WordPerfect 5.x format, WordPerfect 6.0 format, and as an Envoy file. All are in self-extracting format so just download them, put them in a new directory, go into that directory, and type their file name from the prompt. The executable file is large, 1.7MB, so use the highest speed modem you can.

The primary purpose of the Hazardous Air Pollutant Program (HAP-PRO) is to assist permit engineers in reviewing applications for control of air toxics. HAP-PRO calculates the capital and annual costs for up to six different volatile organic compounds (VOCs) and three particulate control devices, including selected engineering parameters. Calculations used by the program mirror those presented in the EPA Handbook, Control Technologies for Hazardous Air Toxics (June 1991)(EPA-625/6-91/014) and the EPA's Control Cost Manual (March 1990)(EPA-450/3-90/006).

**HAP-PRO
VERSION 2.0 IS
HERE!!!**



A secondary purpose of HAP-PRO is to generate reports that list all facilities containing a specified pollutant in their emission stream(s), or a specified type of emission stream (for example, organic or
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AIRWAVES

By Bob Blaszcak
CTC Co-Chair, OAQPS

I'm sure glad I didn't make that "get out the CTC NEWS on time" new years resolution again. I'm not sure when you'll be seeing this, but I know it's not January. (I sure hope it's no later than February!) We're still getting use to our new organization and trying to figure how to do more with less. Getting the CTC NEWS out during this turmoil has been a real chore. It seems like I'm being devoured by my workload instead of empowered to get it done. Oh well, I'll grow from the experience.

For the fifth time in the seven years I've been with the Office of Air Quality Planning and Standards (OAQPS), I (and the CTC) have moved. We're still in the same building, just a different floor with a different view. Although moving is getting to be the routine thing to do every year or so, it's still drudgery and very time consuming. The only good thing

about it is that it forces an old pack rat like me to cleanup. The move did cause some disruption of CTC HOTLINE service and we sincerely hope this did not cause you any pain. Otherwise, as far as you're concerned, nothing has changed except our regular mail drop (now MD-12). So, make a note of it and be sure to use it when writing the CTC. We have also added a second FAX line (919/541-0361) to improve access the Air and Energy Engineering Laboratory (AEERL) part of the CTC. The old FAX number (919/541-0242) still works and connects you with the OAQPS side of the CTC. Feel free to use either number. We'll make sure that it gets to the right person.

"Centro de Control Tecnológico; Podríamos ayudarle?" That's the greeting our Spanish speaking friends will hear when calling the CTC HOTLINE in the near future. (That translates to "Control Technology Center: can I help you?") The CTC is becoming an active player in the Mexican Border Initiative, a program to clean up pollution along the Mexican border. A Spanish speaking CTC HOTLINE and bulletin board are under development. We hope to have them up and running by late spring. Although targeted to promote environmental improvements along the Mexican border, the new
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HAP-PRO VERSION 2.0 NOW AVAILABLE!

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inorganic vapors and particulates).

HAP-PRO also includes an expert review system for the design of thermal incinerators, catalytic incinerators, and carbon adsorber systems. The program reviews the design results generated, makes recommendations for changes, and allows easy evaluation of design sensitivities.

Even though the version number made a large jump (from 1.2 to 2.0) the changes in the model were mostly internal. The following changes were made from version 1.2 to version 2.0:

- The system was redesigned for improved accuracy of calculations and better performance.
- The data entry screens were modified to be consistent for all data groups.
- The system was modified to allow multiple control devices to be associated with a stream. This allows users to run calculations on different control devices for the same stream and HAPs and compare the results.

HAP-PRO version 2.0 is available through the CTC BBS to anyone who wants to download it. However, the CTC will make the model available on 2 high density 3.5 inch diskettes to individuals in State or local air pollution control agencies if they are unable to download the files from the CTC BBS. The model will also be available from the National Technical Information Service (NTIS) for a fee in the near future. Both the BBS version and the diskette version examine your harddrive upon installation to see if you have an older version of HAP-PRO on your system. If it finds HAP-PRO version 1.2, you will be asked if you need to save any data file you may have already created. If it finds an older version, you will be prompted to either call the CTC for the appropriate files to upgrade it to version 1.2 or to allow the installation program to overwrite these older files. Remember, if you updated to version 2.0 from a version prior to version 1.2, some existing data files may be lost or corrupted. Either way, it would be prudent to make

a backup copy of any important HAP-PRO data files you have before you install version 2.0 over any older version except 1.2.

After the installation is complete, enter HAP-PRO at the DOS prompt to execute version 2.0. The hardware requirements for using the HAP-PRO model are not very stringent. They are: an IBM PC/XT/AT or compatible; 515K minimum free RAM; hard disk with a minimum of 4.2 megabytes of free storage space for installation; monochrome or CGA/EGA/VGA color monitor; and MS-DOS version 3.1 or greater.

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AIRWAVES

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Hotline will accept calls from all Spanish speaking people. We're also in the process of identifying key documents that need to be translated into Spanish and technical assistance/guidance project needs. Stay tuned for additional developments.

The Federal Regulation Data Base has proven to be a very popular addition to the RACT/BACT/LAER Clearinghouse (RBLC) bulletin board. It provides quick access to summary information on Federal emission standards (NSPS, NESHAP, and MACT) in a format similar to that used for the source specific (traditional) RBLC data bases. We will be adding a browse function in the near future to simplify viewing the regulations. We are also inviting State and local agencies to input their significant regulations. If you have any suggestions for additional improvements, please let us know.

As is the tradition, this January edition of the CTC NEWS includes a CTC product ordering form. Our resources are limited. So, please order only what you need. Be sure to include your return address and phone number when placing your order. Also, note that the Document requests should be sent to mail drop 91 (MD-91) instead of our usual drop. This will help us expedite filling your order.

Enjoy the NEWS. See you in the Spring.

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DANIEL RETIRES

The Control Technology Center (CTC) recently lost the services of a valued staff member. Bobby Daniel, whom many of you would recognize by his sultry southern drawl, retired on January 3, 1995, from the EPA. He has been with the EPA in the Air and Energy Engineering Research Laboratory for 25 years, including the last 4 years as a member of the CTC staff.

His experience, patience, and wisdom have greatly contributed to the success and growth of the CTC. Bobby accepted each call as a new challenge and endeavored always to give the caller complete and accurate service. He said, many times, that he enjoyed providing this service to government and private industry agencies.

Although Bobby brought to the CTC expertise in many areas of pollution control technology and research, his target areas have been asphalt emissions and advanced volatile organic compound (VOC) control technology evaluation. Bobby's research studies in asphalt emissions have become recognized authoritative documents.

Bobby joins his wife, Martha, in retirement. He enjoys spending time with his son and best friend, Thomas, and his daughter, Deborah. Besides being an avid golfer, he is a dedicated fan of Duke University football and basketball.

Bobby, we wish you good luck, happiness, and a monthly "hole in one" in the coming years!

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MACT, CTG, NSPS, ACT AND TITLE I RULE SCHEDULES**

<u>MACT STANDARD</u>	<u>Proposal</u>	<u>Final</u>	<u>CTG</u>	<u>Proposed</u>	<u>Final</u>
Aerospace (coatings)	* 6/6/94	6/6/95	Shipbuilding (coating)	Schedule Under Review	
Asbestos MACT/GACT	*1/95****	11/95****	Batch Processes	*12/27/93	on Hold
Asbestos Litigation	*1/1/93	***	Offset Lithography	*11/8/93	on Hold
Chromium Electroplating	*12/16/93	*11/23/94	Plastic Parts Coating	6/30/94	on Hold
Commercial Sterilizers	*2/28/94	*11/23/94	VOL Storage	*12/2/93	on Hold
Degreasing (Hal. Sol. Clean.)	*11/29/93	*11/09/94	Wood Furniture Coating	*11/21/94	11/21/95
Ferroalloys	9/30/95	11/30/96			
Flexible Polyurethane Foam	2/1/95	1/1/97	<u>ACT</u>	<u>Final</u>	
Magnetic Tape Coating	*2/28/94	*11/23/94	Plywood/Particle Board (PM10)	Schedule Under Dev.	
Marine Vessel (load/unload)	*5/13/94	4/30/95			
Mineral Wool	2/1/96	3/1/97	<u>NSPS</u>	<u>Proposal</u>	<u>Final</u>
Off-site Waste & Recovery	*10/13/94	11/15/95	Degreaser NSPS	*8/31/94	8/31/95
Petroleum Refineries	*6/30/94	6/30/95	Elec. Utility Gen. Rev. (NOx)	*5/30/94	4/30/95
Pharmaceutical Production	3/15/96	11/15/97	Landfill NSPS & 111(d)	*5/30/91	4/4/95
Polymers & Resins I	5/15/95	5/15/96	Med. Waste Inc. NSPS & 111(d)	*2/1/95	4/15/96
Polymers & Resins II	*5/16/94	2/28/95	NOx NSPS Revision (407(c))	11/31/95	12/31/96
Polymers & Resins III	Schedule under revision		Mun. Waste Combustors II & III	*9/20/94	9/1/95
Polymers & Resins IV	3/15/95	3/15/96	SOCMI Sec. Sources NSPS	*8/31/94	8/31/95
Portland Cement	1/01/96	1/1/97	Starch Mfg. Industry NSPS	*8/31/94	8/31/95
Primary Aluminum Prod.	10/31/95	11/15/96			
Printing/Publishing	3/01/95	3/1/96	<u>Title I Rules (Sec. 183(e))</u>	<u>Proposal</u>	<u>Final</u>
Pulp & Paper (combustion)	2/27/95	4/29/96	Arch./Ind. Coatings	5/5/95	5/5/96
Pulp & Paper (non-comb.)	**10/29/95	3/01/96	Auto Refinishing	Schedule under Dev.	
Secondary Aluminum Prod.	11/1/95	12/1/97	Consumer Products List	*8/31/94	9/30/95
Secondary Lead Smelters	*5/31/94	5/31/95			
Shipbuilding (coatings)	*11/22/94	12/6/95	NOTE:		
Stage I Gasoline Distr.	*2/8/94	*11/23/94	* Indicates date completed		
Wood Furniture Coating	*11/21/94	11/21/95	@ Indicates on a court ordered deadline		
Wood Treatment	11/1/95	11/1/96	** All schedules are tentative and subject to change without notice. Only those rules with proposal or promulgation dates within one year are included. Completed rules are removed from list after six months.		
<u>CTG ****</u>	<u>Proposal</u>	<u>Final</u>	***Schedule to be determined by litigation/negotiation		
Aerospace Coatings	*11/15/94	6/6/95	****ACT's have been issued for most CTG categories by April 1995		
Industrial Wastewater	*12/29/93	on Hold			

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REGULATIONS DATA BASE NOW AVAILABLE TO STATE AND LOCAL AGENCIES

By Jo Ann Kerrick
VIGYAN

Do people ask you about your State or local air pollution regulations? Perhaps it's just one or two special rules that address a source not yet regulated by others or set important benchmarks.

The RACT/BACT/LAER Clearinghouse (RBLC) has a new data base that may help you respond to these questions more effectively.

In November 1994, the RBLC added a data base that contained summaries of regulations that were enacted at the federal level in response to the Clean Air Act and Amendments. Starting in January 1995, State and local agencies can add summaries of their own rules to the data base, making this information available to all TTN users. You may include all your rules or just those that you feel may be of interest or

that you want to share with others. How many and which rules you enter are up to you.

Adding and updating your agency's regulations is easy. To get started all you need is a password to access the data entry module of the regulation data base. This module uses the same menu-driven system that you know from the RBLC's control technology determination data base. It includes context-sensitive on-line help at all menus and prompts to assist you with your input. If you would like to enter

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WILLIAM MAXWELL - CTC EXPERT ON EMISSIONS FROM UTILITIES

By Janet Erwin,
Acurex Environmental

CTC callers needing expert advice concerning emissions from utilities are likely to be directed to William Maxwell. His current work as the Project Lead for the Utility Air Toxic Study Report to Congress puts him on top of ongoing research to determine possible health effects resulting from hazardous air pollutant emissions from utilities.

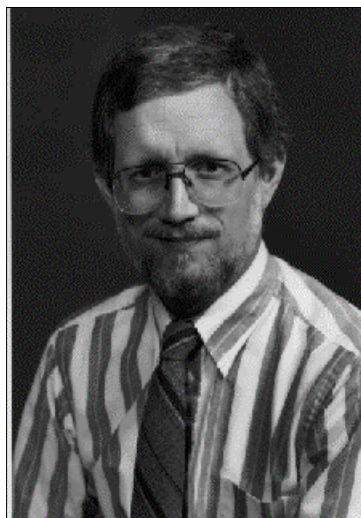
Originally from the Midwest, Bill earned his B.S. in Civil Engineering from Kansas State University in 1969. After serving 2 years in the Army under the ROTC program, he returned to Kansas State to begin working towards his Masters in Sanitary Engineering, which he was awarded in 1973.

Bill's degree prepared him for his work as an environmental engineer at the Midwest Research Institute in Kansas City. There, as an EPA contractor working under the New Source Performance Standards (NSPS) contracts, he performed field testing at various industries, including power plants and pulp

mills. These projects were part of EPA's continuing efforts to carry out work under the Clean Air Act.

Bill's work under the NSPS contracts brought him to Durham in 1979, where his continued work as an EPA contractor eventually led to his coming on board with EPA in 1985. He comments on his 9 years with EPA, "It doesn't seem like it has been that long." He further commented that he enjoys the people he has the opportunity to work with, and that his job provides him, "a chance to attempt to do something good."

Well, he must have been successful in his attempts! In March of 1992, Bill was honored with a Bronze Medal for Commendable Service for his work on the small boiler NSPS team developing standards of performance for small industrial/institutional/commercial boilers. Again in November of the same year, he was recognized with another Bronze Medal. This one commended



his work on the source category list project team, on which he contributed to the development of the list of source categories for which Section 112 standards would be required under the Clean Air Act Amendments. Last June, Bill's outstanding efforts were recognized once more. He was awarded a third Bronze Medal for his work on the medical waste incinerator technical program and his

contributions to the development of the technical background information necessary to develop standards of performance.

At work, Bill spends time determining whether or not utilities need to clean up their act. In his free time, however, he enjoys tennis, camping, and helping his two boys, both scouts, with their skills and sometimes their homework. Although Bill claims he doesn't have any upcoming travel plans, he enjoys returning to the Midwest to visit his family, or breathing in some coastal air at Topsail or Myrtle Beach.

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SMALL BUSINESS UPDATE

Deborah Elmore, Federal SBAP Coordinator, CTC/OAQPS

WE NEED YOUR PROJECT IDEAS NOW!

It's time to start thinking about what types of assistance projects you would like to see from the Federal SBAP in 1995. If you have any ideas for projects, especially those not related to a federal regulatory effort, please let us know as soon as possible. Co-sponsored projects that share responsibility and resources are also quite "popular" in this era of streamlining government (and budgets too!) If you would like to discuss a possible project, please contact Deborah Elmore at (919)541-5437.

Mom's Bakery <i>Special Hot Cross Buns!! 3 for \$1</i>	APPLIANCE REPAIR SERVICE Spring Air Conditioner Check Time!	Handy Dry Cleaners <i>Special - 5 Shirts for One Dollar!</i>	Clyde's Copies Color Copies Too!!!
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SBAP FORUM

For each issue of the "CTC NEWS", we would like to invite one or more of our State Small Business Assistance Programs to discuss successful and innovative activities that may be of interest to their colleagues across the country in our "SBAP Forum". If you would like to be one of our guest writers, please contact Deb Elmore at (919) 541-5437.

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CTC RESOURCES

The CTC provides reports and software resulting from its efforts to government personnel free of charge. (Others may order them from the National Technical Information Service using the "PB" numbers shown here.) Below is a list of CTC resources published in the past two years. The CTC is happy to provide its resources to government personnel. However, because of the large response we anticipate to this list, we ask that you limit your request to the resources for which you have an immediate need and the quantity to one. To order CTC resources, COMPLETE FORM AND MAIL INFORMATION (on reverse side), CUT OUT FORM, FOLD, STAPLE/TAPE CLOSED, APPLY POSTAGE AND MAIL TO THE CTC.

REF NO. AIR TOXICS

- 9 () "Handbook: Control Technologies for Hazardous Air Pollutants" (HAP Manual), EPA-625/6-91-014, PB92-141373 (Manual)
- 53 () "Evaluation of VOC Emissions from Heated Roofing Asphalt," EPA-600/2-91-061, PB92-115286
- 60 () "Controlling Odorous Emissions from Iron Foundries," EPA-600/R-92-058, PB92-166925
- 67 () "Air Emissions from the Treatment of Soil Contaminated with Petroleum Fuels" EPA-600/R-92-124, PB92-212476
- 94 () "Analysis of Atmospheric Deposition Samples from Easton, PA," EPA-600/R-93-057, PB93-181600,
- 95 () "Alternative Control Technology Document - Carbon Reactivation Processes," EPA-453/R-92-019, PB93-180826
- 100 () "Air Emissions and Control Technology for **Leather Tanning and Finishing** Operations," EPA-453/R-93-025, PB94-120219
- 106 () "Evaluation of Mercury Emission from **Fluorescent Lamp Crushing**," EPA-453/R-94-018, PB94-175932
- 114 () "Evaluation of Emissions from **Paving Asphalts**," EPA-600/R-94-135, PB95-129110
- 133s () "**HAP-PRO Model User's Manual, Ver. 2.0**," EPA-450/B-94-002(Software and user manual)

COMBUSTION

- 58 () "**Burning Tires for Fuel and Tire Pyrolysis**: Air Implications," EPA-450/3-91-024, PB92-145358
- 66 () "Characterization of Emissions from the Simulated Open-Burning of Non-Metallic Automobile Shredder Residue," EPA-600/R-93-044, PB93-172914
- 76 () "Mutagenicity of Emissions from the Simulated Open Burning of Scrap Rubber Tires," EPA-600/R-92-127, PB92-217009
- 78 () "Evaluation and Costing of NO_x Controls for Existing Utility Boilers in the NESCAUM Region," EPA-453/R-92-010, PB93-142016
- 102 () "Emissions from Burning **Cabinet Making Scraps**," EPA 600/R-93-21, (PB94-130408
- 105 () "Characterization of Air Emissions from Simulated Open Combustion of **Fiberglass Materials**," EPA-600/R-93-239, PB94-136231
- 108 () "Pilot-Scale Evaluation of the Potential for Emissions of Hazardous Air Pollutants from Combustion of **Tire-Derived Fuel**," EPA-600/R-94-070, PB94-169432

GLOBAL GREENHOUSE GASES TECHNOLOGY TRANSFER CENTER

- 80 () "Development of an Empirical Model of Methane Emissions From Landfills," EPA-600/R-92-037, PB92-152875
- 82 () "Landfill Gas Energy Utilization: Technology Options and Case Studies," EPA-600/R-92-116, PB92-203116
- 83 () "Analysis of Factors Affecting Methane Gas Recovery From Six Landfills," EPA-600/2-91-055, PB92-101351
- 84 () "List of Papers and Reports for EPA's Research Program on Air Emissions from Landfills and Other Waste Management Processes"
- 86 () "Landfill Gas Recovery/Utilization - Options and Economics", EPA-600/A-92-170, PB92-217066
- 88 () "Emissions and Mitigation at Landfills and Other Waste Management Facilities," EPA-600/R-92-116, PB94-132180
- 121 () "Methane Emissions from Industrial Sources," 1993, EPA-500/A-94-089, PB94174760
- 122 () "Database of North American Landfill Gas to Energy Products," March 1994, EPA-600/A-94-064, PB94-162773
- 123 () "Landfill Gas Utilization - Technical and Non-Technical Considerations," March 1994, EPA-600/A-94-139, PB94-18651

RACT/BACT/LAER CLEARINGHOUSE

- 104 () "**RACT/BACT/LAER**: A Compilation of Control Technology Determinations, "Volume 1-**Third Supplement** to 1990 Edition," EPA 453/R-93-037a, PB94-111234
- "**RACT/BACT/LAER**: A Compilation of Control Technology Determinations, "Volume 2-**Third Supplement** to 1990 Edition," EPA 453/R-93-037b, PB94-111572
- 115 () "**RACT/BACT/LAER**: A Compilation of Control Technology Determinations, **Fourth Supplement** to the 1990 Edition," EPA 453/R-94-055, PB94-206729
- 116 () "**RACT/BACT/LAER** Clearinghouse Information System (**BLIS**) User's Manual EPA-453/B-94-072, PB95-166856
- 117 () "**RACT/BACT/LAER** Clearinghouse Flyer

VOC - SOURCE CATEGORIES

- 68 () "Identification and Characterization of Missing or Unaccounted for Area Source Categories," EPA-600-R-92-006, PB92-139377
- 70 () "Control of VOC Emissions from Ink and Paint Manufacturing Processes," EPA-450/3-92-013, PB92-190230
- 77 () "Control of VOC Emissions from Nonferrous Metal Rolling Processes," EPA-453/R-92-001, PB92-227677
- 75 () "Alternate VOC Control Technique Options for Small Rotogravure and Flexography Facilities" EPA-600/R-92-201, PB93-122307
- 93 () "Alternative Control Technology Document for **Bakery Oven** Emissions," EPA-453/R-92-017, PB93-157618
- 96 () "Automobile Paint **Spray Booth** Cleaning Emission Reduction Technology Review (in final processing)
- 101 () "Initial Assessment of Emissions from Heat **Setting Carpet Yarn**," EPA-600/R-93-161, PB93-229862

MISCELLANEOUS

- 90 () "OAQPS Cost Control Manual — Supplement 2,"(Gas Absorbers) EPA 450/3-90-006b, PB93-138147
- 92 () "A Guidebook for Explaining Environmental Regulations to **Small Businesses**," EPA-453/B-93-023, PB94-120334
- 97s () "**SAGE**-"Solvent Alternatives Guide," User's Guide," EPA-600/R-94-069, PB94-501764
- 99 () "Evaluation of the **Polyad®** With FB Air Purification & Solvent Recovery Process for **Styrene Removal**," EPA-600/R-93-212
- 107 () "OAQPS Cost Manual - **Supplement 3**, Hoods, Duct Work, Stacks," EPA-450/3-90-006c, PB94-177565
- 112 () "Oil Suppression of Particulate Matter at **Grain Elevators**," EPA-453/R-94-049
- 118 () "Evaluation of a Liquid Chemical Scrubber System for **Styrene Removal**," EPA-600/R-94-211
- 48 () Complete list of CTC resources
- () Check here if you would like to be added to the CTC News **mailing list**. (If your name appears on the attached mailing label, you are already on the mailing list. You may also use this form to notify us of an **address change**.)

REGULATIONS DATABASE

(continued from page 3)

regulations for your agency, contact the BLIS System Administrator at (919) 541-2736 for a password.

After you have a password, choose **<T>** from the BLIS BBS to access the regulation data base. Then choose **<E>** to access the edit module. This module is password-protected, so enter your password at the prompt. The system verifies your password and displays the record selection menu. Select the **<A>** option to add a new rule to the data base. When you add the regulation, the system assigns it an 8-character rule identifier (much like the BLISID). Use the rule identifier whenever you want to view or update information for one particular regulation with the **<E>** option. To list all the rules in the data base for your State or local agency, use the **<L>** option.

The regulation data base is organized so that a rule is associated with

the type of facility whose pollutant emissions are governed by the regulation. This facility is referred to as the affected facility. Information at the regulation/affected facility level includes the rule number (as assigned by your agency), rule status, statutory basis for emission limits, proposed and effective dates, references to supporting technical documentation, and explanatory notes. Especially important is a telephone number for a contact at your agency who is knowledgeable about the regulation.

Each affected facility consists of one or more processes that are regulated by the rule. Data at the process level includes process type, SCC code, and additional notes for details about the process itself. Each process, in turn, consists of information on one or more pollutants and the emission limits required by the regulation. Pollutant-level information includes details about add-on equipment and/or pollution prevention methods that can satisfy the rule; estimated capital costs and opera-

tions and maintenance costs; and cost effectiveness in dollars per ton.

Try to fill in as much information as possible when you are adding a new rule, and be sure to use standard terms and abbreviations. Other users interested in your agency's rules will be using the query module to access this information. Complete and consistent data help insure that searches with any of the allowable fields produce the desired results. The searchable fields are the same ones used in the determination data base, except for a few fields that do not apply to regulations (e.g., AIRS ID).

The RBLC is enthusiastic about the federal and State regulation data base and hope you will take advantage of this new capability. As States enter their own information on key rules, both federal and State rules will be available -- all in a single data base. Call EPA at (919) 541-2736 to get a password from the BLIS System Administrator, and get started adding your agency's regulations today.

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NAME _____ PHONE _____
AFFILIATION _____
MAILING ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

**CTC (MD-91)
U.S. ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711**

ENVIRONMENTALLY SAFE AEROSPACE EQUIPMENT CLEANING COMPOUND

SYNOPSIS

Numerous manufacturers of cleaning compounds are continuing to qualify to the new Military Specification, MIL-C-87937B Cleaning Compound, Aerospace Equipment. This specification developed by San Antonio Air Logistics Center (SA-ALC), Kelly AFB, Texas, establishes the requirements for biodegradable, water dilutable, environmentally safe cleaning compounds for use on Air Force equipment (aircraft, engines, and aerospace ground equipment). Environmentally safe means no ODC or EPA 17 materials. The cleaners fall into four classes:

- Type I is a terpene-based solvent emulsion, water-dilutable cleaning compound.
- Type II is any water dilutable cleaning compound with no flash point.
- Type III is a gel-type cleaning compound.
- Type IV is a heavy duty, water dilutable cleaning compound with no flash point.

Independent laboratories, manufacturers, and Department of Defense (DOD) agencies conducted extensive laboratory tests, reformulations, and field tests during the writing of this specification. There are currently cleaners qualified as Types I, II and III. Manufacturers are currently testing material to qualify as Type IV, with qualification expected by the end of 1994. All are biodegradable cleaners that meet materials and performance criteria including:

- Corrosion testing on AZ31B magnesium, 2024 and 7075 aluminum, 1020 steel, stainless steel, titanium, and aluminum-lithium.
- Having no effect on painted surfaces

(enamel and polyurethane for Type I only) or acrylic plastics.

- Compatibility with polyimide wiring insulation.
- Removing oil, hydraulic fluid, and other soils from surface with no streaking, blistering, or discoloration.
- Containing no known toxic or carcinogenic substances.
- Biodegradability, the EPA biodegradable acceptable rate is 70 percent within 28 days. Type I is 75 percent biodegradable within 28 days, while Types II, III, and IV are 85 percent biodegradable within 28 days.
- Cleaning efficiency (passes a standardized cleaning test developed by SA-ALC and an independent testing lab).

BENEFITS/LIMITATIONS

Mr. Gus Zachariades, chemist for the preparing and qualifying activity, SA-ALC/SFTT, stated, "There are currently several good cleaners qualified to Types I, II and III, which can be found in the Qualified Products List (QPL). Many more compounds are in the process of qualifying to all types."

MIL-C-87937 cleaning compound **benefits** include:

- Ability to remove carbon, solidified grease, gelled oil, and other types of soil in any application method such as cold dip tanks, sprayers, foamers, hand-wipe, or brushed on application.
- Type I cleaners remaining effective for up to two months in dip tanks by simply skimming off the separated oil and replenishing the lost fluid.
- Reusing diluted cleaner solutions, from Type I cleaners, when recycled through an oil-water separator.
- Requiring rinse water at room temperature rather than heated water.
- Cleaning compound with demonstrated biodegradability.
- Documented materials compatibility.

MIL-C-87937 cleaning compound **limitations** include:

Control Technology Center NEWS

The CTC NEWS is a quarterly publication of the U.S.EPA's Control Technology Center (CTC). The CTC is an informal, easy-to-use, no cost, technical assistance service for all State and local (S/L) air pollution control agency and EPA Regional Office staffs. For others, some services may be on a cost reimbursable basis. The CTC offers quick access to EPA experts and expertise via the CTC HOTLINE and the CTC Bulletin Board, and in-depth technical support through source specific Engineering Assistance Projects or more generic Technical Guidance Projects. The CTC is operated by the Air and Energy Engineering Research Laboratory, Office of Research and Development, and the Emission Standards Division, Office of Air Quality Planning and Standards in Research Triangle Park, North Carolina.

If you have any air pollution emission or control questions, or would like more information about the CTC and the types of technical assistance available, CALL THE CTC HOTLINE!

(919) 541-0800

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- The necessity of diluting with water.
- The necessity of rinsing aircraft or parts with cold water to prevent leaving a residue or stain.
- Ferrous alloys that may flash rust may require a protective coating or a rust inhibitor in the rinse water.
- No standard water-dilution ratio. This ratio varies from manufacturer to manufacturer and type of application. Specific applications figures depend on parts cleaned.
- Type I cleaner's corrosive effects on soft metals (such as indium).
- A potential adverse effect on cleaning properties caused by the quality of local water.
- Costing more than previous non-biodegradable cleaners.

MIL-C-87937 is approved for aerospace ground equipment and certain airframes when approved by the appropriate Single Manager for the equipment involved. John King, Chief of the Materials Engineering Section at SA-ALC, stated "This specification is communication of an effort initiated over six years ago by the Air Force Civil Engineering Support Agency at Tyndall AFB, FL. Under their direction, over 300

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Editors Note: This article was submitted by the U.S. Air Force and reflects their experience and satisfaction with new cleaning agents. EPA encourages the development and use of performance based specifications and more environmentally friendly materials that prevent or minimize pollution. However, use of these materials as part of a program to comply with environmental regulations must be considered on a case by case basis.

AEROSPACE

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various cleaners were tested for performance and MIL-C-87937 is the result. The SA-ALC portion of this initiative was to develop a specification from the best of the best and originally only one type of cleaner was planned. As conditions and requirements changed, four different types have resulted."

DOCUMENTATION

Technical documentation concerning MIL-C-87937 cleaning compounds is available from Brian Ballew, (See below.)

ENVIRONMENTAL

Lt. Robert Reed, Environmental Engineer, SA-ALC, stated, "MIL-C-87937 is a masterful combination of performance and environmental considerations. It is one of the first documents from the Air Force in which environmental considerations were given equal weight with that of performance." Many local, State, and base regulations prohibit dumping some cleaners into the waste treatment facilities because although a cleaner may be biodegradable, the soils being removed may not. Check with your base and city environ-

No cost assistance to staff of State and Local agencies and EPA Regional Offices on air pollution control technology issues.

CTC ASSISTANCE

CTC HOTLINE: CALL (919) 541-0800 to access EPA expert staff for consultations, references to pertinent literature, or access to EPA technical data and analyses. No question is too simple! Our Fax numbers are (919) 541-0242 or (919) 541-0361.

ENGINEERING ASSISTANCE PROJECTS: If you need in-depth assistance concerning a specific control technology problem, call the HOTLINE or write the CTC. EPA staff and contractors are available for short-term projects such as review of proposed or existing control technology applications. Projects are subject to CTC Steering Committee approval.

TECHNICAL GUIDANCE PROJECTS: If the CTC receives a number of similar HOTLINE calls or a joint request from a group of agencies, the CTC Steering Committee may undertake broad, long-term projects of national or regional interest. The result may be a control technology document for a particular type of source, microcomputer software, or seminars and workshops.

CTC BBS: Call (919) 541-5742 for up to 14400 baud modem to access the CTC Bulletin Board. Set communications parameters to 8 data bits, N parity, and 1 stop bit, and use a terminal emulation of VT100, VT102, or ANSI. You may leave HOTLINE requests, order documents, suggest projects, and download software. The BBS is part of the OAQPS Technology Transfer Network (TTN).

FEDERAL SMALL BUSINESS ASSISTANCE PROGRAM (FSBAP): Call the CTC HOTLINE to access the FSBAP. The CTC is the focal point for coordination of efforts among the four EPA centers participating in the program. The Federal program is intended to support State Small Business Assistance Programs, as required by the Clean Air Act.

RACT/BACT/LAER CLEARINGHOUSE (RBLCL): The RBLCL data base (BLIS) is available on the OAQPS TTNBBS. (See the CTC BBS for connection information.) The Clearinghouse provides summary information for control technology determinations made by permitting agencies.

GLOBAL GREENHOUSE GASES TECHNOLOGY TRANSFER CENTER (GGGTTC): Call the CTC HOTLINE to access GGGTTC information on greenhouse gas emissions, prevention, mitigation, and control strategies.

mental management offices prior to releasing new chemicals into your discharge lines.

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