

# **EPA** *Control Technology Center* **NEWS**

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A JOINT EPA / STAPPA / ALAPCO PROJECT

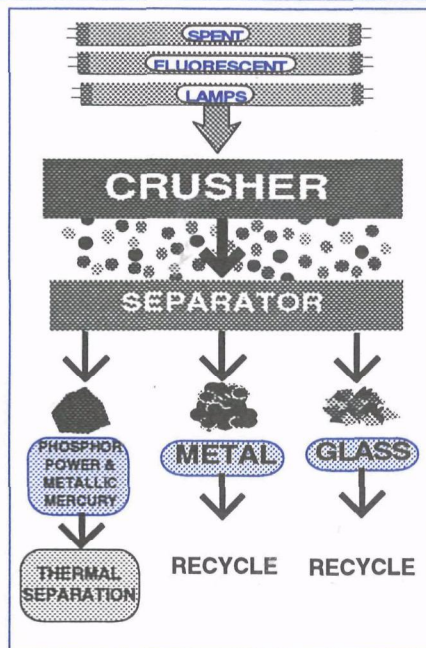
April 1994

## **MERCURY EMISSIONS FROM LAMP CRUSHING**

By Bob Blaszcak  
CTC Co-Chair

The CTC has completed "Evaluation of Mercury Emissions from Fluorescent Lamp Crushing," EPA-453/R-94-018. This project evaluates the processing of spent fluorescent lamps and technology to control mercury emissions from these processes.

About 500 million fluorescent lamps were manufactured in 1991 and production is expected to increase substantially over time as a result of EPA's Green Lights program. A typical four-foot Fluorescent lamp contains about 41 mg of mercury. The amount of mercury emitted to the atmosphere depends on how a spent lamp is handled. If lamps are broken in a garbage truck on-route to a landfill, most of the mercury can find its way into the atmosphere. However, if spent lamps are packed in corrugated containers, delivered to a landfill in enclosed vans or trailers, and placed in the



fill with minimal breakage, practically all the mercury would be retained in the landfill.

Recovery of mercury is desirable to reduce the net amount of mercury ultimately released to the environment. The

recovery process begins with crushing the lamps to extract the white sulfur powder which contains the bulk of the mercury. This powder is then put into a mercury retort furnace to recover elemental mercury.

Many small crushing operations use a device that fits on top of a 55 gallon collection drum. Even well-covered crushers of this type may cause mercury concentrations in the air of about 0.3 mg/m<sup>3</sup>, well in excess of the OSHA limit of 0.05 mg/m<sup>3</sup>. Larger well-controlled systems use vacuum collection systems to prevent release of mercury from lamp feed systems. Cyclones, HEPA filters, and carbon absorbers are used to treat emissions. This type of collection and control system can keep emissions well below the OSHA limit and provide a 90 percent or greater reduction in mercury emissions.

Copies of this report are downloadable from the CTC BBS in both WordPerfect and ASCII format. State and local agencies can call the CTC HOTLINE for a hard copy.

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## **AIRWAVES**

By Bob Blaszcak  
CTC Co-Chair, OAQPS

I bet you thought I was a little nuts starting my last AIRWAVES article with "Happy New Year." After all it was April when you got it, even though it was the January edition of the CTC NEWS. Yes, we are again having problems coordinating printing activities. This time a five day turnaround printing job took 50 days. When I finally got the message on March 31 that the job was done and in the mail, I thought it might be a premature and sadistic April Fool's joke. It looks like the administration's efforts to streamline the federal bureaucracy have a lot to work with. You'll also notice that we're now using bulkmail. This will lower our costs but may slow delivery. Keep the faith! Things will get better..... eventually.

The CTC received a package from Santa on February 15.

You might think that that's a little late, but this was from Liz Santa with the Louisiana Department of Environmental Quality (LA DEQ), and FAT TUESDAY, the day before Ash Wednesday, was right on time. Liz has been sending a traditional Mardi Gras party kit to a very appreciative CTC staff for the past several years. The kits include a "King's Cake," Mardi Gras beads, and other party favors. Thanks for your thoughtfulness, Liz, and everyone else at the LA DEQ. We're pleased to serve and happy to know our efforts are appreciated. "Laissez les bon temps rouler!"

Thank you for all the CTC project requests. Unfortunately, pending CTC Steering Committee decisions, your requests may exceed available CTC funds. Don't let that scare you away. There are no guarantees that all the projects requested will be approved. You may have a better idea or a more critical problem, or you may want to start planning for a project using FY95 funds. Keep those project requests coming into the CTC. We are interested particularly in joint ventures where we can

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## OAQPS CONTROL COST MANUAL SUPPLEMENT AVAILABLE



By William M. Vatauvuk  
CEIS/SDB/ESD, OAQPS



The Cost and Economic Impact Section (SDB/ESD) has recently completed the third supplement to the *OAQPS Control Cost Manual* (Fourth Edition, January 1990). This supplement (EPA 450/3-90-006c) consists of a new chapter, Chapter 10 ("Hoods, Ductwork, and Stacks"). Like the other *Manual* chapters, Supplement 3 is unbound, to make it easier to insert the pages into a three-ring binder.

Also like the other chapters, Chapter 10 is self-contained. It discusses: (1) the types of hoods, ductwork, and stacks used to support add-on air pollution control devices; (2) the theory underlying the operation and design of these auxilia-

ries; (3) basic sizing procedures; and (4) procedures and current (1993) data for estimating capital and annual costs.

Among the valuable material in the chapter 10 are equipment costs for: canopy, push-pull, side-draft, and backdraft hoods; straight ductwork (circular and square); 90° elbows; butterfly, louvered, and blast gate dampers; and short (up to 100-foot) stacks. In addition, the prices of each type of equipment reflect at least two kinds of fabrication materials such as carbon and 304 stainless steel (plate and sheet types), FRP (fiberglass-reinforced plastic), and PVC (polyvinyl chloride). Each set of costs has been correlated against some sizing

parameter (e.g., diameter for ductwork and stacks) to yield easy-to-use, single-independent variable equations. The prices obtained from these equations are accurate to within study estimate limits ( $\pm 30$  percent).

Chapter 10 also includes several example problems. Each illustrates an equipment sizing or costing procedure, so as to make it easier to apply to actual estimating situations. Finally, the chapter contains a table of contents and a list of references.

Upon request, copies of the supplement will be sent to EPA and State/local agency personnel. Call the CTC HOTLINE.

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### AIR WAVES

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leverage our limited resources to accomplish a better product.

We have a couple of new staff additions. Ray Morrison, who retired from EPA's Pollutant Assessment Branch in 1989, has joined the OAQPS CTC staff as a senior environmental employee. Ray is a chemical engineer with lots of good experience. He will be helping out on the HOTLINE and improvements to the RACT/BACT/LAER Clearinghouse (RBLC).

Mary O'Briant, Office Manager for the Stratospheric Ozone Protection Branch, AEERL, has joined the OAQPS CTC staff on a 90-day detail. Mary has a dynamic personality and a reputation for getting things done. She will be working on the Small Business Assistance Program (SBAP) Leadership Grants and other SBAP coordination issues. Welcome on board! We can sure use the help.

The CTC's FAX number has changed. We now have our own dedicated machine! The new FAX number is (919) 541-0242. Please use this new number to FAX information to the RBLC

and Federal SBAP too. Both are part of the CTC family of service centers.

Have a good day and enjoy the NEWS!

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### BEYOND RACT

The ongoing CTC project to identify and evaluate state and local RACT rules that may exceed EPA pre-1990 (Clean Air Act Amendments) CTG requirements is being delayed. This project, requested by the Lake Michigan Air Directors Consortium, was dependent on EPA regional contacts to focus CTC efforts on appropriate rules. This process did not work as well as hoped and, as a result, the CTC will require additional time to consider certain California district rules. Because the information in this report may be very important to certain agencies considering more stringent RACT rules for these source categories, the CTC will provide copies of the draft report to state and local agencies upon request. Just call the HOTLINE and ask for the draft Beyond RACT report.

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### HAP-PRO 1.2 IS HERE!

The Hazardous Air Pollutant PROgram (HAP-PRO) version 1.2 is now available. The basic HAP-PRO version 1.1 was previously upgraded by the use of an expert review system for the carbon adsorber. Now it has been further upgraded with expert review systems for thermal and catalytic incineration. This upgrade will recommend changes in system design parameters to minimize cost. HAP-PRO will now allow the user to also change the value of these parameters to verify minimum cost.

The destruction and removal efficiency (DRE) in the new incineration modules is now calculated for residence time and temperature using relationships that give a conservative estimate for most applications. A warning is given that acids and halogenated products may be produced during the incineration of halides.

The CTC is making every effort to make HAP-PRO more relevant and user-friendly. In the future, new control devices will be added, and hybrid control devices will be evaluated.

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

MACT STANDARD	Proposal	Final	ACT	Final
Aerospace (coatings)	7/31/94	7/31/95	Bakeries (VOC/O-HAPS)	*12/92
Asbestos MACT/GACT	6/95	6/96	Carbon Regeneration (VOC/O-HAPS)	*12/92
Asbestos Litigation	*1/01/93	***	Gas Turbines (NOx)	*11/20/92
Benzene Waste NESHAP Lit.	*3/05/92	*1/07/93	Cement Manufacturing (NOx)	4/94
Chromium Electroplating	*12/16/93	11/23/94	Glass Manufacturing (NOx)	5/94
Coke Ovens	*12/04/92	10/27/93	IC Engines (NOx)	*7/28/93
Commercial Sterilizers	2/28/94	11/23/94	Industrial Boilers (NOx)	4/94
Degreasing (Hal. Sol. Clean.)	*11/29/93	11/09/94	Industrial Clean-up Solvents	2/22/94
Dry Cleaning	*12/09/91	*9/22/93	Iron & Steel (NOx)	8/94
Haz. Organic NESHAP (HON)	*12/31/92	2/28/94	Nitric/Adipic Acid (NOx)	*11/18/91
Haz. Waste TSDF Phase II	*7/22/91	9/15/94	Pesticide Application	3/93
Haz. Waste TSDF Phase III	Schedule under revision		Plywood/Particle Board (PM10)	Schedule Under Development
Ind. Cooling Towers	*8/12/93	7/22/94	Process Heaters (NOx)	*2/26/93
Magnetic Tape Coating	2/28/94	11/23/94	Utility Boilers (NOx)	3/94
Marine Vessel (load/unload)	4/30/94	4/30/95		
Mun. Waste Comb. II & III	9/01/94	9/01/95		
Off-site Waste Operations	10/01/94	10/15/94		
Petroleum Refineries	6/30/94	6/30/95	<u>NSPS</u>	<u>Proposal</u> <u>Final</u>
Polymers & Resins I	Schedule under revision		Degreaser NSPS	8/31/94 8/31/95
Polymers & Resins II	4/30/94	2/28/95	Elec. Utility Gen. Rev. (NOx)	5/30/94 9/15/95
Polymers & Resins III	Schedule under revision		Landfill NSPS & 111(d)	*5/30/91 9/15/94
Polymers & Resins IV	3/15/95	3/15/96	Med. Waste Inc. NSPS & 111(d)	2/01/95 4/15/96
Pulp & Paper (combustion)	2/27/95	4/29/95	NOx NSPS Revision (407(c))	5/30/94 4/30/95
Pulp & Paper (non-comb.)	*10/29/93	9/30/95	SO2 NSPS Revision	Canceled
Secondary Lead Smelters	5/31/94	5/31/95	SOCMI Reactor NSPS	*6/29/90 *8/31/93
Shipbuilding (coatings)	Schedule under revision		SOCMI Sec. Sources NSPS	6/29/94 8/31/95
Stage I Gasoline Distr.	2/08/94	11/23/94	Starch Mfg. Industry NSPS	8/31/94 8/31/95
Wood Furniture Coating	Under Regulatory Neg.		<u>Title I Rules (Sec. 183(e))</u>	<u>Proposal</u> <u>Final</u>
<u>CTG****</u>	<u>Proposal</u> <u>Final</u>		Arch./Ind. Coatings	Under regulatory Neg.
Aerospace Coatings	7/31/94	on Hold	Auto Refinishing	Schedule under Development
Industrial Wastewater	*12/29/93	on Hold	Consumer Products List	N/A 9/30/95
Offset Lithography	*11/08/93	on Hold		
Plastic Parts Coating	1/31/94	on Hold		
Shipbuilding (coating)	Schedule Under Review			
BATCH Processes	*12/27/93	on Hold		
SOCMI Dist. & Reactors	*12/12/91	*8/15/93		
VOL Storage	*12/02/93	on Hold		
Wood Furniture Coating	Under Regulatory Neg.			

### NOTE:

\* Indicates date completed

\*\* All schedules are tentative and subject to change without notice.

\*\*\* Schedule to be determined by litigation/negotiation.

\*\*\*\* ACT's will be issued for most CTG categories by April 1994.

## TECHNOLOGY NOTEBOOK

### WHAT IS THE DIAMETER OF A PARTICLE?

By Lyndon S. Cox  
Senior Environmental Employee

There are several measures of the equivalent diameter of a particle. To understand this, one must first recognize

that, in general, a particle does not have a singular diameter. That means that the particle is seldom, if ever, a sphere. It could be that the particle is either irregular or a dendrite, with an aspect ratio of the largest to the smallest dimension. If the particle is elliptical instead of spherical, the equivalent diameter would be less than the major principal axis and greater than the minor principal axis. Often particles are irregular with rough surfaces and unequal dimensions in different directions. The exception to this is

liquid droplets, especially those less than 10 micrometers (or microns) in diameter, which are smoothed by surface tension and are often nearly spherical.

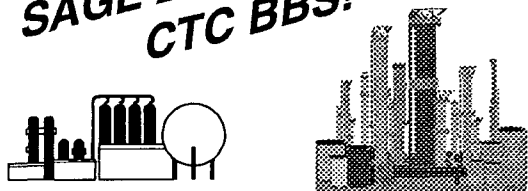
According to William Hinds author of *Aerosol Technology*, "An equivalent diameter is the diameter of the sphere that would have the same value of a particular physical property as that of the irregular particle."

Commonly defined measures of equivalent particle diameter include:

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## SAGE 2.0 Available on CTC BBS!



The Solvent Alternative GuideE (SAGE) model version 2.0 is now available in the Downloading area of the CTC BBS! SAGE is designed to provide recommendations for solvent replacements in cleaning and degreasing operations. The system leads the user through a question-and-answer session. Based on the user's responses, a list of alternative chemistries and processes is derived. For information on how to tie into the CTC BBS, see the CTC Assistance box on the last page of this newsletter.

## TECHNOLOGY NOTEBOOK

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1. The Stokes diameter is the diameter of a spherical particle that has the same density and settling velocity as the particle - in a laminar flow region.

2. The aerodynamic diameter is the diameter of the water droplet that has the same settling velocity as the particle in air.

3. The free-falling diameter is the diameter of a sphere having the same density and free-fall velocity as the particle in a fluid of the same density and viscosity.

4. The volume diameter is the diameter of a sphere having the same volume as the particle.

5. The surface diameter is the diameter of a sphere having the same surface area as the particle.

6. The surface-volume diameter is the diameter of a sphere having the same surface to volume ratio as the particle. This is related to the Sauter mean diameter which is the diameter of

a sphere having the same surface to volume ratio as the distribution of particles.

7. The drag diameter is the diameter of a sphere having the same resistance to motion as the particle in a fluid of the same viscosity and velocity.

8. The projected area diameter is the diameter of a circle having the same area as the projected area of the particle. This is further subdivided into when the particle is a) resting in a stable position, or 2) in a random orientation.

9. The perimeter diameter is the diameter of a circle having the same perimeter length as the projected outline of the particle.

10. The sieve diameter is the width of the minimum square aperture through which the particle will pass.

11. The Feret's diameter is the mean value of the distance between parallel lines tangent to the outline of the particle.

12. The Martin's diameter is the mean chord length of the projected outline of the particle.

As you can see, there are many definitions of the particle diameter. Depending upon the definition chosen, a given particle can have an equivalent diameter varying by a factor of about two.

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## OIL SUPPRESSION OF PM EMISSIONS FROM GRAIN ELEVATORS

Release of this CTC report had been delayed pending resolution of issues that arose after project completion. The project was to include original test data provided by others to document the effectiveness of oil suppression. These data were not provided. Existing available test data are not conclusive; that is, the data does not adequately define emission factors for grain elevators using oil suppression. The CTC has decided to revise the existing report to reflect the comments and issues raised and to provide information that is available on this promising technology. This report will be made available in about three months. However, in cooperation with the Small Business Assistance Program (SBAP), the CTC is pursuing more definitive data involving site testing of oil suppression technology at grain elevators. We will keep you informed about our progress.

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## BLIS EDITING ON YOUR OWN PC

By Jo Ann Kerrick  
VIGYAN

The CTC has developed a stand-alone version of the RACT/BACT/LAER Clearinghouse Information System (BLIS) Edit module for entering new determinations. It is simple to install and use and eliminates some of the drawbacks users experience with the on-line Edit module. The stand-alone editor can not be used to edit determinations previously entered into the on-line BLIS data base.

The existing on-line Edit module allows designated users to enter and update their agencies' RACT/BACT/LAER determinations directly, rather than completing and mailing input forms to EPA. The on-line version also allows users to share the latest determinations from the moment they are entered into the system. However, on-line access requires a communication path — either a modem or direct dial or Internet connection — and a related cost. Response time may also seem slow as BLIS users compete with other users accessing the ever-growing number of TTN applications. The new stand-alone Edit module avoids these communication problems.

The stand-alone BLIS Editor is

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## SMALL BUSINESS UPDATE

Deborah M. Elmore  
Federal SBAP Coordinator, CTC/OAQPS

### MARK YOUR CALENDARS !!

November 1994

The National Roundtable of the State Pollution Prevention Programs will be holding their fall meeting on November 2-4, 1994, in Minneapolis. In cooperation with EPA's Pollution Prevention Division, the Roundtable is including a "Special Agenda" designed specifically for State Section 507 Small Business Programs. Don't miss it!

Early 1995

Plans are now under way for the Second Annual National Small Business Ombudsman/Technical Assistance Conference, to be held in late January or early February 1995. This combined meeting will feature an improved format and an exciting new location! Suggestions are welcome.

### STAY TUNED FOR MORE INFORMATION !!



## BLIS EDITING

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available to anyone who normally inputs determinations for their agency. All you need is a PC with a hard drive. Obtain a copy of the BLIS Editor by downloading it from the BLIS BBS Documents/Software section or call the CTC HOTLINE to request a diskette copy. Either way, no special software licenses are required. The BLIS Editor includes an installation program and documentation plus a compressed version of the system files. Use the installation program to create a directory on your hard drive and decompress the files. (For help, refer to the Quick Reference sheet).

To access the Editor type "BLISEDIT." The BLIS Editor contains options to edit determinations and to prepare determination data files for uploading (see Figure 1). In general, the system operates just like the Edit module on the TTN. If you have any ques-

BLIS EDIT	MAIN MENU	05/06/94
<p>&lt;B&gt; EDIT BLIS DATABASE</p> <p>&lt;F&gt; PREPARE FILES FOR UPLOADING</p> <p>&lt;X&gt; EXIT TO DOS</p>		
Enter Option	Press the appropriate letter to select option or press <F1> for HELP.	

Figure 1 - BLIS Stand-alone Editor Welcome Screen.

tions about what to enter, press <F1> for context-sensitive help or refer to the BLIS User's Manual. Select the editing option when you want to add a new determination or edit the one you entered earlier. When you add a determination, the stand-alone BLIS Editor assigns a temporary BLIS ID. Use these IDs if you need to update determinations entered on your local PC. Permanent BLIS IDs will be assigned by the BLIS

## FUGITIVE VOC HANDBOOK

The recent handbook, "Control Techniques for Fugitive VOC Emissions from Chemical Process Facilities," contains information concerning volatile organic compound (VOC) emissions from: the synthetic organic chemicals manufacturing industry (SOCMI); petroleum refineries; on-shore natural gas processing plants; polymer manufacturing plants; equipment that emits benzene; and manufacturing plants that process one or more polymers containing any fraction of polymerized vinyl chloride. Explanations of regulations that apply to small-to medium-sized industries are contained in the handbook; however, the more stringent requirements of the hazardous organic national emission standards for hazardous air pollutants (HON) are not discussed extensively in this handbook. The control procedures dis-

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System Administrator when your data are added to the on-line data base. Make as many additions or changes as you like with the BLIS Editor. You can even add processes (something you cannot do on the TTN). All data are local to your PC until you transfer your files to the BLIS System Administrator.

Periodically, you should send your determinations to the BLIS System Administrator for review and inclusion in the BLIS transient database on the BBS. The BLIS Editor has an option to prepare your files for uploading. This option compresses the data files into a single ZIP file. (Be sure PKZIP is in the search path defined by the PATH environment variable on your PC). After you run this option, you can either send the compressed data files by TTN E-mail or conventional mail to the BLIS System Administrator.

If you wish to enter new data on your local PC, use the stand-alone BLIS Editor. Look for it on the BLIS BBS, or order it from the CTC HOTLINE. Try it out the next time you have a new determination. For more information, call the BLIS System Administrator at (919) 541-2736.

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## HANDBOOK

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cussed for emissions from these facilities are applicable to any size facility, but the application of control practices may have to be more stringent to comply with new requirements.

The handbook provides guidance in applying control strategies to comply with regulations that apply to chemical process facilities. Three main types of standards are applied to fugitive emissions from chemical process facilities. These are: performance standards, equipment practices, and work practices. Each of these have their place and may be applied parallel to achieve the necessary reductions of fugitive emissions. This handbook outlines the requirements and procedures to apply these strategies.

To order a free copy of this report, call EPA's Center for Environmental Research (CER) at (513) 569-7562 and request document number EPA-625/R-93-005.

CTC

### CTC EXPERT ON PARTICULATE CONTROLS:

#### DR. NORMAN PLAKS

By Lisa Florer  
Acurex Environmental Corporation

Dr. Norman Plaks' impressive career has added significantly to the current knowledge base on particulate controls. Norm, currently a senior research engineer with EPA's Air and Energy Engineering Research Laboratory (AEERL), is one of the CTC's experts on particulate controls, particularly electrostatically enhanced particulate control technologies.

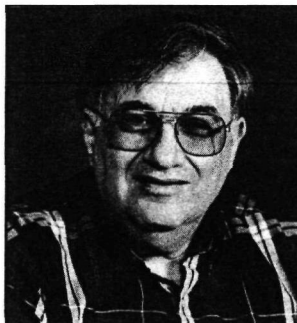
After serving with the U.S. Army, Norm returned to his native New York where he earned his bachelor's degree in chemical engineering from Pratt Institute in 1959. Norm landed his first job at General Electric where he developed cooling systems for missile and airborne

electronic equipment. In 1962, Norm took a job with the Linde Division of Union Carbide where he developed, designed, and installed insulation systems for large liquid hydrogen tanks used in the growing space industry. He also developed a product line of cryogenically cooled adsorption vacuum pumps. During his work at GE and Union Carbide, Norm continued his education by completing classes in chemical and electrical engineering graduate programs.

In 1965, Norm decided to leave New York for a position with Aerojet-General Corporation in Azusa, CA. As a senior engineer with Aerojet, Norm worked on several groundbreaking projects including developing and demonstrating a process for storing oxygen as a cryogenic solid for breathing in space. He also engineered cryogenic and high vacuum systems for the world's largest space simulation chamber for testing whole infrared sensing satellites.

Norm's career changed technical direction when, in 1968, he joined the National Air Pollution Control Administration (a EPA predecessor) in Cincinnati to work in and later manage the Industrial Processes Section. Here, he directed a program to develop air pollution control technologies for many industrial sources. Norm then served as Chief of AEERL's Metallurgical Processes Branch until 1980. As such, he technically managed the EPA's extramural research program to develop and demonstrate control technologies for the iron and steel industry. He established co-funded projects with the American Iron and Steel Institute and individual iron and steel companies to develop air pollution control for cokemaking, sintering, blast furnaces, basic oxygen and electric steel furnaces, rolling mills, plating, and other processes. Also, during this time, Norm represented the United States in several United Nations and United States/Soviet Union environmental programs.

As the environmental issues of the early '80s diverged, Norm focused his technical knowledge on particulate control technologies as Chief of AEERL's Particulate Control Branch. Not only did he manage the EPA particulate control technology program, but he helped bring the program international recognition for its groundbreaking research and development. Norm co-invented E-SO<sub>x</sub>—a patented retrofit acid rain control process for use with electrostatic precipitators (ESPs)—and electrostatically enhanced fabric filtration (ESFF). He led the development of widely used mathematical models for performance prediction and troubleshooting of particle control processes and personally developed an engineering performance prediction model for the ESFF processes. Keeping internationally active, Norm participated in significant research collaboration with private, governmental, and industrial organizations, and academia in the United States, Japan, England, Denmark, Italy, Australia, and the former Soviet Union.



For his work in particulate control, he received an EPA Bronze Metal in 1986. Also during this period, he received a Ph.D. from the University of Tokyo working under Professor Senichi Masuda, a world renowned researcher in electrostatic applications. His dissertation

was "Fabric Filtration with Particle Charging and Collection in a Combined Electric and Flow Field."

Changing directions again in 1987, Norm became Chief of the AEERL's Air Toxics Control Branch, whose work included EPA's then embryonic Control Technology Center (CTC). A year later, with the CTC up and running and a desire to return to particulate control technology development, he decided one more change was in order.

Having spent nearly 20 years in management, Norm decided to roundout his career with hands-on technical research as a senior research engineer. Since 1988, Norm has conceived

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## **CTC EXPERT**

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and developed several breakthrough electrostatic and electrostatically enhanced particulate technologies. Norm's novel work in this area has been described in more than 50 publications and presentations and five patents, with several more in process. Included in this work is the ESP with alternating charging and short collector sections — nicknamed the Super ESP — which is a much improved ESP with extremely high collection efficiencies in a small space. Norm explained that ESPs can always be made better by making them bigger; however, the advantage of the Super ESP is that it is better, not bigger. Norm is also co-inventor of the Retrofitted Electrostatic Filter (REF) in which an ESFF unit replaces the last field of an ESP to provide greatly improved fine particle collection. These and other patents will shortly be licensed by EPA and commercialized in the private sector.

Norm is still involved with designing and troubleshooting ESPs and electrostatic filtration by means of advanced computer modeling. He was awarded an EPA Office of Research and Development Category I Scientific Achievement Award for an individually authored paper published on ESFF modeling in the *Journal of Electrostatics* in 1990.

Throughout his career with EPA, Norm has assisted the CTC with HOTLINE calls from industry and government, international and domestic agencies, as well as individuals because of his reputation in particulate controls. The CTC calls keep Norm up-to-date on issues and problems, especially those not being emphasized in current research because EPA's R&D is moving into new areas and thus de-emphasizing traditional pollutants such as particulates.

Despite such a distinguished career, Norm's life is not all work with no play. His hobbies include everything from amateur radio (his call letters are KN4G) to building model steam engines. Having recently celebrated their fortieth wedding anniversary, Norm and his wife, Doris, live in Raleigh.

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## **INTERNATIONAL HAZARDOUS MATERIAL SPILLS CONFERENCE**

Buffalo, NY, is hosting the 1994 International Hazardous Material Spills Conference from October 31 through November 3, 1994. The Hyatt Regency Hotel and the Convention Center in Buffalo are the sites for this biannual conference. The sponsors include: The National Response Team, The National Governors' Association, The Chemical Manufacturers Association, and the American Institute of Chemical Engineers in cooperation with the Canadian Producers Association and the New York State Emergency Response Commission.

If your work requires knowledge of hazardous materials safety and how to prevent, prepare for, and respond to hazardous materials accidents, then you don't want to miss this conference.

Registration materials will be available in the near future. To ensure that you are on the mailing list, contact Angela Moody (703) 442-9824. If you have questions regarding the conference contact Sarah Bauer (202) 260-8247.

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## **MINE SITE REMEDIATION SEMINARS**

A seminar series, "Managing Environmental Problems at Inactive and Abandoned Metals Mine Sites," is being sponsored jointly by EPA's Center for Environmental Research Information and Risk Reduction Engineering Lab. The primary goal of this 2-day technology transfer seminar is to increase public awareness of environmental problems at inactive mine sites and provide information on practical approaches to manage effectively these problems. The major focus of the seminar will be on remediation and management techniques.

The target audience includes all individuals associated with or interested in the management (e.g., source control,

pathway interrupt, and treatment) of mining wastes from inactive mining sites such as mining company owner/operators, environmental specialists, public lands administrators, federal and state regulators, and citizens associated with environmental or other groups concerned about mining wastes. No registration fee is charged for attendance at these seminars.

For further information, contact Deborah Kanter at Eastern Research Group, Inc., 110 Hartwell Ave., Lexington, MA 02173-3198. Telephone: 617/674-7620 Fax: 617/674-2906.

### **Seminar Dates and Locations**

August 8-9, 1994	Butte, MT
November 15-16, 1994	Denver, CO
November 17-18, 1994	Sacramento, CA

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## **HAZARDOUS WASTE COMBUSTION SEMINAR PUBLICATION**

The seminar publication, "Operational Parameters for Hazardous Waste Combustion Devices," contains information presented at a series of seminars conducted by EPA's Center for Environmental Research Information (CERI) in August and September 1992. In addition, a copy of the Draft Combustion Strategy issued by Administrator Carol Browner in May 1993 is included as an appendix. Operational parameters affecting efficient operation of devices designed and/or used to treat hazardous wastes are discussed and regulatory authority for requiring certain parameters is referenced. Some discussion of expected revisions to incinerator requirements for emissions is also included.

Three types of hazardous waste combustion devices are regulated under the Resource Conservation and Recovery Act (RCRA): incinerators, boilers, and industrial furnaces. Different standards apply to incinerators than to boilers and industrial furnaces. Incinerator regulations were promulgated in Janu-

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## HAZARDOUS WASTE

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ary 1981, with many subsequent amendments. They are codified in the Title 40, Code of Federal Regulations (CFR), Parts 264 and 265, (40 CFR 264, 265). Boiler and industrial furnace regulations were promulgated on February 21, 1992, with subsequent technical amendments. They are codified in 40 CFR 260, et seq.

Only enclosed devices with direct flame are considered incinerators. Thermal treatment devices are not enclosed and do not have a direct flame. Boiler and industrial furnaces are considered miscellaneous units. To be classified as an industrial furnace, a device must be listed in the regulation and produce a marketable product; only twelve types of devices have been classified as industrial furnaces eligible to treat hazardous wastes. Definitions for all three types of hazardous waste treatment devices are listed in Section 260.10 of 40 CFR 260.

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## CTC ASSISTANCE

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

**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. Fax: (919) 541-0242

**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) 541-6742 for 1200/2400/9600 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 (RBLC):** The RBLC database (BLIS) is available on the OAQPS TTN BBS. (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.

## 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.

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