

ENFORCEMENT WORKSHOP ON PLANT INSPECTION AND EVALUATION PROCEDURES

VOLUME I WORKSHOP PROGRAM AND REFERENCE MATERIAL LIST



U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ENFORCEMENT
OFFICE OF GENERAL ENFORCEMENT
WASHINGTON, D.C. 20460

ENFORCEMENT WORKSHOP ON
PLANT INSPECTION AND EVALUATION

Volume I
Workshop Program and Listing of
Workshop Reference Material

Prepared by

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U.S. ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF STATIONARY SOURCE ENFORCEMENT
OFFICE OF ENFORCEMENT
WASHINGTON, D. C. 20460

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CONTENTS OF OTHER WORKSHOP VOLUMES

VOLUME II - INSPECTION PROCEDURES AND PERFORMANCE EVALUATION

1. General Concepts
2. Pre-inspection
3. Counterflow Inspection
4. Post-inspection
5. Appendix - Checklists

VOLUME III - PROCESS AND CONTROL EQUIPMENT FLOWCHARTING TECHNIQUES

VOLUME IV - CONTROL ENGINEERING LITERATURE REVIEW

VOLUME V - OPERATION AND MAINTENANCE OF ELECTROSTATIC PRECIPITATORS

- V-1 Air Pollution Control Equipment--Electrostatic Precipitators
- V-2 Selecting and Specifying Electrostatic Precipitators
- V-3 Electrostatic Precipitators in Industry
- V-4 Electrostatic Precipitator Maintenance Survey
- V-5 Maintenance Program and Procedures to Optimize Electrostatic Precipitators
- V-6 Operational Monitoring and Maintenance of Industrial Electrostatic Precipitators for Optimum Performance
- V-7 An Electrostatic Precipitator Performance Model

VOLUME VI - OPERATION AND MAINTENANCE OF FABRIC FILTERS

- VI-1 Fabric Filtration Systems Design, Operation and Maintenance
- VI-2 Baghouses--What to Know Before You Buy
- VI-3 The User and Fabric Filtration Equipment
- VI-4 Ins and Outs of Gas Filter Bags
- VI-5 Baghouses--Separating and Collecting Industrial Dusts

VOLUME VII - OPERATION AND MAINTENANCE OF WET SCRUBBERS

- VII-1 Wet Collectors: Control of Particulate Emissions
- VII-2 Venturi Scrubber Operation and Maintenance
- VII-3 Maintaining Venturi-Tray Scrubbers

Contents of Other Volumes (Continued)

VOLUME VIII - COMPLAINT INVESTIGATION PROCEDURES

- VIII-1 Complaint Handling
- VIII-2 Odor Pollution from the Official's Viewpoint
- VIII-3 Malodors--A Basis for Regulation
- VIII-4 Developing Odor Control Regulations: Guidelines and Considerations
- VIII-5 Objective Odor Pollution Control Investigations

VOLUME IX - OBSERVING COMPLIANCE TESTS

VOLUME X - SELECTED PAPERS ON LEGAL ASPECTS OF ENFORCEMENT

- A. United States Constitution: Excerpts of Articles Affecting Search and Seizure, Prosecution, and Due Process of Law
- B. Plant Entry
 - B-1 Entry to Industrial Facilities
 - B-2 The Barlow Decision
- C. Gathering Evidence
 - C-1 Chain-of-Custody Procedure for Source Sampling
- D. Presenting Evidence
 - D-1 A Primer for EPA Employees: Presenting Scientific Evidence
 - D-2 The Opacity Witness
 - D-3 Expert Witnesses and Environmental Litigation
 - D-4 How to Testify
 - D-5 Suggestions for Witnesses
 - D-6 Appearance as Witness
- E. Environmental Litigation and Industry
 - E-1 Environmental Litigation and the In-house Engineer

SECTION A: PURPOSE AND SCOPE OF WORKSHOP

SECTION A
PURPOSE AND SCOPE OF WORKSHOP

PURPOSE

The role of the source inspector is increasingly important due to the growing number and complexity of regulatory requirements. Through regular contact with source personnel, the inspector has an opportunity to ensure that air pollution sources are making reasonable progress towards compliance with the regulations. To facilitate compliance by individual sources, the inspector may find a need to direct source personnel to information and services that are available for developing appropriate control strategies. In order to accomplish these functions, each inspector must have a clear understanding of the regulatory requirements imposed on each source; he must be knowledgeable in source inspection techniques; he must have a ready access to information about control equipment design and operation; and he must understand his legal authorizations and limitations as an inspector. This workshop is designed to provide the inspector with information and reference materials that can help him carry out these duties.

SCOPE

The scope of the workshop includes an exploration of the role of the inspector in the context of evolving regulations, discussions of plant inspection and field evaluation procedures, a review of selected control equipment technologies, a discussion of alternate enforcement methods and tools, and a discussion of the legal aspects of air pollution investigations.

Although the time allotted for each topic precludes an in-depth treatment, supplementary literature is provided which should enable workshop attendees to broaden their knowledge in each area. Where additional information is desired on air pollution topics, the attendees can also use the bibliographies in Workshop Volumes I and IV to find appropriate reference materials.

The workshop has been divided into five sessions. Each session is devoted to a discussion of interrelated topics. However, the primary emphasis throughout the workshop is placed upon the methodologies available for use by the inspector to evaluate the performance of a source.

The workshop will open with a general overview of the role of the inspector. Emphasis is placed on the changing responsibilities of the inspector in the context of ever changing and more complex regulatory requirements.

Session I will address inspection procedures which are available to the inspector for properly evaluating the compliance status of the source. A brief discussion of the prevailing inspection practices--advantages and disadvantages--is included. However, the major emphasis during Session I is placed upon the Counterflow Inspection Technique, its applicability, and its advantages. A discussion of baseline source assessment and equipment available and useful to the source inspector is also included. Also introduced during Session I is Volume II: Counterflow Inspection Techniques, Volume III: Flow Charting Techniques, and the Sample Inspection File Handout.

Session II will address the evaluation of specific types of control equipment. Workshop Volumes V, VI, and VII provide reference materials on the operation and maintenance of ESP's, fabric filters, and wet scrubbers, respectively. While these volumes do not provide specific procedures for the inspection of these devices, they do provide useful information for the inspector to translate data obtained in the field to an

assessment of control equipment performance. Emphasis is also placed on the evaluation of the fan and ventilation system, which has often been overlooked as a diagnostic tool. Additional discussions are included on mechanical collectors, continuous emission monitors, and safety.

Session III discusses the aspects that should be considered during the permit review process for control equipment. Included in the topics of discussion are design criteria which should be included to promote continuous compliance of the control equipment, materials of construction, instrumentation, and access capabilities for testing and maintenance of the equipment.

Session IV addresses enforcement approaches available to the source inspector. The discussions will include plant boundary monitoring, compliance tests, visible emissions observations, and the use of photographs to document violations. Additional topics include plant entry, enforceability of inspection data, confidentiality, and legal aspects of case preparation. Workshop Volume VIII: Complaint Investigation Procedures and Volume X: Selected Papers on the Legal Aspects of Enforcement are of interest for this session.

The functional premise of a workshop is the interchange of information. Although there are a large number of topics to be discussed through lectures, each attendee is encouraged to ask questions, interject experiences and situations that have occurred during the inspection process, and share information which may benefit others. Through this interchange of information, the workshop can be a constructive learning experience for the attendees and the speakers. It is hoped that the information provided is both informative and thought-provoking.

SECTION B: AGENDA, WORKSHOP SPEAKERS, WORKSHOP REFERENCE MATERIALS

B-1

REGION X ENFORCEMENT WORKSHOP
PLANT INSPECTION AND EVALUATION PROCEDURES

AGENDA

Location:

U.S. Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

Telephone: (206) 442-1387

Date:

February 26-28, 1980

TIME	TOPIC	SPEAKER
TUESDAY		
8:30	Welcome	M. Hooper
8:45	Purpose and Scope	K. Foster
9:00	Role of the Inspector	N. Edmisten R. Hawks
SESSION I - PLANT INSPECTION TECHNIQUES		
9:45	Equipment Inspection Techniques	
	a) Prevailing Practices	J. Richards
	b) Levels of Inspection	
	c) Counterflow Inspection Techniques	
10:30	BREAK	
10:45	Source Baseline Assessment	
	a) Concurrent Techniques	R. Hawks
	b) Observing Compliance Tests	K. Foster
11:30	Inspection Gear	G. Saunders
12:00	LUNCH	
SESSION II - EVALUATING CONTROL EQUIPMENT PERFORMANCE		
1:00	Fan and Ventilation Systems	J. Richards
2:00	Emission Monitors	G. Saunders
2:30	BREAK	

Agenda for Region X Enforcement Workshop
(continued)

TIME	TOPIC	SPEAKER
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TUESDAY (continued)

SESSION II - EVALUATING CONTROL EQUIPMENT
PERFORMANCE

2:45	Mechanical Collectors	R. Hawks T. Mappes
3:45	Wet Scrubbers	J. Richards G. Saunders
5:00	ADJOURN	

WEDNESDAY

SESSION II - EVALUATING CONTROL EQUIPMENT
PERFORMANCE (continued)

8:30	Electrostatic Precipitators	J. Richards G. Saunders
10:00	BREAK	
10:15	Fabric Filters	R. Hawks T. Mappes
11:30	LUNCH	
12:30	Safety Considerations During Inspections	J. Richards

SESSION III - PERMIT REVIEW

1:30	Level of Review and Legal Aspects	J. Richards K. Foster
2:30	BREAK	
2:45	Design Considerations for Continuous Compliance	J. Richards
3:15	Materials of Construction for Control Equipment	T. Mappes

Agenda for Region X Enforcement Workshop
(continued)

TIME	TOPIC	SPEAKER
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WEDNESDAY (continued)

SESSION III - PERMIT REVIEW (continued)

3:45	Instrumentation	G. Saunders
4:15	Compliance Testing Capability	R. Hawks
5:00	ADJOURN	

THURSDAY

SESSION IV - ENFORCEMENT APPROACHES

8:30	Enforceability of Inspection and Other Data	K. Foster J. Richards
9:00	Plant Boundary Monitoring	R. Hawks
10:00	BREAK	
10:15	Compliance Tests	P. Boys
11:00	Visible Emission Observation	T. Rose
12:00	LUNCH	
1:00	Plant Entry	R. Hawks K. Foster
1:30	Confidentiality of Data	K. Foster
2:00	Use of Photographs	T. Rose
2:30	BREAK	
2:45	Legal Aspects of Case Preparation	K. McGoffin
3:45	Sources of Additional Information for Developing Inspection Skills	J. Richards K. Foster
4:00	ADJOURN	

B-2

LIST OF SPEAKERS

Paul Boys
Surveillance and Investigation Branch
Surveillance and Analysis Division
U.S. Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

Telephone: (206) 442-1106

Senior engineer responsible for conducting field studies and compliance investigations of stationary sources. Coordinates compliance testing activities and plant inspections in support of Region X enforcement actions.

Norman Edmisten
Del Green Associates
Pacific Plaza
1535 North Pacific Highway
Woodburn, Oregon 97071

Telephone: (503) 982-8304

Director of Technical Operations, Environmental Technology Division, Del Green Associates, consulting firm. Previously served as the Oregon program coordinator for the U.S. Environmental Protection Agency, Region X office. Prior to that, he served as a career officer with the U.S. Public Health Service and U.S. EPA, responsible for evaluation of air pollution control agency performance.

Kirk Foster
Technical Support Branch
Division of Stationary Source Enforcement
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina 27711

Telephone: (919) 541-4571

Technical Coordinator for DSSE, EPA headquarters office, responsible for providing technical assistance and guidance to the regional offices in support of the air enforcement program. Formerly directed and conducted field investigations and air pollution studies in support of Federal Interstate Air Pollution Abatement Actions and Conferences in the National Air Pollution Control Administration.

Ronald Hawks
PEDCo Environmental, Inc.
505 South Duke Street, Suite 503
Durham, North Carolina 27701

Telephone: (919) 688-6338

Environmental Engineer, responsible for industrial consultation for air pollution control equipment. Also, involved in writing inspection manuals and developing training manuals on air pollution control equipment. Formerly, Senior Engineer of the Environmental Management Division, State of North Carolina, where he directed air pollution monitoring, inspections, and enforcement activities for the Northern Piedmont (Raleigh) region.

Mark Hooper
Air Compliance Branch
Enforcement Division
U.S. Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

Telephone: (206) 442-1387

Chief of Air Technical Compliance Section, responsible for directing investigation of stationary source compliance status and technical support in air enforcement actions. Formerly,

served as senior project engineer with Industrial Studies Branch, Emissions Standards and Engineering Division, U.S. Environmental Protection Agency, responsible for development of New Source Performance Standards.

Tom Mappes
PEDCo Environmental, Inc.
505 South Duke Street, Suite 503
Durham, North Carolina 27701

Telephone: (919) 688-6338

Environmental Engineer, involved in the inspection of particulate control devices that are subject to corrosion. Has also been involved in the inspection of air pollution control equipment to determine compliance with SIP and RACT requirements, and for characterizing operation and maintenance problems.

Keith McGoffin
Rovai, McGoffin and Turner
818 South Yakima
Tacoma, Washington 98405

Telephone: (206) 272-9303

Attorney with a private law firm that provides legal consultation and case preparation services to the Puget Sound Air Pollution Control Agency in air pollution enforcement actions and adjudicatory hearings.

John Richards
PEDCo Environmental, Inc.
505 South Duke Street, Suite 503
Durham, North Carolina 27701

Telephone: (919) 688-6338

Environmental Engineer, has developed theoretical models to evaluate performance of pilot scale wet scrubbers. Served as Project Manager for CEQ study of air pollution control equipment operation and maintenance practices. Developed diagnostic procedures to aid field inspectors in performing control equipment inspections; holds patent for a photochemical control technique.

Thomas Rose
Eastern Technical Associates
P.O. Box 911
Cary, North Carolina 27511

Telephone: (919) 467-2970

Consultant, instructs State agency personnel in proper observer training procedures and evaluates State visible emission certification programs. Formerly, with Region IV, EPA, responsible for coordination of Visible Emission Observer Training and Certification Program for eight-state region. He has more than eight years combined State and Federal experience in planning and conducting field investigations.

Gary Saunders
PEDCo Environmental, Inc.
505 South Duke Street, Suite 503
Durham, North Carolina 27701

Telephone: (919) 688-6338

Chemical Engineer, involved in the inspection of and consultation on air pollution control systems. He has had previous experience in areas of compliance testing and continuous emissions monitoring and has assisted DSSE in the development of technical materials in these areas. He has also assisted EPA in the evaluation and modeling of air pollution control techniques in the byproduct coke industry.

B-3

LIST OF SUPPLEMENTAL REFERENCE MATERIALS
SUPPLIED TO WORKSHOP ATTENDEES

GENERAL INFORMATION

Handout 1 - Industrial Guide for Air Pollution Control, EPA 624/6-78-004.*

Handout 2 - Major Financial Assistance Programs Available for Industrial Pollution Control Expenditures, EPA 600/1-77-003.*

Handout 3 - Choosing Optimum Financial Strategies, EPA 625/3-76-005.*

Handout 4 - Choosing Optimum Management Strategies, EPA 625/3-77-008.*

Handout 5 - The Clean Air Act as Amended August, 1977.*

Handout 6 - Field Operations and Enforcement Manual for Air Pollution Control. Vol. I: Organization and Basic Procedures, APTD-1100.*

Handout 7 - Standards of Performance for New Stationary Sources- A Compilation, EPA 340/1-77-015.*

Handout 8 - Environmental Protection Agency National Emission Standards for Hazardous Air Pollutants, EPA 340/1-77-020.*

Session I.

Handout I-1 - Opacity as an Indicator of Performance.

Handout I-2 - Inspecting Transmissometers, Engineering Science.

Handout I-3 - Continuous Air Pollution Source Monitoring Systems, EPA 625/6-79-005.*

*Copies of these items will not be provided to each attendee. Each State or local agency attending the workshop may order copies of these items by completing an order form provided at the workshop.

Session I (continued)

Handout I-4 - Sample Inspection Files.

Handout I-5 - Field Operation and Enforcement Manual for Air Pollution Control. Vol. II: Control Technology and General Source Inspection, APTD-1101.*

Handout I-6 - Field Operation and Enforcement Manual for Air Pollution Control. Vol. III: Inspection Procedures for Specific Industries, APTD-1102.*

Handout I-7 - Industrial Ventilation, American Conference of Government Industrial Hygienists.*

Handout I-8 - AP-42 (Latest Edition).*

Handout I-9 - Technical Guidelines for Compliance Schedules (PEDCo Environmental for EPA).*

Handout I-10 - Controlled and Uncontrolled Emission Rates and Applicable Limitations for Eighty Processes, EPA 340/1-78-004.*

Handout I-11 - A Primer on Confined Area Entry, BioMarine Industries.

Session II

Handout II-1 - Basic Energy/Environmental Analysis, NAPA Fan Booklet.

Handout II-2 - Fans: Selection and Operation.

Handout II-3 - Handbook for the Operation and Maintenance of Air Pollution Control Equipment, edited by Frank Cross and Howard Hesketh.*

Handout II-4 - Electrostatic Precipitation of Fly Ash, by Henry J. White.*

Handout II-5 - Case Histories.

Handout II-6 - The Maintenance and Operation of Exhaust Systems in the Hot Mix Plant, NAPA.*

Handout II-7 - Technical Guidance for Control of Industrial Process Fugitive Particulate Emissions, EPA 450/3-77-010.*

*Copies of these items will not be provided to each attendee. Each State or local agency attending the workshop may order copies of these items by completing an order form provided at the workshop.

Session II (continued)

Handout II-8 - Corrosion Prevention.

Handout II-9 - inspection Procedures for Evaluation of Electro-static Precipitator Control System Performance, EPA 340/1-79-007.

Session III

Handout III-1 -Guide to Engineering Permit Processing, APTD-1164.*

Handout III-2 -Design Considerations for Particulate Control Equipment, PEDCo Environmental, Inc., for U.S. EPA.

Handout III-3 -Management and Technical Procedures for Operation and Maintenance of Air Pollution Control Equipment, EPA/2-79-002.

Session IV

Handout IV-1 - Method 9 (Opacity Observation) Public Comment Summary.

Handout IV-2 - EPA Visible Emissions Guidelines.

Handout IV-3 - Guidelines for Evaluation of Visible Emissions, EPA 340/1-75-007.

Handout IV-4 - Handling Confidential Business Information.

* Copies of these items will not be provided to each attendee. Each State or local agency attending the workshop may order copies of these items by completing an order form provided at the workshop.

SECTION C: BIBLIOGRAPHY OF SPECIFIC AIR POLLUTION
ENFORCEMENT TOPICS

C-1. GENERAL REFERENCE MATERIALS FOR AIR POLLUTION ENFORCEMENT

Bond and Straub (editors), Handbook of Environmental Control, CRC Press, Akron, Ohio (1972).

Calvert, S., et al., Scrubber Handbook, A.P.T., Inc., Riverside, CA. EPA Contract No. CPA-70-95, August 1972, PB-213-016 (NTIS).

Cross, F. L. and H. E. Hesketh (editors), Handbook for the Operation of Air Pollution Control Equipment, Technomic Publishing Co., Inc, Westport, Conn. (1975).

Danielson, J. A. (editor), Air Pollution Engineering Manual, 2nd edition, U. S. Environmental Protection Agency Publication AP-40 (May 1973).

DiGasbarro, P. and M. Bornstein, Methodology for Inventorying Hydrocarbons, EPA-600/4-76-013 (March 1976).

Hicks, T. G. (editor), Standard Handbook of Engineering Calculations, McGraw-Hill, New York (1972).

Kirk and Othmer (editors), Encyclopedia of Chemical Technology, Interscience Publishers (1970).

Lund, H. (editor), Industrial Pollution Control Handbook, McGraw-Hill, New York (1971).

PEDCo Environmental, Inc., Revised Technical Guide for Review and Evaluation of Compliance Schedules for Air Pollution Sources, EPA-340/1-77-017 (May 1977).

PEDCo Environmental, Inc., Technical Guidance for Control of Industrial Process Fugitive Particulate Emissions, EPA-450/3-77-010 (March 1977).

Stern, A. C. (editor), Air Pollution, Volumes I-V, 3rd edition, Academic Press, New York (1977).

Theodore, L. and A. J. Buonicore, "Industrial Air Pollution Control Equipment for Particulates", CRC Press, Akron, Ohio (1976).

U. S. Environmental Protection Agency, Background Information Documents for Proposed New Source Performance Standards and National Emissions for Hazardous Pollutants, (Published for each source category for which Federal NSPS and NESHAPS standards are promulgated), U. S. EPA, Emissions Standards and Engineering Division, Research Triangle Park, N. C. 27711.

- U. S. Environmental Protection Agency, Compilation of Air Pollution Emission Factors, 3rd edition plus supplements 1-8, EPA publication AP-42 (August 1977).
- U. S. Environmental Protection Agency, Control Techniques for Carbon Monoxide Emissions from Stationary Sources EPA publication AP-65 (March 1979).
- U. S. Environmental Protection Agency, Control Techniques for Hydrocarbons and Organic Solvent Emissions from Stationary Sources, EPA publication AP-68, (March 1979).
- U. S. Environmental Protection Agency, Control Techniques for Nitrogen Oxide Emissions from Stationary Sources, EPA publication AP-67 (March 1970).
- U. S. Environmental Protection Agency, Control Techniques for Particulate Air Pollutants, EPA publication AP-51 (April 1970).
- U. S. Environmental Protection Agency, Control Techniques for Sulfur Oxide Air Pollutants, EPA publication AP-52 (January 1969).
- U. S. Environmental Protection Agency, Industrial Process Profiles for Environmental Use, (Chapters 1-30 covering industrial categories are being prepared), EPA-600/2-77-023x, U. S. EPA, Industrial Environmental Research Lab, Research Triangle Park, N. C. 27711.

C-2. AIR POLLUTION ENFORCEMENT INFORMATION SOURCES*

Air Pollution Abstracts, U. S. Environmental Protection Agency, Air Pollution Technical Information Center, Research Triangle Park, N. C. (discontinued 1976).

Chemical Abstracts, American Chemical Society, Chemical Abstracts Service, Columbus, Ohio.

Current Published Searches from the NTIS Bibliographic Data File plus Published Searches from the Data Base of Engineering Index and American Petroleum Institute, U. S. Department of Commerce National Technical Services, 5285 Port Royal Rd., Springfield, Va. 22161, publication NTIS-PR-186 (published quarterly)

Engineering Index, Engineering Index, Inc., New York, New York.

Environmental Abstracts, Environment Information Center, Inc., New York, New York.

Environmental Pollution and Control: Weekly Government Abstracts, U. S. Department of Commerce National Technical Information Service, 5285 Porty Royal Rd., Springfield, Va. 22161.

EPA Publications Bibliography Quarterly Abstract Bulletin, U. S. EPA, Library Systems Branch, 401 M. Street, S.W., Washington, D. C. 20460.

EPA Reports Bibliography Quarterly, U. S. Department of Commerce National Technical Information Services, 5285 Port Royal Rd., Springfield, Va. 22161.

Pollution Abstracts, Pollution Abstracts, Inc., La Jolla, California.

Report Abstracts: Industrial Environmental Research Laboratory, U. S. EPA, Industrial Environmental Research Laboratory, Research Triangle Park, N. C. 27711.

Research Outlook 1978, U. S. EPA, Research and Development Branch, EPA report 600/9-78-001 (June 1978).

*Free air pollution infor services, including literature searches, are available to U. S. EPA and State agency personnel from the EPA Library Services, U. S. EPA, Office of Administration, Information Services Division, Research Triangle Park, N. C. 27711.

C-3. GENERAL AGENCY PROCEDURES FOR SOURCE AND CONTROL
SYSTEM EVALUATION

PEDCo Environmental, Inc., Industrial Guide for Air Pollution Control, U. S. Environmental Protection Agency, Technology Transfer Series, EPA-625/6-78-004 (June 1978).

Research Corporation of New England, Enforcement Management System User's Guide, U. S. Environmental Protection Agency, publication APTD-1237 (September 1972).

Stein, A., Guide to Engineering Permit Processing, U. S. Environmental Protection Agency, publication APTD-1164 (July 1972).

U. S. Environmental Protection Agency, Guidelines for Technical Services of a State Air Pollution Control Agency, publication APTD-1347, Research Triangle Park, N. C. (August 1972).

Weisburd, M. I., Field Operations and Enforcement Manual for Air Pollution Control, Vol. I: Organization and Basic Procedures, U. S. Environmental Protection Agency, publication APTD-1100 (August 1972).

Weisburd, M. I., Field Operations and Enforcement Manual for Air Pollution Control, Vol. II: Control Technology and General Source Inspection, U. S. Environmental Protection Agency, publication APTD-1101 (August 1972).

Weisburd, M. I., Field Operations and Enforcement Manual for Air Pollution Control, Vol. III: Inspection Procedures for Specific Industries, U. S. Environmental Protection Agency, publication APTD-1102 (August 1972).

C-4. COMPILATIONS OF AIR POLLUTION REGULATIONS

The Clean Air Act as Amended August 1977, U. S. Government Printing Office, Washington, Serial No. 95-11 (1977).

PEDCo Environmental, Inc., Compilation of Opacity Standards: Standards of Performance for New Stationary Sources, prepared for U. S. EPA, Division of Stationary Source Enforcement Visible Emission Workshop (October 1978).

PEDCo Environmental, Inc., National Emissions Standards for Hazardous Air Pollutants: A Compilation (as of April 1, 1978), U. S. Environmental Protection Agency, publication EPA-340/1-78-008 (April 1978).

PEDCo Environmental, Inc., Standards of Performance for New Stationary Sources: A Compilation (as of October 1, 1977), U. S. Environmental Protection Agency, publication EPA-340/1-77-015 (November 1977).

This publication is scheduled for revision in February 1979.

Research Corporation of New England, Controlled and Uncontrolled Emission Rates and Applicable Limitations for Eighty Processes, U. S. Environmental Protection Agency, publication EPA-340/1-78-004 (April 1978).

C-5. LEGAL ASPECTS OF AIR POLLUTION ENFORCEMENT

- Giblin, P., "Opacity as a Readily Enforceable Standard," paper presented at the 65th annual meeting APCA, Miami, Florida (1972).
- Kennedy, H. W., "Legal Aspects of State Versus Local Control," paper presented at the 53rd annual meeting APCA, Cincinnati, Ohio (1960).
- Malmberg, K. B., "The Opacity Witness," (Draft), Division of Stationary Source Enforcement, U. S. Environmental Protection Agency, Research Triangle Park, N.C. 27711.
- Morse, H. N., Legal Decisions in Air Pollution Control, APCA, Pittsburgh, PA (March 1976).
- PEDCo Environmental, Inc., "Chain-of-Custody Procedure for Source Sampling," Section 3.0.3 of the Quality Assurance Handbook for Air Pollution Measurement Systems, Vol. III-Stationary Source Specific Methods, U. S. Environmental Protection Agency, publication EPA-600/4-77-027b (August 1977), presently being revised.
- Reitze, A. W., Jr., Environmental Law, 2nd edition, North American International, Washington, D.C. (1972).
- Rodgers, J. A., A Primer for EPA Employees: Presenting Scientific Evidence, U.S. Environmental Protection Agency, Office of General Counsel, Washington, D.C. 20460, Stationary Source Enforcement Series (September 1974).
- Sullivan, J. L. and R. J. Roberts, "Expert Witnesses and Environmental Litigation," JAPCA, Vol. 2, No. 4, 353-361 (1975).
- Thomas, W. A. (editor), Scientists in the Legal System, Ann Arbor Publishers, Inc., Ann Arbor, Michigan (1974).
- U. S. Environmental Protection Agency, Enforcement Systems: Stationary Source Emissions Testing (Air Pollution Orientation course), Air Pollution Training Institute publication SI-422-C, Research Triangle Park, N. C. 27711.
- U. S. Environmental Protection Agency, "How to Testify", Training material presented in U. S. EPA Training Institute, Air Pollution Field Enforcement Series, Division of Stationary Source Enforcement, Research Triangle Park, N. C. 27711.

C-6. EVALUATING AIR EMISSIONS PERMITS

Danielson, J. A. (editor), Air Pollution Engineering Manual, 2nd edition, U. S. Environmental Protection Agency, publication AP-40 (May 1973).

Dennis, R. and N. F. Susprenant, Particulate Control Highlights: Research on Fabric Filtration technology, U. S. Environmental Protection Agency, publication EPA-600/8-78-003d (June 1978).

DeRoeck, D. J., Guidelines for the Implementation of a Regional New Source Review Program for Stationary Sources, U. S. Environmental Protection Agency, Office of Air Quality Planning and Standards, publication 1.2-046, Research Triangle Park, N. C. (March 1976).

DiGasbarro, P. and M. Bornstein, Methodology for Inventorying Hydrocarbons, U. S. Environmental Protection Agency, publication EPA-600/4-76-013 (March 1976).

McDonald, J. and L. Felix, Particulate Control Highlights: An Electrostatic Precipitator Performance Model, U. S. Environmental Protection Agency, publication EPA-600/8-77-020b (December 1977).

PEDCo Environmental, Inc., Industrial Guide for Air Pollution Control, U. S. Environmental Protection Agency, Technology Transfer Series, EPA-625/6-78-004 (June 1978).

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