

SELECTED PCB BIBLIOGRAPHY

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SELECTED PCB BIBLIOGRAPHY

The purpose of this bibliography is to inform environmental professionals, students, and the public of polychlorinated biphenyl (PCB) contamination in the United States. Included is introductory material for the non-scientist as well as technical reports for professionals.

The citations are divided into three sections. The first is a listing of bibliographies on PCBs. The second section covers properties and industrial uses of PCB and incidence of contamination in the biotic and abiotic spheres. The third section is a review of current methods for the treatment and disposal of PCB wastes. Included are case studies of two sites which have been studied extensively for several years: the Acushnet River Estuary/ New Bedford Harbor Area and the Hudson River. Administrative guidelines are also included.

The problem of PCB contamination in our environment is a well documented one, and is of international concern. The selection of publications for inclusion was based upon several factors including timeliness and specificity. The majority of the reports were published after 1980, particularly those technical in nature. An effort was made to avoid overlapping subject matter. One comprehensive report was favored over several more limited ones.

This bibliography does not include all the material on PCBs in the Region 1 Library, but is representative of available information. If the reports can be found in the Region 1 Library, an asterick (indicating paper copy) or a pound mark (indicating microfiche) will precede the citation. If the report or journal article does not included references, it will be so noted.

BIBLIOGRAPHIES

- 01A 000 2720

01A 000 2745

EPA 560/ 5-82-005

01A 000 2849

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SECTION TWO

PROPERTIES, USES, AND INCIDENCE OF CONTAMINATION

Reports

* Ambient Water Quality Criteria for Polychlorinated Biphenyls.

U.S. EPA, Office of Water Regulations and Standards, Washington, D.C.
1980, 200 p.
PB81-117 798

EPA 440/ 5-80-068

Update of U.S. EPA Water Quality Criteria (1976), reflects gains in scientific knowledge about PCBs. Includes concentration criteria for the protection of fresh and saltwater aquatic life, and safe concentrations for humans.

* Burros, Robert P. Assessment of the Environmental and Economic Impacts of the Ban on Imports of PCBs. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1977, 176 p.

PB-270 225

EPA 560/ 6-77-007

Summary of investigation of the uses of imported PCBs in the United States. Short sections included cover how other industrial nations are dealing with the PCB problem.

* Callahan, Michael A., et al. Water-Related Environmental Fate of 129 Priority Pollutants, Volume 1: Introduction and Technical Background, Metals and Inorganics, Pesticides and PCBs. U.S. EPA, Office of Water Planning and Standards, Washington, D.C. 1979. 514 p.

PB80-204 373

EPA 440/ 4-79-029A

Literature search and summary of data for the individual fate processes that could occur if a pollutant were introduced into an aquatic system. Chapter 36 deals with PCBs, and includes physical properties and biochemical processes.

* Carr, Roderick A., et al. PCBs Involvement in the Pulp and Paper Industry. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1977, 110 p.

EPA 560/ 6-77-005

Detailed discussion of the sources, distribution, and losses of PCBs in the U.S. pulp and paper industry. Model presented of the past and projected PCB content in products and wastewater from the industry.

- # Colwell, Rita R., and Gary S. Sayler. Effects and Interactions of Polychlorinated Biphenyls (PCB) with Estuarine Microorganisms and Shellfish. U.S. EPA, Environmental Research Laboratory, Gulf Breeze, Florida. 1977, 57 p.
PB-272 103 EPA 600/ 3-77-070

Role of estuarine bacteria in the mobilization, transport, and removal of PCBs is investigated. Objective of researchers was to determine impact (stress) of PCB contamination in an estuarine ecosystem.

- # Criteria Document: Recommendations for an Occupational Exposure Standard for Polychlorinated Biphenyls. National Institute for Occupational Safety and Health, Cincinnati, Ohio. 1977, 234 p.
PB-276 849 NIOSH 77-225

Gives recommended rate for occupational exposure to PCBs. Criteria outlined for medical examinations of employees, labelling and posting, protective equipment and clothing, and monitoring and record-keeping.

- # Erickson, M.D., et al. Analytical Methods for By-Product PCBs-Preliminary Validation and Interim Methods. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1982, 243 p.
PB83-127 696 EPA 560/ 5-82-006

Proposed methods for analysis of by-product PCBs in commercial products, wastewaters, and air. Includes revisions of earlier EPA standard methods, and proposed EPA methods for collection and analysis of PCBs in air and flue-gas emissions.

- # Farrington, John W., et al. Hydrocarbons, Polychlorinated Biphenyls, and DDE in Mussels and Oysters from the U.S. Coast, 1976-1978 -- The Mussel Watch. Woods Hole Oceanographic Institute. 1982, 111 p.
PB83-133 371 WHOI-82-42

Several species of mussels and oysters were sampled at 90-100 stations around the U.S. coastline during 1976, 77, and 78. Data for concentrations of PCB, DDE, and various hydrocarbons are presented. Author discusses the use of bivalves as sentinel organisms for coastal chemical pollution.

- * Finlay, Doris H., et al. Review of PCB Levels in the Environment. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1976, 143 p.
PB-253 735 EPA 560/ 7-76-001

Assessment of PCB levels in the environment on a national level. Data

obtained from national monitoring programs, scientific literature, and unpublished reports up to December 1, 1975.

- * Fisher, F.M. Maximum Utilization of Water Resources in a Planned Community. U.S. EOA, Municipal Environmental Laboratory, Cincinnati, Ohio. 1980, 81 p.
PB81-112 880 EPA 600/ 2-80-113

Report describes the development of a community and its contribution of organochlorine compounds to the surrounding aquatic ecosystem. The paper discusses the effects of cut and fill operations, road bed construction, service installations, etc. Water, soil, and biotic components were assayed over a 38-month period at the Texas site.

- # Griffin, R.A., E.S. Chian. Attenuation of Water-Soluble Polychlorinated Biphenyls by Earth Materials. (Final Report) U.S. EPA, Office of Research and Development, Cincinnati, Ohio. 1980. 104 p.
PB80-219 652 EPA 600/2-80-027

Aqueous solubility, adsorption, mobility, microbial degradation, and volatility of PCBs were studied under laboratory conditions. Analysis of the adsorption of water-soluble PCBs by five earth materials included.

- * Hazardous Materials Incidents Reported to U.S. Environmental Protection Agency Regional Offices From October 1977 Through September 1979. U.S. EPA, Oil and Special Materials Control Division, Washington, D.C. 1980. 418 p.
PB80-144 637 EPA 430/ 9-79-019

Record of hazardous material incidents reported to EPA regional offices. Information on 3,076 incidents including location, type of incident, material and volume involved, and the environmental medium affected. Material on PCB spills included.

- * Hern, Stephen C., et al. Pesticides and Polychlorinated Biphenyls in the Atchafalaya Basin, Louisiana. U.S. EPA, Office of Research and Development, Las Vegas, Nevada. 1979. 89 p.
PB80-144 835 EPA 600/ 4-79-061

Collection and analysis of water, bottom sediments, and fish samples from the Atchafalaya River Basin from 1974 to 1977. Pattern of distribution of PCBs and pesticides reflects agricultural activity in surrounding area.

- * Industry Views on the Use of Polychlorinated Biphenyls in Transformers and Capacitors. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1976. 42 p.

Compilation of statements by industry leaders (PCB manufacturers and users) regarding PCB regulations and PCB substitutes.

- * Kimbrough, Renate D., editor. Halogenated Biphenyls, Terphenyls, Napthalenes, Dibenzodioxins and Related Products. Elsevier/North Holland Biomedical Press, New York. 1980. 406 p.
RA1242 .H35H

Comprehensive study of this group of chemicals covering chemical properties, environmental fate, toxicological studies in animals, and general population exposure to halogenated biphenyls. The contamination of food supply in Yusho, Japan and Michigan also discussed. Several hundred references cited.

- * Kolek, Andrew and Russell Ceurvels. Polychlorinated Biphenyl (PCB) Analyses of Marine Organisms in the New Bedford Area, 1976-1980. Commonwealth of Massachusetts, Division of Marine Fisheries. 1981. 33 p.
01A 000 3563

Description of a program to analyze finfish, shellfish, and crustaceans in the New Bedford Area waters for PCB content. Discussion of methodology, study areas, and results.

- * National Conference on Polychlorinated Biphenyls (November 19-21, 1975, Chicago, Illinois). U.S. EPA, Office of Toxic Substances, Washington, D.C. 1976. 469 p.
PB-253 248 EPA 560/6-75-004

Conference held to "bring together the latest data and best available expertise to clarify problems associated with the manufacture, use, and disposal of PCBs." Over 75 technical reports are included which cover virtually all aspects of PCBs.

- Nicholson, William J. and John A. Moore, editors. Health Effects of Halogenated Aromatic Hydrocarbons. New York Academy of Sciences. 1979. 730 p.
Annals of the New York Academy of Sciences, Volume 320.

Volume presents material from an international conference of the same title and several related workshops held June 24-27, 1978. Several articles within this volume deal with topics such as storage and health effects in man, fate of PCBs in river systems, and the Yusho poisoning incident.

- * PCB's in the United States- Industrial Use and Environmental Distribution, Task 1. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1976. 487 p.
PB-252 402 EPA 560/6-76-005

This report is a comprehensive treatment of the PCB contamination problem. Information is derived from detailed studies of production, past and present generation and disposal of PCB wastes, environmental transport, potential alternatives to PCB usage, and current regulatory authorities involved in its control. The report warns that there is a potentially severe future hazard due to large amounts of PCBs in land disposal sites.

- * Polychlorinated Biphenyls. National Academy of Sciences. 1979. 182 p.
QH 545 .P6 N37 1979

Included in this concise monograph are a model of PCB distribution in the environment, estimates of the current reservoir, and an economic impact analysis of control options. The Committee on the Assessment of Polychlorinated Biphenyls in the Environment sets forth its recommendations for guidelines and areas of needed study.

- * Sampling Survey Related to Possible Emissions of Polychlorinated Biphenyls (PCBs) from the Incineration of Domestic Refuse. U.S. EPA, Region V, Chicago, Illinois. 1975. 47 p.
01A 000 3660

The Air Quality Branch of Region V's Surveillance and Analysis Division began a project to quantify PCB levels associated with the incineration of domestic waste. Since the manufacture of paper products using recycled paper has been found to be a major source of PCB in industrial effluent, this project attempts to determine if domestic refuse constitutes a source of PCBs to ambient air.

- # Smith, J.A., et al. Follow-Up Study of the Distribution and Fate of Polychlorinated Biphenyls and Benzenes in Soil and Groundwater Samples After an Accidental Spill of Transformer Fluid. U.S. EPA, Region IV, Atlanta, Georgia. 1976. 19 p.
PB-273 984

Brief discussion of the technical aspects of the fate of spill residuals, after the initial cleanup and after three years. Topics considered are biodegradation of PCBs, effects of weather and climate, and soil dynamics. This report was presented at the 1976 National Conference on Control of Hazardous Materials Spills, New Orleans, Louisiana.

- # Stratton, Charles L., et al. Environmental Assessment of Polychlorinated Biphenyls (PCBs) Near New Bedford, MA. Municipal Landfill. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1978. 48 p.
PB-291 245 EPA 560/6-78-006

A field survey and sampling of water, vegetation, air, and aquatic and terrestrial biota was conducted in a landfill site to assess transport of PCBs from that landfill. The site, located in a wetland area, had been used for PCB disposal for many years.

- * Weaver, Grant. PCB Pollution in the New Bedford, Massachusetts Area. Massachusetts Coastal Zone Management. 1982. 62 p.
01A 000 3503

Broad treatment of PCB contamination in food, animals, man, and the environment. Other subjects considered include health effects, federal limits and standards, and the manufacturers of PCB products in the New Bedford area. Other contaminated sites across the country are briefly discussed.

Journal Articles

- * Billings, W.N., et al. "Movement of PCB from a contaminated reservoir into a drinking water supply." BULLETIN OF ENVIRONMENTAL CONTAMINATION AND TOXICOLOGY, 1978, pp. 215-222.

Report describes the movement of PCB from a contaminated reservoir through a water treatment plant into a drinking water supply. Author discusses the extent of contamination due to PCB input into freshwater by industry. (Pam. file)

- * Bopp, Richard F., et al. "Polychlorinated biphenyls in sediments of tidal Hudson River, New York." ENVIRONMENTAL SCIENCE AND TECHNOLOGY, Vol. 15, No. 2 (1981). pp. 210-215.

The sediment data presented in this report indicates gross PCB contamination of the Hudson River system over the past three decades.

- * Brown, David P. and M. Jones. "Mortality and industrial hygiene study of workers exposed to polychlorinated biphenyls." ARCHIVES OF ENVIRONMENTAL HEALTH, Vol. 36, No. 3. (1981), pp. 120-130.

Results of NIOSH retrospective cohort mortality study of 2,567 workers in two plants (one in New York, one in Massachusetts) where PCBs were used in manufacturing capacitors.

- * Drotman, D. Peter, et al. "Contamination of the food chain by polychlorinated biphenyls from a broken transformer." AMERICAN JOURNAL OF PUBLIC HEALTH, Vol. 73, No. 3 (1983), pp. 290-292.

An accidental leakage of PCBs from a transformer stored in a hog slaughtering plant in Montana resulted in widespread distribution of dairy products contaminated by PCBs. (Pam. file)

- Finklea, J., et al. "Polychlorinated biphenyl residues in human plasma expose a major urban pollution problem." AMERICAN JOURNAL OF PUBLIC HEALTH, Vol. 62 (1872), pp. 645-End.

In a southeastern county, a research team assayed 723 plasma samples for PCB and chlorinated hydrocarbon residues. The volunteers were healthy and not occupationally exposed to PCBs or pesticides. Residues were found in 43% of the population ranging up to 29 ppb.

- * Hoey, K., et al. "Use and health effects of Aroclor 1242, a polychlorinated biphenyl, in an electrical industry." ARCHIVES OF ENVIRONMENTAL HEALTH, Vol. 31 (1976), pp. 189-194.

34 occupationally exposed workers were examined for level in blood of Aroclor 1242. Mean blood level in group was 400 ppb. Some medical abnormalities were observed.

- Horn, Edward G., et al. "The problem of PCBs in the Hudson River system." Health Effects of Halogenated Aromatic Hydrocarbons, National Academy of Sciences, Vol. 320 (1979), pp. 591-609.

Discussion of PCB contamination in the Hudson River due to discharge from capacitor manufacturing facilities. Description of the conditions of the river two years after contaminated discharges ceased.

- * Jensen, Sören, "The PCB Story." AMBIO, Vol. 1, No. 4 (1972), pp. 123-131.

Sören Jensen, Swedish chemist who first identified PCBs, relates the history of its discovery as a toxic substance. Jensen includes test results showing PCB blood levels from PCB-contaminated Japanese, Swedish, and American persons.

- * Kuratsune, Masanori, et al. "Epidemiologic study on Yusho, a poisoning caused by ingestion of rice oil contaminated with a commercial brand of polychlorinated biphenyls." ENVIRONMENTAL HEALTH PERSPECTIVES, 1972, pp. 119-128.

Report of the epidemic of skin disease and other disorders in Fukuoka-Ken, Japan, the first major outbreak reported. Authors describe epidemiological studies and efforts to trace the outbreak.

- * MacLeod, Kathryn E. "Polychlorinated biphenyls in indoor air." ENVIRONMENTAL SCIENCE AND TECHNOLOGY, Vol. 15, No. 8 (1980), pp. 926-928.
PB82-154 931

Report describes methods of analysis of PCBs utilizing low-volume indoor air sampling. Indoor air, whether in commercial, industrial, or residential buildings, contains higher levels of PCBs than ambient air.

- * Mowrer, J., et al. "PCB in a Lake Geneva ecosystem." AMBIO, Vol. 11, No. 6 (1982), pp. 350-358.

Analysis of sediments, algae, pondweeds, plankton, mussels, fish, and eggs of waterfowl from Les Grangettes, a nature reserve of Lake Geneva was taken to determine extent of PCB contamination. PCB concentrations were found to be similar to those of the Baltic Sea, an area considered to be severely contaminated by PCBs.

- Thomann, Robert V. and John P. St. John. "The fate of PCBs in the Hudson River ecosystems." Annals of the New York Academy of Sciences, Vol. 320, (1979), pp. 610-629.

A description of the distribution and fate of PCBs in the Hudson River, with emphasis on the aquatic ecosystems.

- Urabe, Harukuni, et al. "Present state of Yusho patients." Annals of the New York Academy of Sciences, Vol. 320 (1979), pp. 273-276.

"Yusho" is the Japanese term for the notorious mass case of PCB poisoning that occurred in 1968 as a result of contaminated cooking oil. Epidemiologic studies are included in this report, and a discussion of the causes of death, both immediate and delayed.

- * Veith, G.D., et al. "Polychlorinated biphenyls and other organic chemical residues in fish from major United States watersheds near the Great Lakes." PESTICIDES MONITORING JOURNAL, Vol. 15, No. 1 (1981), pp. 1-8.
PB82-207 903

26 composite samples of fish were collected during 1978 from U.S. watersheds near the Great Lakes. Samples were analyzed for PCBs and related organic compounds.

- Wasserman, Marcus, et al. "World PCBs map: storage and effects in man and his biologic environment in the 1970s." Annals of the New York Academy of Sciences, Vol. 320 (1979), pp. 69-124.

Report uses scientific data from all over the world to describe the epidemiologic features of PCBs stored in man and in the environment. Health effects are also discussed.

SECTION THREE

METHODOLOGY AND GUIDELINES FOR DISPOSAL OF PCBs

- # Ackerman, D.G. Guidelines for the Disposal of PCBs (Polychlorinated Biphenyls) and PCB Items by Thermal Destruction. U.S. EPA, Office of Pesticides and Toxic Substances, Washington, D.C. 1981. 319 p.
PB81-182 339 EPA 600/2-81-022

This document was designed to aid EPA regional offices in interpreting and applying PCB regulations for the thermal destruction of PCBs. Report covers fundamental processes of combustion, flame chemistry, thermal destruction systems, and sampling and analysis methods. Administrative concerns also addressed.

- * Assessment of Wastewater Management, Treatment Technology, and Associated Costs for Abatement of PCBs Concentrations in Industrial Effluents. Task II, Final Report. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1976. 281 p.
PB-251 433 EPA 560/6-76-006

A study which seeks to determine toxic pollutant effluent concentrations and daily load achievable for three industrial categories: PCB manufacturing; capacitor manufacturing; and transformer manufacturing. Included is an extensive survey of wastewater treatment technologies.

- # Blazeitch, Joseph N., et al. Monitoring of Trace Constituents During PCB Recovery Dredging Operation: Duwamish Waterway. U.S. EPA, Surveillance and Analysis Division, Region V, Chicago, Illinois. 1977. 156 p.
PB-275 282 EPA 910/9-77-039

Report describes the monitoring program conducted after a spill of 255 gallons of transformer fluid (Aroclor 1242). The spill occurred in Duwamish River in Seattle, Washington. Researchers evaluate the data acquired before, during, and after the recovery operations.

- # Caragay, Alegria B. and Phillip L. Levins. Evaluation of Protocols for Pesticides and PCB's in Raw Wastewater. U.S. EPA, Office of Research and Development, Cincinnati, Ohio, 1979. 112 p.

Raw wastewater from a municipal sewage treatment plant in Brockton, Massachusetts was dosed with 1-30 ppb of pesticides and PCBs. Samples were then assayed in an effort to test EPA protocol for screening industrial effluents for priority pollutants and to determine if it is applicable for analysis of raw wastewater.

- # Collins, P.F. and G.F. Hunt. Evaluation of PCB Destruction Efficiency in an Industrial Boiler: Audit Report. U.S. EPA, Office of Research and Development, Research Triangle Park, North Carolina. 1981. 32 p.
PB81-187 270 EPA 600/2-81-055b

This report gives the results of a systems audit and evaluates the quality of data obtained by General Motors and GCA Corporation in an analysis of test burn oil for PCB conducted by Research Triangle Park. The audit includes inspection of documentation, data, and consideration of analytical methodology.

- # Cotter, J.E. and R.J. Johnson. Facilities Evaluation of High Efficiency Boiler Destruction of PCB Waste. U.S. EPA, Office of Environmental Engineering and Technology, Research Triangle Park, North Carolina. 1981. 45 p.
PB81-178 287 EPA 600/ 7-81-031

Report evaluates two different high efficiency boilers for the destruction of wastes found to be contaminated by PCBs due to a transformer leak.

Development Document for Proposed Effluent Limitations Guidelines and Standards for Control of Polychlorinated Biphenyls in the Deink Subcategory of the Pulp, Paper, and Paperboard Point Source Category. U.S. EPA, Effluent Guidelines Division, Washington, D.C. 1982. 80 p.

EPA is proposing regulations to limit the discharge of PCBs into waters in the U.S.A. from mills in said industry. This document addresses effluent limitations based on Best Available Technology (BAT), performance standards and pretreatment standards (NSPS, PSES, and PSNS).

- * EPA's Final PCB Ban Rule: Over 100 Questions and Answers to Help You Meet These Requirements. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1980. 40 p.
01A 000 3070 *updated 1983 (See OIA 000 3846)*

Guide for industries to adhere to the Final Rule for Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions. The book has a question and answer format, and the language is non-technical.

- * Erikson, Mitchell D. and Edo D. Pellizzari. Identification and Analysis of Polychlorinated Biphenyls and Other Related Chemicals in Municipal Sewage Sludge Samples. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1977. 165 p.
PB-273 EPA 560/ 6-77-021

Sludge samples received from nine major U.S. cities were analyzed for PCB content and other chlorinated compounds. Methods were developed for the extraction, clean-up, and gas chromatography/mass spectroscopy analysis of PCBs in municipal sludge.

- * Malcolm Pirnie, Incorporated. Acushnet River Estuary PCB Study. Commonwealth of Massachusetts, Division of Water Pollution Control. 1982. 122 p.
01A 000 3659

The objectives of this comprehensive study are to characterize the nature and extent of the PCB contamination problem in the Acushnet River Estuary-New Bedford Harbor Area, and to evaluate dredging programs to reduce further contamination. Technical considerations are discussed, including geography, sediment data analysis program, dredge material disposal, and the environmental impact of this project.

- # McInnes, Robert G. Technical Assistance in Support of Permitting Activities for the Thermal Destruction of PCBs. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1981. 70 p..
PB82-231 325 EPA 600/ 2-81-240

Resport describes phased efforts to identify, evaluate, and provide technical permitting assistance to utility boilers considering thermal destruction of PCB-contaminated mineral oil.

- # Millar, John D., et al. Determination of Pesticides and PCB's in Industrial and Municipal Wastewaters. U.S. EPA, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio. 1982. 220 p.
PB82-214 222 EPA 600/ 4-82-023

Procedures for the analysis of 25 chlorinated pesticides and PCB's were studied. Methods using two gas chromatographic columns and two detectors (electron capture and electrolytic conductivity) were evaluated.

- # Moein, George J., et al. Follow-up Study of the Distribution and Fate of Polychlorinated Biphenyls and Benzenes in Soil and Ground Water Samples After an Accidental Spill of Transformer Fluid. U.S. EPA, Region V, Atlanta, Georgia. 1976. 145 p.
PB-288 484 EPA 904/ 9-76-014

This technically oriented study seeks to derive a PCB concentration profile in a spill area two years after the occurrence of the spill. Field work and laboratory analysis were undertaken to examine the numerous environmental factors which determine the fate of these toxic pollutants in the natural environment.

- * New Bedford Remedial Action Master Plan, Final Report. U.S. EPA, Region 1, Waste Management Division, Boston, Massachusetts. 1983. 116 p.
U.S. EPA Contract No. 68-03-1613

01A 000 3885

This report was developed to aid the planning of remedial actions at the New Bedford, Massachusetts area. "The primary functions of the RAMP are to review available data, to assess data needs, and to identify the type, scope, sequence, schedule, and costs of remedial projects..." Background information about the various PCB-contaminated sites in the New Bedford area is given.

- * The PCB Contamination Problem in Waukegan, Illinois. U.S. EPA, Region V, Chicago- Illinois. 1981. 58 p.
01A 000 3605

Report discusses many aspects of the Lake Michigan PCB problem, including sediment analysis, water quality, government response and proposed solutions. The merits of several options are considered, and a recommendation is forwarded for the final disposal of PCB-contaminated materials.

- # PCB Disposal by Thermal Destruction. U.S. EPA, Region VI, Air and Hazardous Materials Division, Dallas, Texas. 1982. 610 p.
PB82-241 860 EPA 906/ 9-82-003

Consideration of the risks and benefits associated with incineration of PCBs at two commercial facilities: Deer Park, Texas and El Dorado, Arkansas. PCB incineration reports and emission sampling reports are included, as are air dispersion modelling results.

- # Queenan, Charles J. and Michael M. Schnitzer. Regulatory Impact Analysis of the Use Rule for PCB-Containing Electrical Equipment. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1982. 203 p.
PB83-105 742 EPA 560/ 4-82-004

Update and revision of the Regulatory Impact Analysis for the proposed Electrical Equipment Rulemaking. Alternative approaches to the phase-out of PCB use are considered. An assessment of the benefits of long-term versus short-term phase-outs is presented, with an estimated cost to industries.

- # Rodriguez, Charles F., et al. Method Development for Determination of Polychlorinated Hydrocarbons in Municipal Sludge. U.S. EPA, Office of Research and Development, Cincinnati, Ohio. 1980. 75 p.
PB80-198 401 EPA 600/ 2-80-029

Procedure for analysis of pesticides and PCBs in municipal sludge. The method includes extraction of chlorinated compounds from the sample matrix; separating and detecting individual compounds; and confirming the identity of those compounds. Minimum detectability level is 0.3 mg of pesticide per Kg of sludge.

- * Scinto, L.L., et al. Preliminary Operations Plan and Guidelines for the At-Sea Incineration of Liquid PCB (Polychlorinated biphenyl) Wastes. U.S. EPA, Industrial Environmental Research Laboratory, Research Triangle Park, North Carolina. 1982. 121 p.
PB83-181 834 EPA 600/ 2-82-068

This guidelines report is divided into two parts: Subtask A, the development of an inventory of government-owned PCB wastes available for at-sea incineration; and Subtask B, the development of operating plans for an EPA-coordinated disposal of the wastes. Both land-based and at-sea operations are discussed.

- # Stratton, Charles L., et al. A Method for Sampling and Analysis of Polychlorinated Biphenyls (PCBs) in Ambient Air. U.S. EPA, Office of Research and Development, Research Triangle Park. 1978. 133 p.
PB-228 410 EPA 600/ 4-78-048

Procedure for sampling and analysis of PCBs in air. Results of field tests of the method under a variety of ambient conditions are discussed.

- # Sworzyn, E.M. and D.G. Ackerman. Interim Guidelines for the Disposal/Destruction of PCBs and PCB Items by Non-Thermal Methods. U.S. EPA, Office of Research and Development, Research Triangle Park, North Carolina. 1982. 177 p.
PB82-217 498 EPA 600/ 2-82-069

Interim guideline document designed to aid EPA regional offices in implementing PCB regulations for using non-thermal methods of disposing and/or destroying PCBs. Description and evaluation of various chemical, physical, and biological PCB removal or destruction technologies.

- # Westin, Robert and Bruce Woodcock. Support Document/ Voluntary Environmental Impact Statement for Polychlorinated Biphenyl (PCB) Manufacturing, Processing, Distribution in Commerce, and Use Ban Regulation: Economic Impact Analysis. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1979. 315 p.
PB82-178 500 EPA 560/ 3-82-001

Summary of estimated economic impacts of the PCB Ban Regulations which implement the requirements of the Toxic Substances Control Act (TSCA). This document was prepared to address major comments made and received during the rulemaking proceedings.

Zelenski, Steven G., et al. Applying for a Permit to Destroy PCB (Polychlorinated Biphenyl) Waste Oil. Volume I- Summary. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1981. 85 p.
PB81-173 346 EPA 600/ 2-81-033A

First part of a two volume document describing the permitting process followed by Michigan before allowing a trial destruction burn of PCBs at General Motor's Bay City plant. Volume one chronicles the sequence of events, and the interaction of various government agencies and General Motors.

Zelenski, Steven G., et al. Applying for a Permit to Destroy PCB (Polychlorinated Biphenyl) Waste Oil. Volume II- Documentation. U.S. EPA, Office of Toxic Substances, Washington, D.C. 1981. 220 p.
PB81-234 874 EPA 600/ 2-81-033B

Full text of relevant documents summarized in volume one.

Reports

* Berry, Reginald I. "New ways to destroy PCBs." CHEMICAL ENGINEERING, Vol. 88, No. 16 (1981), pp. 37-41.

Discussion of chemical routes to break down PCBs, and "exotic" thermal methods other than incineration. Author points out that some of the new techniques are cheaper, easier, portable, and result in useful by-products.

* Black, Myron W. and Jon R. Swanson. "Destruction of PCBs in cement kilns." POLLUTION ENGINEERING, Vol. 15, No. 6 (1983), pp. 50-53.

Authors present support for the use of cement kilns for PCB incineration, stating that this method fulfills EPA conditions as stated in 40 CFR Part 761. Several case studies are discussed. The authors note that public opposition to PCB disposal operations is a major obstacle.

* Fox, L.L. and N.J. Merrick. "Controlling residual polychlorinated biphenyls in wastewater treatment through conventional means." Proceedings of the 37th Industrial Waste Conference, May 11, 12, and 13, 1982. Ann Arbor Science. 1983. pp. 413-423.
TA7.15 1982

Description of a clean-up and monitoring program initiated by an industrial plant of its own wastewater treatment facilities. The authors claim that efficient management of conventional treatment plants can remove PCBs to such an extent that tertiary unit processes (activated carbon) are unnecessary.

- * Hayashi, T. "Control of toxic effluents and management of toxic bottom sediments." Management of Bottom Sediments Containing Toxic Substances. Proceedings of the Third U.S.-Japan Experts' Meeting. 1978. pp. 1-9.
PB-289 777 EPA 600/ 3-78-084

Discussion of water pollution control measures designed to regulate the discharge of toxic substances and to treat bottom sediments contaminated by mercury and PCBs. No references cited.

- * Horn, Edward G. and Leo J. Hetling. "Hudson River-PCB study description and detailed work plan." Management of Bottom Sediments Containing Toxic Substances. Proceedings of the Third U.S.-Japan Experts' Meeting. 1978.
pp. 183-198.
PB-289 777 EPA 600/ 3-78-084

Detailed description of the Department of Conservation's program related to monitoring and reclamation of the Hudson River. The program evolved into the "PCB Settlement," formed to clean up the river, and involved state and federal agencies and the General Electric company. The settlement included provisions for remedial action and disposal of wastes.

- * Hoba, Hiroma. "Recent progress in techniques for managing contaminated bottom sediments." Management of Bottom Sediments Containing Toxic Substances. Proceedings of the Third U.S.-Japan Experts' Meeting. 1978. pp. 49-64.
PB-289 777 EPA 600/ 3-78-084

Introduction to recent progress in dealing with contaminated bottom sediments. Includes comments on the Technical Guidelines prepared by the Japan Dredging and Reclamation Engineering Association. Discusses the secondary pollution caused by removal and disposal operations, and techniques to minimize turbidity while maintaining dredging efficiency.

- * Shiaris, Michael P. and Gary S. Sayler. "Biotransformation of PCB by natural assemblages of freshwater microorganisms." ENVIRONMENTAL SCIENCE AND TECHNOLOGY, Vol. 16, No. 6 (1982), pp. 367-369.

Natural mixed microbial populations in lake water were found capable of oxidizing certain biphenyls. Oxidation of 2-chloro-biphenyl resulted in the accumulation of two biotransformational products, which were found to be environmentally stable in aquatic environments.

- * Sonksen, Marshall K. and John A. Lease. "Evaluation of cement dust stabilization of polychlorinated biphenyl-contaminated sludges." Proceedings of the 37th Industrial Waste Conference, May 11, 12, and 13, 1982. Ann Arbor Science. 1983. pp. 405-412.
TA7.15

Authors present a method of using cement dust as the solidifying agent of PCB-contaminated sludge. Results of laboratory and on-site testing demonstrate that PCBs have an affinity for solids adsorption, and effective solids mixing results in reduction of PCB in the leachate.

Tucker, E.S., et al. "Migration of polychlorinated biphenyls in soil induced by percolating water." BULLETIN OF ENVIRONMENTAL CONTAMINATION AND TOXICOLOGY. Vol. 13, No. 1 (1975). pp. 86-93.

Objective of the study was to produce data which would help evaluate the suitability of landfill disposal of PCB-contaminated wastes. Authors state that the results of the study demonstrate that landfills are only a minor source for PCB environmental contamination.

* Webber, Melvin D., et al. "Assessment of heavy metals and PCBs at sludge application sites." JOURNAL WATER POLLUTION CONTROL FEDERATION. Vol. 55, No. 2 (1983). pp. 187-195.

Land application of sludge was evaluated at ten sites in Ontario. Field tests were conducted to determine if toxic constituents in the sludge reduce soil productivity or gain access to the food chain. The study was sponsored by the Canada-Ontario Agreement on Great Lakes Water Quality.