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EPA

The PCB Regulations Under TSCA:

Over 100 Questions and Answers to Help You Meet These Requirements

Prepared by:
TSCA Assistance Office and
Exposure Evaluation Division
Office of Toxic Substances
U.S. Environmental Protection Agency

Revised Edition No. 3
August 1983

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U.S. Environmental Protection Agency
Region V, Library
230 South Dearborn Street
Chicago, Illinois 60604

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U,S. Environmental Protection Agency

INTRODUCTION

PURPOSE: The primary purpose of this publication* is to provide an easy-to-use guide, in addition to a package of key information, which assists the sector of industry that needs to know about, and comply with, EPA's regulations for polychlorinated biphenyls (PCBs). The Guide, within its "Q&A" format, both addresses the major requirements and presents answers to frequently asked questions concerning the PCB rules.

Two earlier PCB "Q&A" booklets precede this publication, each one with the intention of providing timely assistance to industry on the PCB control measures.

Once again, the PCB rulemaking activity has progressed, and therefore, the need for a third, updated "Q&A". At this point in the PCB rulemaking activities, we have several notices that make up the final PCB control actions. To be specific, there are now four (4) final Federal Register notices incorporated into the control of PCBs (and a fifth to be completed in July 1984). This publication not only presents the requirements and issues concerning the PCB control measures, but it also is a "package" of all the key official information concerning PCBs. In fact, almost every answer is cross-referenced to the actual Federal Register notice in the Appendix.

ORGANIZATION: This publication consists of four (4) distinct sections:

(1) A Background/Summary of PCB Regulatory Actions to date;
(2) Q&A's: General PCB Information;
(3) Q&A's: Requirements of the Final PCB Rules;
(4) Appendix: Key Official Documents concerning Final PCB Rules.

HOW TO USE THIS GUIDE: If you are familiar with the PCB rules you can go directly to the "Table of Contents" to locate the item of interest to you.

However, if the PCB rules are new or unfamiliar to you, you may want to take this approach:

(1) Read the general PCB information Q&As (pp. 9-49).
(2) Read the Background/Summary of the PCB Regulatory Actions;

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*This publication has been prepared by the TSCA Industry Assistance Office and the Exposure Evaluation Division within EPA's Office of Toxic Substances. It is an informal document, and persons are directed to the PCB Final Rules for specific legal requirements.

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(3) Read the "Introductory Information" portion of each of the Q&A notice sections;
(4) Refer to the "Subject Index" to find the item of interest to you.

FOR FURTHER INFORMATION: For further assistance on the PCB issue, or additional copies of this publication or other documents mentioned, call the TSCA Assistance Office Toll Free Number:

800-424-9065 (in Washington, D.C. area: 554-1404).

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SUBJECT INDEX

To further assist those who need to know about the PCB rule requirements, the following index was prepared. The subjects dealt with throughout the Q&A portion of the publication are listed alphabetically, along with the specific questions that address them.

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BACKGROUND/SUMMARY OF PCB REGULATORY ACTIONS

In 1976, Congress passed the Toxic Substances Control Act (TSCA) and specifically directed EPA to regulate polychlorinated biphenyls (PCBs). While other provisions of TSCA direct EPA to regulate chemicals that present an "unreasonable risk of injury to health and the environment," section 6(e) is the only provision of TSCA that directly controls the manufacture, processing, distribution in commerce, use, and disposal of specific chemical substances, PCBs.

Congress took this action because it believed that the chemical and toxicological properties of PCBs were such that their continued manufacture, processing, distribution in commerce and use would pose significant risks to public health and the environment.

Section 6(e) of TSCA not only bans the manufacture, processing, distribution in commerce, and use of PCBs, but also controls the disposal of PCBs. The Act directly bans the manufacture of new PCBs, prohibits the processing, distribution in commerce, and use of all PCBs in other than a totally enclosed manner, and requires proper disposal of PCBs. Although PCBs are banned, Congress did give EPA the authority to grant certain limited exceptions to the total ban. EPA can: (1) authorize a particular use of PCBs (provided the use does not present an unreasonable risk to public health and the environment), and (2) exempt certain activities from the ban on the manufacture, processing, and distribution in commerce of PCBs (provided the activity does not present an unreasonable risk to public health and the environment and that good faith efforts have been made to find a substitute for the PCBs).

Use authorizations are initiated by EPA through rulemaking. Exemptions to the ban on the manufacture, processing, and distribution in commerce of PCBs can only be granted upon petition, on a case-by-case basis through rulemaking. Further, exemptions cannot be granted for more than one year. Exemptions must be reviewed on an annual basis.

There are two major categories of PCBs: (1) PCBs intentionally manufactured for use in electrical and other types of equipment and (2) PCBs produced inadvertently as byproducts and impurities. The intentional manufacture of PCBs for other than research purposes no longer occurs. However, PCBs are contained in electrical equipment and other types of equipment that are currently in use, and PCBs are present in the environment as a result of the manufacture and use of PCBs in electrical equipment for over 50 years. "Byproduct PCBs" can be produced when chlorine, hydrocarbon, and elevated temperatures or catalysts are present together. Since this combination of conditions is quite prevalent in the organic chemical industry, EPA believes that this industry may be a major source of byproduct PCBs.

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EPA's strategy for regulating PCBs has, then, taken two distinct pathways: (1) the regulation of PCBs in electrical equipment, and (2) the regulation of byproduct PCBs.

In May of 1979, EPA issued final rules covering the manufacture, processing, distribution in commerce, use, and disposal and marking of PCBs. The rule:

(1) classifies the use of PCBs in transformers, capacitors, and electromagnets as "totally enclosed;"

(2) establishes requirements for the marking and disposal of PCBs in concentrations over 50 ppm;

(3) establishes a regulatory cutoff at 50 ppm for the manufacture, processing, distribution in commerce and use of PCBs; and

(4) authorizes the use of PCBs in eleven different activities.

The Environmental Defense Fund (EDF) sought judicial review of provisions 1, 3, and 4 above, in the U.S. Court of Appeals for the District of Columbia Circuit. The court ruled that EPA lacked substantial evidence to support:

(1) the classification of transformers, capacitors, and electromagnets as "totally enclosed;" and

(2) the regulatory cutoff at 50 ppm for the manufacture, processing, distribution in commerce, and use of PCBs.

Had the court's decision gone into effect, the use of all transformers, capacitors, and electromagnets containing PCBs would have been immediately banned; and, the manufacture, processing, distribution in commerce, and unauthorized use of any amount of PCBs would have been immediately banned. Since most electrical transformers and capacitors contained PCBs and since PCBs are pervasive chemicals, this would have resulted in major economic impacts on industry and consumers alike. Therefore, EPA and EDF filed a joint motion with the court requesting a stay of the court's mandate until additional rulemaking could be completed. The court granted EPA's request, and directed EPA to begin rulemaking.

EPA set up three separate rulemaking schedules to deal with this additional rulemaking. The first rulemaking was to address PCBs in electrical equipment and be completed by August 1982. The second and third rulemakings were to address the remanded 50 ppm regulatory cutoff.

EPA initiated a two-part rulemaking to address the remanded 50 ppm cutoff. This occurred as a result of a series of discussions held after the court's decision between EDF, EPA and certain industry representatives. During these discussions,

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certain industry representatives suggested that the majority of PCB formation occurs in processes that produce PCBs but do not release PCBs (closed processes) or in processes that produce PCBs but release PCBs only to wastes that are properly disposed of (controlled waste processes). The industry representatives explained that although PCBs are created in these process situations, no PCBs are released to the environment from these processes. EPA agreed to pursue a separate rulemaking to exclude these types of processes from regulation.

On August 25, 1982, EPA issued a final rule on the use of PCBs in electrical equipment. This rule authorizes the use of PCBs in eight different types of electrical equipment. On October 21, 1982, EPA issued a final rule excluding PCBs produced in closed and controlled waste manufacturing processes from the ban on the manufacture, processing, distribution in commerce, and use of PCBs. Further rulemaking to address byproduct PCBs that are not excluded from regulation by the October 21, 1982 rule is currently being initiated.

In addition to conducting rulemaking in response to the court's October 1980 decision, EPA also issued a Final Rule amending the May 1979 Railroad Transformer Use Authorization. This Final Rule was issued January 3, 1983. EPA is also currently in the process of making a change in the approval process for mobile disposal facilities. The authority to grant approval is being transferred from the regions to headquarters.

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GENERAL PCB INFORMATION

INTRODUCTORY FACTS

1. ***WHAT ARE PCBS?***

The term PCB is short for polychlorinated biphenyl. PCBs belong to a broad family of organic chemicals known as chlorinated hydrocarbons. PCBs are produced by attaching one or more chlorine atoms to a biphenyl molecule. Virtually all PCBs in existence today have been synthetically manufactured.

2. ***WHO MANUFACTURES PCBS?***

Monsanto Corporation was the principal domestic manufacturer of PCBs for use as a dielectric fluid in electrical equipment and heat transfer equipment. They began production of PCBs in 1935. In 1971, Monsanto voluntarily ceased all sales of PCBs for all uses except certain electrical transformer and capacitor uses which at the time were thought to be "totally enclosed" uses. In 1977, they voluntarily ceased production because of the widespread environmental concerns about PCBs.

PCBs are currently being inadvertently produced as process impurities and byproducts during the production of certain organic chemicals. PCBs can be formed as byproducts when chlorine, carbon, elevated temperatures or catalysts are present together in a process.

3. ***WHAT TRADE NAMES WERE PCBS SOLD UNDER THAT WERE MANUFACTURED AS DIELECTRIC (INSULATING) FLUIDS?***

Monsanto, the principal domestic producer of PCBs, sold PCBs under the trade name "Aroclor." However, companies who used PCBs in the manufacture of transformers and capacitors, and for other uses, often used other trade names. Common trade names for PCBs include:

Aroclor	Elemex
Aroclor B	Eucarel
Abestol	Hyvol
Askarel*	Inerteen
Adkarel	No-Flamol
Chlorextol	Pyranol
Chlorinol	Pyroclor
Clorphen	Saf-T-Kuhl
Diaclor	Sanotherm
Dykanol	

*Askarel is also the generic name used for non-flammable insulating liquid in transformers and capacitors.

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4. ***WHAT ARE THE PHYSICAL AND CHEMICALS PROPERTIES OF PCBS?***

"Askarel" PCBs are chemical mixtures containing many different PCB congeners. They have a heavy, liquid, oil-like consistency, and weigh 10-12 pounds per gallon. They are very stable, exhibit low water solubility, low vapor pressure, low flammability, high heat capacity, low electrical conductivity, and have a favorable dielectric constant.

When PCBs were intentionally manufactured as dielectric fluid, they were often mixed with certain organic solvents, such as chlorinated benzenes. Thus, the dielectric fluids present in electrical equipment containing PCBs is not, in general, 100 percent PCB. The presence of these other chemicals influences the physical/chemical properties of the Askarel fluid.

PCBs that are produced as byproducts and process impurities may vary from a single isomer to a variety of congeners and display different physical and chemical properties depending upon the number of isomers and the degree of chlorination (the number of chlorine atoms attached to the biphenyl molecule). PCBs with fewer chlorine atoms are, in general, less persistent, more water soluble, and more flammable than PCBs with more chlorine atoms.

5. ***HOW ARE PCBS USED?***

The primary use of PCBs has been in electrical equipment. The majority of PCBs marketed in the United States are still in service, primarily in electrical equipment.

PCBs can also be present as byproducts in many different organic solvents and other chemicals.

6. ***WHY ARE PCBS HARMFUL TO HUMAN HEALTH AND THE ENVIRONMENT?***

PCBs are harmful because, once released into the environment, they do not break apart into new chemical arrangements. However, PCBs with fewer chlorine atoms are generally less persistent and display less of a tendency to bioconcentrate and bioaccumulate. Instead, they persist, bioaccumulate and bioconcentrate in organisms. EPA has concluded that PCBs are toxic and persistent. PCBs cause chloracne (a painful, disfiguring skin illness), and EPA has found, based on animal data, that reproductive effects, developmental toxicity, and oncogenicity are areas of concern to humans exposed to PCBs. It also has been demonstrated that PCBs are toxic to fish at very low levels of exposure. The survival rate and the reproductive success of fish can be adversely affected in the presence of PCBs.

7. ***WHAT REGULATORY ACTION HAS EPA TAKEN AGAINST PCBS?***

In 1976, Congress enacted the Toxic Substances Control Act (TSCA), which directed EPA to control the manufacture, processing, distribution in commerce, use, disposal, and marking of PCBs. Section 6(e) of TSCA requires proper disposal of PCBs, and prohibits

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the manufacture, processing, distribution in commerce, and use of PCBs. Further, section 6(e) of TSCA requires EPA to develop regulations implementing these provisions.

Final Marking and Disposal Rules appeared in the Federal Register on February 17, 1978 (clarifying amendments to this Rule appeared in the August 2, 1979 Federal Register).

On June 7, 1978, the Proposed PCB Ban Rule appeared in the Federal Register. The Final PCB Ban Rule appeared in the Federal Register on May 31, 1979 (44 FR 31514); this Rule superseded the February 17, 1978 Marking and Disposal Rule, and included provisions banning the manufacture, processing, distribution in commerce, and use of PCBs. The May 1979 Rule took effect on July 2, 1979.

The Environmental Defense Fund (EDF) challenged several provisions of the May 1979 Rule, and in October of 1980 the U.S. Court of Appeals for the District of Columbia Circuit ruled that there was insufficient evidence in the record to support several provisions of the May 1979 Rule. Specifically, the court struck down the classification of transformers, capacitors, and electromagnets as "totally enclosed", and the regulatory cutoff at 50 ppm for the manufacture, processing, distribution in commerce, and use of PCBs. All other provisions of the May 1979 Rule remain in effect.

Since the court's decision would have resulted in great economic and personal hardship, EPA, EDF, and certain industry intervenors in the case filed a joint motion seeking a stay of the court's mandate until further rulemaking could be completed. The court granted EPA's request.

On April 22, 1982, EPA issued a Proposed Rule governing the use and servicing of electrical equipment containing PCBs. The Final Rule appeared in the Federal Register of August 25, 1982. This Final Rule was issued as a result of the court's decision to strike down the May 1979 Rule's classification of transformers, capacitors, and electromagnets as "totally enclosed".

On October 21, 1982, EPA issued part one of a two-part rulemaking to address the 50 ppm regulatory cutoff. This Final Rule, addressed closed and controlled waste manufacturing processes.

EPA submitted a plan to the court on November 1, 1982, which requested a further extension of the stay of mandate for the 50 ppm cutoff, and presented plans for additional rulemaking on this issue. The court granted a further extension of the stay, but is requiring EPA to submit quarterly reports to the court. EPA anticipates that a Final Rule will be effective in the Fall of 1984.

In addition to issuing rules as a result of the court decision in October 1980, EPA has also issued an amendment to the Use Authorization for Railroad Transformers (which originally appeared in the May 1979 Rule). On January 3, 1983, EPA issued a Final Rule amending, and extending the use authorization for PCB Railroad Transformers.

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On March 30, 1983, EPA issued a procedural change in the approval process for mobile disposal facilities. The authority for granting or denying approval of these facilities was transferred from the regions to Headquarters. (See the March 30, 1983 Federal Register in the Appendix of this publication.)

8. ***WHERE CAN I GET COPIES OF THE FINAL REGULATIONS?***

Copies of the Final Rules are contained in the Appendix to this document. Additional copies, and support documents (at a cost of 20¢ a page) for these rulemakings can be obtained from: The TSCA Assistance Office (TS-799), Office of Toxic Substances, Environmental Protection Agency, Rm. E-543, 401 "M" Street, S.W., Washington, D.C. 20460, Toll free: (800-424-9065), in Washington D.C.: (554-1404),

SPILLS/CLEAN UP

9. ***DO PCB SPILLS HAVE TO BE REPORTED?***

Under the authority of TSCA section 8(e), PCB spills have to be reported whenever the incident poses a substantial risk to human health or the environment. Since "substantial risk" cannot be precisely defined, any spill should be reported when people come into direct and uncontrolled contact with PCBs, or the extent of the spill is large enough to expose a significant number of animals. These reports should be directed to the following TSCA 8(e) National Response Centers:

Region I (Maine, Rhode Island, Connecticut, Vermont, Massachusetts, New Hampshire), 617-223-7265.

Region II (New York, New Jersey, Puerto Rico, Virgin Islands), 201-548-8730.

Region III (Pennsylvania, West Virginia, Virginia, Maryland, Delaware, District of Columbia), 215-597-9898.

Region IV (Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Florida), 404-881-3865.

Region V (Wisconsin, Illinois, Indiana, Michigan, Ohio, Minnesota), 312-353-2318.

Region VI (New Mexico, Texas, Oklahoma, Arkansas, Louisiana), 214-767-2666.

Region VII (Nebraska, Iowa, Missouri, Kansas), 816-374-3778.

Region VIII (Colorado, Utah, Wyoming, Montana, North Dakota, South Dakota), 303-837-2468.

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Region IX (California, Nevada, Arizona, Hawaii, Guam), 415-556-6254.

Region X (Washington, Oregon, Idaho, Alaska), 206-442-1359.

There are several Federal laws which have PCB spill reporting requirements. The most stringent of these is section 103(a) of CERCLA (48 FR 23552-23605). CERCLA requires that any person in charge of any vessel or any facility, as soon as he has knowledge of the release of a reportable quantity of any hazardous substance to the environment (over a 24 hour period), must immediately notify the National Response Center (NRC). The NRC, which is operated by the U.S. Coast Guard, can be contacted by calling a toll free number 800-424-8802. (In the District of Columbia, call 426-2675.) The RQ for PCBs is presently set at 10 pounds by statute under CERCLA for releases into all environmental media (land, air, water). The Agency, however, has proposed an RQ of 1 pound in its May 25, 1983, Federal Register notice. DOT (49 CFR 171.15 + 171.17) and CWA (40 CFR 117.2) also have release reporting requirements for PCBs.

10. ***WHAT HAPPENS WHEN I REPORT A PCB SPILL? CAN I GET INFORMATION OR ADVICE ON WHAT TO DO ABOUT THE SPILLS?***

If reportable quantity (RQ) of PCBs is released into the environment, the responsible party is required to call the NRC pursuant to CERCLA section 103. Failure to notify is a criminal violation with a penalty of a $10,000 fine and/or up to one year in prison.

When a call is received by the NRC, the duty officer will ask for information including the name, address, and telephone number of the reporting individual; the identity, location, and nature of the release (e.g. the source, cause, quantity and duration of release); the identity of the transporter or owner of the facility or vessel; the nature of injuries or property damage, and any other relevant information. The National Response Center relays release information directly to either an On-Scene-Coordinator at the appropriate EPA Regional Office or the Coast Guard District Office. The OSC evaluates the situation, gives appropriate information to State and local officials and decides whether and how the Federal government should respond.

Section 111(g) of CERCLA currently requires published (newspaper) notifications to warn potential injured parties of releases of hazardous substances.

CHEMTREC (800-424-9300) may have useful information for advice on how to handle the spills.

11. ***IF I HAVE A SPILL, WHAT SHOULD I DO TO CONTROL OR CLEAN UP THE SPILL?***

The first priorities are: To report the spill (see Question 9); and control the spread of the spill by damming or diking the leak. Any threats to water should be given the highest priority.

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Once a spill is contained, clean up measures can begin. Clean up can be simply the removal and subsequent disposal of contaminated soil or debris. In some cases, more complex techniques may be required, such as special PCB sorbents or special filtration. Since levels required for clean-up sometimes vary, depending upon the region in which the spill occurred, regional EPA PCB experts should be contacted to obtain guidance on the extent of PCB clean up. These contacts are:

Region 1	Paul Heffernan 617-223-0585
Region 2	John Brogard 212-264-2637
Region 3	Ed Cohen 215-597-7668
Region 4	Ralph Jennings Constance Allison 404-881-3864
Region 5	Karl Bremer 312-353-2291
Region 6	Dr. Norman Dyer Karl Mount 214-767-2734
Region 7	Leo J. Alderman 816-374-3036
Region 8	Steve Farrow 303-837-3926
Region 9	Gerry Gavin-General PCB Questions 415-974-7032 Raymond Seid-permits 415-974-8389
Region 10	Jim Everts 206-442-1090

Water and complicated spills should be cleaned up by trained and experienced personnel. Organizations who frequently handle PCBs should develop contingency plans and conduct training for dealing with spills. Commercial firms are also available on a contract basis to clean up spills. The officials listed above can provide information on such firms.

Since PCBs controlled by TSCA, are not controlled under RCRA (45 FR 33086 and 33173; 46 FR 2846, 7668, and 22145) there are no RCRA requirements for the cleanup of PCB spills. If a fully permitted RCRA facility releases PCBs (as a hazardous constituent (40 CFR 264.93)) the release may be subject to the groundwater protection standards of 40 CFR 264 Subpart F.

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12. ***ARE THERE ANY OSHA RULES GOVERNING PCBS IN THE WORKPLACE?***

Yes, there are OSHA regulations governing PCBs in the workplace. OSHA has in place two 8-hour time-weighted averages (TWA's) for chlorodiphenyl. For chlorodiphenyl containing 42 percent chlorine, the TWA is 1 milligram per cubic meter of workplace air. For chlorodiphenyl containing 54 percent chlorine, the TWA is 0.5 milligram per cubic meter of workplace air. An employee's exposure to PCBs in any 8-hour workshift of a 40-hour work week cannot exceed these concentrations. Further, employers are required to ensure a safe work place under OSHA regulations. If specific standards are not applicable, this general requirement for a safe workplace would apply.

13. ***HOW DOES THE OSHA STANDARD RELATE TO EPA'S PCB REGULATIONS?***

EPA's PCB Rules do not directly regulate workers, but the Rules do restrict or prohibit certain PCB activities which reduce the number of workers exposed. The EPA Rules prohibit PCB transformer and capacitor manufacture, as well as PCB transformer rebuilding (except for railroad transformers), which includes removal of the transformer's coil. These prohibitions terminated these activities that resulted in the major long-term occupational exposures to high concentration PCBs.

Worker exposure can also occur as a result of PCB spills and authorized servicing operations for PCB transformers.

14. ***WHAT KIND OF PROTECTIVE CLOTHING SHOULD BE WORN WHEN WORKING WITH PCBS?***

The type of protective clothing which should be worn when working with PCBs is dependent on the individual circumstances. Worker protective clothing and equipment is intended to prevent skin and eye contact, and control respiratory exposure.

In any operation where workers may come into contact with PCBs, protective clothing impervious to PCBs should be worn. Gloves, boots, overshoes, and bib-type aprons that cover boot tops should be provided when necessary.

Skin protection can usually be achieved by wearing non-porous gloves and boots and heavy overalls. For major spill clean up activities, a full suit of non-porous clothing may be appropriate. Also, non-porous aprons can be effective in reducing contamination of worker clothing. The Appendix to this booklet contains two comparative tables on materials used to protect against dermal exposure to PCBs.

Eye protection (chemical safety goggles, face shields with goggles or safety glasses with side shields) should be worn during any operation in which PCBs are present. If liquid or solid PCBs contact the eyes, the eyes shall be irrigated immediately with large quantities of water and then examined by a physician or other responsible medical personnel.

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Respiratory exposure control (whether individual protection or workplace control) is most relevant for long-term production operations or major spills, when concentrations of airborne PCBs may exceed the recommended occupational exposure limit. PCB transformer spills might pose respiratory problems because of solvents, such as trichlorobenzene, that are mixed with the PCBs. Small spills, such as capacitor failures, seldom pose respiratory problems, but protection should be provided for incidents in confined areas.

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THE MAY 31, 1979 RULE*

INTRODUCTORY INFORMATION

15. ***WHAT DOES THE MAY 1979 PCB BAN RULE DO?***

The May 1979 Final Rule:

(1) Classifies the use of the transformers, capacitors, and electromagnets as "totally enclosed." Therefore, in accordance with section 6(e) of TSCA, PCBs used in transformers, capacitors and electromagnets were excluded from the statutory ban.

(2) Establishes requirements for the marking and disposal of PCBs, and sets a regulatory cutoff at 50 ppm for the marking and disposal of PCBs under TSCA (PCBs in concentrations below 50 ppm are not required by TSCA to be marked or disposed of in any special manner except that these PCBs cannot be used as a dust control agent or as a pesticide carrier). [Note: PCBs may be regulated at different concentrations under the Clean Water Act and/or the Resource Conservation and Recovery Act.]

(3) Establishes a regulatory cutoff at 50 ppm for the manufacture, processing, distribution in commerce, and use of PCBs (in a totally enclosed manner).

(4) Authorizes the use of PCBs in eleven different activities (see Question 21).

16. ***I THOUGHT THE MAY 1979 RULE WAS CHALLENGED BY THE ENVIRONMENTAL DEFENSE FUND (EDF). WHAT IS THE STATUS OF THE MAY 1979 RULE?***

EDF challenged three major provisions of the May 1979 Rule:

(1) The classification of transformers, capacitors, and electromagnets as "totally enclosed".

(2) The 50 ppm regulatory cutoff for the manufacture, processing, distribution in commerce, and use of PCBs.

(3) The eleven Use Authorizations.

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*Included in several of the answers are cross-referenced citations (e.g., Sec. 761.30(d)) which refer you to actual sections of the May 31, 1979 Federal Register notice. It is important to note that since the publication of the May 31, 1979 PCB Ban Rule, that 40 CFR Part 761 has been recodified. The citations referenced here are the new ones. Therefore, when you want to refer to the actual May 1979 notice first go to the "Recodification Table" in the Appendix to find the old code that appears in the May 31, 1979 Federal Register Notice.

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The court ruled in October of 1980 that EPA lacked substantial evidence in the Rulemaking Record to support both the classification of electrical transformers, capacitors, and electromagnets as "totally enclosed", as well as the 50 ppm cutoff for the manufacture, processing, distribution in commerce, and use of PCBs. Thus, these provisions were struck down by the court.

17. ***DOES THIS MEAN THAT ELECTRICAL EQUIPMENT CONTAINING PCBS IS NOW BANNED?***

No, because EPA, EDF, and industry intervenors in the case requested and received a stay of the court's mandate until further rulemaking could be completed. Further, as of August 25, 1982, EPA amended The PCB Ban Rule to authorize the continued use and servicing of seven types of electrical equipment containing PCBs, including transformers, capacitors, electromagnets, switches, cable, and voltage regulators.

18. ***CAN A PCB TRANSFORMER BE RESOLD?***

Yes, if it was sold or bought for purposes other than resale before July 1, 1979 and if it is intact and non-leaking. EPA also recommends that any buyer be advised that he is buying a PCB transformer containing 7,500 ppm PCBs. The transformer is also required to be marked (40 CFR 761.40(a)(2) and 40 CFR 761.2(c)(1)).

19. ***DOES THE COURT'S DECISION MEAN THAT THE MANUFACTURE, PROCESSING, DISTRIBUTION IN COMMERCE, AND USE OF PCBS IN CONCENTRATIONS BELOW 50 PPM IS NOW BANNED?***

No. EPA, EDF, and certain industry intervenors requested a stay of mandate for the 50 ppm cutoff as well, until further rulemaking could be completed. EPA has issued part one of a two-part rulemaking in response to the court's October 1980 remand of the 50 ppm regulatory cutoff. This rule is the Closed and Controlled Waste Process Exclusion, issued in the Federal Register of October 21, 1982 (47 FR 46980). Further rulemaking on the 50 ppm regulatory cutoff is ongoing and is expected to be proposed by Fall of 1983.

20. ***DOES THE COURT'S DECISION STRIKING DOWN THE 50 PPM REGULATORY CUTOFF FOR THE MANUFACTURE, PROCESSING, DISTRIBUTION IN COMMERCE, AND USE OF PCBS AFFECT THE 50 PPM REGULATORY CUTOFF FOR THE MARKING AND DISPOSAL OF PCBS?***

No. These provisions were not challenged, and thus, remain in effect.

21. ***THE MAY 1979 RULE SAYS THAT EPA CAN GRANT EXCEPTIONS, KNOWN AS AUTHORIZATIONS, TO ENABLE THE CONTINUED USE OF PCBS IN A NON-TOTALLY ENCLOSED MANNER. WHAT USES HAVE BEEN AUTHORIZED?***

EPA may propose and grant an authorization without a specific request from those who will benefit from the authorization. Also, the authorization can be valid for any time period that EPA finds appropriate.

The following non-totally enclosed PCB activities were authorized with restriction by EPA in the May 1979 Rule (beside each is the Rule section to refer to for details). Some of these

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authorizations have either been amended or have expired (this is indicated when applicable):

- o servicing PCB Transformers and PCB-Contaminated Transformers (Sec. 761.30(a)) (amended by August 25, 1982 Rule);
- o use in and servicing of Railroad Transformers (Sec. 761.30(b)) (amended by January 3, 1983 Rule);
- o use in and servicing of Mining Equipment (Sec. 761.30(c)) (expired);
- o use in Heat Transfer Systems (Sec. 761.30(d));
- o use in Hydraulic Systems (Sec. 761.30(e));
- o use in Carbonless Copy Paper (Sec. 761.30(f));
- o use in Pigments (Sec. 761.30(g)) (expired);
- o servicing Electromagnets (Sec. 761.30(h)) (amended by August 25, 1982 Rule);
- o use in Small Quantities for Research & Development (Sec. 761.30(j));
- o use in Microscopy Mounting Medium (Sec. 761.30(k)).

MARKING (LABELING)

22. ***DO ALL TRANSFORMERS CONTAINING PCBS HAVE TO BE LABELED?***

PCB Transformers (transformers that contain 500 ppm or greater PCBs) are required to be labeled. PCB-Contaminated Electrical Equipment (electrical equipment that contain 50-500 ppm PCBs) are not required to be labeled. Non-PCB Transformers (transformers containing less than 50 ppm PCBs) are also not required to be labeled (see §761.40(c)(1)).

23. ***WHERE DO THE LABELS HAVE TO BE PLACED?***

All labels are to be placed on the exterior of PCB items and appropriate transport vehicles in a place that can be easily seen and read by anyone inspecting or servicing them (see §761.40(h)).

PCB transport vehicles must be marked on all four sides if they are loaded with containers that contain more than 45 kg. (99.4 lbs) of liquid PCBs in concentrations over 500 ppm.

24. ***DO ALL CAPACITORS HAVE TO BE LABELED?***

All large (greater than three pounds dielectric fluid) high voltage PCB capacitors have to be labeled, including those in-service (see §761.40(a)(3)). Large, low voltage capacitors have to be labeled when they are taken out of service for disposal (see §761.40(a)(5)). Small capacitors do not have to be marked.

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However, equipment containing small PCB capacitors has to be labeled as not containing PCBs if it is manufactured after January 1, 1979 (see §761.40(d)).

25. ***ARE CAPACITORS ON POLES REQUIRED TO BE LABELED?***

If a PCB capacitor is installed in a "protected area" the pole, structure, or fence must be labeled in a place that can be easily seen by interested persons, such as service persons (see §761.40(c)(2)(ii)).

26. ***I HAVE A LARGE RACK OF CAPACITORS. IF I LABEL ONE INDIVIDUAL CAPACITOR, DOES THIS LABEL MEET THE MARKING REQUIREMENTS OF THE RULE?***

No. It is acceptable to mark the rack itself with a PCB label but not to mark one capacitor. If the racks are in a fenced in area, such as an electrical substation, the fence may carry the label.

27. ***I MANUFACTURE PCBS AS A BYPRODUCT DURING THE PRODUCTION OF AN ORGANIC SOLVENT. DO I HAVE TO LABEL MY PRODUCTS?***

Products must be labeled if: (1) they contain greater than 50 ppm PCBs, or (2) labeling is required by EPA as part of its response to a petition for exemption (§761.40(i)).

28. ***DOES A TRUCK CARRYING PCB-CONTAMINATED TRANSFORMERS AND CAPACITORS NEED TO BE MARKED?***

No. Only if the truck carries PCB tranformers or is loaded with PCB containers that contain more than 45 kg (99.4 lbs.) of liquid PCBs must it be marked. (44 FR 31548).

29. ***WHEN WERE THE LAST PCB FLUORESCENT LIGHT BALLASTS MADE? HOW CAN I TELL IF THE BALLASTS I HAVE CONTAIN PCBS?***

The manufacture and distribution of PCBs in commerce was banned July 1, 1979. All light ballasts manufactured since 1978 which do not contain PCBs are marked by the manufacturer with the statement "No PCBs". (40 CFR 761.20(g)).

DISPOSAL

30. ***I NEED TO DISPOSE OF SOME OIL CONTAINING PCBS. WHAT OPTIONS DO I HAVE FOR GETTING RID OF THESE PCBS?***

PCBs in concentrations over 500 ppm must be disposed of only by high temperature incineration (§761.60(a)(1)). PCBs in concentrations between 50 and 500 ppm must be disposed of in high efficiency boilers, in approved chemical waste landfills, or in high temperature incinerators (§761.60(a)(2)). PCBs in concentrations below 50 ppm are not required to be disposed of in any special manner under TSCA (§761.1(b)), except that they may not be used as a coating, sealant, or dust control agent, or as a pesticide carrier.

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31. ***WHERE ARE THE APPROVED DISPOSAL FACILITIES?***

A list of EPA-approved (as of March 1983) PCB disposal facilities is included in the Appendix to this publication.

32. ***HOW DO I DISPOSE OF A TRANSFORMER THAT CONTAINS PCBS? DO THE TRANSFORMER AND DIELECTRIC FLUID HAVE TO BE DISPOSED OF DIFFERENTLY?***

There are two ways to dispose of a PCB Transformer (transformers that contain PCB concentrations in excess of 500 ppm). The transformer and the dielectric fluid can be burned together in a high temperature incinerator approved by EPA (§761.60(b)(1)(i)(A)), or the liquid can be drained out of the transformer first. If the liquid is drained, the transformer must be flushed with solvent for 18 hours; the solvent and the dielectric fluid must then be disposed of in an EPA-approved high temperature incinerator. The drained transformer, after it is resealed, must be disposed of in a chemical landfill which has been approved by EPA (§761.60(b)(1)(i)(B)).

If the transformer is PCB-Contaminated Electrical Equipment (containing more than 50 ppm and less than 500 ppm PCB), the transformer and the liquid can also be incinerated or the dielectric liquid can first be drained. If the liquid is drained, it can be disposed of in a high temperature incinerator, a chemical landfill which has been approved by EPA, or in a high efficiency boiler. The drained transformer can be disposed of as scrap or in a disposal facility whose practices are equivalent to good municipal solid waste disposal practices (§761.60(b)(1)(ii)).

For non-PCB transformers (with less than 50 ppm PCBs) there are no PCB disposal requirements for the transformer (e.g., dispose of it in a municipal waste site). For the fluid there is only one disposal restriction, and that is that it cannot be used as a sealant, coating, or dust control agent if it contains any detectable PCBs (§761.20(d)).

Used non-PCB transformers would, however, meet the definition of a solid waste (40 CFR 261.2) and might be hazardous if they display one of the characteristics listed in 40 CFR 261 Subpart C. The fluids and rinsates from these transformers typically display either the characteristics of EP Toxicity (40 CFR 261.24), ignitability (40 CFR 261.21) or both. As a result, disposers of non-PCB transformers in municipal landfills may be required under CERCLA to notify the NRC of a release of a hazardous substance.

33. ***HOW DO I DISPOSE OF LARGE PCB CAPACITORS?***

PCB capacitors must be disposed of by high temperature incineration (§761.60(b)(2)(iii)(A)), or by any other method which EPA has permitted under the disposal permitting program.

34. ***ARE THERE SPECIAL DISPOSAL REQUIREMENTS FOR SMALL PCB CAPACITORS CONTAINED PRIMARILY IN SMALL APPLIANCES AND FLUORESCENT LIGHT BALLASTS? WHAT ABOUT A MANUFACTURER OF SMALL PCB CAPACITORS?***

No, small capacitors can be disposed of as municipal waste by householders and other infrequent disposers (§761.60(b)(2)(ii)).

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However, the disposal of large quantities (greater than 25) of small PCB capacitors by commercial and industrial activities poses a larger enviromental risk. Therefore, EPA encourages these persons to establish voluntarily a collection and disposal program that would result in the waste capacitors going to chemical waste landfills or high temperature incinerators.

On the other hand, the manufacturer of small PCB capacitors, or of an item which contains small PCB capacitors, must dispose of them in an approved PCB incinerator (761.60(b)(2)(iv)).

35. ***HOW ARE HYDRAULIC MACHINES CONTAMINATED WITH PCBS TO BE DISPOSED?***

In general, only a relatively small portion of these machines are contaminated with PCBs, in particular those used in die-casting and forging operations. Therefore, instead of requiring disposal in a chemical waste landfill, the final rule permits disposal of hydraulic systems as municipal solid waste and salvaging of these machines after draining. First, the machines must be drained of all free-flowing liquid. If the fluid contains more than 1,000 ppm PCBs, the machine must be flushed with a solvent and thoroughly drained before disposal. The liquid must be disposed of by high temperature incinerators or, if the PCB concentration is 50 to 500 ppm, by high efficiency boilers or in chemical waste landfills (§761.60(b)(3)).

36. ***WHERE CAN OTHER LIQUID WASTES WITH OVER 500 PPM PCBS BE DISPOSED? BETWEEN 50 TO 500 PPM PCBS? LESS THAN 50 PPM PCBS?***

The same disposal options apply as for transformer dielectric fluid. (Refer to Question 32).

37. ***WHERE CAN NON-LIQUID PCBS BE DISPOSED?***

Non-liquid PCBs at any concentration (e.g., contaminated rags and absorbent materials, and contaminated soils and other solids recovered from spills or removed from old disposal sites) can be disposed in chemical waste landfills approved under §761.75. However, the Rule forbids the processing of liquid PCBs into non-liquid forms in order to circumvent the high temperature incineration requirements.

38. ***HOW MAY I DECONTAMINATE A PCB CONTAINER?***

Any PCB container may be decontaminated by flushing the internal surface of the container three times with a solvent containing less than 50 ppm PCBs. The solubility of PCBs in the solvent must be five (5) percent or more by weight. Each rinse shall use a volume of the normal diluent equal to approximately ten (10) percent of the PCB container capacity. The solvent may be reused until it contains 50 ppm PCBs.

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The solvents normally recommended for decontamination of PCB containers are Xylene, Toluene, and Kerosene (44 CFR 31546). If the PCB levels do not exceed 50 ppm, these "rinsates" would probably be hazardous wastes under RCRA (F003, F005, ignitable, EP toxic or a combination thereof). Releases of unidentified hazardous wastes are reportable under CERCLA if an RQ of the wastes has been released to the environment. Presently, the RQ for such unidentified hazardous wastes exhibiting ignitability, reactivity, corrosivity and extraction procedure toxicity is one pound by statute. The Agency proposed to adjust this level in the May 25, 1983 Federal Register notice: ICR wastes have RQs proposed at 100 pounds; EP toxic wastes have RQs proposed based on individual contaminates.

39. ***CAN DECONTAMINATED PCB CONTAINERS BE DISPOSED OF IN A MUNICIPAL WASTE LANDFILL SITE?***

Yes, decontaminated PCB containers may be disposed of in ordinary landfill sites, rather than in EPA approved chemical waste landfills.

40. ***CAN DECONTAMINATED PCB CONTAINERS BE REUSED?***

Containers decontaminated in accordance with §761.79 can be reused for general use.

41. ***HOW CAN PCB CONTAINERS USED ONLY TO HOLD LOW PCB CONCENTRATIONS BE DISPOSED?***

PCB containers used only to contain materials or fluids with PCB concentrations between 50 to 500 ppm can be disposed of as municipal waste.

42. ***WHAT ARE THE REQUIREMENTS FOR DISPOSAL SITES?***

Incinerators used to dispose of PCBs must be approved by the appropriate EPA Regional Administrator. The approved incinerators must meet the requirements set out in the May 1979 Rule (§761.70(a)).

Likewise, chemical waste landfills used for the disposal of PCBs and PCB items must be approved by the appropriate EPA Regional Administrator, and must meet the requirements established in the May 1979 Rule (§761.75(a)).

Mobile disposal facilities, which will be operated in more than one region, must be approved by the Assistant Administrator for Pesticides and Toxic Substances (see 48 FR 13181).

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STORAGE

43. ***WHERE CAN I STORE PCBS AND PCB ITEMS FOR DISPOSAL?***

Unless these items qualify for 30-day temporary storage or other alternative storage requirements, these items must be located in a storage for disposal facility which meets the following requirements:

- Adequate roof and walls to prevent rain water from reaching the stored PCBs and PCB items.
- Adequate floor with at least 6 inch continuous curbing. (The floor and curbing must provide a containment volume equal to at least two times the internal volume of the largest PCB item or container stored therein or 25 percent of the total internal volume of all PCB articles or containers stored therein, whichever is greater.)
- No drain valves, floor drains, expansion joints, sewer lines, or other openings that would permit liquids to flow from the curbed area.
- Floors and curbing constructed of continuous smooth and impervious materials.
- Not located at a site that is below the 100 year flood water elevation.

44. ***WHAT KINDS OF CONTAINERS ARE APPROPRIATE FOR STORAGE?***

The PCB regulations permit 5 container types (5, 5B, 6D, 17C and 17E) which comply with Department of Transportation (DOT) specifications set out in 49 CFR 173.346, to be used to store liquid PCBs.

Non-liquid PCBs may be stored in 5, 5B, or 17C drums.

45. ***CAN LARGE CONTAINERS, SUCH AS STORAGE TANKS, BE USED FOR THE STORAGE OF PCB LIQUIDS?***

EPA decided in the May 1979 Rule to permit large containers, such as storage tanks, to be used to store bulk PCB liquids. This is to allow safe transfer and storage of large PCB liquid quantities; and to reduce storage costs. In other words, the transfer of stored bulk PCBs from tanks to other tanks or tank trucks will lessen the spill risks as opposed to having to transfer these large quantities from a number of smaller storage drums into transfer tanks.

These storage tanks must meet design and construction standards adopted by OSHA (29 CFR 1910.106). Also the storage facilities must have a spill prevention control and counter measure plan similar to the plans required for oil spill prevention.

Owners and operators of bulk storage facilities will have to keep records of the amounts added to and removed from bulk

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containers. These records will be important in tracing waste shipments and enforcing the disposal and storage requirements.

46. ***CAN PCB CONTAINERS OF CONTAMINATED SOIL BE TEMPORARILY STORED?***

Yes, non-liquid PCB wastes, such as contaminated soil, can be temporarily stored for up to 30 days, provided that a notation is attached to the item indicating the date that it was stored for disposal.

47. ***CAN PCB LIQUIDS OF LOW CONCENTRATIONS BE TEMPORARILY STORED? WHAT ABOUT PCB LIQUIDS OF HIGH CONCENTRATION?***

Low concentration PCB liquids (50 to 500 ppm) can be temporarily stored for up to 30 days. All temporary storage areas containing liquids between 50 and 500 ppm, must have a spill prevention control and counter measure plan. The items contained in this area must bear a notation of when they were stored for disposal, and a notation that the items do not contain 7500 ppm PCBs (761.65).

However, the May 1979 Rule does not allow temporary storage for high concentration PCB liquids (above 500 ppm) because of the potential harm from a spill.

48. ***I HAVE A SMALL QUANTITY OF PCBS (I.E., A FEW SOAKED RAGS AND ONE GALLON OF PCBS IN AN APPROVED CONTAINER), AND I DON'T WANT TO SEND THEM A LONG DISTANCE FOR DISPOSAL. CAN I STORE THEM UNTIL A PCB STORAGE SITE CLOSE TO ME IS APPROVED?***

Small PCB quantities, such as a few soaked rags, may be stored in a "storage for disposal facility" until the last day of 1983. After December 31, 1983, the small quantity of PCBs would be required to be disposed of in accordance with the Marking and Disposal Regulations in the May 1979 Rule. The Rule requires items stored after January 1, 1983 to be disposed of within one year of the date the items were placed in storage for disposal. PCB electrical equipment stored for reuse must be handled and inspected according to use authorizations covered in 40 CFR 761.30.

49. ***ONCE PCB ARTICLES ARE TAKEN OUT OF SERVICE, HOW LONG CAN THEY BE KEPT BEFORE BEING PLACED IN AN APPROPRIATE STORAGE AREA?***

Non-leaking PCB articles and PCB containers containing leaking articles can be temporarily stored for up to 30 days, provided that a notation is attached indicating the date the item was removed from service.

50. ***WHEN PCB CAPACITORS OR CONTAINERS ARE STORED IN AN APPROPRIATE STORAGE AREA, WHAT HAPPENS WHEN ONE OF THESE ITEMS STARTS TO LEAK?***

A leaking PCB capacitor should be immediately placed in a non-leaking Department of Transportation approved drum and any spillage cleaned up using sorbent or suitable solvents. It is a good practice to add sorbent material, such as sawdust, to the container to soak up any liquid that continues to leak out of the capacitor.

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When a container develops a leak, the contents should immediately be transferred to another, non-leaking container or to special "overpack" containers, such as those used in the chemical industry for leaking containers.

51. ***ONCE A PCB STORAGE AREA IS BUILT, MUST EPA INSPECT IT BEFORE IT CAN BE USED?***

No, it is the responsibility of the organization storing the PCBs to ensure that the storage area meets the specifications.

52. ***DO PCB STORAGE AREAS HAVE TO BE PERIODICALLY CHECKED FOR LEAKS OR OTHER PROBLEMS? WHAT ABOUT PCB ARTICLES, SUCH AS TRANSFORMERS, THAT ARE IN SERVICE?***

PCB storage areas must be checked by the owner or operators at least every 30 days. Certain in-service articles are required by the August 25, 1982 Electrical-Use Final Rule to be inspected.

EXEMPTION PETITIONS

53. ***THE MAY 1979 RULE SAYS THAT EPA CAN GRANT EXEMPTIONS FROM THE BAN ON THE MANUFACTURE, PROCESSING, AND DISTRIBUTION IN COMMERCE OF PCBS. HOW CAN I GET AN EXEMPTION? HAS EPA GRANTED ANY EXEMPTIONS?***

Anyone wanting an exemption must petition EPA for it. An exemption must by statute be renewed annually through formal rulemaking. In some instances, individuals may not have to seek separate exemptions when the Agency grants "class" exemptions for some bans on processing and distribution in commerce.

In the November 1, 1978 Federal Register, EPA published interim rules for submitting exemption petitions from the July 2, 1979 PCB manufacturing/importation prohibition; over 70 petitions have been received. EPA announced, in the January 2, 1979 Federal Register, that it would not enforce the ban against those who had submitted petitions until action had been taken on them. Subsequently, in the May 31, 1979 (44 FR 31514) Federal Register notice, EPA published a Notice of Proposed Rulemaking which identifies each exemption petition received, and the action EPA proposed to take on most of them.

Also, in the May 31, 1979 Federal Register, EPA has published procedural rules for submitting exemption petitions from the July 1, 1979 processing/distribution in commerce prohibitions. These procedures include the categories eligible for class exemptions.

On March 5, 1980 EPA announced that it will decide on a case-by-case basis whether or not to accept for consideration all manufacturing, processing, and distribution in commerce exemption petitions submitted after the filing deadline.

Since the publication of the May 1979 Federal Register notice, EPA has contacted all previous petitioners for exemptions and requested updated information, in preparation for the processing of the petitions. EPA has sorted the responses into

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groups for rulemaking: Phase I petitions are those petitions which are not affected by the ongoing rulemaking with regard to the 50 ppm regulatory cutoff. Phase II petitions are those that may be affected by the ongoing rulemaking on the 50 ppm cutoff.

EPA is currently in the process of evaluating Phase I petitions in preparation for a proposed rule during the summer of 1983.

54. ***WHAT PETITIONS ARE IN PHASE I?***

Phase I petitions include requests to:

- o Import PCB equipment, and
- o Manufacture PCBs for research and development.

Phase I petitions also include requests for exemptions to:

- o Process and distribute PCBs for research and development,
- o Process and distribute PCBs for Microscopy,
- o Distribute PCB small capacitors for repair purposes,
- o Distribute PCB equipment,
- o Process PCB articles and PCB equipment into other equipment,
- o Export PCBs,
- o Distribute PCB and PCB-Contaminated Transformer Fluid, and
- o Buy, service, and sell transformers and PCB-Contamined Transformers.

55. ***WHERE CAN I DETERMINE WHAT CATEGORIES ARE ELIGIBLE FOR CLASS EXEMPTIONS?***

You should make a careful review of section 750.31(a) of the Interim Procedural Rules for the processing and distribution in commerce exemptions. These rules are published in the May 31, 1979 Federal Register. Section 750.31(a) lists and describes the categories that may file class exemption petitions. If your activity is not listed in section 750.31(a), you must file a petition on an individual basis.

56. ***IF SOMEONE MANUFACTURES PCB CONTAMINATED CHEMICALS, BUT DID NOT APPLY TO EPA FOR AN EXEMPTION, CAN THEY STILL REQUEST ONE?***

Anyone in that situation should apply to EPA for an exemption using the procedures EPA published in the Federal Register on November 1, 1978.

EPA will decide on a case-by-case basis whether or not to accept for consideration all exemption petitions submitted after their respective filing deadline. See the March 5, 1980, Federal Register Notice for more details.

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(If you want a copy of either of the Federal Register notices mentioned in this answer, call the TSCA Industry Assistance Office toll free: 800-424-9065, in Washington, D.C.: 554-1404.)

IMPORT/EXPORT

57. ***CAN PCBS BE EXPORTED OR IMPORTED? WHAT ABOUT PCB EQUIPMENT? WHAT ABOUT IMPORTING OR EXPORTING PCBS FOR DISPOSAL?***

Because TSCA considers the term "import" to be synonomous with "manufacture," no PCB Equipment can be imported after July 2, 1979, unless an exemption is obtained from EPA. Persons wishing to export PCBs for use must also file a TSCA section 12 export notice, and file an exemption petition, in accordance with the requirements of section 761.30(c), for processing and distribution in commerce. No PCBs may be exported until and unless EPA grants an exemption to export. (See the May 1, 1980 Federal Register in the Appendix; 45 FR 29115.)

The Open Border Policy for PCB disposal expired May 1, 1980; therefore, no PCBs may be exported or imported for disposal until new rules are in effect.

USES AUTHORIZED BY THE MAY 1979 RULE

USES IN HEAT TRANSFER SYSTEMS

58. ***ARE HEAT TRANSFER SYSTEMS REGULATED UNDER TSCA?***

PCBs have been used in heat transfer systems because of their high heat retention capacity. These systems are regulated under TSCA, and their use has been authorized through July 1, 1984 through a provision of the May 1979 PCB Ban Rule.

59. ***ARE THERE ANY CONDITIONS PLACED ON THEIR CONTINUED USE OUTSIDE OF FOOD PLANTS?***

Yes. (1) Heat transfer systems were required to be tested initially by November 1, 1979, and annually thereafter. All sampling must be performed at least three months after the most recent fluid refilling. When a test shows PCBs in concentrations below 50 ppm, all testing may cease. (2) Six months after the initial test of PCB concentration in the heat transfer system, heat transfer systems were required to be drained of the PCBs and refilled with fluid containing less than 50 ppm PCBs. (3) Heat transfer systems containing greater than 50 ppm PCBs cannot be used in the manufacture, or processing of any food, drug, cosmetic, or device as defined in section 201 of the Federal Food, Drug, and Cosmetic Act (FFDCA).

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60. ***I TESTED MY HEAT TRANSFER SYSTEM IN 1979, DRAINED AND REFILLED IT, AND CONTINUE TO MONITOR THE PCB CONCENTRATION. HOW LONG DO I HAVE TO RETAIN THE DATA I GATHERED IN 1979?***

Data obtained through monitoring must be retained for five years after the heat transfer system reaches a PCB concentration of 50 ppm.

USE IN HYDRAULIC SYSTEMS

61. ***HOW ARE HYDRAULIC SYSTEMS REGULATED?***

EPA authorized the use of PCBs in hydraulic systems through a provision of the May 1979 Rule until July 1, 1984 (§761.31(e)). These systems may be used until this date, provided a corrective program of testing, draining, refilling, and/or topping off--similar to that described in Question 59 for heat transfer systems--is undertaken.

62. ***DO ALL HYDRAULIC SYSTEMS CONTAIN PCBS?***

Probably not. PCB hydraulic fluid was developed for use in machines that were subject to high temperatures, such as aluminum die-casting machines and hydraulic machines in steel mills. Because of their low flammability, PCBs provide an extra measure of fire protection. The use of these high concentration fluids was discontinued several years ago by most users, because of serious water pollution problems. However, residues of the original fluid remain in some hydraulic systems in sufficient quantities to be of continuing environmental concern.

MICROSCOPIC MOUNTING MEDIUM

63. ***CAN PCBS BE USED AS A MOUNTING MEDIUM FOR MICROSCOPIC SLIDES?***

Yes, until July 1, 1984. EPA is currently in the process of deciding whether to propose an extension of this authorization. If EPA decides to extend this authorization, a proposed amendment will be issued in the fall of 1983.

RESEARCH AND DEVELOPMENT

64. ***CAN PCBS CONTINUE TO BE USED IN SMALL QUANTITIES FOR RESEARCH AND DEVELOPMENT?***

Yes, until July 1, 1984. As with microscopy slides, EPA is currently in the process of deciding whether to extend the authorized time for use.

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CARBONLESS COPY PAPER

65. ***IN THE EARLY 1970'S CARBONLESS COPY PAPER WAS MADE WITH INK CONTAINING PCBS. WHAT PROVISIONS DOES THE PCB BAN RULE MAKE FOR THIS PAPER?***

Although carbonless copy paper is no longer made with PCBs, supplies of this paperstock still exist; most are in files. EPA has authorized the use of existing PCB carbonless copy paper indefinitely.

Under the disposal permitting program, EPA has permitted certain disposal organizations to dispose of larger quantities of PCBs. This is allowed under the permit issued by EPA for disposal of PCBs.

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THE AUGUST 25, 1982 ELECTRICAL-USE RULE*

INTRODUCTORY INFORMATION

66. ***WHY DID EPA ISSUE THE AUGUST 25, 1982 ELECTRICAL-USE RULE?***

EPA issued the August 25, 1982 Electrical-Use Rule after earlier regulations had been invalidated by the U.S. Court of Appeals for the District of Columbia Circuit. Without this further rulemaking, the use of PCBs in electrical equipment would have been completely banned under section 6(e) of TSCA. Since PCBs are present in many different types of widely used electrical equipment, the immediate ban of PCBs would have created great economic and personal hardship. EPA, therefore, pursued rulemaking to modify the total ban.

67. ***WHAT DOES THE AUGUST 25, 1982 ELECTRICAL-USE RULE DO?***

Generally, the rule allows the continued use of eight different types of electrical equipment. Specifically, the rule:

(1) authorizes the use of PCBs in capacitors,

(2) authorizes the use and servicing of PCBs in transformers, electromagnets, circuit breakers, voltage regulators, reclosers, cable, and switches, and

(3) allows the distribution in commerce (in a totally enclosed manner) of transformers, capacitors, electromagnets, circuit breakers, voltage regulators, reclosers, cable, and switches that contain PCBs.

68. ***ARE THERE ANY RESTRICTIONS ON THE USE OF THIS ELECTRICAL EQUIPMENT?***

Yes. However, the kinds of use restrictions are dependent on the type of equipment (e.g., transformer, capacitor, electromagnet), as well as the equipment's location. These two factors, type and location, determine the conditions for use, which include:

(1) time limitations on the use authorizations,

(2) inspection and maintenance requirements, and

(3) recordkeeping requirements.

69. ***WHAT ARE THE "LOCATION" RESTRICTIONS WHICH AFFECT THE USE OF ELECTRICAL EQUIPMENT?***

The "location" restrictions have to do with whether or not the electrical equipment's location "poses an exposure risk to food or feed." Therefore, along this same line, EPA has divided electrical equipment into two categories:

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*Included in several of the answers are cross-reference citations (e.g., Sec. 760.30(h)(1)(i) or 47 FR 37351) which refers you to actual sections or pages of the August 25, 1982 Federal Register notice, included in the Appendix of this publication.

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(1) transformers, capacitors, and electromagnets that do pose an exposure risk to food or feed;

(2) transformers, capacitors, and electromagnets that do not pose an exposure risk to food or feed.

The use restrictions (e.g., authorization times, inspection/maintenance requirements, and recordkeeping requirements) are, thus, dealt with along these lines (e.g., recordkeeping requirements for PCB transformers that do pose an exposure risk to food or feed, or maintenance requirements for PCB capacitors that do not pose an exposure risk to food or feed, etc.).

DEFINITION OF "POSING AN EXPOSURE RISK TO FOOD OR FEED"

70. ***WITH RESPECT TO PCB ELECTRICAL EQUIPMENT, WHAT IS MEANT BY "POSING AN EXPOSURE RISK TO FOOD OR FEED"?***

By definition within the August 25, 1982 rule PCB items pose an exposure risk to food or feed only when there exists a potential pathway for PCBs discharged from the item to contaminate food or feed products. (See Statement of General Policy, February 18, 1983 Federal Register; 48 FR 7172.)

Food and feed covered by this definition include items regulated by the U.S. Department of Agriculture and the Food and Drug Administration as food or feed, including intentional food additives. Food and feed is excluded from this definition if it is used or stored in private residences by the public. This definition does cover food and feed that are held in all facilities including grocery stores, restaurants, warehouses, barns, bins, sheds, silos, and other structures, and in feedlots, open fields, and animal grazing areas. This definition does not include electrical equipment located near or above commercial or recreational fishing areas.

71. ***SHOULD A PERSON CONSIDER CATASTROPHIC FAILURE, SUCH AS RUPTURES, EXPLOSIONS, OR FIRE WHEN TRYING TO DETERMINE WHETHER OR NOT PCB ELECTRICAL EQUIPMENT (A PCB TRANSFORMER, FOR EXAMPLE) POSES AN EXPOSURE RISK TO FOOD OR FEED?***

The exposure risk from a PCB item to food or feed products is clearly dependent on the specific location of the applicable PCB item in relation to food or feed products. If, after considering the location of a specific PCB item and all other available information, there is a reasonable possiblity of contact between PCBs and food or feed, the PCB item will be considered to pose an exposure risk to food or feed.

In evaluating the exposure risk from a particular PCB item, it is useful to consider a hypothetical situation in which PCBs are discharged in any way from the PCB item, such as through an equipment leak or rupture. Assuming such a discharge occurred, releasing all or a portion of the contained PCBs and considering the PCB item's location and any relevant factors, the question to be asked is whether contact between PCBs and food and feed is reasonably possible. PCB items that are located directly adjacent

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to, or above, food or feed products pose an exposure risk to food or feed unless there is some type of secondary containment, or other physical structures, that prevent discharges of PCBs from contaminating food or feed.

For purposes of determining if electrical equipment poses exposure risks to food or feed, it is not necessary to consider rare events. The standard to be applied is a reasonable possibility of contamination of food or feed by PCBs.

72. ***IS A PLANT THAT MANUFACTURES PACKAGING INCLUDED UNDER THE DEFINITION OF A FOOD OR FEED FACILITY?***

No. A plant that manufactures packaging is not included under the definition of a food or feed facility unless food or feed products are actually packaged at the same facility. If the food packaging manufacturer is not packaging, processing, using or storing food or feed on site, the electrical equipment would not be considered an exposure risk.

73. ***ARE AGRICULTURAL CHEMICAL AND FERTILIZER PLANTS INCLUDED UNDER THE DEFINITION OF A FOOD OR FEED FACILITY?***

Agricultural chemical plants and fertilizer plants are not included (see 47 FR 37351). The rule (1) does not recognize agricultural chemicals and fertilizers as intentional food or feed additives, or (2) require any other special provisions for PCB items that pose an exposure risk to agricultural chemicals.

74. ***ARE PHARMACEUTICALS INCLUDED UNDER THE DEFINITION OF FOOD OR FEED?***

No, unless the manufactured pharmaceutical is used as an intentional food additive.

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ELECTRICAL EQUIPMENT (TRANSFORMERS, CAPACITORS, ELECTROMAGNETS)--THAT POSE AN EXPOSURE RISK TO FOOD OR FEED.

75. ***HOW IS ELECTRICAL EQUIPMENT THAT POSES AN EXPOSURE RISK TO FOOD OR FEED REGULATED UNDER THE AUGUST 25 RULE?***

Type of Equipment	Time Restrictions	Inspection and Recordkeeping Requirements
PCB Transformers w/Exposure Risk to Food or Feed (>500 ppm PCBs)	Use Prohibited After October 1, 1985 (see 761.30(a)(1)(i))	Weekly Inspections (see 761.30(a)(1)(vi)) Recordkeeping
Large PCB Capacitors w/Exposure Risk to Food or Feed (>500 ppm PCBs)	Use Prohibited After October 1, 1988 (see 761.30(1)(1)(i))	No Inspections
PCB-Filled Electromagnets (containing >500 ppm PCBs) w/Exposure Risk to Food or Feed	Use Prohibited After October 1, 1985 (see 761.30(h)(1)(i))	Weekly Inspections (see 761.30(h)(1)(ii)) Recordkeeping

76. ***ARE THERE ANY RECORDKEEPING REQUIREMENTS FOR ELECTRICAL EQUIPMENT POSING AN EXPOSURE RISK TO FOOD OR FEED?***

For PCB transformers, records of the inspection and maintenance history are to be maintained for at least three years after disposing of a transformer. The records to be maintained are:

(1) The location of the PCB transformer.

(2) The date of each visual inspection, and the date that a leak was discovered if the date is different from the scheduled inspection date.

(3) The person performing the inspection.

(4) The location of any leaks.

(5) An estimate of the amount of dielectric fluid released from any leak.

(6) The date of any clean up, containment, or repair performed.

(7) The results of any containment and daily inspection required for uncorrected active leaks. (For more details see 761.30(a)(1)(iv)).

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77. ***WHO IS RESPONSIBLE FOR THE INSPECTION, RECORDKEEPING, AND MAINTENANCE REQUIREMENTS OF A PCB TRANSFORMER WHICH POSES AN EXPOSURE RISK TO FOOD OR FEED?***

The user of a PCB transformer that poses an exposure risk to food or feed is responsible for the inspection, recordkeeping, and maintenance requirements until the user notifies the owner that the transformer may pose an exposure risk to food or feed. Following such notification, it is the owner's ultimate responsibility to determine whether the PCB transformer poses an exposure risk to food or feed (see 761.30(a)(1)(vi)), and to keep required records.

78. ***IF A PCB TRANSFORMER POSES AN EXPOSURE RISK TO FOOD OR FEED, DOES IT HAVE TO BE REMOVED FROM SERVICE BY OCTOBER 1, 1985?***

Not in all cases. If other measures remove the risk of exposure to food or feed, the transformer may be used for the remainder of its useful life. For example, transformers may be relocated to a site that does not pose an exposure risk to food or feed or may be provided with secondary containment (see 47 FR 37350). Once relocated or provided with secondary containment, the transformer becomes subject to quarterly or annual inspections (see 761.30(a)(1)(v)).

One other measure that an individual could take to reduce the exposure risks, is to retrofill a PCB transformer. After a period of three months if the PCB concentration remains under 500 ppm, the transformer can be reclassified as a PCB contaminated transformer which would not have to be removed or relocated by October 1, 1985.

TRANSFORMERS--THAT DO NOT POSE AN EXPOSURE RISK TO FOOD OR FEED

79. ***HOW ARE TRANSFORMERS THAT DO NOT POSE AN EXPOSURE RISK TO FOOD OR FEED REGULATED UNDER THE AUGUST 25, 1982 RULE?***

The August 25, 1982 rule allows the use and servicing of transformers that do not pose an exposure risk to food or feed for the remainder of their useful lives (see 761.30(a)).

80. ***IS A PCB TRANSFORMER NOT CURRENTLY IN USE, BUT IN USEABLE CONDITION AND KEPT AS A SPARE, ALSO AUTHORIZED FOR THE REMAINDER OF ITS USEFUL LIFE?***

Yes, a PCB transformer which is not in use, but is intended for re-use, is considered an in-service transformer for purposes of the rule and is authorized for the remainder of its useful service life.

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81. ***ARE THERE ANY INSPECTION AND/OR MAINTENANCE PROCEDURES REQUIRED FOR TRANSFORMERS THAT DO NOT POSE AN EXPOSURE RISK TO FOOD OF FEED?***

The rule requires inspection and maintenance procedures in accordance with the following chart:

Transformer Type	Inspection/Maintenance	Frequency
PCB Transformers w/>60,000 ppm PCBs	Yes	Quarterly (761.30(a))
PCB Transformers w/500-60,000 ppm PCBs	Yes	Annually (761.30(a)(1)(v)(B))
PCB Transformers w/Secondary Containment	Yes	Annually (761.30(a)(1)(v)(A))
PCB Contaminated Transformers w/50-500 ppm PCBs	No	N/A

82. ***DO TRANSFORMERS HAVE TO BE TESTED TO DETERMINE THEIR PCB CONCENTRATION? IF NOT, HOW CAN I DETERMINE A TRANSFORMER'S CLASSIFICATION?***

The PCB rule does not require that transformers be tested to determine the PCB concentration of the fluid. However, in the absence of a test, certain assumptions should be made about the transformer. If the name plate indicates that the transformer contains PCB dielectric fluid, or if there is any reason to believe that the transformer contains PCB dielectric fluid, then the transformer must be assumed to be a PCB transformer. A transformer designed to use mineral oil dielectric fluids must be assumed to be contaminated with between 50 and 500 ppm PCBs. This transformer is classified as a PCB-contaminated transformer.

83. ***DO I HAVE TO KEEP ANY RECORDS OF THE INSPECTIONS AND MAINTENANCE OPERATIONS I UNDERTAKE?***

The August 25, 1982 Rule requires that an inspection and maintenance history be maintained for each PCB transformer. If a transformer is removed from service and disposed of, the records for that transformer must be maintained for at least three years after disposal. Any form of records is acceptable as long as a paper copy of the required information is available upon request by EPA. The records required to be kept are the same as those listed under the answer to question 77 for PCB transformers posing an exposure risk to food or feed.

83 a. ***AM I REQUIRED TO KEEP ANY OTHER RECORDS ON PCB EQUIPMENT THAT IS STORED OR IN USE?***

Yes, an owner or operator of a facility using or storing at one time at least 45 kg. (99.4 pounds) of PCBs contained in PCB containers or 50 or more PCB large capacitors must maintain records on all PCBs and PCB items. An annual document must be prepared for each facility covering the records of the previous year (40 CFR 761 180).

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84. ***DO RECORDS HAVE TO BE BOUND?***

No, records can be in any form, including microfiche, as long as the company can produce a paper copy upon request by EPA.

85. ***ARE THERE ANY RESTRICTIONS ON THE SERVICING OF TRANSFORMERS THAT DO NOT POSE AN EXPOSURE RISK TO FOOD OR FEED?***

Yes. Any servicing of a PCB-Transformer (a transformer containing >500 ppm PCBs) that requires the removal of the transformer coil from the transformer case is prohibited (see 761.30(a)(2)(ii)). PCB-contaminated transformers (transformers containing 50-500 ppm PCBs) may only be serviced with dielectric fluid containing less than 500 ppm PCBs (see 761.30(a)(2)(i)).

86. ***DOES THE AUTHORIZATION OF STORAGE OF CERTAIN PCB TRANSFORMERS AND LARGE CAPACITORS ON PALLETS OUTSIDE OF A "STORAGE FOR DISPOSAL FACILITY" MEAN THAT I DON'T HAVE TO DISPOSE OF THESE ITEMS WITHIN A YEAR?***

No. The August 25, 1982 Rule authorizes temporary storage up to 30 days on pallets with inspection safeguards. Individual PCB items must still be disposed of within a year.

87. ***WHAT MUST I DO WITH THE PCBS REMOVED FROM A PCB TRANSFORMER?***

PCBs removed during any servicing activity must be captured and either reused as dielectric fluid or disposed of (see 761.30(a)(2)(iii)). PCBs from PCB Transformers (transformers containing greater than 500 ppm PCBs) may not be mixed with or added to dielectric fluid from PCB-contaminated electrical equipment (see 761.30(a)(2)(iii)).

88. ***CAN I ADD DIELECTRIC FLUID CONTAINING PCBS IN CONCENTRATIONS BELOW 50 PPM TO A PCB TRANSFORMER?***

Yes.

89. ***CAN I CONVERT A PCB TRANSFORMER INTO A PCB CONTAMINATED TRANSFORMER? HOW CAN I DO THIS?***

A PCB transformer can be reclassified by draining, refilling or otherwise servicing the transformer. In order to reclassify, the transformer's dielectric fluid must contain less than 500 ppm PCBs after a minimum of three months in-service use. The in-service use period must be right after the last servicing done to reduce the PCB concentration in the transformer (see 761.30(a)(2)(v)).

90. ***WHAT DOES IN-SERVICE MEAN?***

In-service means that the transformer is used under loaded conditions that raise the temperature of the dielectric fluid to at least 50 degrees Centigrade (see 761.30(a)(2)(v)).

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91. ***CAN I SIMULATE THE LOADED CONDITIONS TO RECLASSIFY A TRANSFORMER?***

EPA's Assistant Administrator of the Office of Pesticides and Toxic Substances may grant, without further rulemaking, approval for the use of alternate methods that simulate the loaded conditions of in-service use. A request for such approval must be submitted to the Assistant Administrator, and must contain a complete description of the alternate method (see 761.30(a)(2)(v)).

CAPACITORS THAT DO NOT POSE AN EXPOSURE RISK TO FOOD OR FEED

92. ***HOW ARE CAPACITORS THAT DO NOT POSE AN EXPOSURE RISK TO FOOD OR FEED REGULATED UNDER THE AUGUST 25 RULE?***

The rule allows the use of capacitors that do not pose an exposure risk to food or feed according to the following restrictions:

Type of Capacitor	Time Restrictions
Large PCB Capacitors (≥3 pounds dielectric fluid) in Restricted Access Indoor Installations and in Restricted Access Outdoor Electric Substations	For Remainder of Useful Lives (761.30(*l*)(1)(ii))
Large PCB Capacitors (≥3 pounds dielectric fluid) in Other Than Restricted Access Areas	October 1, 1988 (761.30(*l*)(1)(ii))
Small Capacitors (<3 pounds Dielectric fluid)	For Remainder of Useful Lives (761.30(*l*))

93. ***CAN A POLE-MOUNTED LARGE PCB CAPACITOR BE OUTFITTED OR RELOCATED SO THAT IT DOES NOT HAVE TO BE PHASED-OUT?***

A pole mounted large PCB capacitor in the field may be relocated to a contained and restricted access indoor installation or to a restricted access electrical substation (see 47 FR 37358; sec. 761.30(1)(1)(ii)). Although probably not practical, these capacitors could be outfitted to meet the criteria of a contained and restricted indoor installation.

94. ***IF A LARGE PCB CAPACITOR IS IN STORAGE FOR RE-USE, DOES IT HAVE TO BE PHASED OUT BY OCTOBER 1, 1988?***

No, large PCB capacitors in storage for re-use do not have to be phased out by 1988. If returned to service, it must, however, be located in an outdoor, restricted access electrical substation, or in a contained and restricted access indoor installation.

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95. ***ARE THERE ANY INSPECTION OR MAINTENANCE REQUIREMENTS FOR PCB CAPACITORS THAT DO NOT POSE AN EXPOSURE RISK TO FOOD OR FEED?***

No.

ELECTROMAGNETS, SWITCHES AND VOLTAGE REGULATORS THAT DO NOT POSE AN EXPOSURE RISK TO FOOD OR FEED

96. ***HOW ARE ELECTROMAGNETS, SWITCHES, AND VOLTAGE REGULATORS (THAT DO NOT POSE AN EXPOSURE RISK TO FOOD OR FEED) REGULATED UNDER THE AUGUST 25, 1982 RULE?***

PCBs at any concentration may be used in electromagnets, in switches, and in voltage regulators (that do not pose an exposure risk to food or feed), and may be used for purposes of servicing this equipment for the remainder of their useful lives (see 761.30(h)). Electromagnets, switches, and voltage regulators that contain PCBs are grouped into three categories: (1) those containing over 500 ppm PCBs, (2) those containing 50-500 ppm PCBs, and (3) those containing below 50 ppm.

97. ***WHAT RESTRICTIONS APPLY TO THE SERVICING OF ELECTROMAGNETICS, SWITCHES, AND VOLTAGE REGULATORS?***

(1) Servicing any electromagnet, switch, or voltage regulator with a PCB concentration above 500 ppm that requires the removal and rework of the internal components is prohibited (see 761.30(h)(2)(i)). (2) PCBs removed as a result of servicing must be captured and reused as dielectric fluid or disposed of properly (see 761.30(h)(2)(iii)). (3) PCBs removed from electromagnets, switches, and voltage regulators with a PCB concentration of at least 500 ppm cannot be mixed with dielectric fluid from equipment containing PCBs in concentrations between 50 and 500 ppm (see 761.30(h)(2)(iii). (4) Dielectric fluids containing less than 500 ppm PCBs cannot be mixed with dielectric fluid containing greater than 500 ppm PCBs and then used as dielectric fluid (see 761.30(h)(2)(iv)).

98. ***CAN I CONVERT A PCB ELECTROMAGNET, SWITCH, OR VOLTAGE REGULATOR (CONTAINING GREATER THAN 500 PPM PCBS) TO A PCB-CONTAMINATED ELECTROMAGNET, SWITCH, OR VOLTAGE REGULATOR (CONTAINING 50-500 PPM PCBS)?***

A PCB-electromagnet, switch, or voltage regulator can be reclassified as a PCB-contaminated electromagnet, switch ,or voltage regulator by draining, refilling, and/or otherwise servicing the equipment (see 761.30(h)(2)(v)). In order to be reclassified, the equipment must contain less than 500 ppm PCBs after a minimum of three months in-service use subsequent to the last servicing conducted for purposes of reducing the PCB concentration in the equipment. (See questions 91 and 92 for information on the requirement for in-service use.)

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CIRCUIT BREAKERS, RECLOSERS AND CABLE... THAT DO NOT POSE AN EXPOSURE RISK TO FOOD OR FEED.

99. ***WHAT REQUIREMENTS APPLY TO THE USE AND SERVICING OF CIRCUIT BREAKERS, RECLOSERS, AND CABLE?***

PCBs at any concentration may be used in circuit breakers, reclosers, and cable for the remainder of their useful lives. Servicing of this equipment may only be conducted with dielectric fluids containing PCBs in concentrations below 50 ppm (see 761.30(m)). Further, for circuit breakers, reclosers, and cable containing 50 ppm PCBs or greater, the servicing restrictions listed in 761.30(h)(2) apply.

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THE OCTOBER 21, 1982 CLOSED AND CONTROLLED WASTE RULE*

INTRODUCTORY INFORMATION

100. ***WHY DID EPA ISSUE THE OCTOBER 21, 1982 CLOSED AND CONTROLLED WASTE RULE?***

The Closed and Controlled Waste Rule was issued as part one of a two-part rulemaking initiated in response to the Court's decision to strike down the 50 ppm regulatory cutoff.

101. ***WHY DOES THE CLOSED AND CONTROLLED WASTE RULE ADDRESS ONLY THOSE TWO TYPES OF PROCESSES?***

Following the remand of the 50 ppm regulatory cutoff, the Environmental Defense Fund (EDF), EPA, and certain industry intervenors held a series of discussions. During these discussions, the industry representatives suggested that certain manufacturing processes should be excluded from regulation because they result in little risk to health and the environment. These process situations were called "closed manufacturing processes" and "controlled waste manufacturing processes." "Closed processes" were described as processes that produce PCBs but do not release PCBs. "Controlled waste processes" were described as processes that produce PCBs but release PCBs only as wastes that are properly disposed.

EPA agreed to pursue rulemaking to exclude PCBs created in these processes from the section 6(e) requirement to obtain annual exemptions from EPA. EPA decided to set up a two-part rulemaking, with part one addressing closed and controlled waste manufacturing processes, and part two addressing all remaining PCBs.

102. ***WHAT DOES THE OCTOBER 21, 1982 CLOSED AND CONTROLLED WASTE RULE DO?***

Briefly, the October 21, 1982 Closed and Controlled Waste Rule is a voluntary rule that excludes PCBs produced in these categories of manufacturing processes from the TSCA section 6(e) ban on the manufacture, processing, distribution in commerce, and use of PCBs. Persons who qualify for exclusion have the option of taking advantage of it.

The rule defines what is meant by a closed manufacturing process, and a controlled waste manufacturing process by setting PCB concentration limits for PCB levels in air emissions, water effluents, products, and wastes. The rule also defines what is meant by disposal in a "controlled" manner. Finally, the rule sets up recordkeeping and reporting requirements for persons who desire exclusion and whose processes qualify for exclusion.

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*Included in some of the answers are cross-referenced citations (e.g., Sec. 761.3(mm) or 47 FR 46994) which refer you to actual sections or pages of the October 21, 1982 Federal Register notice, included in the Appendix of this publication.

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103. ***WHAT HAPPENED TO THE 50 PPM REGULATORY CUTOFF?***

Although EDF successfully challenged the Agency's 50 ppm regulatory cutoff in the May 1979 rule, the court stayed its mandate with respect to the 50 ppm regulatory cutoff. This means that persons manufacturing, processing, distributing in commerce, and using PCBs in concentrations below 50 ppm may continue until the stay is lifted. EPA expects the stay to be lifted following the completion of a rulemaking on uncontrolled PCBs below 50 ppm. At that time, any person not specifically covered under the Closed and Controlled Waste Rule, or the third rule (to be issued in the summer of 1984), will be required to file annual petitions for exemption to manufacture, process, or distribute PCBs. Further, EPA must authorize the use of any PCBs not excluded by regulation.

104. ***SINCE THE 50 PPM CUTOFF REMAINS IN EFFECT BECAUSE OF THE COURT'S STAY OF MANDATE, DOES THE CLOSED AND CONTROLLED WASTE RULE BENEFIT ANYONE NOW?***

For now, the Closed and Controlled Waste Rule benefits those manufacturers who produce PCBs in concentrations over 50 ppm in their manufacturing process stream, but who do not release PCBs (to other than controlled wastes) in concentrations above the PCB levels established in the Closed and Controlled Waste Rule. Under the May 1979 Rule, persons meeting this description would have been required to file a petition for exemption, since the 50 ppm cutoff applied to PCBs present at any point in the manufacturing process. Depending upon the results of the third rulemaking, and, specifically, the effect of the third rulemaking on the 50 ppm regulatory cutoff, the Closed and Controlled Waste Rule may eventually benefit more persons than this.

BYPRODUCT PCB FORMATION

105. ***I DON'T KNOW IF MY MANUFACTURING PROCESS DOES OR DOES NOT PRODUCE PCBS AS A BYPRODUCT. IS THERE ANY INFORMATION ON THE TYPES OF PROCESSES THAT PRODUCE PCBS?***

Yes. First, PCBs can be formed in situations where carbon, chlorine, and high temperatures or catalysts are present together. EPA has compiled several lists of processes that have the potential to produce PCBs as byproducts. These lists are support documents to the Closed and Controlled Waste Rule. Useful references include document numbers 29 and 30 in 47 FR 46994 (full titles are listed in 47 FR 46994). In addition, the Chemical Manufacturers Association conducted a survey of the chemical industry which may provide some information. This survey is part of the rulemaking record for the closed and controlled waste rule. In addition, EPA continues to research this area in preparation for the next rulemaking (to be completed in the summer of 1984.)

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QUALIFYING FOR AN EXCLUSION AS A CLOSED OR CONTROLLED WASTE

106. ***WHAT DO I HAVE TO DO TO QUALIFY FOR THE CLOSED AND CONTROLLED WASTE RULE EXCLUSION?***

The Closed and Controlled Waste Rule requires persons who desire to qualify for exclusion to:

(1) review their processes (analyze or estimate) (see 761.185(a)(1)),

(2) record the basis for a determination that a process qualifies for exclusion and maintain these records (see 761.185(a)(2) and 761.185(a)(3)),

(3) certify that the process qualifies for exclusion, see 761.185(b), 761.185(c), 761.185(d), and 761.185(e)), and

(4) notify EPA of processes that qualify and of the basis for the determination (see 761.185(f)).

107. ***I MANUFACTURE PCBS IN CONCENTRATIONS BELOW 50 PPM, AND RELEASE PCBS IN MY PRODUCT IN CONCENTRATIONS ABOVE THE LEVEL SET IN THE OCTOBER 21, 1982 CLOSED AND CONTROLLED WASTE RULE, BUT BELOW 50 PPM. AM I NOW REQUIRED TO REDUCE PCB LEVELS IN MY PRODUCTS TO BELOW THE CONCENTRATION LIMITS SET IN THE CLOSED AND CONTROLLED WASTE RULE?***

No. The Closed and Controlled Rule is a voluntary exclusion. Persons who operate processes that qualify for exclusion have the option of taking advantage of the exclusion or of not taking advantage of it (see 47 FR 46981)). Persons who operate processes that produce PCBs in concentrations below 50 ppm and release PCBs in products, emissions or effluents in concentrations above the limits set in the Closed and Controlled Waste Rule (but below 50 ppm) have the option of reducing PCB levels in releases from the processes. Or they can delay their decision on whether to qualify for the closed and controlled waste exclusion until the completion of the third rulemaking.

WHAT "CONTROLLED" DISPOSAL IS

108. ***DOES THE CLOSED AND CONTROLLED RULE MEAN THAT THE MARKING AND DISPOSAL OF ALL PCBS IN CONCENTRATIONS OVER 2 PPM IS REQUIRED UNDER TSCA?***

No. The 50 ppm cutoff contained in the regulations covering the Marking and Disposal of PCBs is still in effect. Under TSCA, PCBs in concentrations below 50 ppm (excluding dilutions of higher level PCBs) are not required to be disposed of in any special manner. The Closed and Controlled Waste Rule for PCBs allows persons to manufacture, process, distribute in commerce and use products which are generated in controlled or controlled processes (761.1(f)).

Solid wastes with PCB concentrations of less than 50 ppm may still be subject to RCRA regulation for disposal or recycling purposes.

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109. ***WHAT IS CONTROLLED DISPOSAL?***

For PCBs in concentrations below 50 ppm, controlled disposal is one of the following:

(1) Disposal in an EPA-approved PCB incinerator.

(2) Disposal in a Resource Conservation and Recovery Act (RCRA)-approved incinerator.

(3) Disposal in an EPA-approved PCB high efficiency boiler.

(4) Disposal in an EPA-approved PCB landfill.

For PCBs in concentrations between 50 ppm and 500 ppm, controlled disposal is one of the following:

(1) Disposal in an EPA-approved PCB incinerator.

(2) Disposal in an EPA-approved PCB high efficiency boiler.

(3) Disposal in an EPA-approved PCB landfill.

For PCBs in concentrations over 500 ppm, controlled disposal is:

(1) Disposal in an EPA-approved PCB incinerator.

RECORDKEEPING/REPORTING REQUIREMENTS

110. ***AM I REQUIRED BY THE RULE TO CHEMICALLY ANALYZE MY AIR EMISSIONS, WATER EFFLUENTS, AND PRODUCTS FOR PCBS?***

No. The closed and controlled rule provides for theoretical assessments in lieu of actual chemical analysis of emissions and effluents (see 761.185(a)(1)).

111. ***WHAT IS A THEORETICAL ASSESSMENT?***

The objective of conducting a theoretical assessment is to use reason, logic, and chemical/mathematical calculations to make correct determinations about whether chemical manufacturing processes qualify for exclusion under the closed and controlled waste rule. Specifically, the objective is to determine whether PCB levels in releases from a process exceed the limits set by EPA in the Closed and Controlled Waste Rule, without actually monitoring these levels through chemical analysis (see 47 FR 46991).

112. ***WHAT HAPPENS IF I CONDUCT A THEORETICAL ASSESSMENT AND IT TURNS OUT TO BE WRONG WHEN EPA MONITORS COMPLIANCE WITH THE RULE?***

First, EPA will not be utilizing theoretical assessments in enforcing this rule (see 47 FR 46981 and 46982). Second, if EPA finds a theoretical assessment to be wrong, and the process does not qualify for exclusion, then that process will be considered to be out of compliance, regardless of the results of the theoretical

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assessment. The need to undertake actual chemical analysis and monitoring of PCB levels can be determined only by each manufacturer and will depend upon the expected level of release, its relationship to the limits set by the Closed and Controlled Waste Rule, and the level of confidence placed in the accuracy of the estimate. The ultimate burden of making a correct decision to rely on theoretical assessments rests on each manufacturer.

113. ***IF I MONITOR PCB LEVELS IN EMISSIONS, EFFLUENTS, AND PRODUCTS FROM MY PROCESS, AM I REQUIRED TO USE ANY PARTICULAR ANALYTICAL METHOD?***

No. However, EPA will be using capillary gas chromatography coupled to electron impact mass spectrometry (CGC/EIMS) to enforce the provisions of this rule. EPA recommends this method for analyzing process streams for byproduct PCBs.

114. ***IF I MONITOR PCB LEVELS IN RELEASES FROM MY PROCESS, AM I REQUIRED TO SELECT A CERTAIN NUMBER OF SAMPLES AT SPECIFIC LOCATIONS?***

No. However, EPA will be using a sequential sampling scheme to enforce the provisions of this rule. This approach should result in a considerable savings over standard statistical sampling methods without adding to the risks of making incorrect decisions. EPA recommends a sequential sampling scheme involving the selection of a maximum of seven samples (see 47 FR 46992).

115. ***TO WHOM DO I SEND THE NOTIFICATION LETTER?***

If the letter notifying EPA that a certain process qualifies for exclusion contains Confidential Business Information (CBI), then the sender should follow all CBI procedures in transmitting the package, and send it to:

Lois Riley
Document Control Office
E-409
U.S.E.P.A
401 "M" Street, S.W.
Washington, D.C. 20460

The internal envelope should direct the package to the OPTS Exposure Evaluation Division, TS-794, E-345.

If the notification letter does not contain CBI, then it should be sent directly to:

Exposure Evaluation Division (TS-794)
Chemical Regulation Branch
U.S.E.P.A.
401 "M" Street, S.W.
Washington, D.C. 20460

The Chemical Regulation Branch within EPA's Office of Toxic Substances will retain a copy of the letter and transmit the letter to the appropriate regional office.

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116. ***THE CLOSED AND CONTROLLED WASTE RULE REQUIRES PERSONS OPERATING CLOSED AND CONTROLLED WASTE PROCESSES TO NOTIFY EPA OF, AMONG OTHER THINGS, THE NUMBER, TYPE, AND LOCATION OF THE CLOSED AND CONTROLLED WASTE PROCESSES. HOW MUCH INFORMATION IS NEEDED BY EPA ON THE TYPE OF MANUFACTURING PROCESS?***

Since the objective of the reporting requirement is to provide EPA with information for compliance monitoring purposes, enough information on the type of process(es) should be provided to allow EPA to locate the specific process(es) that qualifies for exclusion. Generic descriptions, such as "a chlorination reaction" may not suffice if, for example, more than one chlorination reaction is operating at a single location.

117. ***THE CLOSED AND CONTROLLED WASTE RULE REQUIRES EITHER THEORETICAL ASSESSMENTS OR ACTUAL CHEMICAL ANALYSIS OF PRODUCTS, EMISSIONS, AND EFFLUENTS TO SUPPORT EXCLUSIONS. IF I HAVE BOTH TYPES OF DATA, WHICH DO I RETAIN?***

Analytical data must always be retained (see 47 FR 46991). If the theoretical assessment contains additional supporting information, essential to the determination that the process qualifies for exclusion, then this should also be retained.

118. ***DO I HAVE TO IDENTIFY THE DISPOSAL FACILITY IN WHICH MY WASTES ARE DESTROYED?***

Section 761.185(f) requires that operators of controlled waste processes notify EPA of the type, name, and location of the waste disposal facility.

119. ***WHEN SHOULD I NOTIFY EPA THAT MY PROCESS QUALIFIES FOR EXCLUSION?***

The exclusion is voluntary, and therefore, there is no set date by which all notification letters are to be submitted to EPA. However, a manufacturer is not fully in compliance with the closed and controlled waste exclusion until these letters are received by EPA.

JANUARY 3, 1983 AMENDMENT TO THE USE AUTHORIZATION FOR RAILROAD TRANSFORMERS*

INTRODUCTORY INFORMATION

120. ***ARE RAILROAD TRANSFORMERS REGULATED UNDER TSCA?***

Certain railroad transformers contain PCBs, thus, they are regulated under TSCA. However, section 6(e)(2)(B) of TSCA provides EPA with the authority to create certain limited exceptions to the ban on the use of PCBs. Specifically, EPA can

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*Included in several of the answers are cross-reference citations (e.g., sec. 761.30(b)(2)(ii) which refer you to actual sections of the January 3, 1983 Federal Register notice, included in the Appendix of this publication.

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authorize the use of PCBs in certain circumstances provided their use does not present an unreasonable risk of injury to health or the environment. EPA first authorized the use and servicing of railroad transformers that contain PCBs in the May 1979 PCB Rule.

121. ***HOW ARE RAILROAD TRANSFORMERS REGULATED?***

Since the May 1979 Rule, EPA has amended the authorization covering the use and servicing of railroad transformers containing PCBs. The amendment to the May 1979 use authorization was issued Janurary 3, 1983. Generally, it:

(1) Requires railroad organizations to meet a 60,000 ppm concentration level in their transformers by July 1, 1984.

(2) Requires railroad organizations to meet a 1,000 ppm concentration level in their transformers by July 1, 1986.

(3) Authorizes the use of PCBs for the remaining useful life of the railroad transformers at concentrations below 1,000 ppm.

(4) Permits railroad organizations to service railroad transformers to reduce PCB concentrations.

122. ***WHAT DIELECTRIC FLUIDS ARE AVAILABLE FOR RETROFILLING OF RAILROAD TRANSFORMERS?***

The railroad companies involved have identified substitutes for PCB dielectric fluid.

INTERIM PERFORMANCE DEADLINES

123. ***ARE THERE ANY INTERIM PERFORMANCE DATES THAT MUST BE MET?***

Yes. In the January 3, 1983, amendment to the May 1979 use authorization, two sets of three interim performance deadlines are established to meet the 60,000 ppm and 1,000 ppm PCB concentration levels.

The three performance deadlines that the railroad organizations must achieve to meet the 60,000 ppm level are:

(1) After July 1, 1983, the number of railroad transformers containing PCB concentration greater than 60,000 ppm in use by any railroad organization cannot exceed two-thirds of the total railroad transformers containing PCBs in use by that organization on January 1, 1982 (761.30(b)(1)(i)).

(2) After January 1, 1984, the number of railroad transformers containing a PCB concentration greater than 60,000 ppm in use by any affected railroad organization may not exceed one-third of the total railroad transformers containing PCBs in use by that organization on January 1, 1982 (761.30(b)(1)(ii)).

(3) After July 1, 1984, the use of railroad transformers that contain dielectric fluid with a PCB concentration greater than 60,000 ppm is prohibited (761.30(b)(1)(iii)).

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The three performance deadlines that the railroad organizations must achieve to meet the 1,000 ppm level are:

(1) After July 1, 1985, the number of railroad transformers containing a PCB concentration greater than 1,000 ppm in use by any affected railroad organization may not exceed two-thirds of the total railroad transformers containing PCBs in use by that organization on July 1, 1984 (761.30(b)(1)(iv)).

(2) After January 1, 1986, the number of railroad transformers containing a PCB concentration greater than 1,000 ppm in use by any affected railroad organization may not exceed one-third of the total railroad transformers containing PCBs in use by that organization on July 1, 1984 (761.30(b)(1)(v)).

(3) After July 1, 1986, the use of railroad transformers that contain dielectric fluids with a PCB concentration greater than 1,000 ppm is prohibited (761.30(b)(1)(vi)).

124. ***OTHER THAN THE PERFORMANCE DEADLINES, ARE THERE ANY OTHER CONDITIONS ON THE RAILROAD TRANSFORMER USE AUTHORIZATION?***

Yes. PCB concentrations must be measured: (1) immediately after servicing for purposes of reducing PCB concentration levels, and (2) between 12 and 24 months after each servicing to reduce PCB concentrations (761.30(b)(1)(vii)).

RECORDKEEPING REQUIREMENTS

125. ***DO I HAVE TO KEEP RECORDS OF THE PCB CONCENTRATIONS I MEASURE?***

Yes. These data must be retained until January 1, 1991 (761.30(b)(1)(vii)(C)).

THE "UNCONTROLLED" PCB RULEMAKING

INTRODUCTORY INFORMATION

126. ***WHAT DOES THE "UNCONTROLLED" PCB RULEMAKING COVER?***

The "Uncontrolled" PCB Rulemaking covers PCBs as impurities in other than closed or controlled waste manufacturing processes.

127. ***WHY IS EPA DOING ANOTHER RULEMAKING?***

As a result of the EDF challenge to the May 1979 PCB Ban Rule, the 50 ppm regulatory cutoff for the manufacture, processing, distribution in commerce, and use of PCBs was struck down. Without addition rulemaking, all PCBs manufactured in other than closed and controlled waste manufacturing processes would be banned in accordance with the prohibitions of section 6(e) of TSCA. Since PCBs are inadvertently created in many chemical manufacturing processes that do not qualify as closed or controlled waste processes, a total ban would have a significant economic impact. EPA is conducting rulemaking to reduce the impact of TSCA section 6(e) ban on the manufacture of PCBs as byproducts or impurities.

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128. ***WILL THE RULEMAKING UNDER WAY FOR PCBS UNDER 50 PPM ALSO AFFECT ELECTRICAL EQUIPMENT?***

No. The August 25, 1982 Electrical Use Rule regulates the use of PCBs in Electrical Equipment.

RULEMAKING SCHEDULE

129. ***WHEN IS THE "UNCONTROLLED" PCB RULEMAKING TO BE COMPLETED?***

EPA intends to issue a Proposed Rule by December of 1983, and a Final Rule by July of 1984.

130. ***IS THERE ANY ADDITIONAL INFORMATION AVAILABLE ON THIS RULEMAKING?***

Yes. EPA submitted a report to the court outlining its plans for further rulemaking on "uncontrolled" PCBs on November 1, 1982. This report is contained in the Appendix to this booklet. Quarterly reports to the Court are required starting on March 31, 1983. Recently (April 1983), EPA received a joint proposal from EDF/NRDC and CMA for the uncontrolled PCB rulemaking. This proposal is being reviewed by EPA; and, EPA is considering using considerable portions of it as the framework for this rulemaking. Copies of the proposal are available from the EPA TSCA Assistance Office.

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Appendix A

RECODIFICATION CHART FOR MAY 31, 1979 PCB BAN RULE
NEW DESIGNATIONS FOR PART 761

(Since the publication of the May 1979 PCB Ban Rule, the 40 CFR Part 761 has been recodified. This chart compares the new designations with the former designations. All citations referenced in this text are the recodified sections.)

New Section (referenced in Q&A's)		Old Section (appears in the May 31, 1979 Federal Register)
	Subpart A--General Provisions	
761.1	Applicability.	761.1
761.3	Definitions.	761.2
	Subpart B--Manufacturing, Processing, Distribution in Commerce, and Use of PCBs and PCB Items	
761.20	Prohibitions.	761.30
761.30	Authorizations.	761.31
	Subpart C--Making of PCBs and PCB Items	
761.40	Marking requirements.	761.20
761.45	Marking formats.	761.44
	Subpart D--Storage and Disposal	
761.60	Disposal requirements.	761.10
761.65	Storage for disposal.	761.42
761.70	Incineration.	761.40
761.75	Chemical waste landfills.	761.41
761.79	Decontamination.	761.43

Subpart E--Tests and Methods of Analysis

761.82	References for analytical methods for detecting PCBs in air and water.	761.46
761.90	References for analytical methods for detecting PCBs in closed process waste streams.	761.47
761.95	References for analytical methods for detecting PCBs in closed process waste streams.	761.48

Subpart F--I [Reserved]

Subpart J--Records and Reports

761.180	Records and monitoring.	761.45
761.185	Self-certification program and retention of special records by persons incidentially generating PCBs in closed and controlled waste manufacturing processes.	761.45(g)

federal register

Thursday
May 31, 1979

APPENDIX B

Part VI

Environmental Protection Agency

Polychlorinated Biphenyls; Criteria Modification; Hearings

major comments that were made on the proposed rule during the comment period. In many cases these comments led to changes to the proposed PCB Ban Rule. There are also two versions of the economic impact analysis that have been prepared by Versar, Inc. The first Versar Report was made available at the time of the proposed PCB Ban Rule. The second, or final Versar Report, has been incorporated into the final Support Document. Copies of the final Support Document can be obtained from the Industry Assistance Office identified above.

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I. Summary of the Rule's Organization

Subpart A (§§ 761.1 and 761.2) of this rule contains general provisions applicable to all other Subparts. Section 761.1 states the applicability of the provisions of the rule. Section 761.2 contains definitions of terms used in the rule. Subparts B (§ 761.10) and C (§ 761.20) contain disposal and marking requirements. Subpart D (§§ 761.30 and 761.31) concerns the manufacturing, processing, distribution in commerce, and use of PCBs. Section 761.30 contains prohibitions on activities while § 761.31 sets out authorizations under TSCA section 6(e)(2)(B). Subpart E contains Annexes to the rule concerning incineration of PCBs, chemical waste landfills, storage for disposal, decontamination, marking, and records and monitoring.

The preamble to this rule primarily describes changes from the proposal. Except to the extent that it is inconsistent with this final rule preamble, the preamble to the proposed rule (43 FR 24802, June 7, 1978) is incorporated by reference into this document and should be consulted for additional information (see 43 FR 24802-24812, June 7, 1978). The contents of this preamble are summarized in Table 1. The amount of PCBs used in different PCB activities and the impact this rule will have on these PCBs is summarized in Table 2.

Table 2.—Quantities of PCB's Used in PCB Activities[1]

Activity	Pounds used	Pounds regulated	Pounds prohibited
PCB Transformers	295 000 000	295 000 000	0
PCB-Contaminated Trans	~ 400,000	~ 400 000	0.
Railroad Trans.	5,000,000	5 000 000	5,000,000[2]
Mining Motors	34 000.	34 000	34 000 [3]
Hydraulic Systems	750–3500	750–3500	750 3500 [4]
Heat Transfer	40,000–180,000	40,000–180,000	40,000–180,000 [5]
Carbonless Copy Paper	(7)	(7)	0.
Pigments	5 700/yr	5,700/yr	5 700/yr [8]
Electromagnets	20,000–30,000	20 000–30,000	0.
Compressors	Small	All	All [9]
Small Quantity R&D	Very small	All	(10)
Microscopy	Very small	All	(10)
PCB Capacitors/PCB Equip	460,000,000	262 500 000	...
Process Contamination[11]	100,000–500,000/yr	100 000–500,000/yr	100,000–5000,000/yr [12]
Dust Control, Sealants, Coatings from Waste Oil	32,000/yr ~ 750,650,000	32,000/yr ~ 583,300,000[13]	32,000/yr ~ 5 430 000

[1] Over a five year period.
[2] Over a three year period.
[3] Draining and refilling required until at 50 ppm.
[4] Amount of PCB chlorinated copy paper inventories unknown. Use is authorized indefinitely.
[5] The difference between this value and the one is the equivalent to the kilo is the PCB in ...capacitors, which are uncontrolled.
[6] Data derived from Versar report.
[7] Data estimated from petitions for exemptions from the manufacturing ban.
[8] Subject to exemption.
[9] Use authorized but other activities need exemption.
[10] In one year.

II. Changes in Major Definitions

A. "PCBs" and "PCB Items"

This final rule changes the definition of "PCB" from that contained in the proposal in two significant respects. In the proposed rule, § 761.2(q) defined "PCB" and "PCBs" to include PCB Chemical Substances, PCB Mixtures, PCB Articles, PCB Equipment, PCB Containers, and PCB Sealants, Coatings, and Dust Control Agents. Section 761.2(s) of the final rule defines "PCB" and "PCBs" to mean any chemical substance or combination of substances that is limited to the biphenyl molecule that has been chlorinated to varying degrees. This definition is essentially what the proposal defined as "PCB Chemical Substance". This term and the term "PCB Mixture" have been deleted

from the rule. Because some provisions in the rule apply to concentrations of PCBs below 50 ppm (e.g., the ban on the use of PCBs as sealants, coatings, and dust control agents), the applicability section (§ 761.1(b)) explains that wherever the term "PCB" or "PCBs" is used in this rule, it means PCBs at a concentration of 50 ppm or greater unless otherwise specified.

The second principal change is the addition of a new term, "PCB Item", defined as "any PCB as it is a part of, or contained in, any 'PCB Article', 'PCB Article Container', 'PCB Containers' or 'PCB Equipment', at a concentration of 50 ppm or greater" (see § 761.2(x)). This change significantly affects the scope of the manufacturing ban. (See preamble section VI.B.1. below.)

B. Regulation of PCBs at the 50 ppm Concentration Level

To implement this rule in a practical manner, it is essential that EPA adopt a regulatory cut-off point based upon the concentration of PCBs. PCBs are widely dispersed in the environment and are found worldwide at low concentration. This wide dispersion has occurred because hundreds of millions of pounds of PCBs have been used in the past with little or no attempt to control their use or disposal. Because PCBs are now so pervasive, the effect of not having a cut-off concentration would be to extend the prohibitions and other requirements of section 6(e) of TSCA to almost all human activity. Many foods, such as fish and milk, as well as the human body often contain detectable concentrations of PCBs.

The final rule applies to any substance, mixture, or item with 50 ppm or greater PCB. This 50 ppm cut-off was proposed as a change from the Disposal and Marking Rule (43 FR 7150, February 17, 1978), which specified a 500 ppm cut-off. (See definition of "PCB Mixture" in that rule (§ 761.2(w), 43 FR 7157).)

Where to set the cut-off point for the PCB rule has been an issue throughout the development of both the Disposal and Marking Rule and the Ban Rule. The preamble to the proposed Disposal and Marking Rule (see 42 FR 26564, May 24, 1977) first discussed the issue under the heading "PCB Mixtures, Waste Materials, and Sludges". The preamble to the final Disposal and Marking Rule discussed the issue further under the heading "Changes in § 761.2 Definitions" (see 43 FR 7151, February 17, 1978). This discussion stated that EPA was seriously considering lowering the PCB concentration in the definition of "PCB Mixture" from 500 ppm to possibly 50 ppm. The preamble to the proposed Ban Rule emphasized that EPA must select a cut-off point that it can reasonably administer in order to attain the objectives of §6(e) of TSCA (see 43 FR 24804, June 7, 1978).

Before selecting 50 ppm PCB as the cut-off point, EPA considered several other options, including retaining the 500 ppm PCB cut-off originally specified in the Disposal and Marking Rule, and lowering the cut-off concentration to 10 ppm or even 1 ppm. The 500 ppm PCB option was favored by affected industries because it would reduce the costs of complying with the rule, but no evidence was presented that indicated that industry is technologically or economically unable to comply with the more stringent standard. In fact, in this final rule, EPA is easing the economic burden of complying with the more stringent standard by allowing alternative disposal methods for certain wastes containing between 50 ppm and 500 ppm PCB.

Lowering the PCB cut-off point from 500 ppm to 50 ppm will result in substantially increased health and environmental protection. Using data developed by Versar, Inc. of Springfield, Virginia, EPA estimates that approximately one million additional pounds of existing PCBs will be controlled by lowering the cut-off to 50 ppm. In addition, from 100,000 to 500,000 pounds per year (estimated from manufacturing exemption petitions) of new PCBs will be controlled. Because Congress intended that EPA address the problem of contamination of the environment by PCBs to the greatest extent possible, EPA believes that regulating this substantial additional amount of PCBs is justified.

Lowering the cut-off concentration to 10 ppm PCB would provide an additional degree of environmental protection but would have a grossly disproportionate effect on the economic impact and would have a serious technological impact on the organic chemicals industry. Although firm data are not available, investigations have indicated that a number of chlorinated organic chemicals are produced with PCB concentrations of 10 ppm to 30 ppm and that it may be very difficult technically to alter the production processes to produce lower levels of PCBs or eliminate them. In addition, a 10 ppm concentration cut-off would also substantially increase the scope of the disposal requirements, especially for soils, debris, and solvents contaminated with low concentrations of PCBs. Those wastes would be added to the total quantity of waste at these PCB disposal sites. Since PCB disposal site capacity is limited, these additional wastes would add to the volume of wastes stored at PCB storage facilities. Illegal disposal of PCB wastes and inadvertant releases of PCBs into the environment are more likely to occur when disposal capacity is not readily available.

EPA recognizes that increased environmental benefits could result if additional PCBs were destroyed or controlled by regulating PCBs at very low concentrations. These potential benefits would be negated, however, if high-concentration PCB wastes are not properly disposed of because the limited disposal capacity for PCB wastes and EPA's surveillance and enforcement efforts are diverted to low concentration wastes. In addition, other authorities administered by EPA, such as the Clean Water Act (CWA) and the Marine Protection, Research, and Sanctuaries Act, can be used to regulate low concentrations of PCBs. EPA has the ability to control environmental releases of certain low concentration PCBs through the National Pollutant Discharge Elimination System (section 402 of CWA), through dredging permits (§ 404 of CWA) and through toxic effluent standards and prohibitions (section 307(a) of CWA).

The arguments against a cut-off of 10 ppm are pertinent to a cut-off of 1 ppm to an even greater extent. Foods, such as milk and fish, and even the human body itself often contain PCBs at this low concentration. For these reasons, EPA also decided not to adopt a cut-off of 1 ppm.

After reviewing the public comments, informal hearing testimony, and other information in the rulemaking record and then evaluating the available options, EPA concludes that retaining the PCB cut-off limit at 50 ppm provides adequate protection for human health and the environment while defining a program that EPA can effectively implement.

The major exception in the rule to the 50 ppm limit is the prohibition of the use of waste oil as a sealant, coating, or dust control agent if the waste oil contains any detectable concentration of PCB. This prohibition is necessary to prevent the use of PCB-contaminated materials in ways that result in direct and widespread environmental contamination. Road oiling, other dust control, pipe coating, and spraying of vegetation permit substantial direct entry of PCBs into the air and waterways and may introduce PCBs into the food chain.

C. Classification of Transformers Under This Rule

This rule establishes four categories of transformers: 1) PCB Transformers; 2) PCB-Contaminated Transformers; 3) Non-PCB Transformers; and 4) Railroad Transformers. Railroad Transformers are discussed in the preamble section IX.B. The other three categories are discussed immediately below.

PCB Transformers

PCB Tranformers are transformers that contain PCBs at a concentration of 500 ppm or greater. This category includes transformers that were designed to use concentrated PCBs (40 percent or greater PCBs) as a dielectric fluid, as well as transformers that were not designed to use concentrated PCBs but contain 500 ppm or greater PCB. The higher concentration of PCB could result from an unusual contamination incident at the manufacturing facility, from careless servicing operations, or from deliberate attempts to use concentrated PCBs as a dielectric fluid. The selection of 500 ppm as the lower limit defining a PCB Transformer is directly related to the selection of limits for defining PCB-Contaminated Transformers. This is discussed in section C.2 immediately below.

A transformer must be assumed to be a PCB Transformer if any one of the following conditions exist: (1) the nameplate indicates that the transformer contains PCB dielectric fluid; (2) the owner or operator has any reason to believe that the transformer contains PCB dielectric fluid; or (3) the transformer's dielectric fluid has been tested and found to contain 500 ppm or greater PCB. If a transformer does not have a nameplate or if there is no information available to indicate the type of dielectric fluid in it, the transformer must be assumed to be a PCB Transformer unless it is tested and found to contain less than 500 ppm PCB. This category of transformers is defined in the rule in § 761.2(y).

2. PCB-Contaminated Transformers

PCB-Contaminated Transformers are transformers that contain between 50 ppm and 500 ppm PCB. This category includes transformers that were designed to use PCB-free mineral oil dielectric fluids but now contain between 50 ppm and 500 ppm of PCBs because of contamination that occurred in manufacturing or servicing operations. Available data indicate that as many as 38 percent of the 35,000,000 mineral oil transformers contain between 50 and 500 ppm PCBs but that PCB concentrations above 500 ppm in such transformers are rare. Based on these data, EPA is specifying 50 to 500 ppm as the range of PCB concentration defining PCB-Contaminated Transformers. The data also support the requirement that all mineral oil transformers must be assumed to be PCB-Contaminated Transformers unless tested and found not to contain between 50 and 500 ppm PCB.

The upper limit of 500 ppm is a practical cut-off because it includes virtually all mineral oil transformers that are substantially contaminated with PCBs and it coincides with the February 17, 1978 PCB Disposal and Marking Rule limit for defining a "PCB Transformer". Because most of the requirements of this rule apply only to PCB concentrations of 50 ppm or greater (see preamble section II.B above), 50 ppm is the logical choice for a lower limit for PCB-Contaminated Transformers.

As discussed in section C.4 below, PCB Transformers may be converted to PCB-Contaminated Transformers by draining and replacing the dielectric fluid as long as the replacement fluid is between 50 and 500 ppm PCBs after three months of in-service use. The term PCB-Contaminated Transformer is defined in § 761.2(z).

3. Non-PCB Transformers

Non-PCB Transformers are transformers that contain less than 50 ppm PCB. No transformer may ever be considered to be a Non-PCB Transformer unless its dielectric fluid has been tested or otherwise verified to contain less than 50 ppm PCB. A person who tests his transformers to classify them as Non-PCB Transformers should also take precautions to insure that these transformers are not later contaminated in servicing operations. Addition of PCB-contaminated fluid, for example, may result in PCB levels over 50 ppm.

Non-PCB Transformers are not specifically covered by this rule. However, it is possible that the dielectric fluid in these transformers may contain a detectable, but less than 50 ppm PCB concentration. In this case, the rule's prohibition of the use of waste oil containing any detectable PCBs as a sealant, coating, or dust control agent would be applicable when the dielectric fluid is removed from the transformer. The term Non-PCB Transformer is not defined in the rule.

4. Discussion of Transformer Categories

The owner or operator of a transformer must ascertain which of these three categories, PCB Transformer, PCB-Contaminated Transformer, or Non-PCB Transformer, is applicable. In determining this, a person must make certain assumptions, as discussed below.

a. Determining Appropriate Categories

Transformers originally designed to use concentrated PCBs usually have a nameplate indicating that they contain PCB dielectric fluid. Such transformers must be assumed to be PCB Transformers unless tested and found to contain less than 500 ppm PCB. The same assumption must also be made if there is any other reason to believe that a transformer was designed to use concentrated PCB fluid or was ever filled with such fluid. If a transformer does not have a nameplate or if there is no information available to indicate the type of dielectric fluid in it, the transformer must be assumed to be a PCB Transformer.

If the owner or user has serviced the transformer to reduce the PCB concentration below 500 ppm, he cannot simply assume that the PCB reduction process was successful. Because PCBs can continue to leach out of transformer windings after refilling with dielectric fluid containing less than 50 ppm PCB, the owner must test to determine the PCB concentration in the dielectric fluid if he wants to reclassify such a transformer. The test must be performed only after the transformer has been in use for three months or longer after the most recent servicing intended to reduce the PCB concentration. If this test shows the transformer dielectric fluid to contain between 50 ppm and 500 ppm PCB, then the transformer can be reclassified as a PCB-Contaminated Transformer. If the PCB reduction was successful enough to reduce the PCB concentration below 50 ppm, then the transformer would be a Non-PCB Transformer. Owners or operators of reclassified transformers must retain records of their tests in order to be able to demonstrate compliance with the reclassification requirements.

Because of the widespread PCB contamination of transformers that were designed to use PCB-free mineral oil dielectric fluid, all such mineral oil dielectric fluid transformers must be assumed to be PCB-Contaminated Transformers, unless reasons exist to believe that a transformer was filled with greater than 500 ppm PCB fluid (in which case the assumption is that the transformer is a PCB Transformer). The owner or operator has the option of testing the dielectric fluid to determine if the PCB concentration is below 50 ppm. This testing must be performed on the

dielectric fluid that is in the transformer. If the PCB concentration in the dielectric fluid is below 50 ppm, then the transformer may be considered a Non-PCB Transformer.

If any 500 ppm or greater PCB fluids are added to a collection tank, the entire tank contents must be considered to be greater than 500 ppm PCBs and be disposed of in an incinerator that meets the requirements found in Annex I of the rule. (In other parts of this preamble this will be referred to as an Annex I incinerator.) The tank contents *cannot* be used as dielectric fluid; the tank contents *must* be disposed of. In addition, PCB-free or low concentration PCB fluids cannot be added to the tank in order to dilute the tank contents to a level below 50 ppm PCBs and avoid more stringent disposal requirements. High concentration PCBs must be disposed of in accordance with the applicable requirements even if the concentration of PCBs could be or is actually lowered by dilution. This requirement is intended to prevent the deliberate dilution of concentrated PCBs to evade the more stringent disposal requirements that apply to such liquids. In addition, to permit dilution in this way would result in greater dissemination of PCBs and, consequently, greater human and environmental exposure to PCBs. The use of collection tanks for mineral oil dielectric fluid is discussed further in preamble section III.E.

b. Significance of Transformer Categories

The three categories of transformers are subject to different disposal, rebuilding, and storage requirements under these rules. Fluids from Non-PCB Transformers (with less than 50 ppm PCBs) have one disposal restriction: they cannot be used as a sealant, coating, or dust control agent if they contain any detectable PCB. Fluids from PCB-Contaminated Transformers (with 50 ppm or 500 ppm PCBs) must be disposed of in high efficiency boilers, in approved chemical waste landfills, or in Annex I incinerators. (See section III.A below). Fluids from PCB Transformers (concentrations of 500 ppm or greater) must be disposed of only by high temperature incineration.

Other significant activities for which the categories have different requirements are servicing (including rebuilding) and disposal (of the transformer coil and casing). PCB-Contaminated Transformers are subject to no restrictions on servicing (including rebuilding) or coil and casing disposal, except that after July 1, 1979, servicing of PCB-Contaminated Transformers must be performed either by the owner or operator or by someone who has an exemption from the processing and distribution in commerce bans. The major advantage of recategorizing a PCB-Contaminated Transformer to Non-PCB Transformer is that no exemption would be needed for servicing and that simpler dielectric fluid disposal requirements would apply.

The servicing and disposal of PCB Transformers are subject to more stringent restrictions. Any servicing of PCB Transformers that requires the removal of the coil from the casing is prohibited and PCB Transformer coils and casings must be disposed of either in an Annex II chemical waste landfill or in an Annex I high temperature incinerator. Any fluid removed from a PCB Transformer being serviced must either be reused as dielectric fluid or disposed of in an Annex I incinerator. Any fluid removed from a PCB Transformer that is being disposed of must be disposed of in an Annex I incinerator. Servicing that does not require the removal of the coil can be performed, but persons who process or distribute PCBs in commerce for purposes of servicing must be granted an exemption by EPA. Consequently, recategorizing a PCB Transformer to a PCB-Contaminated Transformer by lowering the PCB concentration would permit rebuilding of the transformer, simplify future disposal, and permit salvage of the casing and coil. Rebuilding may be especially important to owners of transformers that are used in special applications or have unique design characteristics and that cannot be readily replaced in the event of a failure.

D. Totally Enclosed Manner and Significant Exposure

The definitions of these terms are basically unchanged from those contained in the proposed rule. See the preamble to the proposed rule (43 FR 24805–6, June 7, 1978) for a discussion of these terms.

E. Sale for Purposes Other Than Resale

Two modifications have been made to this definition. First, sale for purposes of research and development is not considered to be for purposes other than resale. The proposed rule excluded all activities involving small quantities of PCBs for research and development (as defined in § 761.2(ee)). The final rule includes such activities within its scope and authorizes the processing and distribution in commerce of small quantities for research and development until July 1, 1979 (after which exemptions would be required to continue these activities) and authorizes use of such quantities until July 1, 1984 (see preamble section IX.J).

The second change concerns leasing of PCB Equipment. The proposed rule would have required that PCB Equipment be leased for a minimum of one year. The final rule provides that the lease period may be for any period of time provided that the lease begins before July 1, 1979. The import and export of leased equipment will require an exemption after July 1, 1979 (see preamble section VI.B.1.b).

F. Other Definition Changes

The definitions of "Chemical Waste Landfill" (§ 761.21(f)) and "Incinerator" (§ 761.2(1)) have been modified in a minor way to reflect more closely the proposed definitions developed for these facilities under the Hazardous Waste Regulations developed pursuant to the Resource Conservation and Recovery Act (RCRA). The changes do not affect the criteria for these facilities in Annexes I and II of the PCB Disposal and Marking Rule.

Definitions for "Byproducts" (§ 761.2(c)) and "Impurity" (§ 761.2(k)) have been added. These definitions are the same as those promulgated in EPA's inventory regulation under section 8 of TSCA (42 FR 64572). (See preamble section VI.C.1.)

III. Changes in Subpart B: Disposal of PCBs and PCB Items

A. Mineral Oil Dielectric Fluid With 50 to 500 ppm PCB

The proposed rule would have changed the PCB Disposal and Marking Rule by requiring all PCBs containing 50 ppm or more PCB to be disposed of in an incinerator meeting the requirements of Annex I. This requirement would have increased the quantity of liquid to be incinerated over the next 30 to 40 years from 300 million pounds to at least 3 billion pounds, with proportional increases in costs (see the Versar Report). This increase would also have severely strained available incineration capacity. EPA was concerned about the impact of this requirement and requested comments on the use of high temperature boilers for incinerating PCB contaminated mineral oil.

1. High Efficiency Boilers

A substantial number of comments stated that power generation facilities could provide an environmentally safe alternative for burning PCB-contaminated mineral oil. EPA reviewed

the comments and investigated the feasibility of permitting the use of boilers as a disposal option. After exploring this matter with combustion experts, EPA concluded that there are boilers capable of adequately incinerating PCB-contaminated mineral oil. These boilers (which can be referred to as "high efficiency boilers") include power generation boilers and industrial boilers that operate at a high combustion efficiency (99.9%), as defined by the carbon monoxide concentrations and excess oxygen percentages in the combustion emissions.

These boilers are capable of achieving a PCB destruction efficiency of 99.9% or greater. This destruction efficiency is somewhat lower than the estimated 99.9999% or greater destruction efficiency that an Annex I incinerator can achieve. However, this disposal alternative is restricted to PCB-contaminated mineral oil of low PCB concentration (50–500 ppm) and offers a substantial reduction in disposal costs (over $13 million per year). Given the 99.9% destruction efficiency for PCBs in high efficiency boilers, only 10 more pounds of PCB would enter the environment annually as compared to the amount released from high temperature incinerators under Annex I. (This estimate is derived from Versar data).

After considering these factors, EPA concluded that disposing of PCB-contaminated mineral oil containing 50 to 500 ppm PCB in high efficiency boilers does not present an unreasonable risk to human health or the environment. However, for the reasons explained in section III.B, only PCB-contaminated mineral oil will be permitted to be burned in boilers without specific approval by the appropriate EPA Regional Administrator. A discussion of the burning of other low concentration PCB wastes also is found in section III.B.

2. Conditions for Boilers

Based on the conclusions stated above, the final rule permits the burning of PCB-contaminated mineral oil with a concentration below 500 ppm in high efficiency boilers if the following conditions are met: (1) the boiler is rated at a minimum of 50 million BTU/hour; (2) the mineral oil is no more than ten percent of the total fuel feed rate; (3) the mineral oil is not added to the combustion chamber during boiler start-up or shut-down operations; (4) before commencing the burning of PCB-contaminated mineral oil, the owner or operator has conducted tests and determined that the combustion emissions contain at least three percent (3%) excess oxygen and the carbon monoxide concentration does not exceed 50 ppm for oil or gas-fired boilers or 100 ppm for coal-fired boilers; (5) the company has notified the appropriate EPA Regional Administrator at least 30 days before the company uses its high efficiency boiler for this purpose and has supplied the notice with the combustion emissions data as specified in (4) above; (6) the combustion process is monitored either continuously or, for boilers burning less than 30,000 gallons of mineral oil annually, at least once each hour that PCB-contaminated mineral oil is burned, to determine the percentage of excess oxygen and the carbon monoxide level in the combustion emission; (7) the primary fuel and mineral oil feed rates are monitored at least every 15 minutes whenever burning PCB-contaminated mineral oil; (8) the carbon monoxide and excess oxygen levels are checked at least once an hour and, if they fall below the specified levels, the flow of mineral oil to the boiler is immediately stopped; and (9) records are maintained that include the monitoring data in (6) and (7) above and the quantities of PCB-contaminated mineral oil burned each month. When burning mineral oil dielectric fluid, the boiler must operate at a level of output no less than the output at which the reported carbon monoxide and excess oxygen measurements were taken. The Regional Administrator has to be notified only before the first burning of PCB-contaminated mineral oil in the boiler. The conditions are intended to prevent the introduction of PCBs into boilers when combustion conditions are not optimum for the destruction of PCBs. The level of 30,000 gallons per year was chosen as the cut-off for continuous monitoring because, (1) EPA believes that boilers burning 30,000 gallons or more per year of PCB-contaminated mineral oil would be burning on a regular basis and therefore should continuously monitor CO and excess O_2; and (2) a boiler burning this quantity of mineral oil annually will incur more than sufficient savings over high temperature incineration or chemical waste landfill disposal costs to offset the added costs of continuous monitoring. However, a person whose boiler does not meet these requirements but who can demonstrate that the boiler will destroy PCBs as efficiently as a high efficiency boiler may seek specific approval from the appropriate EPA Regional Administrator under § 761.10(a)(2)(iv).

EPA plans to monitor the use of these boilers closely and will carefully analyze the effectiveness of this disposal option.

3. Other Disposal Alternatives

Alternatively, any PCB-contaminated mineral oil dielectric fluid (with a PCB concentration less than 500 ppm) may be disposed of either in an incinerator complying with Annex I or, under special conditions (see section III.C below), in a chemical waste landfill complying with Annex II. These landfills will provide a disposal option less costly than Annex I incineration for owners or users of PCB-contaminated mineral oil who do not have access to high efficiency boilers. EPA believes that only small quantities of dielectric fluid will be disposed of in landfills because high efficiency boilers or incinerators will be available for most of the waste fluids.

The impact on human health and the environment from disposing of these wastes in chemical waste landfills is discussed in the preamble section III.B below.

B. Other Liquid Wastes With 50 to 500 ppm PCB

To provide thermal destruction alternatives for other low concentration liquid wastes containing less than 500 ppm PCB, EPA has included in the rule a procedure that is comparable to the disposal alternatives for PCB-contaminated mineral oil. This procedure permits the disposal of these non-mineral oil fluids on a case-by-case basis in high efficiency boilers.

Such approval can be granted if: (1) the boiler is rated at a minimum of 50 million BTU/hour; (2) the PCB-contaminated waste comprises no more than ten percent (10%) of the total volume of fuel; (3) the waste will not be added to the combustion chamber during boiler start-up or shut-down operations; (4) the combustion emissions will contain at least three percent (3%) excess oxygen and the carbon monoxide concentration will be less than 50 ppm for oil or gas-fired boilers or 100 ppm for coal-fired boilers; (5) the combustion process will be monitored continuously or at least once each hour that the PCB-contaminated wastes are being burned to determine the percentage of excess oxygen and the carbon monoxide level in the combustion emissions; (6) the primary fuel and waste feed rates are monitored at least every 15 minutes whenever burning the waste; (7) the carbon monoxide and excess oxygen levels are monitored at least once an hour and if they fall below the levels

specified, the flow of wastes to the boiler is stopped immediately; and (8) records are maintained that include the monitoring data in (5) and (6) above and the quantities of PCB-contaminated waste burned each month. When burning PCB wastes, the boiler must operate at a level of output no less than the output at which the reported carbon monoxide and excess oxygen measurements were taken. These requirements are similar to those for high efficiency boilers used to burn PCB-contaminated mineral oil.

Persons seeking approval to use this disposal alternative must submit an application to the appropriate EPA Regional Administrator. The application must contain information describing the quantity of waste expected to be disposed of each month, descriptive information about the waste including the concentrations of PCBs and other chlorinated hydrocarbons, the results of a number of standard fuel analyses to determine the nature of the waste, BTU heat value and flash point of the wastes, and an explanation of the procedures to be followed to insure that burning the waste in the boiler will not adversely affect the operation of the boiler such that the combustion efficiency will decrease. The information contained in the applications will help the Regional Administrator to assess whether these high efficiency boilers will adequately destroy these low concentration PCB wastes.

The cost of this alternative is greater than the mineral oil disposal alternative because approval application costs and analytical costs are greater. However, these costs will be less than the cost for Annex I incineration or Annex II chemical waste landfills. As a result, the quantity of low concentration PCB wastes going to Annex I and Annex II facilities should be reduced. In addition, a person whose boiler does not meet these requirements but who can demonstrate that the boiler will destroy PCBs as efficiently as a high efficiency boiler may seek specific approval from the appropriate EPA Regional Administrator under § 761.10(a)(3)(iv).

These wastes are treated differently than PCB-contaminated mineral oil dielectric fluid because they tend to be more varied in composition than contaminated mineral oil. In many cases, these fluids are fire or heat resistant and could reduce PCB destruction efficiency. For example, unlike mineral oil, PCB-contaminated hydraulic fluid will require the addition of *more* primary fuel for it to burn in the manner necessary to destroy the PCBs.

C. Disposal of 50 to 500 ppm PCB Liquids in Chemical Waste Landfills

The rule also provides another new disposal alternative not permitted in the proposed rule. All liquid wastes with less than 500 ppm PCB may be disposed of in chemical waste landfills that comply with the requirements of Annex II. Allowing this additional disposal option for low concentration liquid wastes will reduce disposal costs and increase the availability of Annex I incinerators to destroy high concentration wastes.

This disposal alternative is limited to those low PCB concentration (50–500 ppm) wastes that are not considered ignitable wastes. A waste is considered ignitable if its flash point is less than 60° C (140° F). This limitation is consistent with the proposed Resource Conservation and Recovery Act (RCRA) rules for disposal of hazardous wastes (43 FR 58946, December 18, 1978).

Properly designed and operated chemical waste landfills are capable of containing liquid wastes when the liquids are stabilized in the disposal process or contained in cells of sorbent material, as required by this rule. EPA's Office of Solid Waste recommends mixing liquids with soils or solid wastes in order to stabilize liquid wastes. Alternatively, containers of the liquids may be surrounded by enough inert, sorbent material to absorb all of the liquid in the container should the container leak. These techniques will effectively control the migration of PCBs from the landfill site. Use of such landfills will result in only limited exposures to PCBs. Almost all of the exposure will occur during the liquid stabilization process. This use of chemical waste landfills is consistent with hazardous waste disposal policies being proposed by EPA under RCRA (see 43 FR 58946).

Incineration of low concentration PCB wastes is much more costly. To destroy a small percentage of PCBs, a significant volume of contaminated material must be destroyed. The cost of incineration per pound of PCB may be very high. Disposal of low concentration liquid PCBs in an Annex II chemical waste landfill will greatly reduce these disposal costs, free incineration facilities for burning of high concentration wastes, and produce little increase in environmental or human exposure to PCBs.

Owners or operators of chemical waste landfills already approved by EPA for disposal of non-liquid PCBs and PCB Items will have to request additional approval to dispose of liquids with low-concentrations of PCBs. Guidance on proper procedures for requesting such approval will be provided for these owners or operators. Owners and operators of chemical waste landfills not yet approved for disposal of PCBs will also have to request specific permission to dispose of such liquids.

D. Disposal of Non-Liquid PCBs in Chemical Waste Landfills

EPA has decided to permit the disposal of non-liquid PCBs at any concentration in chemical waste landfills that meet the requirements of Annex II. The Disposal and Marking Rule permitted only persons with contaminated soils and other solids recovered from spills or removed from old disposal sites to use this disposal option. It would be inconsistent not to permit this same disposal option for other non-liquid PCB wastes such as contaminated rags and absorbent materials. These additional solids are estimated to be only a small fraction of the total non-liquid PCB wastes generated. Providing this alternative disposal method will permit more of the currently available incineration capacity to be used for high concentration liquid wastes and will result in little additional human or environmental exposure to PCBs. For these reasons, EPA has made this change in § 761.10(a)(4) of the rule.

In addition to disposal in Annex I incinerators or Annex II chemical waste landfills, dredge materials and municipal sewage sludges that contain between 50 ppm and 500 ppm PCB may also be disposed of by any alternative method approved by the appropriate EPA Regional Administrator (see § 761.10(a)(5)(iii)). This provision is unchanged from the Disposal and Marking Rule, except that it now covers these materials down to 50 ppm.

EPA has received a petition from the State of North Carolina regarding the disposal of contaminated soil and debris from spills (44 FR 13575, March 12, 1979). EPA is required to respond to the petition by June 4, 1979.

The storage requirements of § 761.42 Subpart E apply to all of the low concentration wastes discussed above including substances containing between 50 and 500 ppm PCB and will help provide adequate protection against spills.

E. Batch Testing of Mineral Oil Dielectric Fluid

Testing of mineral oil dielectric fluid and waste oil from sources that are otherwise assumed to contain PCBs at a concentration between 50 ppm and 500

ppm can be performed on samples taken from collection tanks ("batch testing"). This is permitted so that oils from multiple sources can be collected and tested without requiring a separate test of each transformer each time a disposer wants to evaluate his disposal options.

The prohibition against dilution, however, has not changed. The new testing option does *not* permit the deliberate dilution of the collected oil (assumed to contain PCBs above 50 ppm) with PCB-free or low-PCB fluids to reduce the concentration of PCBs in the resultant mixture below 50 ppm. Further, the option does not permit the deliberate addition of PCB wastes with concentrations greater than 500 ppm to the tank in order to avoid the more stringent disposal requirements for high-concentration wastes. If such high-concentration wastes are added to the tank, then the entire tank contents must be disposed of in compliance with requirements for wastes containing 500 ppm PCBs or greater, even if a sample of the aggregate tank contents reveals a concentration below 500 ppm. In this circumstance, the tank contents *cannot* be used as dielectric fluid; the tank contents *must* be disposed of in a high temperature incinerator.

These restrictions are essential to ensure that appropriate measures are taken to destroy or dispose of PCB-contaminated wastes. In developing the final rule, EPA developed a balanced approach to disposal by considering the most appropriate means of disposing of wastes with different PCB concentrations in light of the risks to human health and the environment. Diluting or mixing PCB wastes as described above to avoid proper disposal upsets this balance and is a violation of this rule. The proposed rule would have required testing of each transformer's fluid. The cost of batch testing is substantially less than individual source testing. In addition, permitting testing from collection tanks will result in very little additional exposure of humans or the environment to PCBs.

F. Other Changes in the Disposal Requirements

The disposal requirements for PCB chemical substances and PCB mixtures have been replaced by disposal requirements for PCBs (§ 761.10(a)). This was necessary because of the revised definition of PCBs and the elimination of the definitions of "PCB Chemical Substances" and "PCB Mixtures".

The disposal requirements for PCB Articles other than PCB Transformers and PCB Capacitors have been changed to permit these articles to be disposed of in a chemical waste landfill as well as in high temperature incinerators (§ 761.10(b)(4)). Examples of these articles include pipes, hoses, parts of heat transfer systems, electromagnets, and electric motors. Altogether, these articles account for less than one percent (1%) of the PCBs currently in use in the United States. When these articles are disposed of in chemical waste landfills, they must be drained of free flowing liquid. As a consequence, these articles will contain only small amounts of PCBs. Disposal of these articles in chemical waste landfills will add only small quantities of PCBs to the landfills and will result in little or no additional human and environmental exposure of PCBs.

The final rule has a special disposal provision for hydraulic machines. These machines are difficult to transport as they frequently weigh many tons and can be as large as a small building. In general, only a relatively small portion of the machine is contaminated with PCBs. For these reasons, instead of requiring disposal in a chemical waste landfill, the final rule permits disposal of hydraulic systems as municipal solid waste and salvaging of these machines after draining. The machines must first be drained of all free-flowing liquid. If the fluid contains more than 1000 ppm PCBs, the machines must be flushed with a solvent and thoroughly drained before disposal. After considering the cost of disposing of these machines in chemical waste landfills and the small quantities of PCBs that would remain in a properly drained machine, EPA concluded that disposal as municipal solid waste did not represent an unreasonable risk to health or the environment. For these same reasons, no special storage requirements have been included for properly drained machines.

The final rule also permits PCB Containers that were used only to contain materials or fluids with PCB concentrations between 50 and 500 ppm to be disposed of as municipal solid waste. If these containers are well drained, as required by the rule, only very small quantities of PCBs would remain and these containers could be safely disposed of as municipal solid waste with little added exposure to humans or the environment. For example, if a drum containing 500 ppm liquid waste is drained of 99% of the liquid, less than one gram of PCB would remain in the drum. Disposers of these containers will have to be able to demonstrate that the containers only contained PCBs in concentrations of 50 to 500 ppm.

IV. Changes in Subpart C: Marking of PCBs and PCB Items

The PCB Disposal amd Marking Rule, as promulgated in February 1978, applied only to PCB and PCB Items that contained 500 ppm or greater PCBs. These requirements now extend to all PCB Items (including PCB Containers, PCB Article Containers, PCB Articles, PCB Equipment, and PCB transport vehicles) that contain 50 ppm or greater PCBs. This modification makes the marking and disposal requirements consistent with the final prohibition rule, which generally extends to all PCB Items with 50 ppm or greater PCBs, as discussed above.

The extension of the disposal and marking requirements is essential to ensure that PCB Items regulated under this rule are properly identified, handled, and disposed of to minimize the potential risks of exposure to PCBs. To provide sufficient time to identify and mark PCB Items containing between 50 and 500 ppm PCB, § 761.20(e) provides that these PCB Items must be marked by October 1, 1979.

PCB-Contaminated Transformers are an exception to the policy described above and are not required to be marked. The cost of marking a very large number of PCB-Contaminated Transformers while they are in service would be extremely high. There are about 35 million PCB-Contaminated Transformers and, if it cost $10 to label each one, the total labeling cost would be about $350 million. Also, because EPA assumes that all transformers other than PCB Transformers (which are required to be marked) are PCB-Contaminated Transformers, labels are not necessary. An unmarked mineral oil transformer will automatically be assumed to be a PCB-Contaminated Transformer unless it meets one of the criteria listed in preamble section II.C.1 above. Although transformers at any time can be properly tested and found to be either a Non-PCB Transformer or a PCB Transformer, such testing would generally be performed only when disposal is contemplated. Consequently, labeling to differentiate such transformers from PCB-Contaminated Transformers would have little practical value.

Some PCB-Contaminated Transformers may have already been marked with the PCB Transformer mark (especially in Michigan where State law requires marking for transformers with 100 ppm PCB or greater). There is some concern that the label on the transformer will determine the disposal alternatives. This is to clarify that when

a transformer is ready to be disposed of, the owner or operator may choose among the alternative disposal methods applicable to the transformer in question and permitted by this rule. (See preamble section II.C, "Classification of Transformers Under This Rule".)

Marking of large capacitors is relatively straightforward because virtually all large capacitors were PCB-filled until the past few years. Therefore, any capacitor that cannot be shown to be PCB-free by examining label or nameplate information, must be assumed to be a PCB Capacitor and must be marked with the PCB mark.

A new paragraph § 761.20(h), has been added that requires that marks (or labels) be placed on the exterior of PCB Items and transport vehicles so that the marks can be seen by interested persons. This addition corrects an oversight in the original Disposal and Marking Rule.

Section 761.20(i) has been added to clarify that any marking requirements for PCBs at concentrations less than 500 ppm manufactured after [30 days after publication in the **Federal Register**], including PCBs that are byproducts or impurities, will be contained in the exemption EPA grants to permit such manufacture. However, any PCB Article or PCB Equipment into which the PCBs are processed must be marked in accordance with the requirements found elsewhere in Subpart C. Those persons who have submitted petitions to manufacture chemicals with PCB contamination pursuant to the rulemaking procedures for the manufacturing exemptions (43 FR 50905, November 1, 1978) are not required to label any chemical that contains less than 500 ppm PCB until EPA acts on their petition. For example, persons who have petitioned because they manufacture PCBs as a contaminant at less than 500 ppm or a pigment or other commercial chemical product do not have to label that product as containing PCBs until after EPA acts on their petition. Conversely, any containers of any product that contains 500 ppm or greater PCBs must be labeled. This latter requirement was included in the PCB Disposal and Marking Rule (43 FR 7150, February 17, 1978).

V. Changes in Subpart E: Annexes

A. Annex I: Incineration

Section 761.40(a)(2) establishes a new value of 99.9% for the combustion efficiency required of incinerators. This is a correction of the earlier value of 99% efficiency that was specified in the Disposal and Marking Rule. Specifically incinerators operating at the temperatures, dwell times, and excess oxygen concentrations specified in Annex I normally operate at a combustion efficiency of 99.9% or greater. A combustion efficiency of 99.9% thus more accurately represents the true combustion efficiency of Annex I incinerators. All incinerators that have been approved or that are under consideration for approval by EPA are capable of operating at 99.9% combustion efficiency; accordingly, this modification should not disqualify these incinerators or result in additional operating expenses for these facilities. (This change does not mean that those incinerators already approved will be required to reapply for approval to operate.) Combustion efficiency is an effective parameter for evaluating the degree of destruction that occurs in an incinerator, and it is essential that the required value for this parameter accurately reflect expected combustion conditions.

A change has been made to the CO_2 monitoring requirement of § 761.40(a)(7). The Disposal and Marking Rule required continuous monitoring of the CO_2 concentration in the stack gas of the incinerator. The rule has been changed to require periodic CO_2 monitoring as specified by the Regional Administrator. This change was made for two reasons: (1) the high cost of the equipment needed to continuously monitor CO_2; and (2) the insensitivity of the combustion efficiency calculation to variations in the CO_2 concentration.

The automatic shutoff of waste flow that was required by the Disposal and Marking Rule when certain operating deficiencies occurred has been modified. Owners or operators of an incinerator may submit to the Regional Administrator, when they apply for the approval to incinerate PCBs, a contingency plan outlining the corrective steps they will take when operating problems occur. This change provides for greater flexibility for incinerator operators and will result in no increased human or environmental exposure since the contingency plans will be examined on a case-by-case basis by the Regional Administrator for proper safeguards before approval.

A new paragraph, § 761.40(d)(8), has been added to clarify the responsibility of the owner or operator of an approved facility when the ownership of the facility is transferred.

B. Annex II: Chemical Waste Landfills

Section 761.41(b) specifies requirements for operational plans for chemical waste landfills. These requirements have been modified to require delineation of the procedures to be used for the disposal of liquids containing between 50 ppm and 500 ppm PCB. After EPA approves an operational plan, the affected landfill operator must follow those procedures in disposing of PCB wastes.

Section 761.41(b)(3) specifies that the bottom of a chemical waste landfill must be at least fifty feet above the historical high water table. Because the distance between the bottom of the chemical waste landfill and the water table in many areas east of the Mississippi River is far less than fifty feet, EPA Regional Administrators have had to waive this criterion in several situations. While the criterion in the final rule is unchanged from the Disposal and Marking Rule, EPA is proposing a modification of this provision in a separate notice of proposed rulemaking.

The provisions in Annex II of the Disposal and Marking Rule establishing monitoring requirements for surface water (§ 761.41(b)(8)(i)) have been modified to allow the Regional Administrator to designate the surface watercourses that are to be sampled. This minor change eliminates any uncertainty about which watercourses are to be sampled.

Section 761.41(b)(7) includes provisions for leachate collection in chemical waste landfills. The Disposal and Marking Rule specified that the collection system be located under the landfill liner system. The final rule corrects this provision and specifies that the collection system be above the landfill liner system. Collection systems are placed above the liner to capture liquids to protect and reduce hydraulic pressure on the liner system. All chemical waste landfills currently in use have collection systems above the liner.

A new paragraph, § 761.41(c)(7), has been added to clarify the responsibility of the owner or operator of an approved facility when the ownership of the facility is transferred.

C. Annex III: Storage

1. Container Specifications

The requirements of § 761.42(c)(6) have been modified to clarify the five types of Department of Transportation (DOT)-approved containers that can be used to store PCBs and PCB Items. The Disposal and Marking Rule (§ 761.42(c)(6)) stated that containers used to store liquid PCBs must comply with the DOT specifications set out in 49 CFR 173.346, which describe a broad range of containers varying in size from less than one gallon containers to

railroad tank cars. Since only five of these container specifications (5, 5B, 6D, 17C, and 17E) are appropriate for such PCB storage, the rule has been modified to refer only to these five DOT container specifications. This change should not be disruptive as industry already generally uses the containers included in these five DOT specifications for PCB storage and handling.

In addition, on August 2, 1978, EPA published a clarification of § 761.42(c)(6) concerning PCB containers that provided for the use of special-sized containers for oversized PCB Articles or PCB Equipment (43 FR 33918). This clarification is incorporated in the final rule.

2. Bulk Storage

A new subparagraph, § 761.42(c)(7), has been added to permit the use of large containers, such as storage tanks, for the storage of PCB liquids. This change is designed to allow safer transfer and storage of bulk PCBs. While the greatest risks of spills and exposure to PCBs may occur during transfer operations, transfers in bulk from storage tank (or tank truck) to storage tank are usually better controlled than transfers to or from drums. Accordingly, the modification should reduce the number of spills and the extent of exposure to PCBs during transfer operations.

To permit bulk storage of liquid PCBs, EPA has had to add to the rule suitable standards for the containers or storage tanks that would be used. The Occupational Safety and Health Administration (OSHA) has prepared comprehensive tank specifications (29 CFR Part 1910.106). These specifications are based on standards developed by organizations such as the American Society of Mechanical Engineers (ASME) and the American Petroleum Institute (API) and are widely recognized as reasonable standards that provide for safe storage of hazardous substances. These specifications, however, are oriented to flammable and combustible liquids, which usually have a specific gravity of less than one. As provided in the OSHA rules, when a liquid's specific gravity is greater than 1.0 (which is the case with PCBs), precaution must be taken to insure that an adequate factor of safety exists when designing new tanks or when evaluating the structural strength of existing tanks. Liquids with such specific gravities are heavier than water and will put greater stress on the tanks. Accordingly, § 761.42(c)(7)(i) requires that this factor be taken into account to insure adequate structural safety of storage tanks used for PCBs.

Owners or operators of bulk storage facilities will have to keep a record of the amounts added to and removed from the bulk containers. The records will be important in tracing waste shipments and enforcing the disposal and storage requirements. This requirement is similar to the requirement promulgated in the Disposal and Marking Rule for individual containers.

Another factor in EPA's decision to allow bulk storage was the high cost of not permitting it. Considering just mineral oil dielectric fluid, there are about 1.73 billion gallons presently in use (see Versar Report). Assuming this oil would be disposed of over a 40 year period and that the cost of storing each 55 gallon drum is $145 (see Versar Report, Disposal and Marking Rule), the annual storage cost would have been about $132 million. This value would have been larger in practice since new mineral oil brought into use after this year would also have been stored in the same way because of contamination from residual PCBs in the equipment.

3. Spill Prevention Procedures

Spill prevention procedures are necessary to provide adequate environmental protection during the use of PCB storage tanks permitted by § 761.42(c)(7). Some of the substances contained in these tanks may qualify as oils under section 311 of the Clean Water Act and, therefore, may be subject to the spill prevention provisions of 40 CFR Part 112. In order to provide equivalent control of PCB liquids that do not qualify as oils, the Spill Prevention Control and Countermeasures (SPCC) provisions of the 40 CFR Part 112 have been incorporated with certain modifications into this rule. A wide cross section of U.S. industry is now using these procedures to protect against oil spills. Extending these requirements to non-oil PCBs should provide substantial environmental protection and should be easily complied with by industry.

Those provisions of 40 CFR Part 112 incorporated in this PCB rule have been modified to adapt them to the PCB activities regulated by § 761.42(c)(7) of this rule. Specifically, the Part 112 oil spill prevention requirements do not apply to tanks smaller than 660 gallons and underground tanks smaller than 42,000 gallons. Because of the risks associated with spills of PCBs, these tank size exemptions do not apply to containers or tanks containing PCBs at concentrations of 50 ppm or greater. The PCB rule also adds the requirement that the area between a storage tank and secondary containment dikes must be impervious to PCBs to prevent groundwater contamination.

One provision of 40 CFR Part 112, the SPCC plan amendment procedures, is not currently applicable to PCBs. These procedures are triggered by a notification requirement for oil spills. Because these notification requirements do not now apply to PCB spills, the SPCC plan amendment procedures are not applicable.

EPA has proposed a spill prevention rule for hazardous substances (including PCBs) under section 311 of the Clean Water Act (43 FR 39276, September 1, 1978). When this spill prevention rule is promulgated, the spill prevention provisions of this PCB rule will be revised to eliminate duplications or inconsistencies.

4. Flood Protection

The Disposal and Marking Rule required that storage areas be above the 100 year flood level. The Agency is considering modifying the PCB rule to include the flood protection guidelines developed by the National Flood Insurance Administration (NFIA) which is part of the Department of Housing and Urban Development. The Agency decided not to change the PCB rule at this time because the Hazardous Waste Regulations proposed under the Resource Conservation and Recovery Act have included a flood protection approach based on the NFIA program. If that approach is adopted when the Hazardous Waste Regulations are promulgated, the Agency will consider adopting a similar flood protection approach for PCB storage areas.

5. Temporary Storage

a. Revisions

The temporary storage of non-leaking PCB Articles and PCB Containers containing leaking articles was permitted for 30 days under the provisions of the Disposal and Marking Rule. This would enable electric utilities and others to consolidate their PCB Items in a central facility and improve management and recordkeeping for PCB wastes. The proposal did not, however, permit PCB Containers of non-liquid wastes, such as contaminated soil, to be placed in temporary storage. Because these containers of non-liquid waste do not pose any greater hazard than the containers of leaking articles, § 761.42(c)(1) of this rule modifies the storage requirements to permit PCB Containers of non-liquid waste to be

held in temporary storage for up to 30 days.

Under the final rule, large quantities of low concentration PCB liquids from PCB-Contaminated Transformers must be properly disposed of. The logistics of immediately transporting liquids drained from these transformers to a single, permanent storage facility are frequently difficult. Even though these liquids pose less of a threat to health and the environment when spilled than do more highly concentrated PCB liquids, adequate spill prevention remains essential. The final rule permits the 30 day temporary storage of low concentration (50 to 500 ppm PCBs) liquids at facilities that have a SPCC plan. That SPCC Plan must adequately address storage of PCBs in relatively small containers, such as 55-gallon drums, which is not normally included in such plans. This approach will insure adequate environmental and human health protection and will place little or no additional burdens on facility owners or operators.

The final rule does not allow temporary storage for high concentration PCB liquids (above 500 ppm). Because of the potential harm from an uncontrolled spill, temporary storage of these concentrated liquids is not permitted.

b. Action on Petitions To Amend Rule on Temporary Storage Requirements

Subsequent to the close of the reply comment period, EPA received petitions under section 21 of TSCA from Commonwealth Edison, Consolidated Edison Company, and the Edison Electric Institute to amend § 761.42(c)(1) (43 FR 7150, 7162, February 17, 1978 and 43 FR 33918, 33920, August 2, 1978) to allow temporary storage of PCB substances, mixtures, and PCB-contaminated materials, such as rags and soil. Representatives of EPA met with petitioners on January 24, 1979 and received written materials on that date in support of the petitions. EPA wrote to petitioners on February 9, 1979 and advised them that the Agency considered the petitions to have been filed on January 24, 1979, the date when written and oral information in support of the petitions was received.

The actions on temporary storage of PCBs and PCB Items described in section V.C.5.a. above grant the petitions in part and deny them in part. The petitions are granted as to temporary storage of PCB Containers of non-liquid wastes, such as contaminated soil and rags. Such temporary storage is now permitted under the conditions of § 761. 42(c)(1)(iii). Similarly, the petitions are granted as to temporary storage of low concentration (50 to 500 ppm PCBs) liquids. Such temporary storage is permitted under the conditions of § 761.42(c)(1)(iii). However, the petitions are denied as to temporary storage of high concentration PCB liquids (above 500 ppm). As noted in section V.C.5.a. of this preamble, the risk of potential harm from an uncontrolled spill, or a leak, is too great to permit temporary storage of such high concentration PCB liquids.

D. Annex IV: Decontamination

The decontamination requirements in Annex IV were changed in this rule to require flushing with a solvent containing less than 50 ppm PCB rather than 500 ppm PCB as previously promulgated. This change is based on lowering the cut-off concentration of PCBs from 500 ppm to 50 ppm. This change will further reduce the amount of residual PCBs in decontaminated containers.

E. Annex V: Records and Monitoring

A new paragraph, § 761.45(d), has been added specifically to require chemical waste landfill operators to retain records concerning the operation of the landfill. These records include the identity of the wastes they receive and where the wastes are placed in the landfill. This paragraph does not require the development of any new records but corrects an omission from the Disposal and Marking Rule.

The final rule modifies § 761.45(b) and adds § 761.45(e) to provide for retention of records by owners or operators of high efficiency boilers. The requirements are similar to recordkeeping requirements for other PCB waste disposal alternatives, such as incinerators or chemical waste landfills, and are necessary for enforcement.

VI. Subpart D: Manufacturing, Processing, Distribution in Commerce, and Use Bans

1. Prohibitions

Section 761.30(a) implements TSCA section 6(e)(2)(A), which prohibits the manufacture (including importation), processing, distribution in commerce, and use of PCBs and PCB Items in a manner other than a totally enclosed manner unless authorized under § 761.31 of this rule. This prohibition also applies to the manufacture, processing, and distribution in commerce of PCBs and PCB Items intended solely for export (see preamble section XI below).

Section 761.30(b) implements TSCA § 6(e)(3)(A)(i), which prohibits the manufacture (including importation into the United States) of PCBs after January 1, 1979 unless an exemption is granted for such manufacturers. This prohibition applies to the manufacture (and importation) of PCBs regardless of whether they are manufactured in a totally enclosed manner or they are manufactured solely for export. This prohibition does not apply to PCBs that are imported solely for disposal (see section B.2 below).

Section 761.30(c) implements TSCA section 6(e)(3)(A)(ii), which prohibits both the processing and the distribution in commerce of PCBs and PCB Items after July 1, 1979 unless exemptions are granted for such activities. This prohibition applies to the processing and distribution in commerce of PCBs and PCB Items regardless of whether the Items are processed or distributed in a totally enclosed manner or solely for export. There are three exceptions to these prohibitions.

First, as provided in section 6(e)(3)(C) of TSCA, PCBs or PCB Items that have been sold for purposes other than resale before July 1, 1979, may continue to be distributed after July 1, 1979 in a totally enclosed manner. Therefore, a person who purchases before July 1, 1979, PCB Equipment (such as computers, television sets, or microwave ovens containing PCB Capacitors) for his own use, rather than for resale, may sell that equipment after June 30, 1979.

Second, after July 1, 1979, anyone may process or distribute in commerce PCBs or PCB Items for purposes of disposal in accordance with the requirements of § 761.10. Because TSCA treats disposal separately from processing and distribution in commerce, the processing and distribution in commerce requirements generally are not intended to interfere with the disposal requirements. Section 761.30(c)(2) explicitly states that processing and distribution for purposes of disposal in accordance with § 761.10 may continue after July 1, 1979.

Third, PCBs or PCB Items may be exported for disposal purposes despite the general ban on export of PCBs and PCB Items in § 761.30(c). Section 761.30(c)(3) requires persons to notify EPA at least 30 days before they first intend to export PCB wastes. This provision is discussed further in section B.2. below.

1. Waste Oil Bans

Section 761.30(d) prohibits the use of waste oil containing any detectable concentration of PCBs as a sealant, coating, or dust control agent. Prohibited uses include road oiling, general dust

control, as a pesticide or herbicide carrier, and as a rust preventative on pipes. Waste oil is defined as used products primarily derived from petroleum, which include, but are not limited to, fuel oils, motor oils, gear oils, cutting oils, transmission fluids, hydraulic fluids, and dielectric fluids. In the proposed rule, "PCB Sealant, Coating, and Dust Control Agent" was defined (§ 761.2(cc), 43 FR 24813) and was included in the term "PCB" for the purpose of regulating these activities. Because the term "PCB Sealant, Coating, and Dust Control Agent" was deleted from the definition of "PCB" (see preamble section II.A.), it became necessary to specifically regulate these activities in § 761.30.

Persons who process, distribute in commerce, or use waste oil must assume it contains PCBs unless the waste oil has been tested and found to contain no PCBs. Batch testing of waste oils is permitted. Waste oils that contain detectable concentrations of PCBs less than 50 ppm may be used as a fuel, as a feedstock in the production of re-refined oils and lubricants, or for any other purpose except as a sealant, coating, or dust control agent.

The use of waste oil containing any detectable concentration of PCBs as a sealant, coating, or dust control agent is banned because these uses result in rapid, direct entry of PCB into the environment. For example, the run-off from road surfaces frequently goes directly to rivers or streams. Once in the environment, PCB enters the food chain, causing a number of adverse effects. The dumping of waste oil (e.g., in a field) is considered use as a dust control agent and is prohibited by this rule. Waste oil is also used to coat water pipes and as a carrier for pesticides and herbicides. These uses also result in substantial direct entry of PCBs into the environment and are prohibited. Although the PCB concentration in waste oil may be low, the large volume of waste oil that is used in these activities results in a large quantity of PCBs entering the environment. Approximately 8,500 pounds of PCB enter the environment annually just from road oiling activities (see the Versar Report).

B. Changes in § 761.30: Prohibitions

The following changes have been made to § 761.30:

1. Change in the Scope of the Manufacturing Ban

The proposed rule would have considered the manufacture (and importation) of PCB Articles and PCB Equipment as the manufacture and import of PCBs. This approach would have had the effect of prohibiting the production (and importation) of PCB Articles and PCB Equipment after January 1, 1979, under the provisions of section 6(e)(3)(A)(i) of TSCA. A large number of commentors argued that to consider the production of PCB Articles and PCB Equipment to be "manufacture" was inconsistent with TSCA and other rules promulgated under TSCA. In addition, it was argued that if these activities are considered to be "manufacturing" PCBs, the term "processing" would have no meaning, as almost all commerical activities using PCBs prior to final sale or end use would be manufacturing activities.

a. "Manufacturing" Versus "Processing" of PCB Items

After considering the comments, EPA reexamined the "manufacturing" versus "processing" issue and concluded that PCB Article and PCB Equipment production is "processing" of PCBs, not "manufacture" of PCBs. This conclusion is based on an analysis of the activities of manufacturing, processing, distribution in commerce, and use with respect to chemical substances. EPA determined that "manufacturing" a chemical substance involves only the actual creation of the chemical substance (or of a substance contaminated with PCBs). The other activities are distinguished from "manufacturing" because they involve the use of the already existing substance. "Processing" PCBs includes activities such as placing previously manufactured PCBs into capacitors or transformers. While these activities may be referred to as "manufacturing" of PCB Articles, they do not involve the "manufacture" of the PCBs, only the "processing" of PCBs. The "distribution in commerce" and "use" of PCBs generally coincides with the distribution and use of the PCB Articles and PCB Equipment. Thus, the ban of PCB "manufacture" applies solely to the manufacture of PCBs, as defined in § 761.2(s). Bans of all other activities, namely processing, distribution in commerce, and use, apply both to PCBs as a substance and PCB Items. This interpretation of the terms "manufacture" and "process" also accords with the manner in which Congress intended the requirements of section 6(e)(3) of TSCA to be "phased-in" over time.

The change in EPA's use of the terms "manufacturing" and "processing" is reflected in the definition of PCBs. The proposed definition of "PCB" and "PCBs" included both PCB Article and PCB Equipment (see § 761.2(q) at 43 FR 24813). The final rule changes the definition of "PCB" and "PCBs" in § 761.2(s) by applying these terms only to chemical substances (see preamble section II.A. for more detailed discussion). PCB Equipment and PCB Articles are no longer included in the definition of "PCB" and "PCBs" but are included in a separate term, "PCB Items", which is defined in § 761.2(x).

b. Manufacture and Import of PCB Items

The revised interpretation of "manufacture" and "processing" has two main effects. The first is to postpone the effective date of the prohibition under section 6(e)(3) of the manufacture of PCB Articles and PCB Equipment to July 1, 1979 (unless EPA grants an exemption under section 6(e)(3)(B) of TSCA for continuation of such activities beyond that date). The continued production of PCB Articles and PCB Equipment until July 1, 1979, must, however, be performed in a totally enclosed manner in order to avoid the prohibition on non-totally enclosed processing of PCBs of section 6(e)(2). As a practical matter, this means that production of PCB Articles will be prohibited after July 2, 1979, under section 6(e)(2) as a non-totally enclosed processing of PCBs. In general, PCB Equipment is produced in a totally enclosed manner and so this activity would not be prohibited until July 1, 1979. The practical effect of the change, then, will be to allow continued production of PCB Equipment (such as television sets and microwave ovens) until July 1, 1979 (see preamble section VIII below).

A second effect relates to the importation of PCB Articles and PCB Equipment; here the issues are more complex. The TSCA definition of "manufacture" includes importation (see section 3(7) of TSCA). This means that the importation of any PCB or PCB Item is equated with manufacture. A literal interpretation of this definition in implementing TSCA section 6(e)(3)(A)(i) would mean that no person would be able to import any PCB or PCB Item after [30 days after publication in the **Federal Register**]. This would create an inequity between domestic manufacturers and importers of PCB Items. Specifically, domestic manufacturers of PCB Items could continue to manufacture and distribute those PCB Items in commerce until July 1, 1979, when the ban under section 6(e)(3)(A)(ii) is effective, while importers would be prohibited from conducting the

same activity after [30 days after publication in the Federal Register].

The most straightforward way to eliminate this inequity is to delay the effective date of the prohibition on the importation of PCB Items until July 1, 1979. This approach would eliminate the inequity for importers of PCB Equipment but create a different inequity for the importers of PCB Articles. Domestic production of PCB Articles, such as PCB Capacitors and PCB Transformers, is banned as of [30 days after publication in the Federal Register] (even though such production is PCB processing) because this type of production cannot be performed in a totally enclosed manner. (Non-totally enclosed processing and other activities are prohibited after July 2, 1979, by section 6(e)(2) of TSCA.) If the import prohibition for PCB Articles is delayed, PCB Articles could be imported into the U.S. even though they could not be manufactured in the U.S. The continued importation of PCB Articles would increase both the disposal problem associated with PCB Capacitors and the problems associated with use and disposal of PCB fluids in transformers.

Because of the inequities and disposal problems associated with continued importation, EPA is banning importation of PCB Articles after July 2, 1979. Persons wishing to import PCB Articles may petition EPA for an exemption from this ban. This rule does permit continued importation until July 1, 1979, of PCB Equipment, such as television sets and microwave ovens, since these items can be manufactured domestically during this period as they involve "processing" PCB in a totally enclosed manner. The effect of this rule is essentially to treat domestic and foreign manufacturers of PCB Articles and PCB Equipment equally. Such equal treatment was intended and desired by Congress.

From a strict statutory perspective, any importation of PCBs in any form, including in PCB Items, is "manufacturing" of PCBs and prohibited after [30 days after publication in the Federal Register], by TSCA section 6(e)(2) and (3). Although domestic production of PCB Items is best described as PCB "processing", importation of such items is best described as importation of PCBs in the item. The alternative would be to wholly exclude such importation from the coverage of section 6(e), a manifest absurdity. But just as Congress obviously did not intend such exclusion, so too it did not intend discriminatory treatment. EPA, therefore, construes section 6(e) as authorizing it to impose parallel restrictions on PCB Item production and importation and this is what has been done.

While domestic manufacturers and importers both may continue to build or import PCB Equipment (but not PCB Articles) until July 1, 1979, EPA will strictly enforce the prohibition under TSCA section 6(e)(3)(A)(ii) of processing and distribution in commerce of PCBs and PCB Items, including PCB Equipment, after July 1, 1979. Accordingly, no one will benefit by creating stockpiles of these items in the next several months. The only exceptions to these July 1, 1979 prohibitions will be those activities for which EPA grants an exemption.

Any PCBs or PCB Items imported pursuant to this rule must comply with the import requirements and all other requirements of this rule.

2. Import and Export of PCBs and PCB Items for Disposal

The proposed rule would have prohibited any import or export of PCBs or PCB Items for any purpose. EPA has reviewed this proposed policy and has decided that because of the many potential advantages of an open border policy with respect to disposal of PCBs, that EPA will adopt such a policy for at least one year.

In theory, an open border policy would be advantageous to both the United States and foreign countries, especially Canada. Generators of PCB wastes would be able to select the PCB disposal site that offers the most reasonable transportation and disposal costs. The success of such a policy depends, however, upon the availability of facilities in other countries to safely dispose of PCB wastes. EPA is concerned that foreign disposal alternatives may not adequately destroy the PCBs and create a threat to human health and the environment in the United States.

To date, the United States has approved seven PCB disposal sites and is actively involved in evaluating other potential sites. Other nations have not made as much progress. If the United States were to adopt an open border policy without any qualifications, there may be no incentive for other nations to develop PCB disposal sites. The United States would probably receive a disproportionate share of the international PCB wastes. This disparity could overload existing U.S. capacity and impede public acceptance of PCB disposal sites.

The one year time limit on the open border policy will provide other nations an opportunity to establish PCB disposal sites. At the end of the one year period, EPA will examine the progress made by other nations in establishing and operating safe PCB disposal sites and determine if extension of the open border policy is appropriate.

The final rule, therefore, allows the import and export of PCB wastes for disposal for one year. All imported PCB wastes must be disposed of in accordance with Subpart B of this rule. In preparing this final rule, EPA has reviewed whether regulation of imported and exported PCB wastes for disposal should be accomplished under section 6(e)(1) of TSCA or under section 6(e)(3). While section 6(e)(3)(A)(i) could be read to allow regulation of the import of PCB wastes for disposal, section 6(e) treats PCB disposal as a separate matter under section 6(e)(1). Both the import and export of PCB wastes for disposal may be regulated under section 6(e)(1), which allows comprehensive regulation of the disposal of PCBs. Accordingly, EPA has elected to regulate import and export of PCB wastes for disposal under section 6(e)(1). Since the requirements governing disposal of PCB wastes must be complied with for all imported PCB wastes, no unreasonable risks should result. Moreover, proper disposal in this country provides protection against possible hazards from improper disposal elsewhere.

Other imports and exports of PCBs and PCB Items are regulated as elsewhere described in this preamble under sections 6(e)(2), 6(e)(3), and/or section 12. All imports and exports of PCBs and PCB Items remain subject to the applicable disposal and marking requirements under section 6(e)(1).

Under RCRA, EPA expects to establish a manifest system for hazardous wastes that will monitor the disposal of PCBs and other hazardous wastes imported into the U.S. This system should be in effect in 1980. No notification system for imports of PCB wastes for disposal will be established in this rule because of potential confusion with the forthcoming RCRA program. All importers of PCB wastes will be required to maintain records, as provided in Annex VI of this rule.

With respect to exports, § 761.30(c)(3) of this rule requires that persons exporting PCBs and PCB Items for disposal notify EPA at least 30 days before the first export of wastes. The initial notice should identity the owner of the waste, the expected annual volume of wastes to be exported, a description of the intended methods of disposal, the precautions to be taken to control release into the environment, and the identity of the receiver of the

wastes. Quarterly reports of actual waste shipments are also required. For each successive year, the volume of wastes to be exported, if any, must be estimated. These reports are required pursuant to the authority in section 6(e) and 12(a) of TSCA. Additional reports under section 12(b) of TSCA would not be required for the export of these wastes. Unlike other exports of PCBs, export for disposal under this rule will not present an unreasonable risk to the United States because of the controls on such export contained in the rule and the fact that such export will only be for the purpose of disposal or destruction of PCBs.

EPA will carefully monitor the results of allowing the import and export of PCB waste. One future alternative may be to allow disposal only in countries whose facilities meet certain criteria arrived at through bilateral agreements. Closing the United States border to shipments of PCB wastes at this time, however, could have serious adverse effects on the environment by making safe disposal of PCBs more difficult. In particular, barring import of PCBs for disposal could make export for disposal impossible and thereby eliminate what in many cases would be the most desirable disposal alternative. Many generators of hazardous waste materials located near the U.S.-Canadian border find that the nearest disposal site is in the other country. An open border policy will allow import and export of such wastes to continue and maximize the opportunities for appropriate disposal.

For a general discussion of exports of PCBs, see preamble section XI, below. Import or export of PCBs or PCB Items for purposes of disposal remain subject to the other provisions of this rule.

C. Other Issues

1. PCB Impurities and Byproducts

The prohibitions in § 710.30 include a prohibition of the "manufacture" of "PCB" or "PCBs" as defined in § 761.2(s). This prohibition applies to the deliberate production of PCBs whether in large quantities for use in transformers and capacitors or in small quantities for research. Furthermore, the prohibition applies to the manufacture of any substance or mixture that contains PCB at 50 ppm or greater, including PCB that is an intermediate or "impurity" or "byproduct", as defined by § 761.2(k) and (c), respectively. While the production of PCBs under such circumstances may not be intentional and may have no independent commercial value, section 6(e) of TSCA applies to *any* production of PCBs and, therefore, covers such activities. Similarly, processing, distribution in commerce, and use of PCBs which are impurities or byproducts are subject to sections 6(e)(2) and (3) of TSCA.

The proposed rule prohibited activities involving PCB intermediates, impurities and byproducts under sections 6(e)(2) and (3) of TSCA. In response to questions on this point at the informal hearing, EPA made clear that such activities are subject to the rule. This discussion is intended to clarify further that the manufacturing, processing, distribution in commerce, and use bans of sections 6(e)(2) and (3) of TSCA apply whenever PCBs are present as intermediates, impurities, or byproducts at a concentration of 50 ppm or greater.

Some manufacturers commented that they interpreted the proposed rule to allow the creation of PCBs in concentrations greater than 50 ppm as an intermediate, impurity, precursor, or byproduct in a reaction process as long as the PCB concentration in any final byproduct or end product is below 50 ppm. The intent of the proposed rule was to prohibit such manufacture. All manufacturing or processing operations must be adequately controlled so that PCBs are not present at concentrations greater than 50 ppm at any point in the manufacturing process except when concentrating waste streams, as discussed below.

As discussed earlier in section II.B. of this preamble, several processes for the manufacture of chlorinated organic substances unintentionally create PCBs. EPA is aware of several cases in which the PCBs appear as impurities at concentrations greater than 50 ppm in the final product. To reduce the level of PCBs that are impurities in these chemical products, selection of ingredients and process techniques usually have to be altered. In some cases, more careful quality control of the production operations can help avoid unwanted impurities and byproducts.

Two groups of chemical products are most affected by controls on impurities and byproducts: pigments and other chlorinated chemicals. The impact on pigments is better understood because the industry became aware of the problem earlier than other potentially affected industries and provided extensive information and comments on the impact of the proposed rule. The PCB contamination of pigments is discussed further in preamble section IX.G. The impact on the production of other organic chemicals is not as well known. Only a few companies commented on the proposed rule, and available data are limited.

The manufacture of PCBs as intermediates, impurities and byproducts almost always involves some human and environmental exposure. Unless the PCBs are created in a totally enclosed, continuous reaction process, production workers will be exposed and there may be PCBs in air emissions and other effluents. The processing, distribution in commerce, and use of the chemicals containing PCBs will also cause exposure to PCBs among process workers and others who handle and use the chemicals. Controls that exist on worker exposure and/or handling and disposal practices are usually related to the primary chemical, not the PCBs contained in the chemical, which means that exposure to the PCBs often is uncontrolled.

As explained below, persons may petition for an exemption from this manufacturing ban pursuant to the Agency's interim procedures (43 FR 50905, November 1, 1978). In addition, the processing, distribution in commerce, and use of PCBs in a non-totally enclosed manner is prohibited after July 2, 1979, unless authorized and *all* processing and distribution of such PCBs as byproducts and impurities are prohibited after July 1, 1979, unless a specific exemption from the ban is granted by EPA.

Section 761.30(c)(2) provides that PCBs may be processed and distributed in commerce for purposes of disposal in accordance with the requirements of § 761.10. This provision is intended to apply to the concentration of waste streams and allow the concentration of PCBs to exceed 50 ppm in waste stream as long as the waste stream is disposed of in accordance with this rule. The following illustrates this. A product is manufactured that contains 20 ppm PCB. It is then processed to reduce the PCB concentration to 5 ppm. As a result of the processing, a waste stream is created that contains 100 ppm PCB. As long as this waste stream is disposed of in accordance with this rule, the manufacturer does not have to apply for an exemption. If the initial product contains more than 50 ppm PCB, however, the manufacturer must apply for an exemption from the manufacturing prohibition. Section 761.30(c)(2) only applies to byproducts or other wastes that are intended for disposal.

To clarify the relationship of the prohibitions of sections 6(e) (2) and (3) to intermediates, byproducts, and impurities, the terms "manufacture for commercial purposes" and "process for

commercial purposes", defined in § 761.2 (bb) and (dd) of the proposed rule, have been deleted. These definitions were intended to exclude from the rule a very limited number of activities (e.g., the chlorination of municipal sewage discharges) that may result in or involve PCB concentrations below 50 ppm. In the applicability section (§ 761.1(b)) the final rule states that unless otherwise specified in the rule itself, the term "PCB", as used in the rule, is intended to include only substances or combinations of substances with 50 ppm or greater PCBs. Accordingly, it should be clear that such activities are not within the scope of the rule. As a consequence, the definitions concerning "commercial purposes" are not necessary and may be confusing, especially because § 6(e) is not limited by the statute to activities "for commercial purposes"

2. Disposal of Small PCB Capacitors

The PCB Disposal and Marking Rule excluded most small PCB Capacitors, primarily those contained in small appliances and fluorescent light ballasts, from special disposal requirements. These small capacitors may be disposed of as municipal solid waste. Only small capacitors owned by persons who manufacture capacitors or PCB Equipment are subject to special disposal requirements.

These requirements are not changed by this final rule. EPA has not identified a feasible regulatory alternative that would result in disposal of a substantial portion of the remaining small PCB Capacitors in facilities other than municipal solid waste sites. In addition, the random disposal of PCB Equipment in municipal solid waste sites by householders and other infrequent disposers does not present an environmental hazard. Accordingly, EPA has no current plans to further regulate the disposal of these small capacitors.

However, the disposal of large quantities of small PCB Capacitors by commercial and industrial activities poses a somewhat larger environmental risk. Therefore, EPA encourages commercial and industrial firms that use and dispose of large quantities of small PCB Capacitors to establish voluntarily a collection and disposal program that would result in the waste capacitors going to chemical waste landfills or high temperature incinerators. Proper disposal of small PCB Capacitors is mandatory for all manufacturers of PCB Equipment. This would result in better environmental control than normal municipal solid waste disposal by preventing large concentrations of capacitors from being placed in sanitary landfills. It should also be noted that any PCB spillage that might result from failure of or from damage to a large number of small capacitors could be considered as illegal disposal, which is the case for other spills of PCBs.

3. State Preemptions

In the Disposal and Marking Rule, EPA stated that State and local requirements regarding disposal of PCBs are exempt from Federal preemption as long as the requirements are not less restrictive than those prescribed by EPA. EPA took this position to avoid interfering with existing PCB disposal requirements in Michigan, Oregon, Indiana, Minnesota, and Wisconsin, where the State requirements are at least as stringent as the Federal requirements.

In the past several months, EPA has become concerned that actions by local and State governments to prohibit disposal of PCBs and other substances in their jurisdictions could frustrate the national goal of properly disposing of hazardous chemical substances. While EPA has always believed that States should have the right to set pollution control standards more restrictive than the Federal standards, it would be a matter of national concern if this principle were to become the basis for refusal by States to share in the national responsibility for finding safe means for the proper disposal of hazardous substances. EPA has decided not to make any changes in its PCB preemption policy at this time. However, EPA will be considering the preemption issue further in its administration of the Resource Conservation and Recovery Act.

VII Relationship of Section 6(e)(2) to Section 6(e)(3)

Section 6(e)(2) of TSCA prohibits manufacturing, processing, distribution in commerce, and use of PCBs after January 1, 1978, unless conducted in a totally enclosed manner. Section 6(e)(2)(B) provides that the Administrator may, by rule, authorize continuation of an otherwise prohibited activity if the Administrator finds that the activity "will not present an unreasonable risk of injury to health or the environment"

Section 6(e)(3) prohibits *all* manufacturing, processing, and distribution in commerce of PCBs (including activities conducted in a totally enclosed manner). The manufacturing prohibition is effective on July 2, 1979 and the other prohibitions are effective on July 1, 1979. Section 6(e)(3)(B) authorizes the Administrator to exempt activities from section 6(e)(3) prohibitions if he finds that the activity will not result in an unreasonable risk to health or the environment *and* that good faith efforts have been made to develop a substitute for the PCB.

It is obvious that, with respect to manufacturing, processing, and distribution in commerce, the provisions of section 6(e)(2) are entirely duplicative of the corresponding provisions of section 6(e)(3) once these provisions of section 6(e)(3) become effective. For example, once the manufacturing prohibition of section 6(e)(3) is effective the manufacturing prohibition of section 6(e)(2) adds nothing whatever to protection of health and the environment since section 6(e)(3) is broader in coverage and somewhat more restrictive in terms of waivers (exemptions). Similarly, on July 1, 1979, the section 6(e)(3) prohibitions of processing and distribution in commerce entirely supersede the corresponding prohibitions in section 6(e)(2). It is clear that with respect to manufacturing, processing, and distribution in commerce of PCBs, Congress intended section 6(e)(2) as only an interim measure. Moreover, to continue to implement the section 6(e)(2) prohibitions on these activities after the corresponding prohibitions of section 6(e)(3) are effective would result in waste and confusion with absolutely no increase in protection from PCBs.

Therefore, EPA will consider the prohibitions in section 6(e)(2) to be superceded and no longer in effect when the corresponding prohibitions of section 6(e)(3) for each PCB activity go into effect. What this means is that the section 6(e)(2) prohibition on manufacturing of PCBs is considered to be no longer in effect now that the section 6(e)(3) prohibition on manufacturing is in effect. The provisions of section 6(e)(3) will be considered the exclusive authority under section 6(e) to prohibit PCB manufacturing. However, the section 6(e)(2) prohibitions on processing, distribution in commerce and use *are* effective as of July 2, 1979. The processing and distribution in commerce prohibitions of section 6(e)(2) will be considered to continue in effect until July 1, 1979, when they will be superceded by section 6(e)(3). Because the section 6(e)(2) *use* prohibition has no counterpart in section 6(e)(3) it remains in effect indefinitely.

VIII. Authorizations and Exemptions

A. Explanation of Authorizations and Exemptions

Section 6(e) of TSCA provides for two types of exceptions to the prohibitions of PCB activities: authorizations and exemptions. The purpose of this discussion is to clarify the distinctions between these exceptions and explain EPA's policy to simplify implementation by having a combined procedure for authorizations and exemptions.

An authorization is an exception to the TSCA section 6(e)(2) January 1, 1978

ban of non-totally enclosed activities. To authorize an activity, EPA must find that continuation of the activity does not present an unreasonable risk of injury to human health or the environment. Since the intent of the law is for PCB activities to be banned, it must be clearly evident that the risk from an activity is not unreasonable. In the absence of such evidence, an activity is banned.

Although not subject to section 6(c)(1) of TSCA, EPA used the criteria in section 6(c)(1) to determine whether or not the risk from a non-totally enclosed activity is "unreasonable". These factors include: (1) the effect of such substance or mixture on health and the magnitude of exposure of human beings to such substance or mixture, (2) the effects of such substance or mixture on the environment and the magnitude of the exposure of the environment to such substance and mixture, (3) the benefits of such substance or mixture for various uses and the availability of substitutes for such uses, and (4) the reasonably ascertainable economic consequences of the rule, after consideration of the effect on the national economy, small business, technological innovation, the environment, and public health.

An exemption is an exception to either (1) the TSCA section 6(e)(3)(A)(i) January 1, 1979 complete ban of all PCB manufacture or (2) the TSCA section 6(e)(3)(A)(ii) July 1, 1979 complete ban of all PCB processing and distribution in commerce. To grant an exemption, EPA must determine both that an unreasonable risk is not present and that good faith efforts have been made to develop substitutes for the PCBs used in the activity to be exempted.

In addition to the difference in criteria for granting these two exceptions, there are several other important distinctions between an authorization and an exemption.

First, an authorization may be valid for any time period that EPA finds appropriate, but an exemption is only valid for one year and must be granted annually through a formal rulemaking. However, the complete bans of manufacture, processing, and distribution in commerce contained in section 6(e)(3) of TSCA supercede the corresponding bans contained in section 6(e)(2), as explained above. Since EPA must make more stringent findings under section 6(e)(3) than under section 6(e)(2), there is no reason to require petitioners to have an authorization if they have been granted an exemption for the same activity (see preamble section VII). Therefore, a PCB processing or distribution in commerce activity cannot be authorized after July 1, 1979. After this date, persons who process or distribute PCBs *must* petition for and be granted an exemption annually by EPA in order to continue these activities.

Second, EPA may propose and promulgate an authorization without a specific request from the persons who will benefit from the authorization. This is not the case for exemptions, which must be petitioned for by those who would benefit from them. The requirements regarding exemption petitions are discussed below.

Third, because section 6(e)(3) of TSCA completely bans the manufacture, processing, and distribution in commerce of PCBs and not the use of PCBs, all PCB use activities are covered only by section 6(e)(2) of TSCA. This means that a use activity never needs an exemption, and, therefore, must fall into one of three categories: (1) totally enclosed with no need for an authorization; (2) not totally enclosed and authorized; or (3) not totally enclosed and not authorized. Only the third group of use activities is prohibited by this rule. Activities that are included in the first two categories are described in section IX of the preamble, while those in the third category are described in section X.

1. Manufacturing Exemptions

No exemptions are promulgated in this rule. These are being handled in a separate rulemaking. The rulemaking procedures for PCB manufacturing exemptions were printed in the **Federal Register** on November 1, 1978, at page 50905. Examples of manufacturing activities that require an exemption to continue after July 2, 1979, include, but are not limited to: the manufacture of PCB for use in transformers or capacitors; the manufacture of PCB in small quantities for research and development; the manufacture of PCB for use in microscopy; the manufacture of PCB as an impurity or byproduct in or associated with other chemicals (e.g., pigments); and the importation of PCBs, including bulk form or in mixtures and PCB Articles for any purpose other than disposal. As discussed in section VI.B.1 above, importation of PCB Equipment may continue until July 1, 1979.

Persons who have submitted petitions for a manufacturing exemption in accordance with the November 1, 1978, rulemaking procedures will not be subject to the PCB manufacturing ban until EPA acts upon their petitions (see 44 FR 108, January 2, 1979). Many of the petitions are moot because of changes in the final rule that permit the manufacture of PCB Equipment until July 1, 1979. These manufacturers are required to comply with all other applicable portions of this rule, such as requirements for disposal, marking, storage, and recordkeeping.

2. Processing and Distribution in Commerce Exemptions

In the near future, EPA will issue procedures for applications for exemptions from the processing and distribution bans, which are effective July 1, 1979. The procedures may incorporate revisions from those applicable to manufacturing exemptions. Under the existing procedures, each person who wants an exemption must submit a separate petition. EPA is considering revising this requirement to reduce the number of individual petitions because substantially more persons will be affected by the processing and distribution bans than by the manufacturing ban. In addition, EPA anticipates that the petitions will fall into several principal categories. Instead of requiring petitioners to duplicate efforts in cases where their requests are essentially identical, EPA may accept certain class petitions submitted on behalf of more than one petitioner. Trade associations for example, may be permitted to develop a single petition, as appropriate, on behalf of their members, or manufacturers or processors may be permitted to petition on behalf of persons distributing their products.

Activities that will require an exemption from the July 1, 1979, processing and distribution in commerce bans include, but are not limited to: the manufacture of PCB Equipment; the sale of PCB Equipment; the sale of PCB Capacitors; the processing and distribution in commerce of PCBs for servicing PCB Transformers, PCB-Contaminated Transformers, railroad transformers, mining equipment, electromagnets, and hydraulic equipment; the processing and distribution in commerce of pigments and other chemicals that contain 50 ppm or greater PCB; and the processing and distribution in commerce of PCBs for microscopy and in small quantities for research and development.

B. General Changes in § 761.31: Authorizations

Three changes have been made from the proposal that affect all authorizations. These changes are discussed here while changes in individual authorizations are discussed in section IX of this preamble.

1. Reporting and Recordkeeping Requirements

Virtually all reporting and recordkeeping requirements have been deleted from § 761.31. Several proposed authorizations would have required persons to submit reports to EPA and to retain records for a variety of non-totally enclosed activities. EPA recognizes the burden on manufacturers and others who would have been required to prepare and maintain these records and has determined that these requirements are largely unnecessary, because most of the information will be submitted in the annual petitions for

exemptions. The only exceptions to this policy are owners of railroad transformers, hydraulic systems, and heat transfer systems who must retain records of the PCB analyses that they are required to perform.

2. Length of Use Authorizations

Unlike all other activities that may be subject to an authorization under TSCA section 6(e)(2)(B), use activities are not prohibited under TSCA section 6(e)(3)(A). Accordingly, there is no automatic limit to the length of use authorizations. In deciding how long to authorize each use, EPA believes that it should have the opportunity to review each use in a timely way to ensure that there is no unreasonable risk associated with its continuation. In addition, improved technology or development of new PCB substitutes could reduce the need for the authorization. Accordingly, EPA proposed a five-year limit on most use authorizations. The final rule has generally extended this period to five and one-half years so that the expiration date for authorizations will coincide with the expiration of the processing and distribution exemptions. This change will permit EPA to combine administrative procedures, and thereby reduce administrative costs. Several use authorizations have shorter periods as explained under section IX below.

Since, as noted earlier, the processing and distribution prohibitions of TSCA section 6(e)(2) expire on July 1, 1979, authorizations for these activities will expire on the same date. Thereafter, these activities will be subject to TSCA section 6(e)(3) and will require annual exemptions to continue.

3. Changes in § 761.46: Annex VII

Annex VII, which provided for PCB Exposure and Control Plans, has been deleted. The proposed Annex would have imposed special requirements on persons authorized to continue activities in other than a totally enclosed manner. Specifically, Annex VII would have required detailed plans for handling PCBs, preventing spills, and otherwise reducing human and environmental exposure. The final rule no longer requires such plans because EPA is developing similar requirements under section 311 of the Clean Water Act (see proposed Spill Prevention Control and Countermeasure Plan Rule, 43 FR 39276, September 1, 1978).

IX. Specific Authorizations

Activities that are regulated by this rule and the effect of the rule on these activities are summarized in Table 3. The data referred to in this section are in the Versar Report, which is available from EPA's Office of Industry Assistance at the address given at the beginning of the preamble.

In relationship to activities regulated by this rule, dilution of PCBs is prohibited unless otherwise specifically provided for in the rule. This prohibition is necessary to prevent an unreasonable risk of human and environmental exposure to PCBs. If dilution was permitted, it would be possible to dilute all PCB liquids so that their disposal would no longer be controlled by this rule. This is clearly an unacceptable alternative since it could result in all existing PCBs entering the environment. However, for several authorized activities, dilution of PCBs is essential to the intended performance of the activities and is not performed with the intent of evading the disposal requirements for PCBs. For these activities only, dilution of PCBs is permitted and the disposal of liquid is governed by its final PCB concentration rather than its beginning PCB concentration. The following authorized activities are permitted to dilute PCBs: (1) Servicing of transformers (with restrictions); (2) Servicing of railroad transformers; (3) Use in heat transfer systems; (4) Use in hydraulic systems; (5) Processing and use of pigments; and (6) Use in natural gas.

The exemption review process for the manufacturing, processing, and distribution in commerce bans will also evaluate the need for dilution in the performance of PCB activities. Any decisions to permit dilution in exempted activities will be stated in the exemption, if granted.

A. Servicing Transformers (Other Than Railroad Transformers)

EPA considers the use of transformers as use in a totally enclosed manner. Accordingly, the use of PCBs in transformers may continue indefinitely. In addition, in this rule EPA authorizes the routine servicing of PCB Transformers (as defined in § 761.21(y)) and the routine servicing and rebuilding of PCB-Contaminated Transformers (as defined in § 761.2(z)) subject to certain conditions. The rule also authorizes the processing and distribution in commerce of PCBs for servicing transformers. The following is a summary of EPA's findings and reasoning behind these decisions.

Most large electrical transformers are designed to operate with the current-carrying coils immersed in a dielectric fluid. In the past, most transformers used in buildings or other critical fire control locations were filled with non-flammable dielectric fluids containing PCBs as a major component. These PCB dielectric fluids are known by the generic term "askarel" and have been in common use since the 1930's. Currently, some 140,000 transformers, or less than one percent of all large electrical transformers in service, use askarel dielectric fluid.

PCB Ban Rule Actions

Activity	Totally enclosed	Authorized by rule [1]	Prohibited by rule	Exemption required	Type of PCB activity [2]
PCB Transformers	U (except servicing).	P, D, U (servicing).	M, Rebuilding	P, D	PCB.
PCB-Contaminated Transformers	U (except servicing).	P, D, U (servicing).		P, D	Contamination.
Railroad Transformer		P, D, U	M	P, D	PCB & Contamination.
Mining Equipment		P, D, U—1/1/82.	Minor Rebuilding (1/2/80).	P, D	PCB.
Heat Transfer		U	M, P, D		Contamination.
Hydraulic Systems		P, D, U	M	P, D	Contamination.
Carbonless Copy Paper		U—unlimited	M, P, D		PCB.
Pigments		P, D, U—1/1/82.	M	M, P, D	Contamination.
Electromagnets	U (except servicing).	P, D, U (servicing).	M, Rebuilding	P, D	PCB.
Natural Gas Pipeline Compressors		U—5/1/80	M, P, D		Contamination.
Small Quantities for R&D		P, D, U	M	M, P, D	PCB.
Microscopy		P, D, U	M	M, P, D	PCB.
PCB Capacitors	D, U		M, P	D	PCB.
PCB Equipment	M, P, D, U			P, D	PCB.
Process Contamination			M, P, D, U	M, P, D	Contamination.
Imports & Exports (except for disposal)			M, P, D	M, P, D	PCB & Contamination.
Dust Control, Sealants & Coatings (from waste oil with *any* PCB).			M, P, D, U		Contamination.

[1] Unless otherwise noted, all authorizations expire July 1, 1984. Processing and distribution in commerce require exemptions after July 1, 1979.

[2] "PCB" indicates use of "pure" PCBs (e.g., askarel dielectric fluids) while "Contamination" indicates PCB contamination at concentrations greater than 50 ppm in non-PCB substances or mixtures from previous use of "pure" PCBs.

Abbreviations: M—Manufacturing, P—Processing, D—Distribution in Commerce, U—Use.

A transformer is essentially a large, sealed can. The only time the can is deliberately opened is when the transformer requires certain types of servicing. Except in the event of a catastrophic failure or other extraordinary circumstance, use (except servicing) of transformers is performed in a totally enclosed manner and, as such, does not require an authorization. Under this rule, use of PCBs in transformers may continue indefinitely because this is a totally enclosed use.

1. General Discussion of Transformer Servicing

Servicing of transformers does result in exposure to PCBs. There are two general categories of servicing: routine servicing and rebuilding. Routine servicing includes testing the dielectric fluid, filtering the fluid, and replacing gaskets. Routine servicing often requires the removal of some dielectric fluid and then the return, or replacement, of that fluid. These activities result in some human and environmental exposure, but the exposure is usually limited to exposure of workers to small quantities of PCB. Good management practices and protective clothing should result in only very low levels of exposure to PCBs during routine servicing.

Rebuilding occurs after a transformer has failed or after an inspection indicates that it will soon fail. Rebuilding is an open process that involves draining the transformer, removing and disassembling the core, reworking the coil or rewinding a new coil, reassembling the core, and refilling the transformer with new fluid. Unless extraordinary precaution is taken, the shop personnel responsible for rebuilding the transformer are exposed to PCBs since the inner parts of the transformer are saturated with PCBs. Volatilization of the PCBs and leaks from both the transformer and PCB handling result in environmental exposure to PCBs.

Worker exposure during rebuilding can be moderated by protective equipment, but is inevitably greater than the exposures during routine servicing. Volatilization is difficult to control because of the large surface area exposed. Unless carefully controlled, the leaks may contaminate work areas and storage yards and may reach watercourses through uncontrolled runoff and drainage systems. Cleaning the inner surfaces of the transformers with solvents during the rebuilding process, cleanup of spillage and drippings, and scrapping of unserviceable components all increase the production of liquid and non-liquid PCB wastes. In addition, the old coil must be disposed of separately from the casing, potentially increasing the environmental exposure to PCBs.

2. PCB Transformers

In developing the proposed rule, EPA considered three principal options for PCB Transformers: (1) prohibit both routine servicing and rebuilding; (2) permit routine servicing but prohibit rebuilding; and (3) permit both routine servicing and rebuilding. Option 1 would result in the greatest reduction of potential PCB exposure. Prohibition of routine servicing would, however, probably significantly increase the chances of catastrophic transformer failure because of inadequate maintenance. This hazard and the resulting exposure to PCBs may present far greater risks to health and the environment than that associated with the minimal PCB exposure during routine servicing. Option 3 could result in significant human and environmental exposure to PCBs from rebuilding transformers, as explained above. For these reasons, EPA has chosen a course of action based upon Option 2, permitting routine servicing but prohibiting rebuilding of PCB Transformers.

Routine servicing will result in minimal exposures to PCBs and allow the use of most existing transformers to continue through their useful lifetimes. EPA has concluded that this activity does not pose an unreasonable risk to human health or the environment. However, any servicing (including rebuilding) of PCB Transformers that involves removing the coils from the casing is prohibited by the rule. This prohibition will cost about $12 million the first year and steadily less each year thereafter. Removing the coils substantially increases PCB exposure. Considering the PCB exposure that would result if such servicing (including rebuilding) was permitted, EPA believes that these costs are justified by the increased risks of harm to human health and the environment and concludes that such servicing of PCB Transformers presents an unreasonable risk.

3. PCB-Contaminated Transformers

As explained below, rebuilding transformers with less than 500 ppm PCB is permitted. Because of the relatively low concentrations of PCBs, EPA believes that the risks of further contamination of the environment with PCBs due to such rebuilding will be negligible. Because these transformers comprise over 99% of all large electrical transformers, the economic impact of a rebuilding prohibition on transformers with less than 500 ppm PCBs could be extremely high. Comparing these potential costs to the relatively low threat to human health and the environment under the conditions required under the rule, EPA concludes that this activity should be authorized to continue because it does not pose an unreasonable risk to human health or the environment.

Unless there is reason to believe a transformer contains PCB (askarel) dielectric fluid or otherwise has 500 ppm PCB or greater, it may be assumed to have 50 to 500 ppm PCB. In practical terms, this means that mineral oil transformers need not be tested to determine whether they contain more than 500 ppm PCB. Available information indicates that virtually no mineral oil (non-askarel) dielectric fluid will be contaminated with PCBs above 500 ppm. Even if a small percentage of such fluid might contain somewhat more than 500 ppm PCB, EPA does not believe that the cost of testing needed to identify fluids with these slightly greater amounts is justified. Specifically, there are some 35 million transformers that would be subject to such a testing requirement. With each test costing between $50 and $100, the total cost of such testing would be as great as $3.5 billion. The additional health or environmental benefits that may result from requiring such testing and applying more stringent requirements in those few cases with more than 500 ppm would be extremely small compared to these testing costs.

For all practical purposes, testing of mineral oil dielectric fluid will only be used to determine whether the mixture contains less than 50 ppm PCB and is therefore exempt from the disposal requirements for mineral oil with over 50 ppm PCB. No testing is needed if the mineral oil will be burned in a high efficiency boiler or disposed of in any other way permitted for mineral oil contaminated with PCBs up to 500 ppm.

Many commentors questioned whether they would have to test the fluid from each transformer to determine the level of PCB contamination. Under the final rule, because such testing is optional, EPA anticipates that most persons will instead assume that the transformer contains between 50 ppm and 500 ppm PCB. If a person chooses to test, the final rule permits collection of mineral oil dielectric fluid into a single tank from more than one PCB-Contaminated Transformer. The mixture of fluids can then be sampled in a manner that reasonably represents the composite contents to determine PCB concentrations. (See preamble sections II.C and III.E above.) Draining a PCB

Transformer into such a tank is prohibited.

4. Rebuilding PCB Transformers

The transformer service industry and several transformer owners commented that PCB Transformer rebuilding should be permitted. The industry was particularly concerned with the economic impact on owners of specially designed transformers. Because of the time required to build a new transformer on special order, a prohibition of rebuilding PCB Transformers could significantly disrupt their operations if a transformer should unexpectedly fail. However, some transformer failures are so extensive that the transformer cannot be rebuilt. In these instances, the transformer owner must do without a transformer until it can be replaced with either a new or used transformer. Even when a failed transformer can be rebuilt, the transformer owner still must do without a transformer for the length of time required to rebuild the transformer. In both situations, the transformer owner must either operate at a reduced output or shut-down for some period of time. This may cause some economic hardships for owners of transformers; however, considering the substantial human exposure during rebuilding, the Agency believes that exposure to PCBs from rebuilding presents an unreasonable risk.

The other changes in the final rule, however, will reduce some of the economic impact on transformer users. The final rule permits the reclassification of PCB Transformers as PCB-Contaminated Transformers if they have been drained and refilled with non-PCB dielectric fluid and if they are tested and found to contain less than 500 ppm PCB after at least three months of in-service use. Three months is the minimum amount of time necessary to ensure that the PCBs trapped in the interior parts of the transformer leach out into the dielectric fluid. After reclassifying a PCB Transformer to a PCB-Contaminated Transformer in this way, an owner would be permitted to rebuild that transformer. This reclassification option reduces the risk of disruption of operations that could result from the prohibition of rebuilding PCB Transformers.

If a PCB Transformer owner takes advantage of the reclassification option described above and converts it to a PCB-Contaminated Transformer, the transformer could be rebuilt. The alternative of rebuilding has several economic advantages. In general, rebuilding will be cheaper than replacement. In addition, the production losses will probably be less if a failed transformer can be rebuilt rather than replaced. On the other hand, rebuilding PCB Transformers may result in a substantial increase in human and environmental PCB exposure. Considering these factors, EPA has decided to permit rebuilding but only of PCB-Contaminated Transformers. To rebuild the PCB Transformer the owner would first have to reduce the concentration of PCBs to less than 500 ppm according to the schedule contained in § 761.31(a)(5) and then rebuild.

5. Contents of Authorization

The previous discussion explains EPA's rationale for authorizing the servicing of transformers and the processing and distribution in commerce of PCBs for such servicing. The authorization, contained in § 761.31(a), is valid for persons who service their own transformers until July 1, 1984. Persons who process or distribute PCBs in conjunction with servicing transformers must be granted an exemption by EPA to continue these activities after July 1, 1979.

The authorization for servicing (including rebuilding) is subject to the following six conditions. First, regardless of its PCB concentration, dielectric fluid containing less than 500 ppm PCB that is mixed with fluids containing 500 ppm or greater PCB must not be used as dielectric fluid in any transformer. This condition is intended to prevent deliberate dilution of PCBs. Dielectric fluid from PCB-Contaminated Transformers may be assumed to have less than 500 ppm. Second, persons servicing or rebuilding PCB-Contaminated Transformers must use dielectric fluids that contain less than 500 ppm PCB. Third, any servicing (including rebuilding) of PCB Transformers that requires the removal of the transformer coil from the transformer casing is prohibited. Fourth, PCBs removed in servicing or rebuilding must be captured and either reused as dielectric fluid or disposed of in accordance with the requirements of Subpart B. Fifth, a PCB Transformer may be converted to a PCB-Contaminated Transformer, as described above. Sixth, any PCB dielectric fluid that is used to service or repair any PCB Transformer must be stored in accordance with the storage for disposal requirements of Annex III (§ 761.42 of this rule). This requirement is intended to minimize the possibility of spills and other accidental releases of PCBs in the environment as they are stored prior to use. Finally, any person who wishes to process and distribute in commerce PCBs for purposes of servicing transformers after July 1, 1979, may do so only if granted an exemption by EPA. Persons may continue to service transformers that they own without such an exemption.

B. Use and Servicing of Railroad Transformers

Transformers in approximately 1,000 electric railroad locomotives and self-powered cars operated in the northeastern United States by Amtrak, Conrail and five intracity transit authorities contain PCB fluid. PCB fluids are frequently spilled onto roadbeds when these transformers overheat and when rocks and debris damage these transformers. Workers and other persons near rail lines are potentially exposed to PCBs as a result of these spills. In addition, runoff from roadbeds probably contains increased PCB concentrations. PCBs are also volatilized during overheating and servicing. PCB exposure from servicing operations is similar to non-railroad transformer servicing and is laregely confined to service shops. Because of the human and environmental exposure to PCB that results from these activities, neither the use nor the servicing of railroad transformers is considered to be totally enclosed.

EPA considered various regulatory options for PCB-containing railroad transformers in implementing section 6(e) of TSCA. In proposing the rule, EPA assumed that the 1,000 railroad transformers could not be immediately replaced without an unacceptably severe curtailment of railroad service, especially in the Northeast Corridor, and attendant adverse economic and social consequences. The proposed rule would have authorized the use of the transformers if PCB concentrations were lowered to four percent in 15 months and then to 1,000 ppm in 36 months. In addition, the proposed authorization would have allowed servicing or rebuilding if non-PCB dielectric fluid was used. While the proposal would not have disrupted service, the affected railroad and transit companies would have had to invest an estimated $12.2 million over a three-year period to comply.

The affected parties criticized the timetable for lowering PCB concentrations. A recently initiated study of the safety of PCB-containing railroad transformers that have been refilled with non-PCB fluids is not expected to be completed until late 1979. The comments emphasized the importance of first assessing the feasibility of refilling with respect to

transformer performance and potential hazards from explosion and fires as a result of the use of alternate fluids. Some comments also questioned whether a residual concentration of four percent PCB could be routinely achieved by refilling. These comments stated that a slightly higher level of six percent could be met on a routine basis. Other comments explained that, consistent with the Railroad Revitalization and Recovery Act of 1976, the Northeast Corridor railroads are changing the power supply specifications in mid-1981. Accordingly, some transformers are scheduled to be replaced and these comments suggested that to require the refilling of these transformers would impose a needless cost. As explained below, the 1981 date has changed.

The final rule takes these comments into account and authorizes continued use and servicing (including rebuilding) of these transformers as a non-totally enclosed use until July 1, 1984, subject to requirements that EPA believes will promote conversion to other types of transformers or dielectric fluids at the earliest feasible time. Persons may process or distribute PCBs in conjunction with servicing railroad transformers but must be granted an exemption by EPA to continue these activities after July 1, 1979. EPA is requiring that railroad transformers contain no more than six percent PCB by January 1, 1982, about 21 months later than proposed. This will give EPA more time to evaluate the safety of refilling these transformers with non-PCB fluid and will substantially reduce the costs of compliance. These transformers must either be replaced or be drained, flushed, and refilled with non-PCB fluid by that deadline. Before than, the use of PCB dielectric fluid for servicing (including rebuilding) railroad transformers is authorized. After that date, railroad transformers may only be serviced with fluid containing 6 percent PCBs or less.

By January 1, 1984, the concentration of PCBs in the transformers must not exceed 1,000 ppm. This is approximately 18 months later than proposed. EPA believes that the environmental and health risks that may be associated with continued use of PCB in these transformers over this period are outweighed by: (1) the yet undetermined safety risks of fire and explosion that may be associated with use of non-PCB fluid in refilled transformers; (2) the approximately $90 million cost that would be imposed if immediate conversion or replacement was required; and (3) the additional costs resulting from the disruption of critical transportation services. Therefore, EPA finds that this activity, as authorized, does not present an unreasonable risk.

Railroad transformers must be tested for PCBs immediately after the completion of any servicing conducted for the purpose of reducing the PCB concentration in the transformer's dielectric fluid and between one and two years after such servicing. Records of the results of this testing must be retained until January 1, 1991, which is five years after the last testing requirement of this rule.

EPA estimates that the total cost of complying with the final rule will be no more than $12.2 million over a five year period. Although comments indicated that some of the equipment will have been scrapped as a result of the planned change-over in mid-1981, the Department of Transportation has recently announced that this change-over will not occur until at least the Fall of 1983. The requirement to refill these transformers by January 1, 1982 provides at least 20 months of use before the change-over forces the older units out of service. Accordingly, these units could be in use for well over two years before phase-out would be required.

C. Use and Servicing of Mining Equipment

Under this authorization, PCBs may be used in mining equipment, including for purposes of servicing (including rebuilding) until January 1, 1982. However, rebuilding of continuous miner motors is permitted only until December 31, 1979. In addition, PCBs may be processed and distributed in commerce for purposes of servicing mining equipment in a manner other than a totally enclosed manner until July 1, 1979. After July 1, 1979, persons who process and distribute in commerce PCBs in conjunction with the servicing or use of mining equipment may do so only if granted an exemption by EPA to continue these activities.

There are two types of mining equipment that use PCBs as a coolant in electric motors: loaders and continuous miners. Although the manufacture of mining equipment using PCB fluids has ceased, approximately 517 such motors in loaders and 72 such motors for continuous miners are either in use or in existing inventories. PCBs may leak while the equipment is in service in underground mines or during servicing procedures, performed either in the shop or in the field. Exposure to PCBs during servicing primarily results from volatilization, spills, and direct human contact with PCBs when the inner parts of the motor are removed or rebuilt. Thus, the use and servicing of these motors are not totally enclosed activities.

To require replacement of these motors by the effective date of this rule would not be technically and economically feasible. There is only one company that currently converts PCB loader motors to air-cooled or other non-PCB motors, and PCB motors in continuous miners cannot be converted to non-PCB motors. Because of the location of the motor in continuous miners, this means that the entire machine has to be replaced. In both cases, lead time is essential to convert or replace the equipment. Prohibiting use of the equipment in the interim could result in a shut-down of approximately ten percent of the underground bituminous coal production in the United States. The impact of a prohibition of the use of PCB mining equipment can be significantly reduced by permitting more time for a phase-out. EPA believes that a phased approach is reasonable. As compared to an immediate prohibition, the risks to human health and the environment are only slightly increased, while the costs are substantially lower.

The final rule is essentially the same as proposed. To avoid the adverse consequences caused by an immediate use ban, EPA proposed a phase-out of these PCB motors. Different compliance schedules for loaders and continuous miners were proposed since they pose different problems. Because of the cutting head design, the motors on continuous miners cannot be rebuilt as non-PCB motors. The only feasible alternative is replacement of the entire continuous miner unit. Because of the lead time necessary to order and manufacture this type of equipment, EPA proposed to permit the rebuilding of PCB continuous miner motors until December 31, 1979. Rebuilding differs from servicing in that rebuilding involves removing the motor from the miner and disassembling the motor. Servicing is permitted until January 1, 1982. Service companies and others who want to process or distribute PCBs for rebuilding or servicing these motors after June 30, 1979, may do so only if granted an exemption by EPA to continue these activities. The use of continuous miners containing PCBs after January 1, 1982, is prohibited.

The PCB motors on loaders can be replaced with, or rebuilt as, air-cooled or other non-PCB motors. EPA is requiring that these motors be replaced or be rebuilt as air-cooled or other non-PCB motors when they are returned to

service shops for maintenance, but, in no event, can PCB motors be used later than January 1, 1982. Rebuilding or replacement of existing PCB motors using normal maintenance patterns should take no longer than three years. Accordingly, use of these loaders is authorized until January 1, 1982.

Since normal maintenance practicies will permit an orderly rebuilding or replacement of motors with relatively modest costs, and with little additional exposure to PCBs, this gradual replacement requirement is a reasonable approach. However, no justification exists for permitting any PCB motors on loaders to remain in service after January 1, 1982, and therefore the use is prohibited after that date. Topping-off the motor fluid levels in the field with PCB fluids is also prohibited after January 1, 1982.

The authorization for mining equipment is essentially unchanged from the proposed rule. The estimated cost to owners of the equipment is estimated to be $2.6 to $4.3 million spread over 3 years.

D. Use in Heat Transfer Systems

Section 761.31(d) of the final rule authorizes the use of PCBs in heat transfer systems until July 1, 1984, subject to conditions regarding testing and reducing PCB concentrations. This authorization for use includes servicing of heat transfer systems. Heat transfer systems that are used in the manufacture or processing of any food, drug, cosmetic, or device, as defined in § 201 of the Federal Food, Drug, and Cosmetic Act, are authorized to use heat transfer fluid containing 50 ppm or greater PCB only until November 1, 1979.

PCBs were used as a heat transfer fluid in certain applications from 1962 to 1972. In the period from 1970 to 1972, approximately 90% of the heat transfer systems that used PCB fluid were refilled with non-PCB fluid. In spite of this refilling, most systems contain residual PCB concentrations. Heat transfer systems are, by and large, relatively, but not totally, enclosed systems and therefore their use of PCBs is not in a totally enclosed manner. The primary source of human and environmental exposure to PCBs from these systems comes from leaks in pump motor seals. However, good maintenance practices will minimize the quantity of fluids that may be lost. For most systems, the loss of PCB fluid is well controlled and the corresponding amount of top-off fluid added to these systems is very small.

An authorization for the use of heat transfer systems containing PCBs was not proposed because EPA had insufficient data to judge whether the use of these systems would pose an unreasonable risk. The preamble to the proposed rule solicited comments on this issue. According to the comments received, the PCB problem in heat transfer systems is generally one of residual PCB contamination of the non-PCB replacement fluids. In many respects, heat transfer systems are similar to hydraulic systems. For these reasons, the conditions of this authorization regarding the reduction of PCB concentrations are identical to those contained in the authorization for hydraulic systems: (1) any heat transfer system that ever contained PCB heat transfer fluid must be tested by October 1, 1979, and at least annually thereafter until the system reaches 50 ppm PCB; (2) any system that contains 50 ppm PCB or greater must be drained of the PCBs and refilled with non-PCB fluid (i.e., fluid containing less than 50 ppm PCB) within six months of the test showing the PCB concentration is 50 ppm or greater; (3) PCBs may not be added to heat transfer systems; and (4) records of the testing required under (1) must be retained for five years after the heat transfer system reaches 50 ppm PCB. The testing under (1) must be done at least three months after the most recent servicing conducted to reduce the PCB concentration. This time delay is to permit residual PCBs to leach out into the fluid before it is tested.

An exception to these requirements has been made for heat transfer systems used in the manufacture or processing of any food, drug, cosmetic, or device, as defined in section 201 of the Federal Food, Drug, and Cosmetic Act. These systems are authorized to use dielectric fluid containing 50 ppm or greater PCB only until November 1, 1979. After this date, these systems must contain less than 50 ppm PCB. This exception was made because, in the event of a heat transfer system rupture, PCBs would contaminate a product that would come in direct contact with humans, either through ingestion or through application to the skin. Unlike the rupture of a heat transfer system used in the manufacture of a product that is rarely in contact with humans, leakage of PCBs into a food, drug, cosmetic, or device provides a direct avenue for PCBs to enter the human body. Since the Food and Drug Administration required the removal of PCB heat transfer fluids from these systems several years ago, this restricted authorization should not present a problem to companies owning these systems.

EPA finds that this activity, as authorized, does not present an unreasonable risk to health or the environment. The total cost for the requirements described above is estimated to range from $12.2 to $17.8 million spread over three years.

E. Use in Hydraulic Systems

Under this authorization, PCBs may be used in hydraulic systems until July 1, 1984, subject to conditions regarding testing and reducing PCB concentrations. This authorization for use includes servicing of hydraulic systems. Processing and distribution in commerce for purposes of servicing, such as filtering, distilling, or otherwise reducing the concentration of PCBs in hydraulic systems, is authorized only until July 1, 1979. After July 1, 1979, persons are prohibited from processing and distributing in commerce PCBs for this purpose unless EPA grants them an exemption.

This authorization is necessary because a large number of die casting systems currently in use were once filled with PCB hydraulic fluid. Although this use of PCBs has been discontinued, equipment containing PCB hydraulic fluid is still in service. Some systems have been topped-off with non-PCB fluids, and others have been drained and flushed in an attempt to reduce PCB contamination. However, systems may still be contaminated with residual PCBs that either remain after flushing or are gradually released from interior surfaces. As a consequence, hydraulic systems can contain concentrations of PCB ranging from less than 10 ppm to thousands of parts per million PCB. These systems normally leak fluid, even when properly maintained. In addition, some of the fluid volatilizes as a result of the high operating temperatures. These losses result in PCB-contaminated water effluents as well as air emissions, both of which have contributed to existing levels of PCB contamination in the environment. Therefore, this use of PCBs is clearly not use in a totally enclosed manner.

Mandatory immediate removal of these systems from service to remove the PCBs could affect as many as one thousand companies and disrupt important sectors of industry, especially those using die castings. The extent of PCB exposure from these systems does not justify incurring such severe costs. On the other hand, the continued uncontrolled use of these systems would result in releases of substantial amounts of PCBs into the environment and cannot be allowed to continue. EPA proposed authorizing the continued

servicing and use of PCB-contaminated hydraulic fluid in hydraulic die casting systems subject to certain conditions. One condition was that any system that contained 50 ppm or more PCB had to be drained and refilled with non-PCB fluid within one year. In addition, testing and servicing or replacement of the fluid was required at least every six months until the PCB concentration was consistently below 50 ppm.

The authorization in the final rule makes certain changes from the proposal. First, the proposed authorization covered only hydraulic die casting systems. Comments indicated that there are other types of hydraulic systems that used PCBs in high temperature environments such as in steel mills and foundries. Accordingly, the authorization has been extended to apply to the use of PCBs in all hydraulic systems.

Under the final rule, each hydraulic system must be tested no later than November 1, 1979. If the concentration of PCBs is found to be greater than 50 ppm, the whole system must be drained and refilled with non-PCB fluid within six months of the test. EPA anticipates that most of the PCBs will be removed during the initial refilling process. Subsequent draining and refilling may be necessary to remove residual PCBs. Under the final rule, persons who own hydraulic systems are required to test for the concentration of PCB annually instead of every six months as under the proposal. Comments indicated that removing a hydraulic system from use every six months would be disruptive. Most systems undergo repair or overhaul at least annually. The revised requirement would be consistent with these practices and, accordingly, result in substantial first year cost savings with little increase in PCB exposure. Records of this testing must be retained for five years after the hydraulic system reaches 50 ppm.

Many comments emphasized that requiring the draining of hundreds of gallons of fluids that may contain residual quantities of PCBs is not a cost-effective way to achieve reduction in PCB concentrations. Hydraulic systems are routinely topped-off with non-PCB hydraulic fluids. Comments argued that the addition of non-PCB fluids should effectively reduce the concentrations of PCBs. While topping-off is permitted for purposes of reducing the levels of PCBs at any time, EPA believes that an annual requirement to test and drain any fluids that contain more than 50 ppm is essential to reduce, as expeditiously as possible, the potential for PCB exposure. Although EPA does not believe that topping-off alone will reduce PCB concentrations quickly enough in all systems, many systems will be able to meet the requirements of the rule solely by topping-off. Allowing concentrations of PCBs above 50 ppm in these systems over time is not acceptable to EPA in terms of the significant risks to health and the environment associated with the leakage from these systems.

It is estimated that the costs to owners of affected hydraulic systems will total $14.6 to $25 million spread over the first two years, with insignificant costs in the subsequent years. These costs are similiar to the total cost of $19.7 million estimated in the proposal, but the final rule considered 1750 machines rather than the 1000 machines estimated in the proposal. This reduction in cost per machine is due to the annual, rather than semi-annual, testing requirement and more accurate cost information obtained as a result of the proposal. These costs are reasonable in light of the resulting reduction in human and environmental exposure to PCBs.

EPA finds that this activity, as authorized, does not present an unreasonable risk to health or the environment.

F. Use in Carbonless Copy Paper

Under this authorization, existing PCB carbonless copy paper may be used indefinitely. Prior to 1971, carbonless copy paper distributed by NCR Corporation was made with ink containing PCBs. There does not appear to be a way to distinguish PCB carbonless copy paper from non-PCB carbonless copy paper except perhaps by dates or other indications on unused inventories. A large portion of the PCB carbonless copy paper that has not been destroyed is probably in files. An enormous undertaking would be required of both business and government to purge existing files of PCB carbonless copy paper. Moreover, the amount of PCB on each sheet of carbonless copy paper is extremely small. In view of these practical considerations and because the potential PCB exposure and risks to human health or the environment are negligible, EPA has concluded that this activity does not present an unreasonable risk and is authorizing the continued use of existing PCB carbonless copy paper.

In the proposal, EPA limited this authorization to five years. However, EPA does not now believe that a method for inexpensively separating PCB from non-PCB carbonless copy paper will be developed in the near future. Accordingly, EPA is authorizing the use of existing PCB carbonless copy paper indefinitely.

G. Pigments

This rule authorizes the use of diarylide and phthalocyanine pigments containing more than 50 ppm PCB until January 1, 1982, and the processing and distribution in commerce of these pigments until July 1, 1979. After July 2, 1979, these pigments cannot be manufactured and after July 1, 1979, these pigments cannot be processed or distributed in commerce unless EPA grants exemptions for these activities.

Diarylide and phthalocyanine pigments contain PCBs as an impurity in concentrations ranging from several thousand parts per million to less then 50 ppm. Most of these pigments have PCB concentrations in the range of several hundred parts per million. These PCBs cannot easily be separated from the pigments because of the structural similarity of the PCBs to the pigments. Once manufactured, the pigments are mixed with other substances to form paints, inks, and a variety of other products. The PCB concentrations in these final products are less than 50 ppm.

Competitive pressure to market pigments with decreased PCB contamination is causing pigment manufacturers to change their processes. Comments indicate that within two years the industry will have made the changes necessary to reduce PCB contamination levels to less then 50 ppm.

In deciding whether to authorize pigment activities, EPA considered the relatively limited exposure and the economics associated with use of these pigments. The greatest potential for exposure is in the application of paints and inks using these pigments. These products contain far less than 50 ppm PCB because of the dilution that takes place when the pigment is mixed with the medium it is coloring. As a result, the health and environmental risks are not unreasonable. As discussed above, the industry is changing its processes to reduce the level of PCB contamination to below 50 ppm in the next two years. At the present time, these particular pigments are a major segment of the pigment market. For example, diarylide pigments form about 80% of the yellow pigment market. This ban will, therefore, affect a substantial number of pigment-related industries. However, the impact of the regulation of the pigment industry, as well as its customers in the paint and graphic arts industries, will be further

considered during the rulemaking on manufacturing exemptions.

The potential costs of compliance are greatly reduced if the requirements are implemented over a few years. The increased health and environmental risk is relatively small. If exemptions are granted to permit more time for the conversion to alternative manufacturing processes, the cost of conversion will total $5.6 million. Based on these considerations, EPA has concluded that the processing and distribution in commerce until July 1, 1979, and the use of these pigments until January 1, 1982, will not present an unreasonable risk to health and the environment and should be permitted.

H. Use and Servicing of Electromagnets

As explained below, EPA considers the use of electromagnets containing PCBs to be used in a totally enclosed manner. Accordingly, this use does not require authorization. Processing and distribution in commerce of PCBs to service electromagnets is authorized, as explained below.

While no new PCB electromagnets have been manufactured since mid-1976, historically PCBs have been used in some electromagnets to reduce fire hazard. PCB electromagnets are used primarily over conveyor belts to remove tramp iron from non-magnetic commodities such as coal. PCB-containing electromagnets still in use are found in enclosed areas such as coal mines, coal preparation plants, and coal-fired generating stations where there is a danger of producing explosive dusts. PCB electromagnets may also be used over conveyor belts in grain handling systems, but EPA does not have information on specific locations at this time.

Electromagnets are similar to transformers in construction. An electromagnet is a completely welded piece of equipment. Any leakage would be the result of deteriorating equipment or accidental damage rather than design characteristics. EPA has concluded that use of PCBs in electromagnets under normal circumstances is a use in a totally enclosed manner. For coal-handling systems, if leakage does occur, there will be negligible risks as the coal is handled automatically and eventually burned in combustion devices capable of destoying almost all of the PCBs. While EPA is not certain that electromagnets containing PCBs are currently in use over grain conveyors, accidental leakage in such situations may contaminate food supplies and thus pose a threat to human health. For these reasons, EPA will consider use of electromagnets over grain conveyors that leak to be a violation of this rule as a non-totally enclosed use of PCBs. In addition, EPA is notifying the U.S. Department of Agriculture and the Food and Drug Administration of this potential problem.

The servicing of PCB electromagnets is similar to servicing of PCB Transformers. Accordingly, this rule authorizes the same type of servicing of PCB electromagnets with PCB dielectric fluid. As in the case of PCB Transformers, any servicing (including rebuilding) that requires the removal of the coil from the casing is prohibited. Most of the discussion of the servicing of PCB Transformers in section IX.A of this preamble pertains to servicing PCB electromagnets. EPA has similarily concluded that this servicing, as long as it does not include removal of the coil from the casing, will not present an unreasonable risk to health or the environment. Because of limited information, EPA was unable to ascertain the costs of not granting such authorization.

I. Use in Natural Gas Pipeline Compressors

The final rule authorizes the use, including servicing, of PCBs in natural gas pipeline compressors until May 1, 1980. An authorization was not proposed for this use of PCBs because EPA had virtually no knowledge of it. Several comments on the proposed rule indicate that compressors used in natural gas pipelines contain residual PCB concentrations greater than 50 ppm. In general, these systems were drained of high concentration PCB fluid several years ago, thereby removing most of the PCBs. This authorization will allow these compressors to be drained and refilled with non-PCB fluid to further reduce the PCB concentration until it is below 50 ppm. The authorization is effective until May 1, 1980, giving persons time to work on the systems to reduce the concentration of PCBs during the summer months when demand for natural gas is lower. Use and servicing of these compressors are not a totally enclosed activity because of limited environmental exposure that may occur during servicing and use.

An immediate use prohibition could have a serious effect on natural gas distribution. Permitting more than a half a year to complete the draining and refilling significantly reduces costs and disruptions in service while causing little or no increase in exposure to PCBs. The total cost of these decontamination operations is $200,000. Because of the small quantities and low concentrations of PCBs involved, EPA believes that this authorization will not result in exposure to PCBs that presents an unreasonable risk to health or the environment.

J. Use of Small Quantities for Research and Development

EPA is authorizing the use of PCBs in "small quantities for research and development", as defined in § 761.12(ee), until July 1, 1984. Processing and distribution in commerce of PCBs for this purpose is authorized until July 1, 1979. After July 2, 1979, PCBs cannot be manufactured for this use, and after July 1, 1979, they cannot be processed or distributed in commerce, unless persons interested in continuing these activities have been granted an exemption.

Because of the importance of on-going research on the effects of PCBs and the need to have reference standards for analytical purposes, EPA believes that the extremely limited exposures associated with these activities do not present an unreasonable risk to health and the environment. The term "Small Quantities for Research and Development" is defined very narrowly. Specifically, PCBs must be contained in hermetically-sealed, five milliliter containers. EPA believes this constraint is sufficient precaution against the risks of human or environmental exposure to justify such use in light of the possible benefits of continued research. The proposed rule would have excluded these activities from the prohibitions in § 761.30; however, EPA believes it is more appropriate to authorize (and if appropriate exempt) these activities.

K. Use in Microscopy

EPA is authorizing the use of PCBs as a mounting medium for microscopic slides until July 1, 1984, and the processing and distribution in commerce of PCBs for this purpose until July 1, 1979. After July 1, 1979, persons who want to continue processing and distribution in commerce activities must be granted an exemption by EPA. Persons who want to manufacture PCBs for this use after July 2, 1979, must also be granted an exemption by EPA.

When PCBs are used as a mounting medium for slides, extemely small quantities are used on each slide. This use is particularly important to scientists who need to preserve, for future reference, a microscope particle. PCBs are also used in air pollution and criminology labs for microscopic particle identification and they play a vital role in the study and conservation of art and historic objects through use of microscopic slides. In mounting, a particle is placed in a PCB medium and

covered with a cover slip, usually for permanent reference. No substitutes with the necessary physical properties exist for this use.

Because of the small quantities of PCBs used at any one time and the careful nature of laboratory work, exposure to PCBs used as a mounting medium is minimal. Because of the substantial benefits of this use of PCBs and the very limited risks involved, EPA believes that this activity will not present an unreasonable risk and that it is appropriate to authorize this use of PCBs.

X. PCB Activities Not Authorized by This Rule

A. Manufacture of PCB Capacitors

PCBs have been used as a dielectric fluid in alternating current capacitors manufactured in the United States from the mid-1930's through the mid-1970's. Although the manufacture of PCB Capacitors is considered to be "processing" of PCBs and could continue under section 6(e)(3) until July 1, 1979, the activity is not totally enclosed and accordingly is prohibited under section 6(e)(2) after July 2, 1979.

In the past, manufacture of PCB Capacitors has been a major source of PCB release into the environment. For example, the upper reaches of the Hudson River are closed to fishing because of PCB contamination caused by capacitor manufacturing. The Support Document to the final rule (Chapter II) discusses this and other examples of environmental damage caused by this activity. In addition, there are substitutes available as discussed in Chapter III of the Support Document to the final rule. For these reasons, EPA has determined that the continued manufacture of PCB Capacitors presents an unreasonable risk to human beings and the environment and has not authorized it under section 6(e)(2). It is EPA's understanding that no company is planning to manufacture PCB Capacitors after the effective date of this rule.

B. Manufacture of PCB Transformers

The use of PCBs as a transformer dielectric fluid dates back to the 1930's. The manufacture of PCB Transformers is also considered to be "processing" PCBs under TSCA but is not a totally enclosed activity. Under section 6(e)(2), it may not continue after July 2, 1979. Significant quantities of PCB may enter the environment during the manufacture of PCB Transformers. Production of PCB Transformers has been responsible for major river damage, notably the Coosa River in Northwest Georgia. Because of the environmental and human exposure to PCBs that occurs in the manufacture of these transformers and because of the availability of substitutes, EPA has determined that the manufacture of PCB Transformers presents an unreasonable risk and, therefore, has not authorized this activity. It is EPA's understanding that the manufacture of PCB Transformers in the United States ceased in 1977.

C. Other PCB Activities

All manufacturing of PCBs is prohibited after July 2, 1979. Persons who have submitted a petition for a manufacturing exemption in accordance with the November 1, 1978 rulemaking procedures (43 FR 50905) will not be subject to this ban until EPA acts upon their petitions (see 44 FR 108, January 2, 1979).

All processing, distribution in commerce, and use of PCBs in other than a totally enclosed manner is prohibited after July 2, 1979, unless specifically authorized in § 761.31 of this rule.

XI. Manufacturing, Processing, or Distribution in Commerce of PCBs for Export

Section 12(a) of TSCA states, in general, that no provision of TSCA shall apply to the manufacture, processing, or distribution in commerce of a chemical intended solely for export from the United States. However, if the Administrator finds that the manufacture, processing, or distribution in commerce of a chemical substance solely for export presents an unreasonable risk to health or the environment in the United States, those activities may be regulated under TSCA.

It is the clear intent of TSCA to minimize the addition of PCBs to the environment of the United States. The extreme persistence of this substance and the ease with which it is transported has made it a global problem. There is considerable evidence of PCB contamination that is far from any known source (see Chapter II of the Final Support Document). Therefore, PCBs used outside the United States can cause PCB contamination of this country. Moreover, manufacturing, processing, and distribution in commerce of PCBs in this country for purposes of export is likely to cause significant release of PCBs in this country through air and water emissions, leaks and spills, and other means. Instances of severe PCB releases from manufacturing, processing, transportation, and other activities involving PCBs are well documented. Because of these factors, EPA has determined that the manufacture, processing, and distribution in commerce of PCBs for export constitutes an unreasonable risk to health and the environment in the United States.

The final rule prohibits: (1) any manufacture of PCBs for export after the effective date of this rule; and (2) the non-totally enclosed processing and distribution in commerce of PCBs for export as of the effective date of this rule; and (3) any processing or distribution in commerce of PCBs for export after July 1, 1979, except solely for purposes of disposal in accordance with § 761.10. These prohibitions are essentially the same as proposed. Like domestic manufacturers, processors, and distributors in commerce, persons wishing to manufacture, process, or distribute in commerce PCBs or PCB Items solely for export may petition EPA for an exemption as discussed in the preamble section VIII.A above.

In addition, section 12(b)(2) of TSCA requires any person who exports or intends to export a chemical substance or mixture for which a rule has been proposed under section 6 to notify the Administrator of such export or intent to export. This requirement applies to any export of PCBs except the export of wastes which require a special report as discussed in VI.B.2 above. The requirement does not apply to the export of PCB Equipment, although the export of such equipment requires an exemption after July 1, 1979. The export of PCBs in small quantities for research and development (as defined in § 761.2(ee)), for example, does require notice to EPA.

Interim procedures regarding this requirement can be found at 43 FR 24818 (June 7, 1978). In summary, these procedures require that notices be submitted for the exports of all PCBs and PCB Items (except PCB Equipment), and the following information is to be included:

(a) The name and address of the exporter; (b) the dates of each shipment or intended shipment; (c) the country (countries) of import; and (d) a statement that notice is being submitted pursuant to Section 12(b) and 40 CFR Part 761.

Notices shall be sent to the Document Control Officer, (TS-793), Office of Toxic Substances, U.S. Environmental Protection Agency, 401 M Street S.W., Washington, DC 20460.

XII. Test Procedures for PCB

Test procedures for determining the PCB concentration in various media

were not included in the proposed PCB Ban Rule. A number of comments on the rule suggested that EPA provide additional information on test methods.

EPA has been involved in the development of test methods for several media and has made much of this information available to the public. Specifically, test procedures have been made available for determining PCB concentrations in air, soil, water, and sediments using an American Society of Testing and Materials method (ASTM D 3304) and in industrial effluents using EPA methods (primarily for low concentration of PCB in water) (40 CFR 136). In addition, an interim guidance package containing two test procedures (one for spills in soil and one for water) was made available to EPA Regional Offices in February 1978 for distribution to the public. In the final step of analyzing the sample, all of these procedures rely on a gas chromatograph with an electron capture detector. The primary differences between the procedures are in the methods used to separate the water-soluble fraction from the organic-soluble fraction. The latter fraction contains the PCBs and is the portion used in the gas chromatograph.

Several comments were critical that EPA did not have more specific test procedures for PCBs, in particular for mineral oil dielectric fluid and pigments. The contamination of mineral oil dielectric fluid with PCBs is a major subject of this rule and the problem affects a large number of utilities and industries. EPA has experience in the analysis of contaminated oils and has included a test procedure (described below) in an additional guidance package that will be distributed to EPA Regional Offices. Pigments represent a different type of analytical problem. Pigments are a complex analytical media, and analytical chemists in that industry who have the most knowledge on resolving analytical chemistry problems with that substance have developed techniques to quantify PCBs in pigments.

Pigment manufacturers have developed thus far several test procedures and are currently working to validate one of them. With respect to other substances or mixtures that may be contaminated with PCBs, EPA also presumes that persons who manufacture such substances have the expertise to analyze their product and are best equipped to determine whether, and to what extent, their product is contaminated with PCB.

EPA will make use of industry-developed test procedures in conducting surveys or inspections and will use data from such tests in enforcement actions where appropriate. EPA may also examine industry-developed test procedures and make modifications, if possible, that would increase the accuracy and sensitivity of the test. Such modifications will be made publicly available. Persons who manufacture or process chemicals in a manner that could result in the production of PCBs as a primary product, impurity, intermediate, precursor, or byproduct are responsible for determining whether PCBs have been produced. They will have to conduct tests using good analytical chemistry and investigate ways to improve their ability to detect and quantify PCBs.

For the testing of PCB contaminated oils, EPA uses the following analytical procedure which consists of three successive clean-up steps: at least one run through an activated silica gel column, a run through an activated basic alumina column, and a final run through an activated silica gel column followed by analysis on the gas chromatograph equipped with an electron capture detector. This procedure can be used on any waste oil. For a mineral oil dielectric fluid that is relatively clean, an alternative procedure that would yield a less accurate PCB concentration with less effort and lower cost would be to substitute a liquid-liquid clean-up step for the column clean-up. This clean-up involves mixing the oil sample with concentrated sulfuric acid and then draining of the oil fraction. The oil fraction is then run through the gas chromatograph. This clean-up step removes oxidized organic material, thiophenes, and moisture from the oil sample. This alternative is not as accurate as the column clean-up method, but for "clean" oils, it provides a less expensive, more expedient test procedure.

EPA recognizes that these procedures are subject to experimental errors and that any procedure, no matter how simple, can be run improperly. However, persons who are subject to this rule will be expected to exercise good judgment on testing decisions. For example, if, in the case of the two procedures described above for PCB contaminated oils, the more rigorous procedure may yield results of ±1 ppm PCB while the quicker procedure may yield results of ±15 ppm PCB (these estimates of error are only used as illustrative examples and are not based on actual test data) and a sample is tested by the more accurate procedure and results in a value of 30 ppm PCB, then a person could be reasonably certain that the sample falls into the less than 50 ppm category. However, if using the less accurate procedure results in a value of 45 ppm, then a person has two choices: either treat the sample as a greater than 50 ppm PCB or test the sample again with the more accurate test procedure. In this case, EPA will not consider it to be good judgment to assume that the sample has less than 50 ppm PCB because the experimental error of the procedure overlaps the cut-off point.

XIII. Compliance and Enforcement

EPA will devote a major enforcement effort to ensure compliance with the requirements of these regulations. EPA intends to take vigorous action to assure that all facilities which manufacture, process, distribute in commerce, or use PCBs, handle and dispose of PCBs properly. While EPA will be reasonable in interpreting the application of these requirements, persons who are or may be subject to these regulations should be aware that failure to properly comply with these regulations may subject them to serious civil and criminal sanctions.

Section 16 of TSCA authorizes the imposition of a civil penalty of up to $25,000 for each violation of these rules. Each day a violation continues constitutes a separate violation for the purpose of § 16. A knowing or willful violation of these rules may, in addition to any civil penalty, lead to the imposition of criminal penalties in the amount of up to $25,000 for each day of violation and imprisonment for up to one year. In addition, EPA has the authority under section 17 of TSCA to compel persons to take actions to rectify or clean up after violations.

EPA will seek stringent penalties in any situation in which significant dispersion of PCBs occurs due to a violation. Civil penalties will be scaled according to the severity of the violation. Facilities that violate approval, exemption, or authorization conditions shall also be subject to penalties under §§ 15 and 16 of TSCA, as well as the revocation of their approval, exemption or authorization. In addition, in these situations, EPA will use TSCA section 17 injunctive and seizure powers to reduce or eliminate the risks of a PCB regulation violation. For violations which risk no direct dispersion of PCBs, EPA is less likely to seek severe penalties. Facilities may be simply put on notice of certain violations and compelled to rectify any observed violations.

"Any person" who violates these regulations will be subject to an enforcement action. This includes individuals, such as corporate officials

and employees, as well as violating companies. EPA takes the position that persons may not contract away their responsibility or liability for violation of these rules, i.e. a PCB user who contracts for PCB disposal or storage with a company that he knows or should know has inadequate disposal or storage facilities, may himself be the subject of an enforcement action. This policy applies to all remedies EPA may seek for a violation.

EPA will be directing its resources to the discovery of significant instances of exposures of PCBs to the environment and developing accurate information depicting the flow of PCBs to proper disposal. Using information developed during inspections and using the records required to be kept under § 761.45, EPA will be able to focus its efforts upon areas which show the greatest potential for violation.

XIV. Relationship of PCB Disposal Under TSCA to Hazardous Waste Disposal Under RCRA

The disposal requirements of this rule specify the actions that must be taken when disposing of PCBs.

In addition, the rule contains Annexes that delineate specifications for disposal facilities that are to be used for the disposal of PCBs. These facilities are also addressed in the hazardous waste disposal rules proposed under the Resource Conservation and Recovery Act (RCRA) on December 18, 1978 (43 FR 58946). Several options for integrating the PCB rule with the RCRA rules are discussed in the preamble to the RCRA rules at 43 FR 58993 and comments were requested on the alternatives. Prior to the promulgation of the RCRA rules, EPA will resolve the differences between these two rules. Because of the special disposal problems presented by PCBs, EPA could choose to continue special provisions for the disposal of PCBs. EPA's decision will be announced when the rules under RCRA are promulgated.

XV. Summary of Economic Consequences

Section 6(e) of TSCA prohibits (1) the use of PCBs in a non-totally enclosed manner unless the use is authorized and (2) all manufacture, processing, and distribution in commerce of PCBs unless they are otherwise exempted by the Administrator. These authorizations and exemptions, however, are discretionary and can be granted only upon a finding that a particular PCB activity does not pose an unreasonable risk to health or the environment.

The impacts of both the statute and the regulation have been assessed and are discussed below. Additional information on these impacts is contained in *PCB Manufacturing, Processing, Distribution in Commerce, and Use Ban Regulation: Economic Impact Analysis* (the Versar Report) which can be obtained from the Industry Assistance Office of the Office of Toxic Substances upon request (see the beginning of this preamble for the address and telephone number).

A. Impact of the Statute

It was the clear intent of Congress, as expressed in Section 6(e) and in the pertinent legislative history, that the manufacture of PCBs should cease. Since no more PCBs will be made (unless exemptions are granted), it follows that there can be no future manufacturing of PCB Transformers or Capacitors. Consequently, the costs attributed to the cessation of the manufacture of PCB chemical substance, PCB Transformers, and PCB Capacitors are considered impacts of the statute, not of the regulation.

These costs are attributable to the statute and not to the regulation and include $12–$30 million per year in increased capacitor costs that will be borne by utility and industrial users. This results from an across-the-board increase in capacitor prices of 10–20 percent due to the higher costs of PCB substitutes. This cost will continue indefinitely, unless the cost of these substitutes falls. Purchasers of Non-PCB Transformers will incur increased costs of up to $10 million per year, depending on the particular substitute dielectric fluid selected. This cost will also continue indefinitely. These increased costs of transformers and capacitors will be passed on through a minimal increase in the cost of electricity to consumer and industrial users.

B. Impact of the Rule

The total first year cost of this rule is expected to range between $58 million and $105 million. By 1985 the annual costs will drop to between $30 million and $37 million. Annual costs should continue to diminish subsequent to 1985 as the use of PCBs is discontinued.

The largest annual economic impact of this regulation may result from the prohibition of the use of waste oil containing any detectable amount of PCB for dust control on roads. Since most waste oil contains very low PCB levels, as much as 300,000,000 gallons of waste oil per year will be diverted from this use. Highway departments and private road owners will have to use substitute products which could cost them as much as $31.7 million per year for the first several years of this rule. Note that the manufacturers of substitute products assert that use of their products will substantially reduce road maintenance costs when compared to the use of waste oil for road oiling and that such a reduction would directly reduce the net cost of the rule. However, EPA is not able to verify the potential savings involved.

The ban on rebuilding transformers which contain dielectric fluid with a 500 ppm or greater PCB concentration will cost the owners of these transformers approximately $12 million in the first year of the rule. This annual cost will be gradually reduced over a period of 30 to 40 years as the transformers are replaced. Included in the $12 million estimate is an estimated $2.4 million in costs attributed to a projected increase in down-time. In other words, when a power delivery is interrupted by an electrical failure of a PCB Transformer the rule's effective requirement that the failed PCB Transformer be replaced by a new, rather than a rebuilt transformer, will cause a longer than normal interruption. About two thirds of these transformers are owned by commercial and industrial firms and the remainder by utilities. The impact of this rule with respect to transformers is expected to have a negligible effect on the cost of electricity, and no significant impact on non-utility owners.

The cost of disposing of PCB-contaminated mineral oil will be significantly less than under the proposed rule. The final rule modifies the proposed requirement and allows disposal in high efficiency boilers. It is expected that the annual costs under the changed disposal requirements will be between $3.2 million and $17.0 million. Included in both the low and the high estimates is an estimated annual disposal cost of $11.1 million which could be incurred by disposers of contaminated mineral oil who do not own high efficiency boilers. In addition, the owners of high efficiency boilers will likely incur some capital costs in the first year of the rule in order to take advantage of the new provisions.

Seven railroad and transit companies which are affected by this rule will incur total additional operating costs of $12.2 million. These costs will be spread over the next five years. The costs will be incurred because of refilling of PCB-Containing Transformers used on locomotives and self-powered cars with substitute non-PCB fluid, and in periodically removing residual PCB contamination from the new fluid. Since

only electrically-powered units are involved, the costs will be borne solely by railroads and public transit authorities in the Northeast. These companies are in financial trouble; however, funding may be available through Federal subsidies.

Underground mining equipment will be impacted because of an older design electric motor which used PCBs as a coolant. The use of these motors will be banned as of January 1, 1982, and the total cost to users of PCB mining equipment will be $2.0 to $4.2 million. Since the ban is designed to allow a phase-out of the use of the equipment through conversion or obsolescence, it should cause no interruption of coal production. These costs are not expected to cause significant problems for the equipment owners.

Owners of hydraulic systems with PCB-containing hydraulic fluid will have to test, drain, and refill these systems periodically. As many as 1,750 systems including metal die casting and foundry equipment are believed to be affected by the rule and costs for the initial two years are expected to total between $14.6 and $25 million; costs for subsequent years should be insignificant.

Owners of heat transfer systems with PCB-containing heat transfer fluid will also have to test, drain, and refill these systems periodically. As many as 600 systems are believed to be affected by the rule, and costs for the first three years are expected to total between $12.2 and $17.8 million; cost for subsequent years should be insignificant.

Threre are a number of commercial chemical processes which produce PCBs as an unintentional byproduct in concentrations over 50 ppm. For instance, the presence of PCBs (in excess of 50 ppm) in phthalocyanine and diarylide yellow pigments has been detected. It is estimated that the pigment industry can change its production process within two years at a cost of approximately $5.6 million so that unintentional PCB production will no longer be a problem. Little is known about the cost or feasibility of eliminating PCB contamination from other chemical production processes. However, since all of these problems of PCB-contamination in the production of pigments and other chemical products will be dealt with on a case-by-case basis in exemption rulemakings, the Agency will be able to assess these economic impacts at that time.

Also, this regulation could potentially have a very costly impact on sellers of electrical equipment containing PCB Capacitors if EPA does not provide exemptions from the prohibition on disribution in commerce of PCB Equipment. These costs will be carefully considered in the separate rulemaking concerning exemptions to the July 1, 1979, distribution in commerce ban.

Several other very minor impacts which will be incurred only during 1978 have been identified. These impacts include owners of natural gas pipeline pump compressors who are expected to spend $200,000 in 1979 to remove PCB fluid from those compressors. The ban on rebuilding the approximately 200 electromagnets containing PCBs is expected to cost users $100,000 annually and have a total cost of less than $1 million.

Most of the costs discussed above result from requirements that are part of the authorizations to permit continued use of mixtures, articles and equipment containing PCBs in a manner protective of health and the environment. If these authorizations were not promulgated, the cost and economic impact on the affected industries could be considerably greater than the costs discussed above. EPA has carefully examined the costs of this rule and does not expect any severe economic or social impacts.

Dated: April 18, 1979.

Douglas M. Costle,

Administrator.

PCB Record

Official Record of Rulemaking-PCB Ban Regulations [1]

Section 19(a)(3) of TSCA defines the term "rulemaking record" for purposes of judicial review as follows:

(A) The rule being reviewed under this section;

(B) In the case of a rule under section 4(a), the finding required by such section, in the case of a rule under section 5(b)(4), the finding required by such section, in the case of a rule under section 6(a), the finding required by section 5(f) or 6(a), as the case may be, in the case of a rule under section 6(a), the statement required by section 6(c)(1), and in the case of a rule under section 6(e), the findings required by paragraph 2(B) or 3(B) of such section, as the case may be;

(C) Any transcript required to be made of oral presentations made in proceedings for the promulgation of such rule;

(D) Any written submission of interested parties respecting the promulgation of such rule; and

(E) Any other information which the Administrator considers to be relevant to such rule and which the Administrator identified, on or before the date of the promulgation of such rule, in a notice published in the Federal Register.

In accordance with the requirements of section 19(a)(3)(E) quoted above, EPA is publishing the following list of documents constituting the record of this rulemaking. This list does not include public comments, the transcript of the rulemaking hearing, or submissions made at the rulemaking hearing or in connection with it. These documents are exempt from Federal Register listing under section 19(a)(3). A full list of these materials will be available on request from the Record and Hearing Clerk.

Federal Register Notices Pertaining to This Rule

43 FR 24802, June 7, 1978. USEPA. "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Bans Proposed Regulation."

42 FR 32556, June 27, 1977. USEPA. "Polychlorinated Biphenyls: Open Public Meeting; Solicitation of Comments."

42 FR 61259, December 2, 1977. USEPA. "Procedures for Rulemaking Under Section 6 of the Toxic Substances Control Act."

42 FR 65264, December 30, 1977. USEPA. "Polychlorinated Biphenyls: Policy for Implementation of Section 6(e)(2) of the Toxic Substances Control Act (TSCA)."

43 FR 38067, August 25, 1978. USEPA. "Polychlorinated Biphenyls: Manufacturing, Processing, Distribution in Commerce, and Use Bans; Clarification."

43 FR 43048, September 22, 1978. USEPA. "Polychlorinated Biphenyls: Manufacturing, Processing, Distribution in Commerce, and Use Bans: Extention of Reply Comments."

44 FR 108, January 2, 1979. USEPA. "Polychlorinated Biphenyls: Policy for Implementation and Enforcement of Sections 6(e)(2) and 6(e)(3) of the Toxic Substances Control Act (TSCA)."

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USEPA, OTS. *"PCB Manufacturing, Processing, Distribution in Commerce and Use-Ban Regulation-Proposed Action-Support Document."/Voluntary Draft Environmental Impact Statement, Environmental Protection Agency (40 CFR Part 761).* May 1978.

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[1] The official record of rulemaking for the Polychlorinated Biphenyls Marking and Disposal Regulation (43 FR 7150, February 17, 1978) is part of the record of this rulemaking. The official record of rulemaking for the PCB ban regulation also includes the official record for the Administrator's promulgation of toxic pollutant effluent standards for PCBs under section 307(a) of the Clean Water Act (42 FR 6532-6555, February 2, 1977).

Other Information

Other "Federal Register" Notices

41 FR 7552, February 19, 1976. "Velsicol Chemical Company et al., Consolidated Heptachlor/Chlordane Hearing."

41 FR 21402, May 25, 1976. "Health Risk and Economic Impact Assessments of Suspected Carcinogens: Interim Procedures and Guidelines."

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43 FR 33918, August 2, 1978. "Addendum to Preamble and Corrections to Final Rule (PCBs)."

USEPA-Non "Federal Register" Statements

Region IV. News release in reference to fishing in Lake Hartwell and Twelve Mile Creek in Pickins County, South Carolina. Dated about September 10, 1976.

Statement of Honorable Russell E. Train, Administrator, EPA, before the Subcommittee on Fisheries and Wildlife Conservation and the Environment, Committee on Merchant Marine and Fisheries, House of Representatives, January 28, 1976.

Remarks by the Honorable Russell E. Train, Administrator, EPA prepared for delivery at the National Conference on PCBs, Chicago, Illinois, Wednesday, November 19, 1975, 10 a.m. Eastern Standard Time. Environmental Protection: *Rx for Public Health.*

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USEPA. *Transcript of Proceedings: Public Meeting on the Ban of Polychlorinated Biphenyls.* Washington, D.C., July 15, 1977.

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Statement on Retrofilling Made at Public Meeting on the Implementation of the Environmental Protection Agency's Proposed PCB Ban. July 19, 1977. Dow Corning Corp.

Presentation to Environmental Protection Agency. Public Meeting-July 19, 1977 Jov Manufacturers.

Communications

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Part 761 is revised to read as follows:

PART 761—POLYCHLORINATED BIPHENYLS (PCBs) MANUFACTURING, PROCESSING, DISTRIBUTION IN COMMERCE, AND USE PROHIBITIONS

Subpart A—General

Sec.
761.1 Applicability.
761.2 Definitions.

Subpart B—Disposal of PCBs and PCB Items

761.10 Disposal requirements.

Subpart C—Marking of PCBs and PCB Items

761.20 Marking requirement.

Subpart D—Manufacturing, Processing, Distribution in Commerce, and Use of PCBs and PCB Items

761.30 Prohibitions.
761.31 Authorizations.
761.32 [Reserved]

Subpart E—List of Annexes

Annex No. I

761.40 Incineration.

Annex No. II

761.41 Chemical waste landfills.

Annex No. III

761.42 Storage for disposal.

Annex No. IV

761.43 Decontamination.

Annex No. V

761.44 Marking formats.

Annex No. VI

761.45 Records and Monitoring.

Authority: Section 6, 8, and 12, Toxic Substances Control Act, 15 U.S.C. 2605, 2607, and 2611.

Subpart A—General

§ 761.1 Applicability.

(a) This part establishes prohibitions of, and requirements for, the manufacture, processing, distribution in commerce, use, disposal, storage, and marking of PCBs and PCB Items.

(b) This part applies to all persons who manufacture, process, distribute in commerce, use, or dispose of PCBs or PCB Items. Unless it is otherwise specifically provided, the terms PCB and PCBs are used in this rule to refer to any chemical substances and combinations of substances that contain 50 ppm (on a dry weight basis) or greater of PCBs, as defined in § 761.2(s), including any byproduct, intermediate, or impurity manufactured at any point in a process. Any chemical substances and combinations of substances that contain less than 50 ppm PCBs because of any dilution, shall be included as PCB and PCBs unless otherwise specifically provided. Substances that are regulated by this rule include, but are not limited to, dielectric fluids, contaminated solvents, oils, waste oils, heat transfer fluids, hydraulic fluids, paints, sludges, slurries, dredge spoils, soils, materials contaminated as a result of spills, and other chemical substances or combination of substances, including impurities and byproducts.

(c) Definitions of the terms used in these regulations are in Subpart A. The basic requirements applicable to disposal and marking of PCBs and PCB Items are set forth in Subpart B—Disposal of PCBs and PCB Items and in Subpart C—Marking of PCBs and PCB Items. Prohibitions applicable to PCB activities are set forth in Subpart D—Manufacture, Processing, Distribution in Commerce, and Use of PCBs and PCB Items. Subpart D also includes authorizations from the prohibitions. The Annexes in Subpart E set forth the specific requirements for disposal and marking of PCBs and PCB Items.

(d) Section 15 of the Toxic Substances Control Act (TSCA) states that failure to comply with these regulations is unlawful. Section 16 imposes liability for civil penalties upon any person who violates these regulations, and the Administrator can establish appropriate remedies for any violations subject to any limitations included in § 16 of TSCA. Section 16 also subjects a person to criminal prosecution for a violation which is knowing or willful. In addition, § 17 authorizes Federal district courts to enjoin activities prohibited by these regulations, compel the taking of actions required by these regulations, and issue orders to seize PCBs and PCB Items manufactured, processed or distributed in violation of these regulations.

(e) These regulations do not preempt other more stringent Federal statutes and regulations.

§ 761.2 Definitions.

For the purpose of this part:

(a) "Administrator" means the Administrator of the Environmental Protection Agency, or any employee of the Agency to whom the Administrator may either herein or by order delegate his authority to carry out his functions, or any person who shall by operation of law be authorized to carry out such functions.

(b) "Agency" means the United States Environmental Protection Agency.

(c) "Byproduct" means a chemical substance produced without separate commercial intent during the manufacturing or processing of another chemical substance(s) or mixture(s).

(d) "Capacitor" means a device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by a dielectric. Types of capacitors are as follows:

(1) "Small Capacitor" means a capacitor which contains less than 1.36 kg (3 lbs.) of dielectric fluid.

(2) "Large High Voltage Capacitor" means a capacitor which contains 1.36 kg (3 lbs.) or more of dielectic fluid and which operates at 2000 volts a.c. or above.

(3) "Large Low Voltage Capacitor" means a capacitor which contains 1.36 kg (3 lbs.) or more of dielectric fluid and which operates below 2000 volts a.c.

(e)(1) "Chemical Substance", except as provided in subparagraph (2) of this paragraph, means any organic or inorganic substance of a particular molecular identity, including:

(i) Any combination of such substances occurring in whole or part as a result of a chemical reaction or occurring in nature, and

(ii) Any element or uncombined radical.

(2) Such term does not include:

(i) Any mixture,

(ii) Any pesticide (as defined in the Federal Insecticide, Fungicide, and Rodenticide Act) when manufactured, processed, or distributed in commerce for use as a pesticide,

(iii) Tobacco or any tobacco product,

(iv) Any source material, special nuclear material, or by product material (as such terms are defined in the Atomic Energy Act of 1954 and regulations issued under such Act),

(v) Any article the sale of which is subject to the tax imposed by section 4181 of the Internal Revenue Code of 1954 (determined without regard to any exemptions from such tax provided by section 4182 or section 4221 or any provisions of such Code), and

(vi) Any food, food additive, drug, cosmetic, or device (as such terms are defined in section 201 of the Federal Food, Drug, and Cosmetic Act) when manufactured, processed, or distributed in commerce for use as a food, food additive, drug, cosmetic, or device.

(f) "Chemical Waste Landfill" means a landfill at which protection against risk of injury to health or the environment from migration of PCBs to land, water, or the atmosphere is provided from PCBs and PCB Items deposited therein by locating, engineering, and operating the landfill as specified in § 761.41.

(g) "Commerce" means trade, traffic, transportation, or other commerce:

(1) Between a place in a State and any place outside of such State, or

(2) Which affects trade, traffic, transportation, or commerce described in subparagraph (1) of this paragraph.

(h) "Disposal" means to intentionally or accidentally discard, throw away, or otherwise complete or terminate the useful life of PCBs and PCB Items. Disposal includes actions related to

containing, transporting, destroying, degrading, decontaminating, or confining PCBs and PCB Items.

(i) "Distribute in Commerce" and "Distribution in Commerce" when used to describe an action taken with respect to a chemical substance, mixture, or article containing a substance or mixture means to sell, or the sale of, the substance, mixture, or article in commerce; to introduce or deliver for introduction into commerce, or the introduction or delivery for introduction into commerce of the substance, mixture, or article; or to hold or the holding of, the substance, mixture, or article after its introduction into commerce.

(j) "Fluorescent Light Ballast" means a device that electrically controls fluorescent light fixtures and that includes a capacitor containing 0.1 kg or less of dielectic.

(k) "Impurity" means a chemical substance which is unintentionally present with another chemical substance.

(l) "Incinerator" means an engineered device using controlled flame combustion to thermally degrade PCBs and PCB Items. Examples of devices used for incineration include rotary kilns, liquid injection incinerators, cement kilns, and high temperature boilers.

(m) "Leak" or "leaking" means any instance in which a PCB Article, PCB Container, or PCB Equipment has any PCBs on any portion of its external surface.

(n) "Manufacture" means to produce, manufacture, or import into the customs territory of the United States.

(o) "Mark" means the descriptive name, instructions, cautions, or other information applied to PCBs and PCB Items, or other objects subject to these regulations.

(p) "Marked" means the marking of PCB Items and PCB storage areas and transport vehicles by means of applying a legible mark by painting, fixation of an adhesive label, or by any other method that meets the requirements of these regulations.

(q) "Mixture" means any combination of two or more chemical substances if the combination does not occur in nature and is not, in whole or in part, the result of a chemical reaction; except that such term does include any combination which occurs, in whole or in part, as a result of a chemical reaction if none of the chemical substances comprising the combination is a new chemical substance and if the combination could have been manufactured for commercial purposes without a chemical reaction at the time the chemical substances comprising the combination were combined.

(r) "Municipal Solid Wastes" means garbage, refuse, sludges, wastes, and other discarded materials resulting from residential and non-industrial operations and activities, such as household activities, office functions, and commercial housekeeping wastes.

(s) "PCB" and "PCBs" means any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substance. (See § 761.1(b) Applicability for applicable concentrations of PCBs). PCB and PCBs as contained in PCB Items are defined in § 761.2(x).

(t) "PCB Article" means any manufactured article, other than a PCB Container that contains PCBs and whose surface(s) has been in direct contact with PCBs. "PCB Article" includes capacitors, transformers, electric motors, pumps, pipes and any other manufactured item (1) which is formed to a specific shape or design during manufacture, (2) which has end use function(s) dependent in whole or in part upon its shape or design during end use, and (3) which has either no change of chemical composition during its end use or only those changes of composition which have no commercial purpose separate from that of the PCB Article.

(u) "PCB Article Container" means any package, can, bottle, bag, barrel, drum, tank or other device used to contain PCB Articles or PCB Equipment, and whose surface(s) has not been in direct contact with PCBs.

(v) "PCB Container" means any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB Articles and whose surface(s) has been in direct contact with PCBs.

(w) "PCB Equipment" means any manufactured item, other than a PCB Container or a PCB Article Container, which contains a PCB Article or other PCB Equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures.

(x) "PCB Item" is defined as any PCB Article, PCB Article Container, PCB Container, or PCB Equipment, that deliberately or unintentionally contains or has as a part of it any PCB or PCBs at a concentration of 50 ppm or greater.

(y) "PCB Transformer" means any transformer that contains 500 ppm PCB or greater.

(z) "PCB-Contaminated Transformer" means any transformer that contains 50 ppm or greater of PCB but less than 500 ppm PCB (See § 761.31(a)(5) for provisions permitting reclassifying PCB Transformers to PCB-Contaminated Transformers).

(aa) "Person" means any natural or judicial person including any individual, corporation, partnership, or association; any State or political subdivision thereof; any interstate body; and any department, agency, or instrumentality of the Federal Government.

(bb) "Process" means the preparation of a chemical substance or mixture, after its manufacture, for distribution in commerce:

(1) In the same form or physical state as, or in a different form or physical state from, that in which it was received by the person so preparing such substance or mixture, or

(2) As part of an article containing the chemical substance or mixture.

(cc) "Sale for Purposes Other than Resale" means sale of PCBs for purposes of disposal and for purposes of use, except where use involves sale for distribution in commerce. PCB Equipment which is first leased for purposes of use any time before July 1, 1979, will be considered sold for purposes other than resale.

(dd) "Significant Exposure" means any exposure of human beings or the environment to PCBs as measured or detected by any scientifically acceptable analytical method.

(ee) "Small Quantities for Research and Development" means any quantity of PCBs (1) that is originally packaged in one or more hermetically sealed containers of a volume of no more than five (5.0) milliliters, and (2) that is used only for purposes of scientific experimentation or analysis, or chemical research on, or analysis of, PCBs, but not for research or analysis for the development of a PCB product.

(ff) "Storage for Disposal" means temporary storage of PCBs that have been designated for disposal.

(gg) "Transport Vehicle" means a motor vehicle or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (e.g., trailer, railroad freight car) is a separate transport vehicle.

(hh) "Totally Enclosed Manner" means any manner that will ensure that any exposure of human beings or the environment to any concentration of PCBs will be insignificant; that is, not measurable or detectable by any scientifically acceptable analytical method.

(ii) "Waste Oil" means used products primarily derived from petroleum, which include, but are not limited to, fuel oils,

motor oils, gear oils, cutting oils, transmission fluids, hydraulic fluids, and dielectric fluids.

Subpart B—Disposal of PCBs and PCB Items

Note.—This Subpart does not require removal of PCBs and PCB Items from service and disposal earlier than would normally be the case. However, when PCBs and PCB Items are removed from service and disposed of, disposal must be undertaken in accordance with these regulations. PCBs (including soils and debris) and PCB Items which have been placed in a disposal site are considered to be "in service" for purposes of the applicability of this Subpart. This Subpart does not require PCBs and PCB Items landfilled prior to February 17, 1978 to be removed for disposal. However, if such PCBs or PCB Items are removed from the disposal site, they must be disposed of in accordance with this Subpart. Other Subparts are directed to the manufacture, processing, distribution in commerce, and use of PCBs and may result in some cases in disposal at an earlier date than would otherwise occur.

§ 761.10 Disposal requirements.

(a) *PCBs.* (1) Except as provided in subparagraphs (2), (3), (4), and (5) of this paragraph, PCBs must be disposed of in an incinerator which complies with Annex I.

(2) Mineral oil dielectric fluid from PCB-Contaminated Transformers containing a PCB concentration of 50 ppm or greater, but less than 500 ppm, must be disposed of in one of the following:

(i) In an incinerator that complies with Annex I § 761.40;

(ii) In a chemical waste landfill that complies with Annex II § 761.41 if information is provided to the owner or operator of the chemical waste landfill that shows that the mineral oil dielectric fluid does not exceed 500 ppm PCB and is not an ignitable waste as described in § 761.41 (b) (8) (iii) of Annex II;

(iii) In a high efficiency boiler provided that:

(A) The boiler complies with the following criteria:

(*1*) The boiler is rated at a minimum of 50 million BTU hours;

(*2*) If the boiler uses natural gas or oil as the primary fuel, the carbon monoxide concentration in the stack is 50 ppm or less and the excess oxygen is at least three (3) percent when PCBs are being burned;

(*3*) If the boiler uses coal as the primary fuel, the carbon monoxide concentration in the stack is 100 ppm or less and the excess oxygen is at least three (3) percent when PCBs are being burned;

(*4*) The mineral oil dielectric fluid does not comprise more than ten (10) percent (on a volume basis) of the total fuel feed rate;

(*5*) The mineral oil dielectric fluid is not fed into the boiler unless the boiler is operating at its normal operating temperature (this prohibits feeding these fluids during either start up or shut down operations);

(*6*) The owner or operator of the boiler:

(*i*) Continuously monitors and records the carbon monoxide concentration and excess oxygen percentage in the stack gas while burning mineral oil dielectric fluid; or

(*ii*) If the boiler will burn less than 30,000 gallons of mineral oil dielectric fluid per year, measures and records the carbon monoxide concentration and excess oxygen percentage in the stack gas at regular intervals of no longer than 60 minutes while burning mineral oil dielectric fluid.

(*7*) The primary fuel feed rates, mineral oil dielectric fluid feed rates, and total quantities of both primary fuel and mineral oil dielectric fluid fed to the boiler are measured and recorded at regular intervals of no longer than 15 minutes while burning mineral oil dielectric fluid.

(*8*) The carbon monoxide concentration and the excess oxygen percentage are checked at least once every hour that mineral oil dielectric fluid is burned. If either measurement falls below the levels specified in this rule, the flow of mineral oil dielectric fluid to the boiler shall be stopped immediately.

(*B*) Thirty days before any person burns mineral oil dielectric fluid in the boiler, the person gives written notice to the EPA Regional Administrator for the EPA Region in which the boiler is located and that the notice contains the following information:

(*1*) The name and address of the owner or operator of the boiler and the address of the boiler;

(*2*) The boiler rating in units of BTU/hour;

(*3*) The carbon monoxide concentration and the excess oxygen percentage in the stack of the boiler when it is operated in a manner similar to the manner in which it will be operated when mineral oil dielectric fluid is burned; and

(*4*) The type of equipment, apparatus, and procedures to be used to control the feed of mineral oil dielectric fluid to the boiler and to monitor and record the carbon monoxide concentration and excess oxygen percentage in the stack.

(C) When burning mineral oil dielectric fluid, the boiler must operate at a level of output no less than the output at which the measurements required under subparagraph (B)(*3*) were taken.

(*D*) Any person burning mineral oil dielectric fluid in a boiler obtains the following information and retains the information for five years at the boiler location:

(*1*) The data required to be collected under subparagraphs (A)(*6*) and (A)(*7*) of this paragraph; and

(*2*) The quantity of mineral oil dielectric fluid burned in the boiler each month;

(iv) In a facility that is approved in accordance with § 761.10(e). For the purpose of burning mineral oil dielectric fluid, an applicant under § 761.10(e) must show that his combustion process destroys PCBs as efficiently as does a high efficiency boiler, as defined in subparagraph (iii), or an Annex I approved incinerator.

(3) Liquids, other than mineral oil dielectric fluid, containing a PCB concentration of 50 ppm or greater, but less than 500 ppm, shall be disposed of:

(i) In an incinerator which complies with Annex I;

(*ii*) In a chemical waste landfill which complies with Annex II if information is provided to the owner or operator of the chemical waste landfill that shows that the waste does not exceed 500 ppm PCB and is not an ignitable waste as described in § 761.41(b)(8)(iii) of Annex II.

(iii) In a high efficiency boiler provided that:

(A) The boiler complies with the following criteria:

(*1*) The boiler is rated at a minimum of 50 million BTU/hour;

(*2*) If the boiler uses natural gas or oil as the primary fuel, the carbon monoxide concentration in the stack is 50 ppm or less and the excess oxygen is at least three (3) percent when PCBs are being burned;

(*3*) If the boiler uses coal as the primary fuel, the carbon monoxide concentration in the stack is 100 ppm or less and the excess oxygen is at least three (3) percent when PCBs are being burned;

(*4*) The waste does not comprise more than ten (10) percent (on a volume basis) of the total fuel feed rate;

(*5*) The waste is not fed into the boiler unless the boiler is operating at its normal operating temperature (this prohibits feeding these fluids during either start up or shut down operations);

(*6*) The owner or operator of the boiler must:

(*i*) Continuously monitor and record the carbon monoxide concentration and excess oxygen percentage in the stack gas while burning waste fluid; or

(*ii*) If the boiler will burn less than 30,000 gallons of waste fluid per year, measure and record the carbon monoxide concentration and excess oxygen percentage in the stack gas at regular intervals of no longer than 60 minutes while burning waste fluid;

(*7*) The primary fuel feed rate, waste fluid feed rate, and total quantities of both primary fuel and waste fluid fed to the boiler must be measured and recorded at regular intervals of no longer than 15 minutes while burning waste fluid; and

(*8*) The carbon monoxide concentration and the excess oxygen percentage must be checked at least once every hour that the waste is burned. If either measurement falls below the levels specified in this rule, the flow of waste to the boiler shall be stopped immediately.

(B) Prior to any person burning these liquids in the boiler, approval must be obtained from the EPA Regional Administrator for the EPA Region in which the boiler is located and any persons seeking such approval must submit to the EPA Regional Administrator a request containing at least the following information:

(*1*) The name and address of the owner or operator of the boiler and the address of the boiler;

(*2*) The boiler rating in units of BTU/hour;

(*3*) The carbon monoxide concentration and the excess oxygen percentage in the stack of the boiler when it is operated in a manner similar to the manner in which it will be operated when low concentration PCB liquid is burned;

(*4*) The type of equipment, apparatus, and procedures to be used to control the feed of mineral oil dielectric fluid to the boiler and to monitor and record the carbon monoxide concentration and excess oxygen percentage in the stack;

(*5*) The type of waste to be burned (e.g., hydraulic fluid, contaminated fuel oil, heat transfer fluid, etc.);

(*6*) The concentration of PCBs and of any other chlorinated hydrocarbon in the waste and the results of analyses using the American Society of Testing and Materials (ASTM) methods as referenced below: carbon and hydrogen content using ASTM D-3178, nitrogen content using ASTM E-258, sulfur content using ASTM D-2784, D-1266, or D-129, chlorine content using ASTM D-808, water and sediment content using either ASTM D-2709 or D-1796, ash content using D-482, calorific value using ASTM D-240, carbon residue using either ASTM D-2158 or D-524, and flash point using ASTM D-93;

(*7*) The quantity of wastes estimated to be burned in a thirty (30) day period;

(*8*) An explanation of the procedures to be followed to insure that burning the waste will not adversely affect the operation of the boiler such that combustion efficiency will decrease.

(C) On the basis of the information in (B) above and any other available information, the Regional Administrator may, at his discretion, find that the alternate disposal method will not present an unreasonable risk of injury to health or the environment and approve the use of the boiler;

(D) When burning PCB wastes, the boiler must operate at a level of output no less than the output at which the measurements required under subparagraph (B)(*3*) were taken; and

(E) Any person burning liquids in boilers approved as provided in (C) above, must obtain the following information and retain the information for five years at the boiler location:

(*1*) The data required to be collected in subparagraphs (A)(*6*) and (A)(*7*) of this paragraph;

(*2*) The quantity of low concentration PCB liquid burned in the boiler each month.

(*3*) The analysis of the waste required by subparagraph (B)(*6*) of this paragraph taken once a month for each month during which low concentration PCB liquid is burned in the boiler.

(iv) In a facility that is approved in accordance with § 761.10(*e*). For the purpose of burning liquids, other than mineral oil dielectric fluid, containing 50 ppm or greater PCB, but less than 500 ppm PCB, an applicant under § 761.10(e) must show that his combustion process destroys PCBs as efficiently as does a high efficiency boiler, as defined in § 761.10(a)(2)(iii), or an Annex *I* incinerator.

(4) Any non-liquid PCBs in the form of contaminated soil, rags, or other debris shall be disposed of:

(i) In an incinerator which complies with Annex I; or

(ii) In a chemical waste landfill which complies with Annex II.

Note: Except as provided in § 761.41(b)(8)(ii), liquid PCBs shall not be processed into non-liquid forms to circumvent the high temperature incineration requirements of § 761.10(a).

(5) All dredged materials and municipal sewage treatment sludges that contain PCBs shall be disposed of:

(i) In an incinerator which complies with Annex I;

(ii) In a chemical waste landfill which complies with Annex II; or

(iii) Upon application, using a disposal method to be approved by the Agency's Regional Administrator in the EPA Region in which the PCBs are located. Applications for disposal in a manner other than prescribed in (i) or (ii) above must be made in writing to the Regional Administrator. The application must contain information that, based on technical, environmental, and economic considerations, indicates that disposal in an incinerator or chemical waste landfill is not reasonable and appropriate, and that the alternate disposal method will provide adequate protection to health and the environment. The Regional Administrator may request other information that he or she believes to be necessary for evaluation of the alternate disposal method. Any approval by the Regional Administrator shall be in writing and may contain any appropriate limitations on the approved alternate method for disposal. In addition to these regulations, the Regional Administrator shall consider other applicable Agency guidelines, criteria, and regulations to ensure that the discharges of dredged material and sludges that contain PCBs and other contaminants are adequately controlled to protect the environment. The person to whom such approval is issued must comply with all limitations contained in the approval.

(6) When storage is desired prior to disposal, PCBs shall be stored in a facility which complies with Annex III.

(b) *PCB Articles.* (1) Transformers.

(i) PCB Transformers shall be disposed of in accordance with either of the following:

(A) In an incinerator that complies with Annex I; or

(B) In a chemical waste landfill which complies with Annex II; provided that the transformer is first drained of all free flowing liquid, filled with solvent, allowed to stand for at least 18 hours, and then drained thoroughly. PCB liquids that are removed shall be disposed of in accordance with paragraph (a) of this section. Solvents may include kerosene, xylene, toluene and other solvents in which PCBs are readily soluble. Precautionary measures should be taken, however, that the solvent flushing procedure is conducted in accordance with applicable safety and health standards as required by Federal or State regulations.

(ii) PCB-Contaminated Transformers shall be disposed of by draining all free flowing liquid from the transformer and disposing of the liquid in accordance

with paragraphs (a)(2) above. The disposal of the drained transformer is not regulated by this rule.

(2) PCB Capacitors. (i) The disposal of any capacitor normally used in alternating current circuits shall comply with all requirements of this subpart unless it is known from label or nameplate information, manufacturer's literature, or chemical analysis that the capacitor does not contain PCBs.

(ii) Any person may dispose of PCB Small Capacitors as municipal solid waste, unless that person is subject to the requirements of subparagraph (iv).

(iii) Any PCB Large High or Low Voltage Capacitor owned by any person shall be disposed of in accordance with either of the following:

(A) Disposal in an incinerator that complies with Annex I; or

(B) Until January 1, 1980, disposal in a chemical waste landfill that complies with Annex II.

(iv) Any PCB Small Capacitor owned by any person who manufactures or at any time manufactured PCB Capacitors or PCB Equipment and acquired the PCB Capacitors in the course of such manufacturing shall be disposed of in accordance with either of the following:

(A) Disposal in an incinerator which complies with Annex I; or

(B) Until January 1, 1980, disposal in a chemical waste landfill which complies with Annex II.

(3) PCB Hydraulic Machines. PCB hydraulic machines such as die casting machines may be disposed of as municipal solid waste or salvage provided that the machines are drained of all free-flowing liquid and the liquid is disposed of in accordance with the provisions of § 761.10(a). If the PCB liquid contains 1000 ppm PCB or greater, then the hydraulic machine must be flushed prior to disposal with a solvent containing less than 50 ppm PCB (see transformer solvents at § 761.10(b)(1)(i)(B)) and the solvent disposed of in accordance with § 761.10(a).

(4) Other PCB Articles must be disposed of:

(i) In an incinerator that complies with Annex I; or

(ii) In a chemical waste landfill that complies with Annex II, provided that all free-flowing liquid PCBs have been thoroughly drained from any articles before the articles are placed in the chemical waste landfill and that the drained liquids are disposed of in an incinerator that complies with Annex I.

(5) Storage of PCB Articles—Except for a PCB Article described in subparagraph (b)(2)(ii) and hydraulic machines that comply with the municipal solid waste disposal provisions described in subparagraph (b)(3), any PCB Article shall be stored in accordance with Annex III prior to disposal.

(c) *PCB Containers.* (1) Unless decontaminated in compliance with Annex IV or as provided in (2) below, a PCB Container shall be disposed of:

(i) In an incinerator which complies with Annex I, or

(ii) In a chemical waste landfill that complies with Annex II; provided that if there are PCBs in a liquid state, the PCB Container shall first be drained and the PCB liquid disposed of in accordance with paragraph (a) of this section.

(2) Any PCB Container used to contain only PCBs at a concentration less than 500 ppm shall be disposed of as municipal solid wastes; provided that if the PCBs are in a liquid state, the PCB Container shall first be drained and the PCB liquid shall be disposed of in accordance with paragraph (a) of this section.

(3) Prior to disposal, a PCB container shall be stored in a facility which complies with Annex III.

(d) *Spills.* (1) Spills and other uncontrolled discharges of PCBs constitute the disposal of PCBs.

(2) PCBs resulting from spill clean-up and removal operations shall be stored and disposed of in accordance with paragraph (a) of this section. In order to determine if a spill of PCBs has resulted in a contamination level that is 50 ppm of PCBs or greater in soil, gravel, sludge, fill, rubble, or other land based substances, the person who spills PCBs should consult with the appropriate EPA Regional Administrator to obtain information on sampling methods and analytical procedures for determining the PCB contamination level associated with the spill.

(3) This paragraph does not exempt any person from any actions or liability under other statutory authorities, including section 311 of the Clean Water Act and the Resource Conservation and Recovery Act.

(e) Any person who is required to incinerate any PCBs and PCB Items under this subpart and who can demonstrate that an alternative method of destroying PCBs and PCB Items exists and that this alternative method can achieve a level of performance equivalent to Annex I incinerators or high efficiency boilers as provided in § 761.10(a)(2)(iv) and § 761.10(a)(3)(iv), may submit a written request to the Regional Administrator for an exemption from the incineration requirements of Annex I. The applicant must show that his method of destroying PCBs will not present an unreasonable risk of injury to health or the environment. On the basis of such information and any available information, the Regional Administrator may, in his discretion, approve the use of the alternate if he finds that the alternate disposal method provides PCB destruction equivalent to disposal in an Annex I incinerator and will not present an unreasonable risk of injury to health or the environment. Any approval must be stated in writing and may contain such conditions and provisions as the Regional Administrator deems appropriate. The person to whom such waiver is issued must comply with all limitations contained in such determination.

(f)(1) Each operator of a chemical waste landfill, incinerator, or alternative to incineration approved under paragraph (e) shall give the following written notices to the state and local governments within whose jurisdiction the disposal facility is located:

(i) Notice at least thirty (30) days before a facility is first used for disposal of PCBs required by these regulations; and

(ii) At the request of any state or local government, annual notice of the quantities and general description of PCBs disposed of during the year. This annual notice shall be given no more than thirty (30) days after the end of the year covered.

(2) Any person who disposes of PCBs under a §761.10(a)(5)(iii) incineration or chemical waste landfilling waiver shall give written notice at least thirty (30) days prior to conducting the disposal activities to the state and local governments within whose jurisdiction the disposal is to take place.

(g) *Testing Procedures.*

(1) Owners or users of mineral oil dielectric fluid transformers may use the following procedures to determine the concentration of PCBs in the dielectric fluid:

(i) Dielectric fluid removed from mineral oil dielectric fluid transformers may be collected in a common container, provided that no other chemical substances or mixtures are added to the container.

(ii) For purposes of complying with the marking and disposal requirements, representative samples may be taken from either the common containers or the individual transformers to determine the PCB concentration, *except that* if any PCBs at a concentration of 500 ppm or greater have been added to the container then the total container contents must be considered as having a PCB concentration of 500 ppm or greater

for purposes of complying with the disposal requirements of this subpart. For purposes of this subparagraph, representative samples of mineral oil dielectric fluid are either samples taken in accordance with American Society of Testing and Materials method D-923 or samples taken from a container that has been thoroughly mixed in a manner such that any PCBs in the container are uniformly distributed throughout the liquid in the container.

(2) Owners or users of waste oil may use the following procedures to determine the PCB concentration of waste oil:

(i) Waste oil from more than one source may be collected in a common container, provided that no other chemical substances or mixtures, such as non-waste oils, are added to the container.

(ii) For purposes of complying with the marking and disposal requirements, representative samples may be taken from either the common container or individual containers to determine the PCB concentration *except that* if any PCBs at a concentration of 500 pm or greater have been added to the container then the total container contents must be considered as having a PCB concentration of 500 ppm or greater for purposes of complying with the disposal requirements of this subpart. For purposes of this subparagraph, representative samples of waste oil are either samples taken in accordance with American Society of Testing and Materials D-923 method or samples taken from a container that has been thoroughly mixed in a manner such that any PCBs in the container are uniformly distributed throughout the liquid in the container.

(h) Requirements for export and import of PCBs for purposes of disposal and PCB Items for purposes of disposal are found in § 761.30.

Subpart C—Marking of PCBs and PCB Items

§ 761.20 Marking requirements.

(a) Each of the following items in existence on or after July 1, 1978 shall be marked as illustrated in Figure 1 in Annex V—§ 761.44(a): The mark illustrated in Figure 1 is referred to as M_L throughout this subpart.

(1) PCB Containers;

(2) PCB Transformers at the time of manufacture, at the time of distribution in commerce if not already marked, and at the time of removal from use if not already marked. [Marking of PCB—Contaminated Transformers is not required];

(3) PCB Large High Voltage Capacitors at the time of manufacture, at the time of distribution in commerce if not already marked, and at the time of removal from use if not already marked;

(4) Equipment containing a PCB Transformer or a PCB Large High Voltage Capacitor at the time of manufacture, at the time of distribution in commerce if not already marked, and at the time of removal of the equipment from use if not already marked;

(5) PCB Large Low Voltage Capacitors at the time of removal from use;

(6) Electric motors using PCB coolants (See also § 761.20(e)).

(7) Hydraulic systems using PCB hydraulic fluid (See also § 761.20(e));

(8) Heat transfer systems (other than PCB Transformers) using PCBs (See also § 761.20(e));

(9) PCB Article Containers containing articles or equipment that must be marked under provisions (1) through (8) above;

(10) Each storage area used to store PCBs and PCB Items for disposal.

(b) As of October 1, 1978, each transport vehicle shall be marked on each end and side with M_L as described in Annex V—§ 761.44(a) if it is loaded with PCB Containers that contain more than 45 kg (99.4 lbs.) of PCBs in the liquid phase or with one or more PCB Transformers (See also § 761.20(e)).

(c) As of January 1, 1979, the following PCB Articles shall be marked with mark M_L as described in Annex V—§ 761.44(a):

(1) All PCB Transformers not marked under paragraph (a) of this section (Marking of PCB-Contaminated Transformers is not required);

(2) All PCB Large High Voltage Capacitors not marked under paragraph (a) of this section

(i) Will be marked individually with mark M_L, or

(ii) If one or more PCB Large High Voltage Capacitors are installed in a protected location such as on a power pole, or structure, or behind a fence; the pole, structure, or fence shall be marked with mark M_L, and a record or procedure identifying the PCB Capacitors shall be maintained by the owner or operator at the protected location.

(d) As of January 1, 1979, all PCB Equipment containing a PCB Small Capacitor shall be marked at the time of manufacture with the statement, "This equipment contains PCB Capacitor(s)". The mark shall be of the same size as the mark M_L.

(e) As of October 1, 1979, applicable PCB Items in paragraphs (a)(1), (6), (7), and (8) containing PCBs in concentrations of 50 to 500 ppm and applicable transport vehicles in paragraph (b) loaded with PCB Containers that contain more than 45 kg (99.4 lbs.) of liquid PCBs in concentrations of 50 ppm to 500 ppm shall be marked with mark M_L as described in Annex V—§ 761.44(a).

(f) Where mark M_L is specified but the PCB Article or PCB Equipment is too small to accomodate the smallest permissible size of mark M_L, mark M_S as described in Annex V—§ 761.44(b), may be used instead of mark M_L.

(g) Each large low voltage capacitor, each small capacitor normally used in alternating current circuits, and each fluorescent light ballast manufactured ("manufactured", for purposes of this sentence, means built) between July 1, 1978 and July 1, 1998 that do not contain PCBs shall be marked by the manufacturer at the time of manufacture with the statement, "No PCBs". The mark shall be of similar durability and readability as other marking that indicate electrical information, part numbers, or the manufacturer's name. For purposes of this subparagraph marking requirement only is applicable to items built domestically or abroad after June 30, 1978.

(h) All marks required by this subpart must be placed in a position on the exterior of the PCB Items or transport vehicles so that the marks can be easily read by any persons inspecting or servicing the marked PCB Items or transport vehicles.

(i) Any chemical substance or mixture that is manufactured after the effective date of this rule and that contains less than 500 ppm PCB (0.05% on a dry weight basis), including PCB that is a byproduct or impurity, must be marked in accordance with any requirements contained in the exemption granted by EPA to permit such manufacture and is not subject to any other requirement in this Subpart unless so specified in the exemption. This paragraph applies only to containers of chemical substances or mixtures, PCB articles and equipment into which the chemical substances or mixtures are processed, are subject to the marking requirements contained elsewhere in this Subpart.

Subpart D—Manufacturing, Processing, Distribution in Commerce, and Use of PCBs and PCB Items

§ 761.30 Prohibitions.

Except as authorized in § 761.31, the activities listed in paragraphs (a) and (d) of this section are prohibited pursuant to section 6(e)(2) of TSCA. The requirements set forth in paragraphs (b)

and (c) of this section concerning export and import of PCBs for purposes of disposal and PCB Items for purposes of disposal are established pursuant to section 6(e)(1) of TSCA. Subject to any exemptions granted pursuant to section 6(e)(3)(B) of TSCA, the activities listed in paragraphs (b) and (c) of this section are prohibited pursuant to section 6(e)(3)(A) of TSCA. In addition, the Administrator hereby finds, under the authority of section 12(a)(2) of TSCA, that the manufacture, processing, and distribution in commerce of PCBs and PCB Items for export from the United States presents an unreasonable risk of injury to health within the United States. This finding is based upon the well-documented human health and environmental hazard of PCB exposure; the high probability of human and environmental exposure to PCBs and PCB Items from manufacturing, processing, or distribution activities; the potential hazard of PCB exposure posed by the transportation of PCBs or PCB Items within the United States; and the evidence that contamination of the environment by PCBs is spread far beyond the areas where they are used. In addition, the Administrator hereby finds that any exposure of human beings or the environment to PCBs as measured or detected by any scientifically acceptable analytical method is a significant exposure, as defined in § 761.2(dd). Section 761.2(hh) and TSCA section 6(e)(2)(C) define the term totally enclosed manner as "any manner which will ensure that any exposure of human beings or the environment to a polychlorinated biphenyl will be insignificant. . . ." Since any exposure to PCBs is found to be a significant exposure, a totally enclosed manner is a manner that results in no exposure of humans or the environment to PCBs. The following activities are considered totally enclosed: distribution in commerce and use (except servicing) of intact, non-leaking PCB Transformers or PCB-Contaminated Transformers (except those used in railroad locomotives or self-propelled cars); distribution in commerce and use (except servicing) of intact, non-leaking PCB electromagnets; distribution in commerce and use of intact, non-leaking PCB Capacitors; and processing, distribution in commerce, and use of PCB Equipment containing an intact, non-leaking PCB Capacitor.

(a) No person may process, distribute in commerce, or use any PCB or PCB Item in any manner other than in a totally enclosed manner within the United States or export any such PCB or PCB Item from the United States unless authorized under § 761.31 of this Subpart. Section 761.30(a) is superseded by § 761.30(c) for processing and distribution in commerce of PCBs and PCB Items on the dates when that section becomes effective.

(b) No person may manufacture PCBs for use within the United States or manufacture PCBs for export from the United States without an exemption except that:

(1) PCBs or PCB Items may be imported for purposes of disposal until May 1, 1980, provided that the disposal is in accordance with § 761.10; and

(2) PCBs or PCB Items may be exported for disposal until May 1, 1980, in accordance with the requirements of § 761.30(c)(3).

(c) Effective July 1, 1979, no person may process or distribute in commerce any PCB or PCB Item for use within the United States or for export from the United States without an exemption except that:

(1) PCBs or PCB Items sold before July 1, 1979, for purposes other than resale may be distributed in commerce only in a totally enclosed manner after that date;

(2) PCBs or PCB Items may be processed and distributed in commerce in compliance with the requirements of this Part for purposes of disposal in accordance with the requirements of § 761.10;

(3) PCBs or PCB Items may be exported for disposal until May 1, 1980, if an export notice is submitted at least thirty (30) days before the first shipment in any calendar year leaves the customs territory of the United States. Export notices must be submitted to the Document Control Officer (TS-793), Office of Toxic Substances, U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460. The generator of the PCB waste material intended for disposal, or an agent acting on his behalf, must certify to the best of his knowledge and belief that the information is complete and accurate. Each notice should contain the following information:

(i) Name, company name, address, and telephone number of the owner of the PCB waste material to be exported and the name and address of any person or agent acting on his behalf;

(ii) Estimated quantity of wastes to be shipped during the calendar year and the estimated number of shipments to be made and the dates when such shipments are expected to leave the customs territory of the United States;

(iii) Description of the PCBs or PCB Items being exported;

(iv) Country(s) of destination for the shipments;

(v) Name and address of facility(s) receiving the shipment and person(s) responsible for receiving the shipment(s).

(vi) Method(s) of disposal and precautions taken to control release into the environment.

(vii) No less than 30 days after the end of each calendar quarter (March 31, June 30, September 30, and December 31) during which PCBs were exported for disposal, each person exporting the PCBs must submit a report to the Document Control Officer (TS-793), Office of Toxic Substances, U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460. The report shall list the quantity of PCB wastes in each shipment made during the quarter and include the date when each shipment left the customs territory of the United States and the information specified in subparagraphs (i) and (iii) through (vi) above. If the quantity of wastes shipped during the calendar year exceeds by 25 percent or more the estimated quantities reported in (ii) above, a special export notice must be submitted to the Document Control Officer (TS-793) at the address given in paragraph (3) at least 30 days before any additional shipments leave the customs territory of the United States and the notice shall include the information specified in subparagraphs (i) through (vi) above.

(viii) Any person expecting to export PCB wastes for disposal in calendar year 1980 must submit an export notice at least thirty (30) days before the first shipment leaves the customs territory of the United States to the Document Control Officer (TS-793) at the address given in paragraph (3), and the notice shall contain the information listed in subparagraphs (i) through (vi).

(d) The use of waste oil that contains any detectable concentration of PCB as a sealant, coating, or dust control agent is prohibited. Prohibited uses include, but are not limited to, road oiling, general dust control, use as a pesticide or herbicide carrier, and use as a rust preventative on pipes.

§ 761.31 Authorizations.

The following non-totally enclosed PCB activities are authorized pursuant to § 6(e)(2)(B) of TSCA:

(a) *Servicing Transformers (Other Than Railroad Transformers).* PCBs may be processed, distributed in commerce, and used for the purposes of servicing including rebuilding transformers (other than transformers for railroad locomotives and self-

propelled railroad cars) in a manner other than a totally enclosed manner until July 1, 1984, subject to the following conditions:

(1) Regardless of its PCB concentration, dielectric fluids containing less than 500 ppm PCB that are mixed with fluids that contain 500 ppm or greater PCB must not be used as dielectric fluid in any transformer. Dielectric fluid from PCB-Contaminated Transformers may be assumed to have less than 500 ppm PCBs.

(2) PCB-Contaminated Transformers (as defined in § 761.2(z)) may only be serviced (including rebuilding) with dielectric fluid containing less than 500 ppm PCB.

(3) Any servicing (including rebuilding) of PCB Transformers (as defined in § 761.2(y)) that requires the removal of the transformer coil from the transformer casing is prohibited. PCB Transformers may be topped off with PCB dielectric fluid.

(4) PCBs removed during servicing of a PCB Transformer or PCB-Contaminated Transformer or during rebuilding of a PCB-Contaminated Transformer must be captured and either reused as dielectric fluid or disposed of in accordance with the requirements of Subpart B. PCBs from PCB Transformers must not be mixed with or added to dielectric fluid from PCB-Contaminated Transformers.

(5) A PCB Transformer may be converted to a PCB-Contaminated Transformer by draining, refilling, and otherwise servicing the transformer with non-PCB dielectric fluid so that after a minimum of three months of in-service use subsequent to the last servicing conducted for the purpose of reducing the PCB concentration in the transformer, the transformer's dielectric fluid contains less than 500 ppm PCB (on a dry weight basis).

(6) Any PCB dielectric fluid that is on hand to service a PCB Transformer or a PCB-Contaminated Transformer must be stored in accordance with the storage for disposal requirements of Annex III (§ 761.42).

(7) After July 1, 1979, processing and distribution in commerce of PCBs for purposes of servicing transformers is permitted only for persons who are granted an exemption under TSCA section 6(e)(3)(B).

(b) *Use in and Servicing of Railroad Transformers.* PCBs may be used in transformers in railroad locomotives or railroad self-propelled cars ("railroad transformers") and may be processed and distributed in commerce for purposes of servicing these transformers in a manner other than a totally enclosed manner until July 1, 1984, subject to the following conditions:

(1) *Use Restrictions:*

(i) After January 1, 1982, use of railroad transformers that contain dielectric fluids with a PCB concentration greater than 60,000 ppm (6.0% on a dry weight basis) is prohibited;

(ii) After January 1, 1984, use of railroad transformers which contain dielectric fluids with a PCB concentration greater than 1000 ppm (0.10% on a dry weight basis) is prohibited;

(iii) The concentration of PCBs in the dielectric fluid contained in railroad transformers must be measured:

(A) Immediately upon completion of any authorized servicing of a railroad transformer conducted for the purpose of reducing the PCB concentration in the dielectric fluid in the transformer; and

(B) Between 12 and 24 months after each servicing conducted in accordance with subparagraph (A);

(C) The data obtained as a result of subparagraphs (A) and (B) above shall be retained until January 1, 1991.

(2) *Servicing Restrictions:*

(i) If the coil is removed from the casing of a railroad transformer (e.g., the transformer is rebuilt), after January 1, 1982, the railroad transformer may not be refilled with dielectric fluid containing a PCB concentration greater than 50 ppm;

(ii) After January 1, 1982, railroad transformers may only be serviced with dielectric fluid containing less than 60,000 ppm PCBs, except as provided in (i) above;

(iii) After January 1, 1984, railroad transformers may only be serviced with dielectric fluid containing less than 1000 ppm PCB, except as provided in (i) above;

(iv) Dielectric fluid may be filtered through activated carbon or otherwise industrially processed for the purpose of reducing the PCB concentration in the fluid;

(v) Any PCB dielectric fluid that is used to service PCB railroad transformers must be stored in accordance with the storage for disposal requirements of Annex III (§ 761.42);

(vi) After July 1, 1979, processing and distribution in commerce of PCBs for purposes of servicing railroad transformers is permitted only for persons who are granted an exemption under TSCA section 6(e)(3)(B).

(c) *Use in and Servicing of Mining Equipment.* PCBs may be used in mining equipment and may be processed and distributed in commerce for purposes of servicing mining equipment in a manner other than a totally enclosed manner until January 1, 1982, subject to the following conditions:

(1) PCBs may be added to motors in mining equipment in mines or mining areas until January 1, 1982;

(2) PCB motors in loader-type mining equipment must be rebuilt as air-cooled or other non-PCB-containing motors whenever the motor is returned to a service shop for servicing;

(3) PCB motors in continuous miner-type equipment may be rebuilt as PCB motors until January 1, 1980;

(4) Any PCBs that are on hand to service or repair mining equipment must be stored in accordance with the storage for disposal requirements of Annex III (§ 761.42);

(5) After July 1, 1979, processing and distribution in commerce of PCBs for purposes of servicing mining equipment is permitted only for persons who are granted an exemption under TSCA section 6(e)(3)(B).

(d) *Use in Heat Transfer Systems.* PCBs may be used in heat transfer systems in a manner other than a totally enclosed manner until July 1, 1984, subject to the following conditions:

(1) Each person who owns a heat transfer system that ever contained PCBs must test for the concentration of PCBs in the heat transfer fluid of such a system no later than November 1, 1979, and at least annually thereafter. All test sampling must be performed at least three months after the most recent fluid refilling. When a test shows that the PCB concentration is less than 50 ppm, testing under this subparagraph is no longer required;

(2) Within six (6) months of a test performed under subparagraph (1) that indicates that a system's fluid contains 50 ppm or greater PCB (0.005% on a dry weight basis), the system must be drained of the PCBs and refilled with fluid containing less than 50 ppm PCB. Topping-off with non-PCB heat transfer fluids to reduce PCB concentrations is permitted;

(3) After November 1, 1979, no heat transfer system that is used in the manufacture or processing of any food, drug, cosmetic, or device, as defined in § 201 of the Federal Food, Drug, and Cosmetic Act, may contain heat transfer fluid with 50 ppm or greater PCB (0.005% on a dry weight basis);

(4) Addition of PCBs to a heat transfer system is prohibited.

(5) Data obtained as a result of subparagraph (1) must be retained for five (5) years after the heat transfer system reaches 50 ppm PCB;

(e) *Use in Hydraulic Systems.* PCBs may be used in hydraulic systems and

may be processed and distributed in commerce for purposes of filtering, distilling, or otherwise reducing the concentration of PCBs in hydraulic fluids in a manner other than a totally enclosed manner until July 1, 1984, subject to the following conditions:

(1) Each person who owns a hydraulic system that ever contained PCBs must test for the concentration of PCBs in the hydraulic fluid of each such system no later than November 1, 1979, and at least annually thereafter. All test sampling must be performed at least three months after the most recent fluid refilling. When a test shows that the PCB concentration is less than 50 ppm, testing under this subparagraph is no longer required;

(2) Within six (6) months of a test under subparagraph (1) that indicates that a system's fluid contains 50 ppm or greater PCB (0.005% on a dry weight basis), the system must be drained of the PCBs and refilled with fluid containing less than 50 ppm PCB. Topping-off with non-PCB hydraulic fluids to reduce PCB concentrations is permitted;

(3) Addition of PCBs to a hydraulic system is prohibited;

(4) Hydraulic fluid may be drained from a hydraulic system and filtered, distilled, or otherwise serviced in order to reduce the PCB concentration below 50 ppm;

(5) After July 1, 1979, processing and distribution in commerce of PCBs for purposes of servicing hydraulic systems is permitted only for persons who are granted an exemption under TSCA section 6(e)(3)(B);

(6) Data obtained as a result of subparagraph (1) above must be retained for five years after the hydraulic system reaches 50 ppm.

(f) *Use in Carbonless Copy Paper.* Carbonless copy paper containing PCBs may be used in a manner other than a totally enclosed manner indefinitely.

(g) *Pigments.* Diarylide and Phthalocyanin pigments that contain 50 ppm or greater PCB may be processed, distributed in commerce, and used in a manner other than a totally enclosed manner until January 1, 1982, except that after July 1, 1979, processing and distribution in commerce of diarylide or phthalocyanin pigments that contain 50 ppm or greater PCB is permitted only for persons who are granted an exemption under TSCA section 6(e)(3)(B).

(h) *Servicing Electromagnets.* PCBs may be processed, distributed in commerce, and used for the purpose of servicing electromagnets until July 1, 1984, in a manner other than a totally enclosed manner subject to the following requirements:

(1) PCBs removed during servicing must be captured and either returned to the electromagnet, reused as a dielectric fluid, or disposed of in accordance with Subpart B (§ 761.10);

(2) Servicing of PCB electromagnets (including rebuilding) which requires the removal of the coil from the casing is prohibited.

(3) Any PCBs that are on hand to service a PCB electromagnet must be stored in accordance with the storage for disposal requirements of Annex III (§ 761.42);

(4) After July 1, 1979, processing and distribution in commerce of PCBs for purposes of servicing electromagnets is permitted only for persons who are granted an exemption under TSCA section 6(e)(3)(B).

(i) *Use in Natural Gas Pipeline Compressors.* PCBs may be used in natural gas pipeline compressors until May 1, 1980, in a manner other than a totally enclosed manner.

(j) *Small Quantities for Research and Development.* PCBs may be processed, distributed in commerce, and used in small quantities for research and development, as defined in § 760.2(ee), in a manner other than a totally enclosed manner until July 1, 1984, except that after July 1, 1979, processing and distribution in commerce of PCBs in small quantities for research and development is permitted only for persons who have been granted an exemption under TSCA section 6(e)(3)(B).

(k) *Microscopy Mounting Medium.* PCBs may be processed, distributed in commerce, and used as a mounting medium in microscopy in a manner other than a totally enclosed manner until July 1, 1984, except that after July 1, 1979, processing and distribution in commerce of PCBs for purposes of use as a mounting medium in microscopy are permitted only for persons who are granted an exemption under TSCA section 6(e)(3)(B).

Subpart E—List of Annexes

Annex I

§ 761.40 Incineration.

(a) *Liquid PCBs.* An incinerator used for incinerating PCBs shall be approved by the Agency Regional Administrator pursuant to paragraph (d) of this section. The incinerator shall meet all of the requirements specified in subparagraph (1) through (9) of this paragraph, unless a waiver from these requirements is obtained pursuant to paragraph (d)(5) of this section. In addition, the incinerator shall meet any other requirements which may be prescribed pursuant to paragraph (d)(4) of this section.

(1) Combustion criteria shall be either of the following:

(i) Maintenance of the introduced liquids for a 2-second dwell time at 1200°C(±100°C) and 3 percent excess oxygen in the stack gas; or

(ii) Maintenance of the introduced liquids for a 1½ second dwell time at 1600°C(±100°C) and 2 percent excess oxygen in the stack gas.

(2) Combustion efficiency shall be at least 99.9 percent computed as follows:

$$\text{Combustion efficiency} = C_{CO_2}/C_{CO_2} + C_{CO} \times 100$$

where

C_{CO_2} = Concentration of carbon dioxide.
C_{CO} = Concentration of carbon monoxide.

(3) The rate and quantity of PCBs which are fed to the combustion system shall be measured and recorded at regular intervals of no longer than 15 minutes.

(4) The temperatures of the incineration process shall be continuously measured and recorded. The combustion temperature of the incineration process shall be based on either direct (pyrometer) or indirect (wall thermocouple-pyrometer correlation) temperature readings.

(5) The flow of PCBs to the incinerator shall stop automatically whenever the combustion temperature drops below the temperatures specified in subparagraph (1) of this paragraph.

(6) Monitoring of stack emission products shall be conducted:

(i) When an incinerator is first used for the disposal of PCBs under the provisions of this regulation;

(ii) When an incinerator is first used for the disposal of PCBs after the incinerator has been modified in a manner which may affect the characteristics of the stack emission products; and

(iii) At a minimum such monitoring shall be conducted for the following parameters: (a) O_2; (b) CO; (c) CO_2; (d) Oxides of Nitrogen (NO_x); (e) Hydrochloric Acid (HCl); (f) Total Chlorinated Organic Content (RCl); (g) PCBs; and (h) Total Particulate Matter.

(7) At a minimum monitoring and recording of combustion products and incineration operations shall be conducted for the following parameters whenever the incinerator is incinerating PCBs: (i) O_2; (ii) CO; and (iii) CO_2. The monitoring for O_2 and CO shall be continuous. The monitoring for CO_2 shall be periodic, at a frequency specified by the Regional Administrator.

(8) The flow of PCBs to the incinerator shall stop automatically when any one or more of the following conditions occur unless a contingency plan is submitted by the incinerator owner or operator and approved by the Regional Administrator and the contingency plan indicates what alternative measures the incinerator owner or operator would take if any of the following conditions occur:

(i) Failure of monitoring operations specified in subparagraph (7) of this paragraph;

(ii) Failure of the PCB rate and quantity measuring and recording equipment specified in subparagraph (3) of this paragraph; or

(iii) Excess oxygen falls below the percentage specified in subparagraph (1) of this paragraph.

(9) Water scrubbers shall be used for HCl control during PCB incineration and shall meet any performance requirements specified by the appropriate EPA Regional Administrator. Scrubber effluent shall be monitored and shall comply with applicable effluent or pretreatment standards, and any other State and Federal laws and regulations. An alternate method of HCl control may be used if the alternate method has been approved by the Regional Administrator. (The HCl neutralizing capability of cement kilns is considered to be an alternate method.)

(b) *Non-liquid PCBs.* An incinerator used for incinerating non-liquid PCBs, PCB Articles, PCB Equipment, or PCB Containers shall be approved by the Agency Regional Administrator pursuant to paragraph (d) of this section. The incinerator shall meet all of the requirements specified in subparagraphs (1) and (2) of this paragraph unless a waiver from these requirements is obtained pursuant to paragraph (d)(5) of this section. In addition, the incinerator shall meet any other requirements that may be prescribed pursuant to paragraph (d)(4) of this section.

(1) The mass air emissions from the incinerator shall be no greater than 0.001g PCB/kg of the PCB introduced into the incinerator.

(2) The incinerator shall comply with the provisions of § 761.40(a)(2), (3), (4), (6), (7), (8)(i) and (ii), and (9).

(c) *Maintenance of data and records.* All data and records required by this section shall be maintained in accordance with Annex VI—§ 761.45, Records and Monitoring.

(d) *Approval of incinerators.* Prior to the incineration of PCBs and PCB Items the owner or operator of an incinerator shall receive the written approval of the Agency Regional Administrator for the Region in which the incinerator is located. Such approval shall be obtained in the following manner:

(1) *Initial Report.* The owner or operator shall submit to the Regional administrator an initial report which contains:

(i) The location of the incinerator;

(ii) A detailed description of the incinerator including general site plans and design drawings of the incinerator;

(iii) Engineering reports or other information on the anticipated performance of the incinerator;

(iv) Sampling and monitoring equipment and facilities available;

(v) Waste volumes expected to be incinerated;

(vi) Any local, State, or Federal permits or approvals; and

(vii) Schedules and plans for complying with the approval requirements of this regulation.

(2) *Trial burn.* (i) Following receipt of the report described in subparagraph (1) of this paragraph, the Regional Administrator shall determine if a trial burn is required and notify the person who submitted the report whether a trial burn of PCBs and PCB Items must be conducted. The Regional Administrator may require the submission of any other information that the Regional Administrator finds to be reasonably necessary to determine the need for a trial burn. Such other information shall be restricted to the types of information required in subparagraph (1)(i) through (1)(vii) of this paragraph.

(ii) If the Regional Administrator determines that a trial burn must be held, the person who submitted the report described in subparagraph (1) of this paragraph shall submit to the Regional Administrator a detailed plan for conducting and monitoring the trial burn. At a minimum, the plan must include:

(A) Date trial burn is to be conducted;

(B) Quantity and type of PCBs and PCB Items to be incinerated;

(C) Parameters to be monitored and location of sampling points;

(D) Sampling frequency and methods and schedules for sample analyses; and

(E) Name, address, and qualifications of persons who will review analytical results and other pertinent data, and who will perform a technical evaluation of the effectiveness of the trial burn.

(iii) Following receipt of the plan described in subparagraph (2)(ii) of this paragraph, the Regional Administrator will approve the plan, require additions or modifications to the plan, or disapprove the plan. If the plan is disapproved, the Regional Administrator will notify the person who submitted the plan of such disapproval, together with the reasons why it is disapproved. That person may thereafter submit a new plan in accordance with subparagraph (2)(ii) of this paragraph. If the plan is approved (with any additions or modifications which the Regional Administrator may Prescribe), the Regional Administrator will notify the person who submitted the plan of the approval. Thereafter the trial burn shall take place at a date and time to be agreed upon between the Regional Administrator and the persons who submitted the plan.

(3) *Other information.* In addition to the information contained in the report and plan described in subparagraphs (1) and (2) of this paragraph, the Regional Administrator may require the owner or operator to submit any other information that the Regional Administrator finds to be reasonably necessary to determine whether an incinerator shall be approved.

Note.—The Regional Administrator will have available for review and inspection an Agency manual containing information on sampling methods and analytical procedures for the parameters required in § 761.40(a)(3), (4), (6), and (7) plus any other parameters he may determine to be appropriate. Owners or operators are encouraged to review this manual prior to submitting any report required in this Annex.

(4) *Contents of Approval.* (i) Except as provided in subparagraph (5) of this paragraph, the Regional Administrator may not approve an incinerator for the disposal of PCB and PCB Items unless he finds that the incinerator meets all of the requirements of paragraphs (a) and/or (b) of this section.

(ii) In addition to the requirements of paragraphs (a) and/or (b) of this section, the Regional Administrator may include in an approval any other requirements that the Regional Administrator finds are necessary to ensure that operation of the incinerator does not present an unreasonable risk of injury to health or the environment from PCBs. Such requirements may include a fixed period of time for which the approval is valid.

(5) *Waivers.* An owner or operator of the incinerator may submit evidence to the Regional Administrator that operation of the incinerator will not present an unreasonable risk of injury to health or the environment from PCBs, when one or more of the requirements of paragraphs (a) and/or (b) of this section are not met. On the basis of such evidence and any other available information, the Regional Administrator may in his discretion find that any requirement of paragraph (a) and (b) is

not necessary to protect against such a risk, and may waive the requirements in any approval for that incinerator. Any finding and waiver under this subparagraph must be stated in writing and included as part of the approval.

(6) *Persons Approved.* An approval will designate the persons who own and who are authorized to operate the incinerator, and will apply only to such persons, except as provided in paragraph (8) below.

(7) *Final Approval.* Approval of an incinerator will be in writing and signed by the Regional Administrator. The approval will state all requirements applicable to the approved incinerator.

(8) *Transfer of Property.* Any person who owns or operates an approved incinerator must notify EPA at least 30 days before transferring ownership in the incinerator or the property it stands upon, or transferring the right to operate the incinerator. The transferor must also submit to EPA, at least 30 days before such transfer, a notarized affidavit signed by the transferee which states that the transferee will abide by the transferor's EPA incinerator approval. Within 30 days of receiving such notification and affidavit, EPA will issue an amended approval substituting the transferee's name for the transferor's name, or EPA may require the transferee to apply for a new incinerator approval. In the latter case, the transferee must abide by the transferor's EPA approval until EPA issues the new approval to the transferee.

Annex II

§ 761.41 Chemical waste landfills.

(a) *General.* A chemical waste landfill used for the disposal of PCBs and PCB Items shall be approved by the Agency Regional Administrator pursuant to paragraph (c) of this section. The landfill shall meet all of the requirements specified in paragraph (b) of this section, unless a waiver from these requirements is obtained pursuant to paragraph (c)(4) of this section. In addition, the landfill shall meet any other requirements that may be prescribed pursuant to paragraph (c)(3) of this section.

(b) *Technical Requirements.* Requirements for chemical waste landfills used for the disposal of PCBs and PCB Items are as follows:

(1) *Soils.* The landfill site shall be located in thick, relatively impermeable formations such as large-area clay pans. Where this is not possible, the soil shall have a high clay and silt content with the following parameters:

(i) In-place soil thickness, 4 feet or compacted soil liner thickness, 3 feet;

(ii) Permeability (cm/sec), equal to or less than 1×10^{-7};

(iii) Percent soil passing No. 200 Sieve, >30;

(iv) Liquid Limit, >30; and

(v) Plasticity Index >15.

(2) *Synthetic Membrane Liners.* Synthetic membrane liners shall be used when, in the judgment of the Regional Administrator, the hydrologic or geologic conditions at the landfill require such a liner in order to provide at least a permeability equivalent to the soils in (1) above. Whenever a synthetic liner is used at a landfill site, special precautions shall be taken to insure that its integrity is maintained and that it is chemically compatible with PCBs. Adequate soil underlining and soil cover shall be provided to prevent excessive stress on the liner and to prevent rupture of the liner. The liner must have a minimum thickness of 30 mils.

(3) *Hydrologic Conditions.* The bottom of the landfill shall be above the historical high groundwater table as provided below. Floodplains, shorelands, and groundwater recharge areas shall be avoided. There shall be no hydraulic connection between the site and standing or flowing surface water. The site shall have monitoring wells and leachate collection. The bottom of the landfill liner system or natural in-place soil barrier shall be at least fifty feet from the historical high water table.

(4) *Flood Protection.* (i) If the landfill site is below the 100-year floodwater elevation, the operator shall provide surface water diversion dikes around the perimeter of the landfill site with a minimum height equal to two feet above the 100-year floodwater elevation.

(ii) If the landfill site is above the 100-year floodwater elevation, the operators shall provide diversion structures capable of diverting all of the surface water runoff from a 24-hour, 25-year storm.

(5) *Topography.* The landfill site shall be located in an area of low to moderate relief to minimize erosion and to help prevent landslides or slumping.

(6) *Monitoring Systems.* (i) *Water Sampling.* (A) For all sites receiving PCBs, the ground and surface water from the disposal site area shall be sampled prior to commencing operations under an approval provided in § 761.41(c) for use as baseline data.

(B) Any surface watercourse designated by the Regional Administrator using the authority provided in § 761.41(c)(3)(ii) shall be sampled at least monthly when the landfill is being used for disposal operations.

(C) Any surface watercourse designated by the Regional Administrator using the authority provided in § 761.41(c)(3)(ii) shall be sampled for a time period specified by the Regional Administrator on a frequency of no less than once every six months after final closure of the disposal area.

(ii) *Groundwater Monitor Wells.* (A) If underlying earth materials are homogenous, impermeable, and uniformly sloping in one direction, only three sampling points shall be necessary. These three points shall be equally spaced on a line through the center of the disposal area and extending from the area of highest water table elevation to the area of the lowest water table elevation on the property.

(B) All monitor wells shall be cased and the annular space between the monitor zone (zone of saturation) and the surface shall be completely backfilled with Portland cement or an equivalent material and plugged with Portland cement to effectively prevent percolation of surface water into the well bore. The well opening at the surface shall have a removable cap to provide access and to prevent entrance of rainfall or stormwater runoff. The well shall be pumped to remove the volume of liquid initially contained in the well before obtaining a sample for analysis. The discharge shall be treated to meet applicable State or Federal discharge standards or recycled to the chemical waste landfill.

(iii) *Water Analysis.* As a minimum, all samples shall be analyzed for the following parameters, and all data and records of the sampling and analysis shall be maintained as required in Annex VI—§ 761.45(d)(1). Sampling methods and analytical procedures for these parameters shall comply with those specified in 40 CFR Part 136 as amended in 41 FR 52779 on December 1, 1976.

(A) PCBs.

(B) pH.

(C) Specific Conductance.

(D) Chlorinated Organics.

(7) *Leachate Collection.* A leachate collection monitoring system shall be installed above the chemical waste landfill. Leachate collection systems shall be monitored monthly for quantity and physicochemical characteristics of leachate produced. The leachate should be either treated to acceptable limits for discharge in accordance with a State or Federal permit or disposed of by another State or Federally approved method. Water analysis shall be conducted as

provided in subparagraph (6) (iii) of this paragraph. Acceptable leachate monitoring/collection systems shall be any of the following designs, unless a waiver is obtained pursuant to paragraph (c)(4) of this section.

(i) Simple Leachate Collection. This system consists of a gravity flow drainfield installed above the waste disposal facility liner. This design is recommended for use when semi-solid or leachable solid wastes are placed in a lined pit excavated into a relatively thick, unsaturated, homogenous layer of low permeability soil.

(ii) Compound Leachate Collection. This system consists of a gravity flow drainfield installed above the waste disposal facility liner and above a secondary installed liner. This design is recommended for use when semi-liquid or leachable solid wastes are placed in a lined pit excavated into relatively permeable soil.

(ii) Suction Lysimeters. This system consists of a network of porous ceramic cups connected by hoses/tubing to a vacuum pump. The porous ceramic cups or suction lysimeters are installed along the sides and under the bottom of the waste disposal facility liner. This type of system works best when installed in a relatively permeable unsaturated soil immediately adjacent to the bottom and/or sides of the disposal facility.

(8) *Chemical Waste Landfill Operations.* (i) PCBs and PCB Items shall be placed in a landfill in a manner that will prevent damage to containers or articles. Other wastes placed in the landfill that are not chemically compatible with PCBs and PCB Items including organic solvents shall be segregated from the PCBs throughout the waste handling and disposal process.

(ii) An operation plan shall be developed and submitted to the Regional Administrator for approval as required in paragraph (c) of this section. This plan shall include detailed explanations of the procedures to be used for recordkeeping, surface water handling procedures, excavation and backfilling, waste segregation burial coordinates, vehicle and equipment movement, use of roadways, leachate collection systems, sampling and monitoring procedures, monitoring wells, environmental emergency contingency plans, and security measures to protect against vandalism and unauthorized waste placements. EPA guidelines entitled "Thermal Processing and Land Disposal of Solid Waste" (39 FR 29337, August 14, 1974) are a useful reference in preparation of this plan. If the facility is to be used to dispose of liquid wastes containing between 50 ppm and 500 ppm PCB, the operations plan must include procedures to determine that liquid PCBs to be disposed of at the landfill do not exceed 500 ppm PCB and meaures to prevent the migration of PCBs from the landfill. Bulk liquids not exceeding 500 ppm PCBs may be disposed of provided such waste is pretreated and/or stabilized (e.g., chemically fixed, evaporated, mixed with dry inert absorbant) to reduce its liquid content or increase its solid content so that a non-flowing consistency is achieved to eliminate the presence of free liquids prior to final disposal in a landfill. PCB Container of liquid PCBs with a concentration between 50 and 500 ppm PCB may be disposed of if each container is surrounded by an amount of inert sorbant material capable of absorbing all of the liquid contents of the container.

(iii) Ignitable wastes shall not be disposed of in chemical waste landfills. Liquid ignitable wastes are wastes that have a flash point less than 60 degrees C (140 degrees F) as determined by the following method or an equivalent method: Flash point of liquids shall be determined by a Pensky-Martens Closed Cup Tester, using the protocol specified in ASTM Standard D-93, or the Setaflash Closed Tester using the protocol specified in ASTM Standard D-3278.

(iv) Records shall be maintained for all PCB disposal operations and shall include information on the PCB concentration in liquid wastes and the three dimensional burial coordinates for PCBs and PCB Items. Additional records shall be developed and maintained as required in Annex VI.

(9) *Supporting Facilities.* (i) A six foot woven mesh fence, wall, or similar device shall be placed around the site to prevent unauthorized persons and animals from entering.

(ii) Roads shall be maintained to and within the site which are adequate to support the operation and maintenance of the site without causing safety or nuisance problems or hazardous conditions.

(iii) The site shall be operated and maintained in a manner to prevent safety problems or hazardous conditions resulting from spilled liquids and windblown materials.

(c) *Approval of Chemical Waste Landfills.* Prior to the disposal of any PCBs and PCB Items in a chemical waste landfill, the owner or operator of the landfill shall receive written approval of the Agency Regional Administrator for the Region in which the landfill is located. The approval shall be obtained in the following manner:

(1) *Initial Report.* The owner or operator shall submit to the Regional Administrator an initial report which contains:

(i) The location of the landfill;

(ii) A detailed description of the landfill including general site plans and design drawings;

(iii) An engineering report describing the manner is which the landfill complies with the requirements for chemical waste landfills specified in paragraph (b) of this section;

(iv) Sampling and monitoring equipment and facilities available;

(v) Expected waste volumes of PCBs;

(vi) General description of waste materials other than PCBs that are expected to be disposed of in the landfill;

(vii) Landfill operations plan as required in paragraph (b) of this section;

(viii) Any local, State, or Federal permits or approvals; and

(ix) Any schedules or plans for complying with the approval requirements of these regulations.

(2) *Other Information.* In addition to the information contained in the report described in subparagraph (1) of this paragraph, the Regional Administrator may require the owner or operator to submit any other information that the Regional Administrator finds to be reasonably necessary to determine whether a chemical waste landfill should be approved. Such other information shall be restricted to the types of information required in subparagraphs (1)(i) through (1)(ix) of this paragraph.

(3) *Contents of Approval.* (i) Except as provided in subparagraph (4) of this paragraph the Regional Administrator may not approve a chemical waste landfill for the disposal of PCBs and PCB Items, unless he finds that the landfill meets all of the requirements of paragraph (b) of this Annex.

(ii) In addition to the requirements of paragraph (b) of this section, the Regional Administrator may include in an approval any other requirements or provisions that the Regional Administrator finds are necessary to ensure that operation of the chemical waste landfill does not present an unreasonable risk of injury to health or the environment from PCBs. Such provisions may include a fixed period of time for which the approval is valid.

The approval may also include a stipulation that the operator of the chemical waste landfill report to the Regional Administrator any instance when PCBs are detectable during

monitoring activities conducted pursuant to paragraph (b)(6) of this section.

(4) *Waivers.* An owner or operator of a chemical waste landfill may submit evidence to the Regional Administrator that operation of the landfill will not present an unreasonable risk of injury to health or the environment from PCBs when one or more of the requirements of paragraph (b) of this section are not met. On the basis of such evidence and any other available information, the Regional Administrator may in his discretion find that one or more of the requirements of § 761.41(b) is not necessary to protect against such a risk and may waive the requirements in any approval for that landfill. Any finding and waiver under this paragraph will be stated in writing and included as part of the approval.

(5) *Persons Approved.* Any approval will designate the persons who own and who are authorized to operate the chemical waste landfill, and will apply only to such persons, except as provided by paragraph (7) below.

(6) *Final Approval.* Approval of a chemical waste landfill will be in writing and will be signed by the Regional Administrator. The approval will state all requirements applicable to the approved landfill.

(7) *Transfer of Property.* Any person who owns or operates an approved chemical waste landfill must notify EPA at least 30 days before transferring ownership in the property or transferring the right to conduct the chemical waste landfill operation. The transferor must also submit to EPA, at least 30 days before such transfer, a notarized affidavit signed by the transferee which states that the transferee will abide by the transferor's EPA chemical waste landfill approval. Within 30 days of receiving such notification and affidavit, EPA will issue an amended approval substituting the transferee's name for the transferor's name, or EPA may require the transferee to apply for a new chemical waste landfill approval. In the latter case, the transferee must abide by the transferor's EPA approval until EPA issues the new approval to the transferee.

Annex III

§ 761.42 Storage for disposal.

(a) Any PCB Article or PCB Container stored for disposal before January 1, 1983, shall be removed from storage and disposed of as required by this Part before January 1, 1984. Any PCB Article or PCB Container stored for disposal after January 1, 1983, shall be removed from storage and disposed of as required by Subpart B within one year from the date when it was first placed into storage.

(b) Except as provided in paragraph (c) of this section, after July 1, 1978, owners or operators of any facilities used for the storage of PCBs and PCB Items designated for disposal shall comply with the following requirements:

(1) The facilities shall meet the following criteria:

(i) Adequate roof and walls to prevent rain water from reaching the stored PCBs and PCB Items;

(ii) An adequate floor which has continuous curbing with a minimum six inch high curb. The floor and curbing must provide a containment volume equal to at least two times the internal volume of the largest PCB Article or PCB Container stored therein or 25 percent of the total internal volume of all PCB Articles or PCB Containers stored therein, whichever is greater;

(iii) No drain valves, floor drains, expansion joints, sewer lines, or other openings that would permit liquids to flow from the curbed area;

(iv) Floors and curbing constructed of continuous smooth and impervious materials, such as Portland cement concrete or steel, to prevent or minimize penetration of PCBs; and

(v) Not located at a site that is below the 100-year flood water elevation.

(c)(1) The following PCB Items may be stored temporarily in an area that does not comply with the requirements of paragraph (b) for up to thirty days from the date of their removal from service, provided that a notation is attached to the PCB Item or a PCB Container (containing the item) indicating the date the item was removed from service:

(i) Non-leaking PCB Articles and PCB Equipment;

(ii) Leaking PCB Articles and PCB Equipment if the PCB Items are placed in a non-leaking PCB Container that contains sufficient sorbent materials to absorb any liquid PCBs remaining in the PCB Items;

(iii) PCB Containers containing non-liquid PCBs such as contaminated soil, rags, and debris; and

(iv) PCB Containers containing liquid PCBs at a concentration between 50 and 500 ppm, provided a Spill Prevention, Control and Countermeasure Plan has been prepared for the temporary storage area in accordance with 40 CFR 112. In addition, each container must bear a notation that indicates that the liquids in the drum do not exceed 500 ppm PCB.

(2) Non-leaking and structurally undamaged PCB Large High Voltage Capacitors and PCB-Contaminated Transformers that have not been drained of free flowing dielectric fluid may be stored on pallets next to a storage facility that meets the requirements of paragraph (b) until January 1, 1983. PCB-Contaminated Transformers that have been drained of free flowing dielectric fluid are not subject to the storage provisions of Annex III. Storage under this subparagraph will be permitted only when the storage facility has immediately available unfilled storage space equal to 10 percent of the volume of capacitors and transformers stored outside the facility. The capacitors and transformers temporarily stored outside the facility shall be checked for leaks weekly.

(3) Any storage area subject to the requirements of paragraph (b) or subparagraph (c)(1) of this section shall be marked as required in Subpart C—§ 761.20(a)(10).

(4) No item of movable equipment that is used for handling PCBs and PCB Items in the storage facilities and that comes in direct contact with PCBs shall be removed from the storage facility area unless it has been decontaminated as specified in Annex IV, § 761.43.

(5) All PCB Articles and PCB Containers in storage shall be checked for leaks at least once every 30 days. Any leaking PCB Articles and PCB Containers and their contents shall be transferred immediately to properly marked non-leaking containers. Any spilled or leaked materials shall be immediately cleaned up, using sorbents or other adequate means, and the PCB-contaminated materials and residues shall be disposed of in accordance with § 761.10(a)(4).

(6) Except as provided in subparagraph (7) below, any container used for the storage of liquid PCBs shall comply with the Shipping Container Specification of the Department of Transportation (DOT), 49 CFR 178.80 (Specification 5 container without removable head), 178.82 (Specification 5B container without removable head), 178.102 (Specification 6D overpack with Specification 2S(§ 178.35) or 2SL(§ 178.35a) polyethylene containers) or 178.116 (Specification 17E container). Any container used for the storage of non-liquid PCBs shall comply with the specifications of 49 CFR 178.80 (Specification 5 container), 178.82 (Specification 5B container) or 178.115 (Specification 17C container). As an alternate, containers larger than those specified in DOT Specifications 5, 5B, or 17C may be used for non-liquid PCBs if the containers are designed and constructed in a manner that will

provide as much protection against leaking and exposure to the environment as the DOT Specification containers, and are of the same relative strength and durability as the DOT Specification containers.

(7) Storage containers for liquid PCBs can be larger than the containers specified in (6) above provided that:

(i) The containers are designed, constructed, and operated in compliance with Occupational Safety and Health Standards, 29 CFR 1910.106, *Flammable and combustible liquids*. Before using these containers for storing PCBs, the design of the containers must be reviewed to determine the effect on the structural safety of the containers that will result from placing liquids with the specific gravity of PCBs into the containers (see 29 CFR 1910.106(b)(i)(f)).

(ii) The owners or operators of any facility using containers described in (i) above shall prepare and implement a Spill Prevention Control and Countermeasure (SPCC) Plan as described in 40 CFR 112. In complying with 40 CFR 112, the owner or operator shall read "oil(s)" as "PCB(s)" whenever it appears. The exemptions for storage capacity, 40 CFR 112.1(d)(2), and the amendment of SPCC plans by the Regional Administrator, 40 CFR 112.4, shall not apply unless some fraction of the liquids stored in the container are oils as defined by section 311 of the Clean Water Act.

(8) PCB Articles and PCB Containers shall be dated on the article or container when they are placed in storage. The storage shall be managed so that the PCB Articles and PCB Containers can be located by the date they entered storage. Storage containers provided in subparagraph (7) above shall have a record that includes for each batch of PCBs the quantity of the batch and date the batch was added to the container. The record shall also include the date, quantity, and disposition of any batch of PCBs removed from the container.

(9) Owners or operators of storage facilities shall establish and maintain records as provided in Annex VI.

Annex IV

§ 761.43 Decontamination.

(a) Any PCB Container to be decontaminated shall be decontaminated by flushing the internal surfaces of the container three times with a solvent containing less than 50 ppm PCB. The solubility of PCBs in the solvent must be five percent or more by weight. Each rinse shall use a volume of the normal diluent equal to approximately ten (10) percent of the PCB Container capacity. The solvent may be reused for decontamination until it contains 50 ppm PCB. The solvent shall then be disposed of as a PCB in accordance with § 761.10(a). Non-liquid PCBs resulting from the decontamination procedures shall be disposed of in accordance with the provisions of § 761.10(a)(4).

(b) Movable equipment used in storage areas shall be decontaminated by swabbing surfaces that have contacted PCBs with a solvent meeting the criteria of paragraph (a) of this section.

Note.—Precautionary measures should be taken to ensure that the solvent meets safety and health standards as required by applicable Federal regulations.

Annex V

§ 761.44 Marking formats.

The following formats shall be used for marking:

(a) *Large PCB Mark—M_L*. Mark M_L shall be as shown in Figure 1, letters and striping on a white or yellow background and shall be sufficiently durable to equal or exceed the life (including storage for disposal) of the PCB Article, PCB Equipment, or PCB Container. The size of the mark shall be at least 15.25 cm (6 inches) on each side. If the PCB Article or PCB Equipment is too small to accommodate this size, the mark may be reduced in size proportionately down to a minimum of 5 cm (2 inches) on each side.

(b) *Small PCB Mark—M_s*. Mark M_s shall be as shown in Figure 2, letters and striping on a white or yellow background, and shall be sufficiently durable to equal or exceed the life (including storage for disposal) of the PCB Article, PCB Equipment, or PCB Container. The mark shall be a rectangle 2.5 by 5 cm (1 inch by 2 inches). If the PCB Article or PCB Equipment is too small to accommodate this size, the mark may be reduced in size proportionately down to a minimum of 1 by 2 cm (.4 by .8 inches).

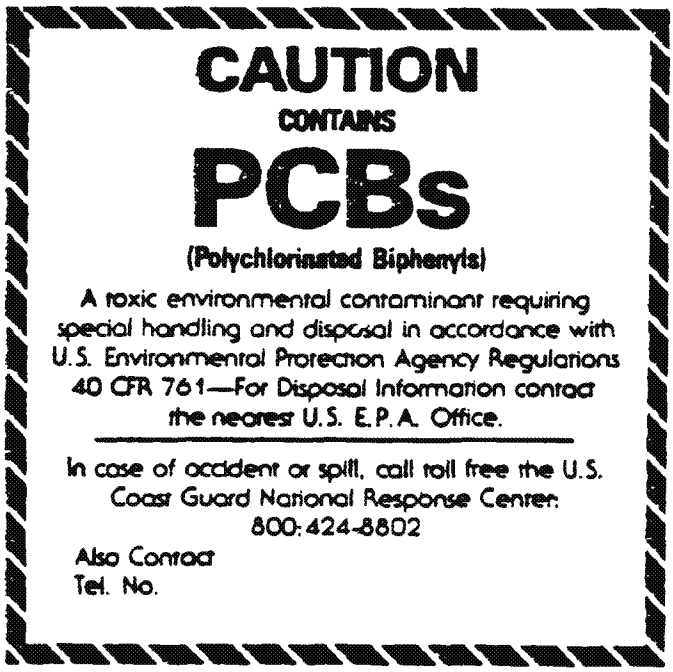

Figure 1

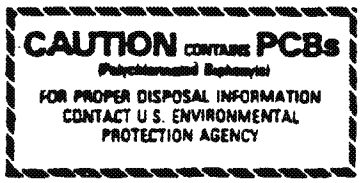

Figure 2

Annex VI

§ 761.45 Records and monitoring.

(a) *PCBs and PCB Items in service or projected for disposal.* Beginning July 2, 1978, each owner or operator of a facility using or storing at one time at least 45 kilograms (99.4 pounds) of PCBs contained in PCB Container(s) or one or more PCB Transformers, or 50 or more PCB Large High or Low Voltage Capacitors shall develop and maintain records on the disposition of PCBs and PCB Items. These records shall form the basis of an annual document prepared for each facility by July 1 covering the previous calendar year. Owners or operators with one or more facilities that use or store PCBs and PCB Items in the quantities described above may maintain the records and documents at one of the facilities that is normally occupied for 8 hours a day, provided the identity of this facility is available at each facility using or storing PCBs and PCB Items. The records and documents shall be maintained for at least five years after the facility ceases using or storing PCBs and PCB Items in the prescribed quantities. The following information for each facility shall be included in the annual document:

(1) The dates when PCBs and PCB Items are removed from service, are placed into storage for disposal, and are placed into transport for disposal. The quantities of the PCBs and PCB Items shall be indicated using the following breakdown:

(i) Total weight in kilograms of any PCBs and PCB Items in PCB Containers including the identification of container contents such as liquids and capacitors;

(ii) Total number of PCB Transformers and total weight in kilograms of any PCBs contained in the transformers; and

(iii) Total number of PCB Large High or Low Voltage Capacitors.

(2) For PCBs and PCB Items removed from service, the location of the initial disposal or storage facility and the name of the owner or operator of the facility.

(3) Total quantities of PCBs and PCB Items remaining in service at the end of the calendar year using the following breakdown:

(i) Total weight in kilograms of any PCBs and PCB Items in PCB Containers, including the identification of container contents such as liquids and capacitors;

(ii) Total number of PCB Transformers and total weight in kilograms of any PCBs contained in the transformers; and

(iii) Total number of PCB Large High or Low Voltage Capacitors.

(b) *Disposal and storage facilities.* Each owner or operator of a facility (including high efficiency boiler operations) used for the storage or disposal of PCBs and PCB Items shall by July 1, 1979 and each July 1 thereafter prepare and maintain a document that includes the information required in subparagraphs (1) thru (4) below for PCBs and PCB Items that were handled at the facility during the previous calendar year. The document shall be retained at each facility for at least 5 years after the facility is no longer used for the storage or disposal of PCBs and PCB Items except that in the case of chemical waste landfills, the document shall be maintained at least 20 years after the chemical waste landfill is no longer used for the disposal of PCBs and PCB Items. The documents shall be available at the facility for inspection by authorized representatives of the Environmental Protection Agency. If the facility ceases to be used for PCB storage or disposal, the owner or operator of such facility shall notify within 60 days the EPA Regional Administrator of the region in which the facility is located that the facility has ceased storage or disposal operations. The notice shall specify where the documents that are required to be maintained by this paragraph are located. The following information shall be included in each document:

(1) The date when any PCBs and PCB Items were received by the facility during the previous calendar year for storage or disposal, and identification of the facility and the owner or operator of the facility from whom the PCBs were received;

(2) The date when any PCBs and PCB Items were disposed of at the disposal facility or transferred to another disposal or storage facility, including the identification of the specific types of PCBs and PCB Items that were stored or disposed of;

(3) A summary of the total weight in kilograms of PCBs and PCB Articles in containers and the total weight of PCBs contained in PCB Transformers, that have been handled at the facility during the previous calendar year. This summary shall provide totals of the above PCBs and PCB Items which have been:

(i) Received during the year;

(ii) Transferred to other facilities during the year; and

(iii) Retained at the facility at the end of the year. In addition the contents of PCB Containers shall be identified. When PCB Containers and PCBs contained in a transformer are transferred to other storage or disposal facilities, the identification of the facility to which such PCBs and PCB Items were transferred shall be included in the document.

(4) Total number of any PCB Articles or PCB Equipment not in PCB Containers, received during the calendar year, transferred to other storage or disposal facilities during the calendar year, or remaining on the facility site at the end of the calendar year. The identification of the specific types of PCB Articles and PCB Equipment received, transferred, or remaining on the facility site shall be indicated. When PCB Articles and PCB Equipment are transferred to other storage or disposal facilities, the identification of the facility to which the PCB Articles and PCB Equipment were transferred must be included.

Note.—Any requirements for weights in kilograms of PCBs may be calculated values if the internal volume of containers and transformers is known and included in the reports, together with any assumptions on the density of the PCBs contained in the containers or transformers.

(c) *Incineration facilities.* Each owner or operator of a PCB incinerator facility shall collect and maintain for a period of 5 years from the date of collection the following information, in addition to the information required in paragraph (b) of this section:

(1) When PCBs are being incinerated, the following continuous and short-interval data:

(i) Rate and quantity of PCBs fed to the combustion system as required in Annex I—§ 761.40(a)(3);

(ii) Temperature of the combustion process as required in Annex I—§ 761.40(a)(4); and

(iii) Stack emission product to include O_2, CO, and CO_2 as required in Annex I—§ 761.40(a)(7).

(2) When PCBs are being incinerated, data and records on the monitoring of stack emissions as required in Annex I—§ 761.40(a)(6).

(3) Total weight in kilograms of any solid residues generated by the incineration of PCBs and PCB Items during the calendar year, the total weight in kilograms of any solid residues disposed of by the facility in chemical waste landfills, and the total weight in kilograms of any solid residues remaining on the facility site.

(4) When PCBs and PCB Items are being incinerated, additional periodic data shall be collected and maintained as specified by the Regional Administrator pursuant to § 761.40(d)(4).

(5) Upon any suspension of the operation of any incinerator pursuant to § 761.40(a)(8), the owner or operator of such an incinerator shall prepare a document. The document shall, at a minimum, include the date and time of the suspension and an explanation of the circumstances causing the suspension of operation. The document shall be sent to the appropriate Regional Administrator within 30 days of any such suspension.

(d) *Chemical waste landfill facilities.* Each owner or operator of a PCB chemical waste landfill facility shall collect and maintain until at least 20 years after the chemical waste landfill is no longer used for the disposal of PCBs the following information in addition to the information required in paragraph (b) of this section:

(1) Any water analysis obtained in compliance with § 761.41(b)(6)(iii); and

(2) Any operations records including burial coordinates of wastes obtained in compliance with § 761.41(b)(8)(ii).

(e) *High efficiency boiler facilities.* Each owner or operator of a high efficiency boiler used for the disposal of liquids between 50 and 500 ppm PCB shall collect and maintain for a period of 5 years the following information, in addition to the information required in paragraph (b) of this section:

(1) For each month PCBs are burned in the boiler the carbon monoxide and excess oxygen data required in § 761.10(a)(2)(iii)(A)(*6*) and § 761.10(a)(3)(iii)(A)(*6*);

(2) The quantity of PCBs burned each month as required in § 761.10(a)(2)(iii)(A)(*7*) and § 761.10(a)(3)(iii)(A)(*7*); and

(3) For each month PCBs (other than mineral oil dielectric fluid) are burned, chemical analysis data of the waste as required in § 761.10(a)(3)(iii)(B)(*6*).

(f) *Retention of Special Records by Storage and Disposal Facilities.* In addition to the information required to be maintained under paragraphs (b), (c), (d) and (e) of this section, each owner or operator of a PCB storage or disposal facility (including high efficiency boiler operations) shall collect and maintain for the time period specified in paragraph (b) of this section the following data:

(1) All documents, correspondence, and data that have been provided to the owner or operator of the facility by any State or local government agency and that pertain to the storage or disposal of PCBs and PCB Items at the facility.

(2) All documents, correspondence, and data that have been provided by the owner or operator of the facility to any State or local government agency and that pertain to the storage or disposal of PCBs and PCB Items at the facility.

(3) Any applications and related correspondence sent by the owner or operator of the facility to any local, State, or Federal authorities in regard to waste water discharge permits, solid waste permits, building permits, or other permits or authorizations such as those required by Annex I—§ 761.40(d) and Annex II—§ 761.41(c).

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40 CFR Part 750

[FRL 1227-5]

Procedures for Rulemaking Under Section 6 of the Toxic Substances Control Act; Interim Procedural Rules for Exemptions From the Polychlorinated Biphenyl (PCB) Processing and Distribution in Commerce Prohibitions

AGENCY: Environmental Protection Agency.

ACTION: Interim procedures for filing and processing petitions for exemptions from the PCB processing and distribution in commerce prohibitions under section 6(e)(3)(B) of the Toxic Substances Control Act (TSCA).

SUMMARY: Section 6(e)(3)(B) of TSCA allows EPA to grant, by rule, exemptions from the prohibitions on manufacturing, processing, and distribution in commerce of PCBs established pursuant to section 6(e)(3)(A) of TSCA. Since the PCB processing and distribution in commerce prohibitions will become effective July 1, 1979, EPA wishes to inform affected parties of the procedures that will be followed for the filing and processing of petitions for exemptions from the processing and distribution in commerce bans imposed by section 6(e)(3)(A)(ii) of TSCA. As this notice is strictly procedural, notice and public comment are unnecessary, and it is effective upon publication.

DATE: Petitions for exemptions from the 1979 processing and distribution in commerce prohibitions must be received by July 2, 1979.

ADDRESS: Petitions, preferably in triplicate, are to be sent to: Document Control Officer, (TS-793), Office of Toxic Substances, U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, Attn.: Document No. OTS/066002(PCB/PDE).

FOR FURTHER INFORMATION CONTACT: John B. Ritch, Jr., Director, Office of Industry Assistance, Office of Toxic Substances, (TS-799), Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460. Call the toll free number (800) 424-9065 (in Washington, D.C., 554-1404).

SUPPLEMENTARY INFORMATION: Elsewhere in today's Federal Register, the final PCB Ban Rule is promulgated. The PCB Ban Rule implements the PCB manufacturing, processing, distribution in commerce, and use prohibitions of section 6(e) of TSCA. On November 1, 1978 (43 FR 50906), EPA published a notice similar to this one which provided an opportunity for the filing of petitions for exemptions from the PCB manufacturing prohibition, which ban is effective July 2, 1979. The PCB processing and distribution in commerce prohibitions are effective July 1, 1979. Section 6(e)(3)(B) provides an opportunity for affected persons to petition for an exemption from the prohibitions on processing and distribution in commerce of PCBs. Accordingly, EPA is issuing these procedures to describe the required contents of petitions, who may submit a class petition, and the procedures that EPA will follow in processing petitions for exemptions from the PCB processing and distribution in commerce prohibitions.

Unless EPA grants exemptions, all PCB processing and distribution in commerce will be banned after July 1, 1979 pursuant to section 6(e)(3)(A)(ii) of TSCA. These activities include, but are not necessarily limited to: the processing and distribution in commerce of dielectric fluid for PCB Transformers, PCB-Contaminated Transformers, PCB Railroad Transformers, and PCB Electromagnets; the distribution in commerce of PCB Articles (such as small PCB Capacitors); the processing (*i.e.*, building) and distribution in commerce of PCB Equipment (including the manufacture of fluorescent light ballasts, television sets, air conditioners and microwave ovens and the sale of such PCB Equipment); the processing and distribution in commerce of PCB-contaminated hydraulic fluid; the processing and distribution in commerce of PCBs for servicing mining equipment; the processing and distribution in commerce of chemical substances and mixtures that contain 50 ppm or greater PCB as impurities or contaminants (including diarylide and phthalocyanine

pigments, some aluminum chloride, and some phenylchlorosilanes).

In contrast to the Interim Procedural Rules for Exemptions from the PCB Manufacturing Prohibition, the procedural rules published today for exemptions from the processing and distribution in commerce prohibitions provide for class petitions in certain limited circumstances. Allowance of some class petitions is an administrative necessity. EPA estimates that there are thousands of potential petitoners for exemptions from the prohibitions on PCB processing and distribution in commerce. The great majority of these petitions are expected to be concentrated in the areas of distribution of PCB Equipment and distribution of PCB-contaminated substances and mixtures. For example, virtually every retail appliance store, appliance repair service, and wholesale distributor of electrical equipment could need an exemption. Thus, allowing use of class petitions for such persons is a matter of practical reality.

In addition to the sheer number of possible petitioners in a given potential class, EPA evaluated the seriousness of potential risk of injury to health and the environment that could result from permitting a PCB activity to continue if it were granted an exemption. Those persons not allowed to submit class petitions are generally those whose activities involve significant quantities and/or highly concentrated PCB fluids processed or distributed in a non-totally enclosed manner. As a result, the potential risk associated with these activities is relatively high. In such cases it is more important that EPA evaluate petitions individually.

Petitions concerning the manufacture (*i.e.*, processing) of PCB Equipment involving incorporation of PCB Articles into equipment must be submitted on an individual basis. Although this activity in itself may present a low potential risk, the activity results in the wide dissemination of small PCB Capacitors. The disposal of such capacitors is not controlled once the capacitors are processed into PCB Equipment. Since most PCB Equipment manufacturers have converted to non-PCB Capacitors, the number of potential petitioners for exemptions to manufacture PCB Equipment should be small.

These Interim Procedural Rules provide for two types of class petitions and limit the use of each type to certain activities. The two types of class petitions are: (1) a class petition requiring a listing of, and certain information about, each person covered by the petition; and (2) a class petition that does not require a listing of persons covered by the petition.

Once EPA had determined to allow class petitions for certain activities, the same factors previously described (number of potential petitioners and extent of risk) were again evaluated to determine which class petitions would have to identify each petitioner covered by the class petition. In general, those petitions thought likely to represent large numbers of potential petitioners engaged in enclosed or low concentration PCB distribution activities are those allowed to file class petitions without listing each individual petitioner.

Class petitions are not required for persons engaged in those activities permitted to submit class petitions. An individual involved in one of these activities has the choice of either submitting an individual petition or joining with others to submit a class petition. For class petitions, EPA will accept petitions prepared by one company (to which other companies may provide the required information), by a trade association on behalf of its members (as well as others), or by any other person on behalf of a group of persons requiring exemptions.

Persons who have already submitted petitions for exemptions to manufacture or import PCB Equipment pursuant to the Interim Procedural Rules of November 1, 1978 (43 FR 50905) need not submit new petitions, but must advise EPA if they still wish the Agency to act on their pending petitions. If they wish, such petitioners may submit additional information concerning their petitions. Similarly, EPA may request additional information concerning such petitions by letter to the petitioners.

All petitions for exemptions from the 1979 processing and distribution in commerce bans must be received by EPA by July 1, 1979. This deadline is being imposed to permit consolidation of all rulemaking on these petitions and to expedite the rulemaking to the greatest extent possible. The deadline is also the date on which the processing and distribution in commerce prohibitions of section 6(e)(3) of TSCA become effective. EPA estimates that a Notice of Proposed Rulemaking concerning exemptions from the processing and distribution in commerce bans will be published in September 1979, that the public hearing, if requested, will be held in October 1979, and that the Final Rule concerning exemptions will be published in January 1980. Any person who petitions EPA by July 1, 1979 to continue processing or distribution in commerce after July 1, 1979 may continue his activity until EPA rules on his petition. Persons who do not so petition EPA will be subject to the July 1, 1979 ban on all processing and distribution in commerce of PCBs and PCB Items.

In determining whether to grant a petition for exemption to the PCB ban, EPA will apply the standards enunciated in section 6(e)(3)(B) of TSCA. Section 6(e)(3)(B) reads in pertinent part as follows:

> * * * the Administrator may grant by rule such an exemption if the Administrator finds that—
>
> (i) an unreasonable risk of injury to health or environment would not result, and
>
> (ii) good faith efforts have been made to develop a chemical substance which does not present an unreasonable risk of injury to health or the environment and which may be substituted for such polychlorinated biphenyl.

Although EPA is not issuing a form for petitions, petitions must include the information described in § 750.31(d) of the Interim Procedural Rules.

Due to the need to grant or deny petitions on an expedited basis, and pursuant to the delegation of authority by the Administrator in the Preamble to the Final PCB Ban Rule, authority has been delegated to the Assistant Administrator for Toxic Substances to grant or deny petitions under section 6(e)(3)(B) of TSCA submitted pursuant to these interim procedures. The Assistant Administrator will rule on petitions subsequent to opportunity for an informal hearing.

The Interim Procedural Rules applicable to section 6(e) exemption proceedings are adapted from the TSCA section 6 procedural rules (40 CFR Part 750, 42 FR 61259, December 2, 1977, now titled Subpart A—*General Procedural* Rules).

EPA is aware that many participants at the informal hearings on the proposed PCB Ban and Marking and Disposal Rules presented information directly applicable to a PCB exemption rulemaking. To expedite Agency action on exemption petitions, participants in the PCB exemption informal hearing are permitted and encouraged to designate testimony from prior EPA informal rulemaking hearings on PCBs under TSCA. The exemption hearing panel is specifically authorized by the Interim Procedural Rules to reject repetitive testimony submittted earlier to EPA at a TSCA PCB informal hearing.

These rules are issued under authority of section 6(e) of the Toxic Substances Control Act, 15 U.S.C. 2605(e).

Dated: May 11, 1979.

Marilyn C. Bracken,

Acting Assistant Administrator for Toxic Substances.

Title 40 of the Code of Federal Regulations is amended by adding two Subpart headings, Subpart A—General Procedural Rules for §§ 750.1–750.9 and Subpart B—Manufacturing Exemption Procedural Rules for §§ 750.10–750.21, to the Table of Contents and a new Subpart C as set forth below:

Subpart A—Procedures for Rulemaking under Section 6 of the Toxic Substances Control Act. [§§ 750.1–750.9—Added at 42 FR 61259, December 2, 1977].

Subpart B—Interim Procedural Rules for Manufacturing Exemptions. [§§ 750.10–750.21—Added at 43 FR 50905, November 1, 1978].

Subpart C—Interim Procedural Rules for Processing and Distribution in Commerce Exemptions

Sec.
750.30 Applicability.
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750.38 Participation in informal hearing.
750.39 Conduct of informal hearing.
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750.41 Final rule.

Authority: Section 6(e), Toxic Substances Control Act, 15 U.S.C. 2605(e).

Subpart C—Processing and Distribution in Commerce Exemption Procedural Rules

§ 750.30 Applicability.

Sections 750.30–750.41 apply to all rulemakings under authority of section 6(e)(3)(B) of the Toxic Substances Control Act (TSCA), 15 U.S.C. 2605(e)(3)(B) with respect to petitions for PCB processing and distribution in commerce exemptions filed pursuant to § 750.31(a) of this Part.

§ 750.31 Filing of petitions for exemption.

(a) *Who May File.* Any person seeking an exemption from the PCB processing and distribution in commerce prohibitions imposed by section 6(e)(3)(A)(ii) of TSCA may file a petition for exemption. Petitions must be submitted on an individual basis for each processor, distributor, seller or individual affected by the 1979 processing and distribution in commerce prohibitions, except as described in subparagraphs (1) through (9) below.

(1) *Processing and Distribution in Commerce of PCB-Contaminated Transformer Dielectric Fluid.* Persons who process or distribute in commerce dielectric fluid containing 50 ppm or greater PCB (but less than 500 ppm PCB) for use in PCB-Contaminated Transformers may submit a single consolidated petition on behalf of any number of petitioners. The name and address of each petitioner must be stated in the petition.

(2) *Contaminated Substances and Mixtures—Processing.* Persons who process the same chemical substance or the same mixture containing 50 ppm or greater PCB as an impurity or contaminant may submit a consolidated petition if the chemical substance or mixture is processed for the same use by each person represented by the petition. For example, persons who process a PCB-contaminated pigment into printing inks may combine their petitions into one petition. The name and address of each petitioner must be stated in the petition.

(3) *Contaminated Substances and Mixtures—Distribution in Commerce.* Persons who distribute in commerce the same chemical substance or the same mixture containing 50 ppm or greater PCB as an impurity or contaminant may submit a consolidated petition if the chemical substance or mixture is distributed in commerce for a common use. Such a petition is not required to name each person who distributes in commerce the chemical substance or mixture.

(4) *PCB Capacitor Distribution for Purposes of Repair.* Persons who distribute in commerce PCB capacitors for servicing (repair) of PCB Equipment may submit a single consolidated petition on behalf of any number of petitioners engaged in such distribution in commerce for purposes of repair. The name of each petitioner need not be stated in the petition.

(5) *Small Quantities for Research and Development.* Persons who process or distribute in commerce small quantities of PCBs for research and development may submit a single consolidated petition. The name and address of each petitioner must be stated in the petition.

(6) *Microscopy.* Persons who process or distribute in commerce PCBs for use as a mounting medium in microscopy may submit a single consolidated petition on behalf of any number of petitioners. The name and address of each petitioner must be stated in the petition.

(7) *Processing of PCB Articles into PCB Equipment.* A person who processes (incorporates) PCB Articles (such as small PCB Capacitors) into PCB Equipment may submit a petition on behalf of himself and all persons who further process or distribute in commerce PCB Equipment built by the petitioner. For example, a builder of motors who places small PCB Capacitors in the motors may submit a petition on behalf of all persons who process or incorporate motors built by the petitioner into other pieces of PCB Equipment and all those who sell the equipment. Such a petition is not required to identify the persons who distribute in commerce or further process the PCB Equipment. A separate petition must be filed, however, by each processor of PCB Articles into PCB Equipment.

(8) *Processing of PCB Equipment into Other PCB Equipment.* A person who processes (incorporates) PCB Equipment into other PCB Equipment may submit a petition on behalf of himself and all persons who further process or distribute in commerce PCB Equipment built by the petitioner. Such a petition is not required to identify the persons who distribute in commerce or further process the PCB Equipment. If a petition has been filed under subparagraph (a)(7) by the builder of the original PCB Equipment, no other petition is required.

(9) *Distribution of PCB Equipment.* Distributors in commerce of PCB Equipment may submit a consolidated petition on behalf of persons who distribute in commerce PCB Equipment of one type (such as air conditioners). The petition is not required to name the persons who distribute in commerce the affected PCB Equipment.

(b) *Petition Filing Date.* All petitions for exemptions from the 1979 processing and distribution in commerce prohibitions under section 6(e)(3)(A)(ii) must be received by the Hearing Clerk by July 2, 1979.

(c) *Where to File.* All petitions must be submitted to the following location: Document Control Officer (TS–793), Office of Toxic Substances, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460, Attn.: Docket Number OTS/066002 (PCB/PDE).

(d) *Content of Petition.* Each petition must contain the following:

(1) Name, address and telephone number of petitioner. See also subparagraphs (a)(1)–(9) for additional identification requirements applicable to certain consolidated petitions.

(2) Description of PCB processing or distribution in commerce exemption requested, including a description of the chemical substances, mixtures or items to be processed or distributed in commerce and, if processing is involved, the nature of the processing.

(3) For processing petitions, location(s) of sites requiring exemption.

(4) Length of time requested for exemption (maximum length of exemption is one year).

(5) Estimated amount of PCBs (by pound and/or volume) to be processed, distributed in commerce, or used during requested exemption period and the manner of release of PCBs into the environment associated with such processing, distribution in commerce, or use. Where the PCB concentration is less than 500 ppm, both the total liquid volume and the total PCB volume must be provided.

(6) The basis for the petitioner's contention that under section 6(e)(3)(B)(i) of TSCA "an unreasonable risk of injury to health or environment would not result" from the granting of the petition for exemption.

(7) The basis for the petitioner's contention that under section 6(e)(3)(B)(ii) "good faith efforts have been made to develop a chemical substance which does not present an unreasonable risk of injury to health or the environment and which may be substituted for" the PCB.

(8) Quantification of the reasonably ascertainable economic consequences of denying the petition for exemption and an explanation of the manner of computation.

(9) In addition to the information in subparagraphs (1) through (8), certain petitions must contain additional information as follows:

(i) Persons who process or distribute in commerce dielectric fluids containing 50 ppm or greater PCB for use in PCB Transformers, railroad transformers, or PCB electromagnets must also state the expected number of PCB Transformers, railroad transformers, or PCB electromagnets to be serviced under the exemption. In addition, a person must identify all the facilities which he owns or operates where he services PCB transformers, railroad transformers, or PCB electromagnets.

(ii) Persons filing petitons under subparagraph (a)(1) (Processing and Distribution in Commerce of PCB-Contaminated Transformer Dielectric Fluid) must also provide the expected number of PCB-Contaminated Transformers to be serviced under the requested exemption and the expected method of disposal of waste dielectric fluid. In addition, a person must identify all the facilities which he owns or operates where he services PCB-Contaminated Transformers. This information, as well as the information required by subparagraphs (d)(1), (d)(3) and (d)(5), must be provided for each person represented by the petition. All other information may be provided on a group basis.

(iii) Persons filing petitions under subparagraphs (a)(2) (Contaminated Substances and Mixtures-Processing) and (a)(3) (Contaminated Substances and Mixtures-Distribution in Commerce) must also provide a justification for the class grouping selected and a description of the uses and the human and environmental exposure associated with each use of the PCB-contaminated chemical substance or mixture for which an exemption is sought. Information may be provided on a group basis, except that the information required by subparagraphs (d)(1), (d)(3) and (d)(5), must be provided for each person represented by a petition under subparagraph (a)(2).

(iv) Persons filing petitions under subparagraph (a)(4) (PCB Capacitor Distribution for Purposes of Repair) must also provide an estimate of the expected total number of PCB Capacitors to be distributed in commerce under the requested exemption. All information may be provided on a group basis.

(v) Persons filing petitions under subparagraph (a)(7) and (a)(8) (Processing of PCB Articles into PCB Equipment and Processing of PCB Equipment into Other PCB Equipment) must provide a description of each type of PCB Equipment (including the amount of PCBs by poundage and/or volume in the PCB Equipment) to be processed and/or distributed in commerce under the exemption, the number of each type of equipment expected to be processed and/or distributed in commerce, and the approximate number of distributors or further processors covered by the petition. All information may be provided on a group basis. However, in the case of a petition under subparagraph (a)(7), the processor of PCB Articles into PCB Equipment must be identified in the petition. In the case of a petition under subparagraph (a)(8), the processor of PCB Equipment who files the petition must be identified.

(vi) Persons filing petitions under subparagraph (a)(9) (Distribution of PCB Equipment) must provide a description of each type of PCB Equipment (including the amount of PCBs by poundage and/or volume in the PCB Equipment) to be distributed in commerce under the exemption, the number of each type of equipment to be distributed in commerce, and the approximate number of distributors covered by the petition. All information may be provided on a group basis.

(vii) Persons filing petitions under subparagraphs (a)(5) and (a)(6) must provide the information required by subparagraphs (d)(1) through (d)(8) for each petitioner named in the petition.

(e) EPA reserves the right to request further information as to each petition where necessary to determine whether the petition meets the statutory tests of section 6(e)(3)(B) of TSCA prior to or after publication of the notice of proposed rulemaking required by § 750.33 of these rules.

§ 750.32 Consolidation of rulemaking.

All petitions received pursuant to § 750.31(a) will be consolidated into one rulemaking with one informal hearing held on all petitions.

§ 750.33 Notice of proposed rulemaking.

Rulemaking for PCB processing and distribution in commerce exemptions filed pursuant to § 750.31(a) will begin with the publication of a Notice of Proposed Rulemaking in the **Federal Register**. Each notice will contain:

(a) A summary of the information required in §750.31(d);

(b) A statement of the time and place at which the informal hearing required by section 6(c)(2)(C) of TSCA shall begin, or, to the extent these are not specified, a statement that they will be specified later in a separate **Federal Register** notice provided that **Federal Register** notice of the date and city at which any informal hearing shall begin will be given at least 30 days in advance;

(c) A statement identifying the place at which the official record of the rulemaking is located, the hours during which it will be open for public inspection, the documents contained in it as of the date the Notice of Proposed Rulemaking was issued, and a statement of the approximate times at which additional materials such as public comments, hearing transcripts, and Agency studies in progress will be added to the record. If any material other than public comments or material generated by a hearing is added to the record after publication of the notice required by this action, and notice of its future addition was not given at the time of that initial publication, a separate **Federal Register** notice announcing its addition to the record and inviting comment will be published;

(d) The due date for public comments, which will be (1) 30 days after publication of the notice of proposed rulemaking for main comments and (2) one week after the informal hearing for reply comments;

(e) The name, address, and office telephone number of the Record Clerk and the Hearing Clerk for the rulemaking in question; and

(f) A nonbinding target date for issuing the final rule.

§ 750.34 Rulemaking record.

(a) No later than the date of proposal of a rule subject to this Subpart, a rulemaking record for that rule will be established. It will consist of a separate identified filing space containing:

(1) All documents required by § 750.31(d);

(2) All public comments timely received;

(3) All public hearing transcripts;

(4) All material received during an informal hearing and accepted for the record of that hearing; and

(5) Any other information that the Assistant Administrator for Toxic Substances considers to be relevant to such rule and that the Assistant Administrator identified, on or before the date of the promulgation of the rule, in a notice published in the **Federal Register**.

(b) All material in the record will be appropriately indexed. Each record will be available for public inspection during normal EPA business hours. Appropriate arrangements allowing members of the public to copy record materials that do not risk the permanent loss of such materials will be made. All material required to be included in the record will be added to the record as soon as feasible after its receipt by EPA.

(c) The Record Clerk for each rulemaking will be responsible for EPA compliance with the requirements of paragraph (a) of this section.

§ 750.35 Public comments.

(a) Main comments must be postmarked or received no later than the time specified in the Notice of Proposed Rulemaking and must contain all comments on and criticisms of that Notice by the commenting person, based on information which is or reasonably could have been available to that person at the time.

(b) Reply comments must be postmarked or received no later than one week after the close of all informal hearings on the proposed rule and must be restricted to comments on:

(1) Other comments;

(2) Material in the hearing record; and

(3) Material which was not and could not reasonably have been available to the commenting party a sufficient time before main comments were due.

(c) Extensions of the time for filing comments may be granted in writing by the Hearing Chairman. Application for an extension must be made in writing. Comments submitted after the comment period and all extensions of it have expired need not be added to the rulemaking record and need not be considered in decisions concerning the rule.

(d) Unless the Notice of Proposed Rulemaking states otherwise, four copies of all comments must be submitted.

§ 750.36 Confidentiality.

EPA encourages the submission of non-confidential information by petitioners and commentors. EPA does not wish to have unnecessary restrictions on access to the rulemaking record. However, if a petitioner or commentor believes that he can only state his position through the use of information claimed to be confidential, he may submit it. Such information must be separately submitted for the rulemaking record and marked "confidential" by the submitter. For the information claimed to be confidential, EPA will list only the date and the name and address of the petitioner or commentor in the public file, noting that the petitioner or commentor has requested confidential treatment. The information claimed to be confidential will be placed in a confidential file. A petitioner must also file a non-confidential petition with a non-confidential summary of the confidential information to be placed in the public file. Similarly, a commentor must supply a non-confidential summary of the information claimed to be confidential to be placed in the public file. Any information not marked as confidential will be placed in the public file. Information marked confidential will be treated in accordance with the procedures in Part 2, Subpart B of this Title.

§ 750.37 Subpoenas.

(a) Where necessary, subpoenas requiring the production of documentary material, the attendance of persons at the hearing, or responses to written questions may be issued. Subpoenas may be issued either upon request as provided in paragraph (b) or by EPA on its own motion.

(b) All subpoena requests must be in writing. Hearing participants may request the issuance of subpoenas as follows:

(1) Subpoenas for the attendance of persons or for the production of documents or responses to questions at the legislative hearing may be requested at any time up to the deadline for filing main comments.

(2) Subpoenas for production of documents or answers to questions after the legislative hearing may be requested at any time between the beginning of the legislative hearing and the deadline for submitting reply comments.

(c) EPA will rule on all subpoena requests filed under paragraph (b)(1) no later than the beginning of the informal hearing. Such requests may be granted, denied, or deferred. EPA will rule on all subpoena requests filed under paragraph (b)(2) and all deferred subpoena requests filed under paragraph (b)(1) no later than the promulgation of the final rule. Such requests will be either granted or denied.

§ 750.38 Participation in informal hearing.

(a) Each person or organization desiring to participate in the informal hearing required by section 6(c)(2)(C) of TSCA must file a written request to participate with the Hearing Clerk. This request must be received no later than seven days prior to the scheduled start of the hearing. The hearing will begin seven days after the close of the thirty day comment period or as soon thereafter as practicable. The request must include:

(1) A brief statement of the interest of the person or organization in the proceeding;

(2) A brief outline of the points to be addressed;

(3) An estimate of the time required; and

(4) If the request comes from an organization, a nonbinding list of the persons to take part in the presentation. Organizations are requested to bring with them, to the extent possible, employees with individual expertise in and responsibility for each of the areas to be addressed. No organization not filing main comments in the rulemaking will be allowed to participate at the hearing, unless a waiver of this requirement is granted in writing by the Hearing Chairman or the organization is appearing at the request of EPA or under subpoena.

(b) No later than three days prior to the start of the hearing, the Hearing Clerk will make a hearing schedule publicly available and mail or deliver it to each of the persons who requested to appear at the hearing. This schedule will be subject to change during the course of the hearing at the discretion of those presiding over it.

(c) Opening statements should be brief, and restricted either to points that could not have been made in main

comments or to emphasizing points which are made in main comments, but which the participant believes can be more forcefully urged in the hearing context.

§ 750.39 Conduct of informal hearing.

(a) A panel of EPA employees shall preside at each hearing conducted under section 6(c)(2)(C) of TSCA. In appropriate cases, other Executive Branch employees may also sit with and assist the panel. The membership of the panel may change as different topics arise during the hearing. In general, the panel membership will consist of EPA employees with special responsibility for the final rule or special expertise in the topics under discussion. One member of the panel will be named to chair the proceedings and will attend throughout the hearing, unless unavoidably prevented by sickness or similar personal circumstances.

(b) The panel may question any individual or group participating in the hearing on any subject relating to the rulemaking. Cross-examination by others will normally not be permitted at this stage. It may be granted in compelling circumstances at the sole discretion of the hearing panel. However, persons in the hearing audience may submit questions in writing for the hearing panel to ask the participants, and the hearing panel may, at their discretion, ask these questions.

(c) Participants in the hearing may submit additional material for the hearing record and shall submit such additional material as the hearing panel may request. All such submissions will become part of the record of the hearing. A verbatim transcript of the hearing shall be made. Participants will be allowed to designate testimony from prior EPA informal rulemaking hearings concerning PCBs under TSCA. The hearing panel may reject repetitive testimony previously presented at such hearings.

§ 750.40 Cross-examination.

(a) After the close of the informal hearing conducted under § 750.39, any participant in that hearing may submit a written request for cross-examination. The request must be received by EPA within one week after a full transcript of the informal hearing becomes available and must specify:

(1) The disputed issue(s) of material fact as to which cross-examination is requested. This must include an explanation of why the questions at issue are "factual", rather than of an analytical or policy nature, the extent to which they are in "dispute" in the light of the record made thus far, and the extent to which and why they can reasonably be considered "material" to the decision on the final rule; and

(2) The person(s) the participant desires to cross-examine, and an estimate of the time necessary. This must include a statement as to how the cross-examination requested can be expected to result in "full and true disclosure" resolving the issue of material fact involved.

(b) Within one week after receipt of all requests for cross-examination under subparagraph (a), the hearing panel will rule on them. The ruling will be served by the Hearing Clerk on all participants who have requested cross-examination and will be inserted in the record. Written notice of the ruling will be given to all persons requesting cross-examination and all persons to be cross-examined. The ruling will specify:

(1) The issues as to which cross-examination is granted;

(2) The persons to be cross-examined on each issue;

(3) The persons to be allowed to conduct cross-examination; and

(4) Time limits for the examination of each witness by each cross-examiner.

(c) In issuing this ruling, the panel may determine that one or more participants who have requested cross-examination have the same or similar interests and should be required to choose a single representative for purposes of cross-examination by that single representative without identifying the representative further. Subpoenas for witnesses may be issued where necessary.

(d) Within one week after the insertion into the record of the ruling under subparagraph (b), the hearing at which the cross-examination will be conducted will begin. One or more members of the original panel will preside for EPA. The panel will have authority to conduct cross-examination on behalf of any participant, although as a general rule this right will not be exercised. The panel will also have authority to modify the governing ruling in any respect and to make new rulings on group representation under section 6(c)(3)(C) of TSCA. A verbatim transcript of the hearing will be made.

(e)(1) No later than the time set for requesting cross-examination, a hearing participant may request that other alternative methods of clarifying the record (such as informal conferences or the submittal of additional information) be used. Such requests may be submitted either in lieu of cross-examination requests, or in conjunction with them.

(2) The panel in passing on a cross-examination request may, as a precondition to ruling on its merits, require that alternative means of clarifying the record be used whether or not that has been requested under subparagraph (e)(1). In such a case, the results of the use of such alternative means will be made available to the person requesting cross-examination for a one-week comment period, and the panel will make a final ruling on cross-examination within one week thereafter.

(f) Waivers or extensions of any deadline in this section applicable to persons other than EPA may be granted on the record of the hearing by the person chairing it or in writing by the Hearing Chairman.

§ 750.41 Final rule.

(a) As soon as feasible after the deadline for submittal of reply comments, EPA will issue a final rule. EPA will also publish at that time:

(1) A list of all material added to the record (other than public comments and material from the hearing record) which has not previously been listed in a **Federal Register** document, and

(2) The effective date of the rule.

(b) Pursuant to the delegation of authority made in the Preamble to the Final Regulation for the PCB Manufacturing, Processing, Distribution in Commerce and Use Prohibitions, the Assistant Administrator for Toxic Substances will grant or deny petitions under section 6(e)(3)(B) of TSCA submitted pursuant to § 750.31. The Assistant Administrator will act on such petitions subsequent to opportunity for an informal hearing pursuant to this rule.

(c) In determining whether to grant an exemption to the PCB ban, EPA will apply the two standards enunciated in section 6(e)(3)(B) of TSCA.

[FR Doc. 79-16809 Filed 5-30-79; 8:45 am]
BILLING CODE 6560-01-M

ENVIRONMENTAL PROTECTION AGENCY

[40 CFR Part 761]

[FRL 1227-7; OTS-066001]

Polychlorinated Biphenyls (PCBs); Proposed Rulemaking for PCB Manufacturing Exemptions

AGENCY: Environmental Protection Agency.

ACTION: Proposed PCB exemption rule; notice of informal hearing.

SUMMARY: This notice lists the petitions received by EPA for exemption from the prohibition on PCB manufacturing and importation pursuant to section 6(e)(3) of the Toxic Substances Control Act (TSCA), 15 U.S.C. 2605(e)(3). The notice also indicates, the most cases, which petitions for exemption EPA proposes to grant and which petitions the Agency proposes to deny.

DATES: Written comments, preferably in triplicate, must be received by the Hearing Clerk by July 2, 1979. Hearing Date and Time: July 9, 1979 at 10:00 a.m. in Washington, D.C. Requests to participate in the hearing must be received by the Hearing Clerk by July 2, 1979.

ADDRESSES: Send comments and requests to participate in the hearing to: Ms. Linda Thomson, Hearing Clerk, Office of Toxic Substances (TS-794), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, Attention: Docket Number OTS/066001 (PCB/ME). The hearing will be held in Washington, D.C. The exact location of the hearing will be made available by calling the toll-free number 800-424-9065.

FOR FURTHER INFORMATION CONTACT: John B. Ritch, Director, Office of Industry Assistance (TS-799), Office of Toxic Substances, Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, telephone (800)-424-9065, or in Washington, D.C. call 554-1404.

SUPPLEMENTARY INFORMATION: Section 6(e)(3)(A) of TSCA (Pub. L. 94-469, 90 Stat. 2003, 15 U.S.C. 2601 *et seq.)* prohibits all manufacture (including importation) of PCBs as of January 1, 1979. EPA's regulation entitled PCB Manufacturing, Processing, Distribution in Commerce, and Use Prohibition Rule (PCB Prohibition Rule) which implements the prohibitions of section 6(e)(3) of TSCA, appears elsewhere in today's **Federal Register**. Section 6(e)(3)(B) of TSCA allows affected persons to petition EPA for exemptions from the section 6(e)(3)(A) PCB prohibitions. On November 1, 1978, EPA published Interim Procedural Rules (43 FR 50905) for the filing and processing of petitions for exemptions from the PCB manufacturing prohibition of section 6(e)(3) of TSCA. More than seventy petitions for exemption have been received. These petitions have been consolidated into one rulemaking in accordance with § 750.12 of the Interim Procedural Rules (43 FR at 50906).

On January 2, 1979, the Agency announced (44 FR 108) that persons who had filed petitions for exemptions from the PCB manufacturing ban under section 6(e)(3)(B) of TSCA could continue the manufacturing or importation activity for which the exemption is sought until EPA has acted on the applicable petition.

The Interim Procedural Rules for manufacturing exemptions (43 FR 50905) will be applicable to this rulemaking. The official record of rulemaking is located in Room 447, East Tower, Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, telephone (202)-755-6956. It will be available for viewing and copying from 9:00 a.m. to 4:00 p.m., Monday through Friday, excluding holidays. Hearing transcripts, hearing materials and submissions received will be added to the record as they become available.

To facilitate informed comment, EPA is indicating its proposed action on most exemption petitions. For EPA to grant a requested exemption, the Agency must make the findings required by section 6(e)(B)(3) of TSCA. That section reads as follows:

> * * * the Administrator may grant by rule such an exemption if the Administrator finds that—
>
> (i) An unreasonable risk of injury to health or environment would not result, and
>
> (ii) Good faith efforts have been made to develop a chemical substance which does not present an unreasonable risk of injury to health or the environment and which may be substituted for such polychlorinated biphenyl.

EPA wishes to advise commentors that for each exemption petition the Agency may request by letter additional information from the petitioner concerning his petition. This information would be supplementary to information requested in this Notice. The Agency will make such requests if it determines that it requires the information in order to adequately assess the petition. Accordingly, persons may wish to file reply comments under § 750.15 of the Interim Procedural Rules (43 FR 50906) on any additional material filed by petitioners in response to information requests from EPA.

Section 750.11(b) of the Interim Procedural Rules established a filing date of December 1, 1978 for all petitions for exemption from the TSCA section 6(e)(3) PCB manufacturing (and important) prohibition. Subsequent to the filing date, additional petitions have been received by the Agency. Due to the shortness of the original filing period of thirty days, EPA has accepted all late petitions. The Agency will decide on a case-by-case whether petitions for exemptions for PCB manufacturing and importation activities filed subsequent to the date of this Notice should also be accepted. If a PCB manufacturer or importer subject to the final PCB regulation (1) now wishes to file a petition for exemption and (2) did not earlier file a petition because he had good cause to believe his PCB activity was not subject to the proposed regulation (43 FR 24802, June 7, 1978), he should indicate the basis for his prior failure to file a petition and should request EPA to accept his late petition. No late petition will be accepted unless good cause can be shown for the failure to file on time. Whether or not late pefitions are accepted will be announced at the informal hearing for this rulemaking. A supplemental notice of proposed rulemaking probably will not be issued as to such petitions.

In the preamble to the final PCB Prohibition Rule (see preamble section VI.C.1.), EPA states: ". . . the prohibition applies to the manufacture of any substance or mixture that contains PCB at 50 ppm or greater, including PCB that is an intermediate or 'impurity' or 'byproduct'. . . . While the production of PCBs under such circumstances may not be intentional and may have no independent commercial value, section 6(e) of TSCA applies to *any* production of PCBs and, therefore, covers such activities." EPA is aware that although the proposed rule included such PCBs in its coverage, some manufacturers may not have interpreted the proposed rule to include such PCBs and, therefore, may not have submitted a petition for an exemption from the manufacturing prohibition. As discussed above, EPA will accept petitions from such persons during the comment period for this rule, if the required showing of good faith in not filing earlier is made.

Several persons requested that petitions be accepted on a class basis. They argued that PCB equipment manufacturers should be able to petition for exemptions on behalf of those customers who are also PCB equipment

manufacturers or distributors as defined in the proposed regulation.* In view of the change which has been made concerning restrictions on the manufacture of PCB equipment in the final PCB Prohibition Rule,** EPA will not accept exemption petitions on a class basis in this rulemaking. However, the Agency has addressed the question of class petitions in the Interim Procedural Rules which establish procedures for filing and processing exemption petitions from the July 1, 1979 PCB processing and distribution in commerce prohibitions. These Interim Procedural Rules are found elsewhere in today's Federal Register.*

It is the intent of EPA to grant or deny the petitions for exemption from the prohibition of the manufacture (including importation) of PCBs subject to this rulemaking prior to August 1, 1979.

Below are listed the exemption petitions that EPA has received. These exemptions have been categorized according to the nature of the petition, and the categories are indicated by a numbered key. The Agency's proposed action on the petitions follows the listing.

Petitioner and Basis for Petition

Abolite Lighting, Inc., P.O. Box 237, West Lafayette, OH 43845.[1]

Advance Transformer Co., 2950 North Western Ave., Chicago, IL 60618.[2]

Aluminum Company of America, 1501 Alcoa Building, Pittsburgh, PA 15219.[3]

American Hoechst Corp., Route 202–206 North, Somerville, NJ 08876.[4]

Binney and Smith, Inc., 1100 Church Lane, P.O. Box 431, Easton, PA 18042.[4]

Borden, Inc., Borden Chemical Division, 630 Glendale-Milford Rd., Cincinnati, OH 45215.[4]

Chemetron Pigments, Division of Chemetron Corp., 481 Columbia Ave., Holland, MI 49423.[4]

Chemical Waste Management Limited, 271 King Street, P.O. Box 1288, St. Catherines, Ontario, Canada L2R7A7.[5]

Ching Mei U.S.A. Ltd., 350 Fifth Ave., Rm. 1825, New York, NY 10001.[4]

Cincinnati Milacron Inc., 4701 Marburg Ave., Cincinnati, OH 45209.[6]

Colt Industries, Inc., Fairbanks Morse Pump Division, 3601 Fairbanks Ave., Kansas City, KS 66110.[7]

Columbia Lighting Inc., Terminal Annex, Box 2787, Spokane, WA.[1]

Control Data Corporation, Autocon Industries Inc., Subsidiary of Control Data Corp., 2300 Berkshire Lane, Minneapolis, MN 55441.[7]

Copeland Corp., Sidney, OH 45365.[8]

Crouse-Hinds Co., P.O. Box 4999, Wolf and Seventh North St., Syracuse, NY 13221.[1]

Dainichiseika Color & Chemicals, America, Inc., 20 Hook Mountain Rd., Pine Brook, NJ 07058.[4]

Dainippon Ink & Chemicals America, Inc., 200 Park Ave., New York, NY 10017.[4]

Day-Brite Lighting, 1015 South Green St., P.O. Drawer 1687, Tupelo, MS 38801.[1]

Dow Corning Corp., Midland, MI 48640.[9]

Dunham-Bush, Inc., 101 Burgess Road, Harrisonburg, VA 22801.[10]

Emerson Quiet Kool Corp., 400 Woodbine Ave., Woodbridge, NJ 07095.[8]

Emerson Electric Co., Industrial Control Division, 3300 S. Standard St., P.O. Box 1679, Santa Ana, CA 92702.[10]

Emerson Electric Company, Gearmaster Division, 1809 S. Route 31, McHenry, IL 60050.[10]

General Electric Company, 3135 Easton Turnpike, Fairfield, CT 06431.[1 11 2 10]

Globe Illumination Company, 1515 W. 178th St., Gardena, CA 90248.[1]

Guardian Chemical Corp., Eastern Chemical Division, 230 Marcus Blvd., Hauppauge, NY 11787.[12]

Guardian Light Co., 5125 W. Lake St., Chicago, IL 60644.[1]

Halstead Industries, Inc., Halstead and Mitchell/Division, Highway 72 West, Scottsboro, AL 35768.[10]

Harmon Colors Corp., 550 Belmont Ave., Haledon, NJ 07508.[4]

Harvey Hubbell, Inc., (Lighting Division), 2000 Electric Way, Christianburg, VA 24073.[1]

Hercules, Inc., 910 Market St., Wilmington, DE 19899.[4]

Hills-McCanna Co., 400 Maple Ave., Carpentersville, IL 60110.[10]

Hilton-Davis Chemical Co., Division of Sterling Drug Inc., 2235 Langdon Farm Road, Cincinnati, OH 45237.[4]

Honeywell, Inc., 200 Smith St., Waltham, MA 02154.[13]

ICI Americas, Inc., Wilmington, DE 19897.[4]

International Telephone & Telegraph Corp., 280 Cochituate Road, Suite 108, Framington, MA 07101.[1]

Intsel Corp., 825 Third Ave., New York, NY 10022.[14]

Keene Corporation-Lighting Division, Industrial Way, Wilmington, MA 01887.[1]

Keystone Lighting Corp., Inc., U.S. 13 & Beaver Streets, Bristol, PA 19007.[1]

Kramer Trenton Co., Box 820, Trenton, NJ 08605.[10]

Lightolier, Inc., 346 Claremont Ave., Jersey City, NJ 07305.[1]

Litton Industrial Products, Inc., Louis Allis Division, 16555 West Ryerson Road, New Berlin, WI 53151.[15]

Litton Microwave Cooking, Litton Systems, Inc., P.O. Box 9461, Minneapolis, MN 55440.[16]

Litton Systems Inc., Jefferson Electric Division, 840 South 25th Ave., Bellwood, IL 60104.[1]

Marathon Electric Manufacturing Corp., P.O. Box 1407, Wausau, WI 54401.[10]

McGraw-Edison Co., Area Lighting Div., 7601 Durand Ave., Racine, WI 53405.[1]

McGraw-Edison Co., Kitchen Appliance Division, P.O. Box 1111, Chattanooga, TN 37401.[16]

Metalux Corp., P.O. Box 1207, Americus, GA 31709.[1]

The Miller Company, Lighting Division, 99 Center Street, Meridian, CT 06450.[1]

Montedison USA, Inc., 1114 Ave. of the Americas, New York City, NY 10036.[4]

Nagase America Corp., 500 Fifth Ave., New York, NY 10036.[4]

National Services Industries, Lithonia Lighting Div., 1335 Industrial Blvd. NW., Conyers, GA 30207.[1]

National Solid Waste Management Association, 1120 Connecticut Ave.,NW., Washington, DC 20036.[6]

Phillips Petroleum Company, 10 C2 Phillips Bldg., Bartlesville, OK 74004.[17]

Phthalchem Inc., 6675 Beechlands Dr., Cincinnati, OH 45237.[4]

Pope Chemical Corp., 33 Sixth Ave., Paterson, NJ 07524.[4]

Prescolite, 1251 Doolittle Drive, San Leandro, CA 94557.[1]

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*See the definition of "PCB" in Section 761.2(q) of the proposed PCB Prohibition Rule (43 FR at 24513, June 7, 1978) and the definition of "PCB Equipment" in Section 761.2(v) of the final PCB Disposal and Marking Rule (43 FR at 7157, February 17, 1978).

**This change classifies the manufacture of PCB equipment as "processing" subject to prohibition as of July 1, 1979 under Section 6(e)(3)(A)(ii) of TSCA. The proposed regulation classified such activity as "manufacture" subject to prohibition as of January 1, 1979 under Section 6(e)(3)(A)(i). For further discussion, see Section VI.B.1.a. of the preamble to the final PCB Prohibition Rule, which appears elsewhere in today's Federal Register.

[1] Requests an exemption in order to manufacture either fluorescent or High Intensity Discharge (HID) lighting fixtures with a PCB capacitor or PCB ballast transformer.

[2] Requests an exemption in order to manufacture PCB ballast transformers which can be used by its customers in the manufacture of fluorescent and HID lighting fixtures.

[3] Requests an exemption in order to continue manufacturing aluminum chloride which is contaminated with PCBs.

[4] Requests an exemption to either manufacture or import diarylide yellow or phthalocyanine pigments.

[5] Requests an exemption in order to import into the United States PCB waste material for disposal.

[6] Requests an exemption in order to incorporate PCBs as an additive component in rigid PVC vibration damping devices used in large machine tools.

[7] Requests an exemption in order to use PCB capacitors in the manufacture of electric pumps and water and waste water control systems.

[8] Requests an exemption in order to use PCB capacitors in the manufacture of air conditioners or air conditioner sub-assemblies.

[9] Requests an exemption in order to continue manufacturing an unspecified chemical using a PCB contaminated intermediate.

[10] Requests an exemption in order to manufacture motors using a PCB capacitor or to manufacture another product or system using such a motor.

[11] Requests an exemption in order to continue manufacturing phenylchlorosilanes with unintentional PCB impurities.

[12] Requests an exemption in order to sell a small quantity of PCB.

[13] Requests an exemption in order to import PCB equipment and small PCB capacitors for purposes of repair, replacement and trade-in.

[14] Requests an exemption in order to import a dielectric called Electrophenyl T-60 which is contaminated with PCB.

[15] Requests an exemption in order to use PCB capacitors in the manufacture of power conversion equipment.

[16] Requests an exemption in order to use PCB capacitors in the manufacture of microwave ovens.

[17] Requests an exemption in order to import PCBs for use in research and development of an unspecified chemical intermediate.

Ridgeway Color & Chemical of Wheelabrator-Fry, Inc., 75 Front St., Ridgeway, PA 15853.[4]
Rollins Environmental Services, Inc., One Rollins Plaza, P.O. Box 2348, Wilmington, DE 19899.[5]
Sandoz, Inc., Sandoz Colors and Chemicals Division, 59 Route 10, East Hanover, NJ 07936.[4]
Sim-Kar Lighting Fixture Co., Inc., 601 East Cayuga Street, Philadelphia, PA 19120.[1]
Spero Electric Corp., 18222 Lanken Ave., Cleveland, OH 44119.[1]
Sta-Rite Industries Inc., Suite 3300, 977 East Wisconsin Ave., Milwaukee, WI 53202.[7]
Stauffer Chemical Company, on behalf of SWS Silicones Corp. Subsidiary, Westport, CT 06880.[10]
Steelcase Inc., 1120 36th Street, Grand Rapids, MI 49501.[1]
Sterner Lighting Systems, Inc., 351 Lewis Ave., NW., Winstead, MN 55395.[1]
Sun Chemical Corp., Pigments Division, Research & Operations Center, 4625 East Ave., Cincinnati, OH 45232.[4]
Sumitomo Corporation of America, 345 Park Ave., New York, NY 10022.[4]
Tappan Air Conditioning-Smith Jones, Inc., 206 Woodford Ave., Elyira, OH 44035.[8]
Tivian Chemical Associates, 720 Union Street, Manchester, NH 03104.[10]
Thomas Industries, Inc., Benjamin Division, P.O. Box 180, Sparta, TN 38583.[1]
Toyo Ink America, Inc., 560 Sylvan Ave., Englewood Cliffs, NJ 07632.[4]
Universal Manufacturing Corp., 29 E. 6th Street, Paterson, NJ 70509.[3]
Vivitar Corp., 1630 Stewart Street, Santa Monica, CA 90406.[20]
Weatherking, Inc., P.O. Box 20434, Orlando, FL 32814.[5]
Westinghouse Electric Corp., Lighting Business Unit, P.O. Box 624, Vicksburg, MS 39180.[1 19]
Whiteway Manufacturing Co., 1736 Dreman Avenue, Cincinnati, OH 45223.[1]
Wide-Lite Corp., P.O. Box 606, Redwood Rd. & IH35, San Marcos, TX 78666.[5]
Wylain, Inc., Mold Cast Lighting Division, I-80 at Maple Avenue, Pine Brook, NJ 07058.[1]

EPA has completed a preliminary analysis of the above-listed petitions for exemption from the PCB Prohibition Rule which was promulgated elsewhere in today's **Federal Register**. The Agency has decided that it will not evaluate at this time any of the 49 requests for exemption from the prohibitions on manufacturing equipment which contains a PCB capacitor. (The requests which fall in this category are those footnoted with numbers 1, 2, 7, 8, 10, 13, 15, 16, 20.) EPA is not processing these requests in the present proceeding because, as previously noted, the Agency defines in the final PCB Prohibition Rule the activity of "manufacturing" equipment utilizing a PCB capacitor as "processing" of PCBs. Processing of PCBs is not subject to section 6(e)(3) until July 1, 1979.

EPA will consider petitions concerning PCB processing activities in a subsequent proceeding. Persons who filed requests for exemptions for this activity will not be required to refile. However, they will be required under Interim Procedural Rules, found elsewhere in today's **Federal Register**, to indicate to EPA in writing if they wish their petitions to be considered as requests for exemption from the July 1, 1979 prohibition on processing or distribution in commerce of PCBs.

Imports of PCB Wastes

Chemical Waste Management, Ltd., the National Solid Waste Management Association, and the Rollins Environmental Services, Inc., petitioned to continue importation of PCB waste material into the U.S. for purposes of disposal. These petitions have been mooted by the PCB Prohibition Rule published elsewhere in today's **Federal Register**. For the reasons explained in the preamble to that regulation, EPA has decided to allow imports and exports of PCB waste for disposal (so long as such disposal is in accordance with Subpart B of the regulation) until May 1, 1980. Accordingly, no petitions for importation of PCB wastes for disposal are required.

Manufacture and Import of Pigments

EPA proposes to grant all of the requests to either manufacture or import diarylide and phthalocyanine pigments containing more than 50 ppm PCB. (These petitions are identified in the above list with footnote number 4). Information submitted with the requests and testimony and written comments received during the rulemaking for the PCB Manufacturing, Processing, Distribution in Commerce and Use Prohibition Rule which EPA promulgated today indicates (1) granting these exemption requests would not result in an unreasonable risk of injury to health or the environment and (2) good faith efforts are being made by the pigment industry to develop alternative processes for manufacturing the diarylide and phthalocyanine pigments without PCB contamination. Most of these pigments have PCB concentrations in the range of several hundred parts per million. These PCBs cannot easily be separated from the pigments because of the structural similarity of the PCBs with the pigments. Once manufactured, the pigments are mixed with other substances to form paints, inks, and a variety of other products.

In deciding whether to permit continued pigment manufacture, EPA has considered the relatively limited human and environmental exposure to PCBs involved and the economic effects associated with prohibiting manufacture of these pigments. The greatest potential for exposure is in the application of the paints and inks using these pigments. These products contain far less than 50 ppm PCB because of the dilution that takes place when the pigment is mixed with the medium it is coloring. As a result, the health and environmental risks are relatively small. At the present time, these particular pigments account for most of the yellow and blue pigments in use and a significant portion of the total pigment market. If the manufacture of these pigments is not permitted until the conversion to alternative processes is complete, there will be a severe impact on the pigment industry as well as its customers in the paint and graphic arts industries.

The potential costs of compliance will be greatly reduced if an exemption is granted while process changes to reduce PCB contamination are made. It is anticipated that such changes can be made over a period of a year or two. The increased health and environmental risk will be relatively small as there will be limited exposure to PCBs as a result of the exemption.

Furthermore, the granting of these exemption requests will be consistent with the authorization for continued use of phthalocyanine and diarylide yellow pigments which is contained in the final PCB Prohibitions Rule.

EPA especially invites comment not only on the merits of granting the above described petitions, but also on the terms and conditions which the Agency should apply to such exemptions if granted.

Import of PCB Equipment

Honeywell Inc.'s request to be permitted to continue importing PCB equipment will not be evaluated in this proceeding but will be evaluated (if requested) in the future rulemaking dealing with exemptions from the prohibition on processing and distribution in commerce of PCBs. The PCB Prohibition Rule which EPA promulgated today treats importation of PCB equipment in the same manner as

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[19] Requests an exemption in order to continue importing a polysiloxane intermediate which is used in the manufacture of heat curable silicone rubber products and which is contaminated with 600 ppm PCBs. Chemical (polysiloxane intermediate) is described generically because petitioner has claimed confidential treatment for identity of chemical.

[19] Requests an exemption in order to continue unspecified activity which may be subject to either January 1, 1979 or July 1, 1979 prohibitions. See later discussion in this Notice.

[20] Requests an exemption in order to use PCB capacitors in the manufacture of photographic enlargers.

the domestic assembly of such equipment and, therefore, such activity is not prohibited until July 1, 1979.

Other Petitions

Guardian Chemical Corporation's request to be permitted to sell small quantities of 4,4'-Dichlorodiphenylsulfone as a laboratory reagent also will not be evaluated now but will be evaluated (if requested) in the processing and distribution in commerce exemption proceeding. Guardian did not indicate that they in any way manufacture PCBs. However, it does appear that the activity which is seeks to continue is the "distribution in commerce" of PCBs.

Similarly, the petition submitted by Cincinnati Milacron which, if granted, would permit the company to continue to use PCBs as an additive component in their manufacture of polyvinyl chloride vibration damping devices will not be considered now but will be considered in the future proceeding, if requested. The reason for delaying the processing of Cincinnati Milacron's petition is that EPA has determined that the company's use of PCBs is "processing" as that term is defined by the PCB Prohibition Rule and is therefore not subject to this proceeding.

Exemption Requests Proposed To Be Denied

EPA proposes to deny Intsel Corporation's request to import Electrophenyl T-60 and Phillips Petroleum Company's request to import significant quantities of PCBs for unspecified research and development purposes. Neither of the requestors have shown that they are making a good faith effort to develop substitutes which do not contain 50 ppm or greater PCBs, nor that the adverse economic or other consequences of EPA's denying the requests outweigh the potential harm to health and the environment of EPA's granting the requests.

Exemption Requests for Which a Determination Is Not Proposed

EPA has not proposed its disposition of the requests received from Alcoa which respect to its manufacture of aluminum chloride and the General Electric Co. with respect to its manufacture of phenylchlorosilanes due to the technical complexity of the activities for which exemptions are sought.

Before making a determination with respect to these exemption petitions, the Agency will seek, by means of written requests to the companies and by this notice, further comments and/or data. Additional information on these petitions is given below.

Alcoa requested a one-year exemption for the manufacture of approximately 132.77 million pounds of aluminum chloride at its facility in Anderson County, Texas. The process would result in the annual production of approximately 9,294 pounds of PCBs, 95% of which is concentrated and disposed of as a PCB mixture. The remaining 5% represents an impurity in the aluminum chloride which Alcoa sells for a variety of uses. Comments and data are requested on the health and environmental risks that would be posed by granting Alcoa's exemption and also on the risks associated with using the aluminum chloride for applications other than smelting aluminum. In particular, EPA is interested in information regarding processes for the production of aluminum chloride which do not produce PCBs. In addition, EPA invites comments on the economic or other adverse impacts that denial of the exemption would have on Alcoa's users of this product.

General Electric seeks an exemption to continue the manufacture of phenylchlorosilanes with unintentional PCB impurities. The manufacturing process results in approximately 50,000 pounds per year of PCBs which are removed and concentrated for disposal in an on-site incineration facility in Waterford, New York. The phenylchlorosilanes are used in the production of a number of high performance silicone products for various industrial, aerospace, and defense applications. Comments and data are requested on the health and environmental risk associated with granting or denying General Electric's exemption petition, on alternative methods of manufacturing phenylchlorosilanes without PCB contamination, and on the impact of denying this petition on the users of this chemical.

EPA has also not proposed its disposition of the petition of Tivian Chemical Associates. EPA is seeking to clarify whether Tivian's activity for which exemption is sought is subject to the January 1, 1979 prohibition on PCB manufacture and importation, or rather to the July 1, 1979 prohibition on PCB processing and distribution in commerce.

In addition, EPA has not proposed its disposition of the petitions of Dow Corning Corporation and Stauffer Chemical Company. EPA currently does not have sufficient information to determine whether exemptions should be proposed for these companies. Dow Corning has not identified the substance which it wishes to manufacture and the amount of PCB contamination in the chemical intermediate. Stauffer has not provided sufficient information concerning the identity of products which may be subject to PCB contamination. EPA will seek, by means of written requests to both companies, to clarify the identity of the products identified in the petitions of the companies, and the nature of the manufacturing processes, which includes determining whether intermediates are contaminated during the manufacturing process.

Section 750.13 of the Interim Procedural Rules does not require EPA to announce its proposed disposition of exemption petitions in a Notice of Proposed Rulemaking. Due to the need to expedite action on the exemption petitions, EPA will not publish a subsequent notice concerning the Alcoa, General Electric, Tivian, Dow Corning and Stauffer petitions.

Dated: May 11, 1979.

Marilyn C. Bracken,

Acting Assistant Administrator for Toxic Substances.

[FR Doc. 79-16901 Filed 5-30-79; 8:45 am]

BILLING CODE 6560-01-M

[40 CFR Part 761]

[FRL 1227-6]

Polychlorinated Biphenyls (PCBs); Amendment to Criteria for Chemical Waste Landfills

AGENCY: Environmental Protection Agency.

ACTION: Proposed amendment to final rule; notice of informal hearing.

SUMMARY: This proposed rule would modify Annex II of Subpart E of the Polychlorinated Biphenyls regulation promulgated elsewhere in today's **Federal Register** under the authority of section 6(e) of the Toxic Substances Control Act. The proposed rule would amend the criteria for chemical waste landfills by reducing the required distance between the bottom of the chemical waste landfill liner system and the historical high water table from fifty feet to five feet.

DATES: Written comments, preferably in triplicate, must be received prior to the close of business July 16, 1979. Informal hearing date and time (if a hearing is requested): August 6, 1979, at 10:00 a.m. in Washington, DC. Requests to hold a hearing and to participate in the hearing must be received prior to the close of

business on July 16, 1979. See Supplementary Information below.

ADDRESSES: Send comments to: Document Control Officer (TS-793), Office of Toxic Substances, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, Attn: Docket Number OTS/066000(PCB/RR). The informal hearing (if a hearing is requested) will be held in Washington, DC. The exact location of the hearing will be made available by calling the toll-free number 800-424-9065. Address requests to participate to Ms. Linda Thomson, Hearing Clerk, Office of Toxic Substances (TS-794), U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, Attn: Docket Number OTS/066000(PCB/RR) The telephone number for Ms. Thomson is (202)-755-1188.

FOR FURTHER INFORMATION CONTACT: John B. Ritch, Jr., Director, Office of Industry Assistance, Office of Toxic Substances (TS-799), Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460. Call the toll free number (800)-424-9065, (in Washington, DC, 554-1404).

SUPPLEMENTARY INFORMATION: The Environmental Protection Agency proposes this rule pursuant to the authority of section 6(e) of the Toxic Substances Control Act (Pub. L. 94-469; 90 Stat. 2003; 15 U.S.C. 2601 et seq., hereinafter referred to as TSCA). The procedures for rulemaking under section 6 of TSCA (40 CFR Part 750), 42 FR 61269 (December 2, 1977), will be followed. The official record of rulemaking is located in Room 447, East Tower, Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, (202)-755-6958. It will be available for viewing and copying from 9 a.m. to 4 p.m., Monday through Friday, excluding holidays. Hearing transcripts and other hearing materials will be added to the record as they become available.

I. Chemical Waste Landfill Criteria

In Annex II of Subpart E of the PCB Rule (published elsewhere in today's **Federal Register**), the Agency specifies criteria for chemical waste landfills to be used for the disposal of PCBs. Section 761.41(b)(3), Hydrologic Conditions, states that the bottom of the landfill liner system or natural in-place soil barrier must be at least fifty feet from the historical high water table. This requirement is essentially the same as the provisions contained in § 761.41(b)(2), Hydrology, of the PCB Disposal and Marking Rule (43 FR 7150, 7161, February 17, 1978). The earlier version of the PCB Rules will be superseded in thirty days by the PCB Rule published in final form today.

Because the distance between the bottom of a chemical waste landfill and the historical high water table cannot be fifty feet or more in many areas east of the Mississippi River due to the closeness of the water table to the surface, EPA Regional Administrators have had to use the waiver provisions of § 761.41(c)(4) to waive this criterion in order to be able to approve PCB chemical waste landfills. The Regional Administrators have been able to grant these waivers because the shorter separation between the bottom of the landfill and the groundwater was found not to present an unreasonable risk of injury to health or the environment from PCBs. After examining the circumstances related to these waivers, EPA has concluded, for the reasons stated below, that the fifty foot criterion in the rule is too stringent, and that the rule should be modified accordingly.

The state of the art in the design and construction of chemical waste landfill liner systems and leachate detection and collection systems has advanced sufficiently so that the bottom of the liner system can be as close as five feet from the historical high water table. The liner systems are designed to be virtually impermeable, and the leachate collection systems are designed as a back-up measure to help insure that the liner system is not penetrated by liquids. This approach has also been included in the proposed EPA Hazardous Waste Guidelines and Regulations (40 CFR Part 250) [see 43 FR 58946-59028, December 18, 1978] in § 250.45-2(a)(2) proposed under the authority of the Resource Conservation and Recovery Act (RCRA).

This proposed change would modify § 761.41(b)(3), Hydrologic Conditions, of the PCB Rule, to change from fifty feet to five feet the required minimum distance between the bottom of the liner system and the historical high water table.

II. Effective Date

It is the intent of EPA to make the final version of this proposed amendment effective thirty days after the date of publication in the **Federal Register**. The final promulgation of this rule is expected in September 1979.

Dated: May 11, 1979.

Marilyn C. Bracken,

Acting Assistant Administrator for Toxic Substances.

Pursuant to the Toxic Substances Control Act, 15 U.S.C. 2605, and pursuant to authority delegated in the *Background* section of the Preamble to the Final PCB Regulation published elsewhere in today's **Federal Register**, the following amendment to 40 CFR Chapter I, Part 761 is proposed.

Subpart E—List of Annexes

Annex II

Section 761.41 is amended by revising subparagraph (b)(3) to read as follows:

§ 761.41 Chemical waste landfills.

* * * * *

(b) * * *

(3) *Hydrologic Conditions.* The bottom of the landfill liner system or natural in-place soil barrier shall be at least five feet above the historical high groundwater table. Floodplains, shorelands, and groundwater recharge areas shall be avoided. There shall be no hydraulic connection between the site and standing or flowing surface water. The site shall have monitoring wells and leachate collection.

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APPENDIX C

Part II

Environmental Protection Agency

Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions; Use in Electrical Equipment

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 761

[OPTS-(62015C); TSH-FRL 2184-6]

Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions; Use in Electrical Equipment

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This final rule amends portions of the existing PCB rule; this action is being taken in response to an order from the U.S. Court of Appeals for the District of Columbia Circuit. This rule authorizes the use of PCBs in capacitors and the use and servicing of PCBs in electromagnets, circuit breakers, voltage regulators, reclosers, cable, switches (including sectionalizers and motor starters), and transformers other than railroad transformers. It also provides for the distribution in commerce and disposal of this electrical equipment.

DATES: These amendments shall be considered promulgated for purpose of judicial review under section 19 of TSCA at 1:00 p.m. Eastern Daylight Time on September 8, 1982. These amendments shall be effective on September 24, 1982. As of August 19, 1982, the provisions of the PCB rule (44 FR 31514, May 31, 1979, recodified at 47 FR 19527, May 6, 1982) amended by this action and the Interim Measures Program (46 FR 16090), March 10, 1981) are no longer in effect unless the U.S. Court of Appeals for the District of Columbia Circuit has acted to stay further its mandate. EPA has asked the court for a stay of the mandate that would leave the 1979 rule as it applies to electrical equipment and the Interim Measures Program in effect until these amendments become effective. The court has not acted as of the date of signature of these amendments. If the court does grant EPA's request, the court's action will likely be retroactive to August 19, 1982. As a matter of Agency policy, EPA will not enforce the provisions of section 6(e) of TSCA against any person who complies with the provisions of the 1979 rule and the Interim Measures Program between the expiration of the current stay, August 19, 1982, and the date when the court grants EPA's request of this rule becomes effective, whichever comes first.

FOR FURTHER INFORMATION CONTACT: Douglas G. Bannerman, Acting Director, Industry Assistance Office (TS-799), Office of Toxic Substances, Environmental Protection Agency, Rm. E-509, 401 M St., S.W., Washington, D.C. 20460, Toll free: (800-424-9065), In Washington, D.C. (554-1404), Outside the USA: (Operator-202-554-1404).

Copies of this rule and its support documents can be obtained from the Industry Assistance Office listed above.

SUPPLEMENTARY INFORMATION: OMB Control Number: 2070-0003.

I. Recodification of 40 CFR Part 761

Title 40 of the Code of Federal Regulations, Part 761, which regulates polychlorinated biphenyls (PCBs), has been reorganized. Notice of the recodification appears in the **Federal Register** of May 6, 1982 (47 FR 19527). This final rule uses the following new designations:

Old designation	New designation
Subpart A, § 761.2	Subpart A, § 761.3.
Subpart B, § 761.10	Subpart D, § 761.60.
Subpart C, § 761.20	Subpart C, § 761.40.
Subpart D, § 761.30	Subpart B, § 761.20.
Subpart D, § 761.31	Subpart B, § 761.30.
Subpart E, § 761.42	Subpart D, § 761.65.

II. Background

Section 6(e) of the Toxic Substances Control Act (TSCA) generally prohibits the use of PCBs after January 1, 1978. The statute sets forth two exceptions under which EPA may, by rule, allow a particular use of PCBs to continue. Under section 6(e)(2) of TSCA, EPA may allow PCBs to be used in a "totally enclosed manner." A "totally enclosed manner" is defined by TSCA to be "any manner which will ensure that any exposure of human beings or the environment to a polychlorinated biphenyl will be insignificant, as determined by the Administrator by rule." TSCA also allows EPA to authorize the use of PCBs in a manner other than a "totally enclosed manner" if the Agency finds that the use "will not present an unreasonable risk of injury to health or the environment."

EPA promulgated a rule, which was published in the **Federal Register** of May 31, 1979 (44 FR 31514), to implement sections 6(e) (2) and (3) of TSCA. This rule is listed in the Code of Federal Regulations under 40 CFR Part 761. The rule designated all intact, nonleaking capacitors, electromagnets, and transformers other than railroad transformers as "totally enclosed", thus permitting their use without specific authorization or conditions. The Environmental Defense Fund (EDF) petitioned the U.S. Court of Appeals for the District of Columbia Circuit to review that portion of the PCB rule that designated the use of intact, nonleaking capacitors, electromagnets and transformers (other than railroad transformers) as "totally enclosed." (*Environmental Defense Fund, Inc.* v. *Environmental Protection Agency*, 636 F.2d 1267). On October 30, 1980, the court decided that there was insufficient evidence in the record to support the Agency's classification of transformers, capacitors, and electromagnets as totally enclosed. The court invalidated this portion of the rule and remanded it to EPA for further action. The effect of this decision would have been to make the use of capacitors, electromagnets, and transformers other than railroad transformers, containing any concentration of PCBs a violation of section 6(e) of TSCA. An immediate ban of these uses would not only have disrupted electric service but would also have caused severe economic hardship for the public and United States industry. Therefore, EPA concluded that it was completely impractical to take no action and allow a total ban on the use of this equipment to go into effect immediately.

On January 21, 1981, EPA, EDF, and certain industry intervenors in *EDF* v. *EPA* filed a joint motion with the court. The motion asked for a stay of the court's mandate setting aside the classification of transformers, capacitors, and electromagnets as totally enclosed. During the period of the stay, EPA agreed to conduct a rulemaking on the use of PCBs in electrical equipment beginning with an Advance Notice of Proposed Rulemaking (ANPR). In addition, the Edison Electric Institute (EEI) through the Utility Solid Waste Activities Group (USWAG) agreed to develop some of the factual material necessary for the rulemaking. The parties also agreed on interim risk-reduction measures (the Interim Measures Program) for transformers containing PCBs at 50 ppm or greater. They suggested that the court make these measures a condition of the eighteen-month stay.

On February 12, 1981, the court granted the requests of the joint motion and entered an order. The text of the court's order was published in the **Federal Register** of March 10, 1981, along with EPA's ANPR on the use of PCBs in electrical equipment (46 FR 16090 and 46 FR 16096, respectively). The court's order allows the totally enclosed classification (40 CFR 761.20), to remain in effect for the duration of the stay. Therefore, persons who use PCB-containing transformers, capacitors, and

electromagnets may use this electrical equipment during the stay of the court's mandate, providing that they comply with the PCB rule and the Interim Measures Program which is detailed in the court's order.

The February 12, 1981, court order required EPA to promulgate a final rule within six months of receipt of the study from EEI/USWAG. Since the final report of the EEI/USWAG study was received on February 19, 1982, EPA was required to promulgate this final rule on the use of PCBs in electrical equipment by August 19, 1982. EPA's proposed rule regarding the use of PCBs in electrical equipment was published in the **Federal Register** of April 22, 1982 (47 FR 17426).

This final rule will become effective on September 24, 1982. The court-ordered stay of mandate is currently scheduled to expire on August 19, 1982. If that mandate were to issue before this rule becomes effective, the use of PCB's in electrical equipment covered by the use authorizations contained in this rule would be a violation of section 6(e)(2) of TSCA until the rule becomes effective. Therefore, on August 5, 1982, EPA requested that the court further stay its mandate until November 1, 1982. As of the date of signature of these amendments, the court has not acted on EPA's request. EPA expects that the court will grant the further stay and that the stay will be retroactive to August 19, 1982. However, until the court grants EPA's request or these amendments become effective, persons affected by the amendments will be uncertain about what rules to follow. As a matter of Agency policy, EPA will not enforce the provisions of section 6(e) of TSCA against any person who complies with the provisions of the 1979 rule and the Interim Measure Program between the expiration of the current stay, August 19, 1982, and the date when the court grants EPA's request or this rule becomes effective, whichever comes first.

In order to avoid a "race to the courthouse" by persons seeking judicial review of this rule, EPA has decided to designate the time and date of "promulgation" of this rule as 1:00 p.m. Eastern Daylight Time on September 8, 1982. The Agency has previously taken this approach for rules promulgated under the Clean Water Act (see 40 CFR 100.01, 45 FR 26048). The Agency will be considering a general rule for TSCA similar to 40 CFR 100.01.

III. Electrical Equipment Containing PCBs

This rulemaking was initiated to deal with those uses of PCBs which EPA had formerly classified as totally enclosed (transformers other than railroad transformers, capacitors, and electromagnets). (Any reference to transformers in this rule does not include transformers used on locomotives and self-propelled railroad cars unless otherwise specified.) In general, this equipment falls into two categories: (1) Equipment designed to contain PCBs at a high concentration and (2) equipment designed to contain mineral oil. Because of past manufacturing and servicing practices, the mineral oil-filled equipment often contains PCBs at low concentrations. The 1979 rule defined a PCB Transformer as one containing more than 500 ppm and a PCB-Contaminated Transformer as one containing between 50 and 500 parts per million (ppm). Very little mineral oil equipment contains PCBs at a concentration of 500 ppm or greater. This final rule makes frequent reference to the three ranges of PCB contamination: 0–50 ppm, 50–500 ppm, and greater than 500 ppm.

While administering the May 1979 PCB rule and gathering information for this rulemaking, EPA has identified five additional categories of oil-filled electrical equipment that contain PCB's. Those are: voltage regulators, switches (including sectionalizers and motor starters), circuit breakers, reclosers, and cable. These uses were not addressed in the May 1979 PCB rule because EPA was not aware that these devices contained PCBs.

IV. Summary of the Final Rule

This final rule modifies and clarifies some of the requirements presented in the proposed rule because of information obtained during the comment period and the public hearing (June 7–10, 1982) on the proposed rule. EPA's responses to various issues raised during this rulemaking are discussed in this "preamble" and are presented in more detail in a document titled "Support Document for the Electrical Equipment Use Rule/Response to Comments." The major elements of the final rule are summarized in the following list, with changes from the proposed rule highlighted. This final rule:

1. Uses the recodified version of the PCB rule (40 CFR Part 761).
2. Prohibits the use of PCB Transformers and PCB-filled electromagnets (with a PCB concentration of 500 ppm or greater) posing an exposure risk to food or feed, after October 1, 1985, and requires a weekly inspection of this equipment for leaks of dielectric fluid until that date. (The proposed rule would have authorized the use of this equipment indefinitely with a requirement for weekly inspections).
3. Authorizes the use of all other PCB Transformers for the remainder of their useful lives, and requires a quarterly inspection of this equipment for leaks of dielectric fluid.
4. Authorizes the use of large PCB Capacitors that are located in restricted-access electrical substations for the remainder of their useful lives. (The proposed rule would have only authorized the use of this equipment for ten years.)
5. Authorizes the use of large PCB Capacitors that are located in contained and restricted-access indoor installations for the remainder of their useful lives. (The proposed rule would have authorized the use of this equipment for only ten years.)
6. Prohibits the use of all other large PCB Capacitors after October 1, 1988. (The proposed rule would have authorized the use of this equipment for ten years.)
7. Eliminates the proposed inspection requirements for all large PCB Capacitors.
8. Authorizes the use of all PCB-containing, mineral oil-filled electrical equipment for its remaining useful life.
9. Clarifies what constitutes electrical equipment posing an exposure risk to food or feed.
10. Allows oil-filled cable to be assumed to contain less than 50 ppm PCBs if the actual PCB concentration is unknown. (The proposed rule would have required that the concentration be assumed to be between 50 and 500 ppm if it were unknown.)
11. Allows storage for disposal of nonleaking PCB Large High Voltage Capicators and PCB-Contaminated Electrical Equipment outside of qualified storage facilities after January 1, 1983. The proposed rule prohibited this storage after January 1, 1983.
12. Requires records of inspection and maintenance histories to be maintained for at least 3 years after disposing of PCB Transformers. (The proposed rule would have required record retention for five years.)
13. Clarifies that "disposal" includes leaks of PCBs.
14. Does not include the language contained in the proposed rule regarding the required extent of cleanup of PCB spills. Comments urged EPA to postpone consideration of this language, and the extent of cleanup of PCB spills will not be dealt with at this time.

V. Use Authorizations

As previously described, section 6(e)(2) of TSCA allows uses of PCBs in a

totally enclosed manner to continue without restriction. Section 6(e)(2)(C) defines the term "totally enclosed" to mean "any manner which will ensure that any exposure of human beings or the environment to a polychlorinated biphenyl will be insignificant as determined by the Administrator by rule." In the May 31, 1979 rule, EPA defined insignificant exposure as "not measurable or detectable by any scientifically acceptable analytical method." After examining the information submitted in response to this rulemaking, EPA has decided that no electrical equipment uses should be categorized as use in a totally enclosed manner. The leakage data contained in this information show that all types of electrical equipment leak during normal operation. Since this leakage could result in some detectable exposure of humans and the environment to PCBs, EPA believes that it is not appropriate to classify the use of this equipment as use in a totally enclosed manner.

This final rule allows the use of certain electrical equipment containing PCBs to continue under specified conditions because EPA has concluded that the uses will not present an unreasonable risk of injury to human health or the environment. This finding is in accordance with the provisions of section 6(e)(2)(B) of TSCA. The specific unreasonable risk findings are made for each authorized use in later sections of this preamble.

To determine whether a risk is unreasonable, EPA balanced the probability that harm will occur from the use against the benefits to society of the proposed regulatory action. In doing this, EPA has considered the following factors:

1. The effects of PCBs on human health and the environment.
2. The magnitude of PCB exposure to humans and the environment.
3. The benefits of using PCBs and the availability of substitutes for PCB uses.
4. The economic impact resulting from the rule's effect upon national economy, small business, technological innovation, the environment, and public health.

These are the same types of considerations listed in section 6(c) of TSCA, which describe factors EPA must consider in deciding whether a chemical presents an unreasonable risk under section 6(a) of TSCA.

A. Effects on Human Health and the Environment

In any regulatory context, agencies have imperfect data, but they still must regulate on the basis of the best data available. There are differing interpretations of data regarding the potential risks of PCBs to human health and the environment. Although additional study may be suggested, EPA is concerned about the health and environmental effects of PCBs on the basis of the data available now. These data are sufficient to support EPA's approach in this rule.

In *EDF* v. *EPA*, EPA's regulatory cutoff of 50 ppm was set aside by the court. As a result, other rulemaking activities are currently underway which deal with PCBs in low concentrations. EPA has been ordered by the D.C. Court of Appeals to submit, by November 1, 1982, a plan for dealing with certain PCBs in concentrations under 50 ppm. EPA expects that the implementation of this plan will lead to additional rulemaking.

The health effects data base for PCBs is continuously increasing. The Agency will consider any additional pertinent information on health and environmental effects and information on risks associated with PCBs during the development of that future rulemaking.

Should new information on health effects or other areas of concern with PCBs become known, Section 21 of TSCA provides a mechanism for interested persons to petition the Agency to initiate new rulemaking or modify existing rules.

In determining whether authorizations are warranted, EPA considered information regarding the effects of PCBs on human health and the environment. The effects of PCBs were described in various documents which are part of the rulemaking record for the May 31, 1979, rule. EPA evaluated this information, new information submitted to the Agency, as well as other recent literature on the effects of PCBs. The results are presented in the document "Response to Comments on Health Effects of PCBs". This document is included in the rulemaking record. Copies of this document are available through the Industry Assistance Office (see the "FOR FURTHER INFORMATION CONTACT" paragraph).

1. *Health effects.* Documents on health effects were submitted to EPA by (1) the Edison Electric Institute (EEI) together with the Utility Solid Waste Activities Group (USWAG) and the National Rural Electric Cooperative Association (NRECA), (2) the National Electrical Manufacturers Association (NEMA), and (3) the Chemical Manufacturers Association (CMA). These documents are included in the rulemaking record. These documents concluded that the use of PCBs in electrical equipment does not present a significant risk to human health.

EPA has reached conclusions different from those presented in the documents submitted. While PCBs have not been found to be uniquely toxic, EPA concludes that they are toxic and persistent.

EPA agrees with the comments submitted that chloracne occurs in humans exposed to PCBs. Although the effects of chloracne are reversible, EPA does not consider it insignificant. Chloracne is painful, disfiguring and may require a long period of time before symptomatology disappears. Other areas of major concern have been identified by EPA. EPA finds that reproductive effects, developmental toxicity, and oncogenicity are areas of concern and may produce effects in humans exposed to PCBs.

Available data show that some PCBs have the ability to alter reproductive processes in mammalian species, sometimes even at doses that do not cause other signs of toxicity. Animal data and limited available human data indicate that prenatal exposure to PCBs can result in various degrees of developmentally toxic effects. Postnatal effects have also been demonstrated on immature animals following exposure prenatally and via breast milk.

Available animal studies indicate an oncogenic potential (the degree of which would be dependent on exposure). Available epidemiology data are not adequate to confirm or negate oncogenic potential in humans at this time. Further epidemiological research is needed in order to correlate human and animal data, but EPA does not find any evidence to suggest that the animal data would not be predictive of human potential.

EPA agrees that little or no mutagenic activity from PCBs is indicated from available data. It is EPAs opinion that more information is needed to draw a final conclusion on the possibility of mutagenic effects from PCBs.

EPA does not attribute all the effects observed with PCBs to be due to toxic impurities. Relatively pure PCB congeners have been shown to produce toxicity equivalent to that found when testing commercial PCB mixtures containing higher levels of impurities.

EPA also does not assume that all PCBs are equivalent toxicologically. It cannot be assumed that if one PCB congener is positive or negative for a specific health effect, then all PCB congeners are also positive or negative for that specific health effect. Research is just beginning in this area; many more studies need to be conducted on specific congeners before conclusions can be

reached on an isomer or congener specific basis.

2. *Environmental effects.* Very little information was submitted during the comment period with regards to the environmental effects of PCBs. EPA has conducted a literature search to provide additional information on the environmental effects of PCBs.

PCBs have been shown to affect the productivity of phytoplankton and the composition of phytoplankton communities. Deleterious effects on environmentally important freshwater invertebrates from PCBs have been demonstrated. PCBs have also been shown to impair reproductive success in birds and mammals.

It has been demonstrated that PCBs are toxic to fish at very low exposure levels. The survival rate and the reproductive success of fish can be adversely affected in the presence of PCBs. Various sublethal physiological effects attributed to PCBs have been recorded in the literature. Abnormalities in bone development and reproductive organs have also been demonstrated.

EPA concludes that PCBs can be concentrated and transferred in freshwater and marine organisms. Transfer up the food chain from phytoplankton to invertebrates, fish, and mammals can result ultimately in human exposure through consumption of PCB-containing food sources.

3. *Risks.* Toxicity and exposure are the two basic components of risk. As indicated above, EPA concludes that in addition to chloracne there is the potential for reproductive effects and developmental toxicity as well as oncogenic effects in humans based on animal data. EPA also concludes that PCBs do present a hazard to the environment. Potential for exposure of the environment to PCBs was included in EPA's consideration of each category of use of PCBs in electrical equipment.

Minimizing exposure to PCBs should minimize any potential risk. The requirements of this rule will result in the reduction of exposure, and in some uses eliminate exposure to PCBs, relative to present exposure levels from electrical equipment use. EPA's analysis of alternative conditions for use authorizations includes examining the effectiveness of each condition in reducing exposure, thereby reducing the associated risk.

B. General Benefits of Using Electrical Equipment

The electrical equipment being considered in this rulemaking is used extensively by electric utilities and other industries to provide efficient and reliable electrical energy. There are currently millions of pieces of electrical equipment in use which contain PCBs. Although allowing the statutory ban to become effective is theoretically one available alternative, EPA believes an immediate ban on these uses would be unacceptable since it would disrupt electric service throughout the United States. An adequate supply of non-PCB replacement equipment and storage/disposal capacity is not immediately available. The resulting economic impact associated with an immediate ban has been conservatively estimated at about $175 billion in the Regulatory Impact Analysis prepared for this rulemaking.

The other factors that EPA considered to determine whether uses of PCBs in electrical equipment warrant authorization, the balancing of these factors, and EPA's conclusions regarding unreasonable risks are discussed separately in this notice for each category of electrical equipment.

C. Use and Servicing of Transformers

This unit on the use and servicing of transformers analyzes only those transformers that do not pose an exposure risk to food or feed. The analysis of equipment posing an exposure risk to food or feed is found in Unit E of this portion of the preamble.

Transformers are used extensively by electric utilities and other industries to transmit and distribute electric power efficiently. The use of PCBs in transformers has resulted in the dielectric fluid of some transformers containing between 60 and 70 percent PCBs by design. Transformers designed to contain mineral oil dielectric fluid have been contaminated with PCBs during past servicing and manufacturing activities.

EPA estimates that there are 39,600 PCB Transformers designed to contain PCBs in use in the electric utility industry and approximately 91,600 in all other applications. EPA also estimates that there are over 20 million mineral oil transformers in use in the electric utility industry and about 5 million in all other applications. These estimates are for the end of 1981 and are summarized in the proposed rule for this rulemaking (47 FR 17426, April 22, 1982).

Transformers are located throughout the nation's electrical generation, transmission, and distribution systems, many of which are located near consumers of electric power. However, transformers designed to contain PCBs are more restricted in their distribution than other transformers. These PCB Transformers are located in secure indoor locations and in electrical substations and are not mounted on utility poles throughout electric service areas.

1. *Magnitude of exposure.* EPA is concerned about releases of PCBs from all transformers because of the potential to expose humans and the environment to PCBs. In general, PCB Transformers pose greater exposure risks due to the use of higher concentration and larger quantities of PCBs than mineral oil-filled transformers. A release of PCBs into the environment has the potential to reach acquatic systems, build up in the food chain and ultimately expose humans through ingestion of PCBs.

Although it is impossible to measure exactly the effectiveness of an inspection and maintenance program in avoiding releases of PCBs to the environment, such a program will reduce the actual amount of PCBs released from PCB Transformers by correcting otherwise undetected leaks of dielectric fluid and reducing the number of transformer failures due to improper maintenance. Additional benefits of this program include containment of active leaks which are discovered and cleanup and disposal of leaked material. All of these benefits will result in reduced exposure to PCBs. EPA estimates that without an inspection and maintenance program as many as 1.3 million pounds of PCBs could be released from PCB Transformers over their entire lifetimes.

2. *Benefits of PCBs and availability of substitutes.* Although the electrical properties of PCBs are not as good as mineral oil, PCBs have a higher fire point than mineral oil. It is the fire resistance of PCBs that makes them an excellent dielectric fluid in transformers located where concerns for fire safety are paramount.

PCB Transformers can be replaced by comparably rated mineral oil transformers even where fire safety is an issue as long as fire codes and insurance requirements allow it. In most cases these restrictions require additional fire prevention measures, such as vaults, sprinklers, or alarms.

A number of other substitute dielectric fluids have been developed to replace PCBs. These fluids can be used in replacement transformers or used to refill transformers which contain PCB dielectric fluid. Many of these fluids appear to possess acceptable characteristics. The National Electrical Manufacturers Association estimates that new transformers to replace all PCB Transformers could be manufactured in five years or less using these substitute fluids. Substitute fluids for PCBs offer satisfactory electrical properties and flammability characteristics which are much better than mineral oil. The

persistence and bioaccumulative properties of PCB substitute fluids are less those of PCBs.

Persons owning mineral oil transformers containing PCBs may substitute for the PCBs by purchasing new equipment that does not contain PCBs, replacing the contaminated fluid with new fluid that does not contain PCBs, or otherwise servicing the existing dielectric fluid in order to reduce the PCB concentration.

3. *Economic and environmental impacts of regulatory requirements.* As discussed under "Magnitude of Exposure," the actual environmental impact of a quarterly inspection program for PCB Transformers that do not pose an exposure risk to food or feed is impossible to measure. However, a quarterly inspection and maintenance program has been demonstrated for more than one year under the Interim Measures Program to be an effective measure in reducing total releases of PCBs from these transformers. This fact was confirmed by comments in response to the ANPR and the proposed rule. Comments indicated that this inspection and maintenance program reduced releases of PCBs from transformers and supported it as an effective risk reduction measure.

EPA estimates that the cost of a quarterly inspection and maintenance program is $28.6 million for the electric utility industry and $47.9 million for nonutility industries. These estimates represent total costs of the required program over the entire useful lives of the transformers. Additional costs and benefits associated with the use authorization and conditions are discussed in the Regulatory Impact Analysis developed for this final rule. This document also contains an analysis of costs and benefits of other regulatory options considered but not adopted, including some options which were considered in the development of the proposed rule.

4. *Findings on the use and servicing of transformers.* In the proposed rule, EPA discussed whether the use of PCBs in transformers should continue and analyzed options that would effectively reduce the risks of exposure from the use of PCB-containing transformers. The proposed rule authorized the use of PCBs in transformers for the remainder of their useful lives, subject to certain conditions.

Several comments disagreed with EPA's proposed rule. These comments suggested a wide range of alternatives, from phasing out the use of PCBs in all transformers in a very short period of time to authorizing them with no conditions. However, no comments provided information that leads EPA to conclude that its findings in the proposed ruled were inappropriate.

The cost of imposing the more restrictive conditions suggested by some comments are not reasonable in comparison to the benefits of such conditions. For example, one comment suggested that the use of PCBs in all mineral oil transformers should be phased out in a very short period of time, perhaps as short as three years. Such an approach would cost millions of dollars per pound of PCB release avoided. EPA concludes that the imposition of such a condition is not reasonable.

On the other hand, some comments suggested the raising of the upper limit of the range of contamination of PCB-Contaminated Transformers from 500 ppm to 5000 ppm. Such an approach would result in unnecessary and avoidable exposure to PCBs since there is information in the rulemaking record that indicates that technology is available at reasonable cost to reduce the PCB concentration in transformers to below 500 ppm. Comments at the hearing by people who have performed such operations or have studied the subject indicate that concentrations below 500 ppm have been achieved by draining, flushing, and refilling followed by additional servicing.

After reviewing all of the information submitted in response to the proposed rule and other information in the rulemaking record, EPA concludes that the requirements presented in the proposed rule for transformers not posing an exposure risk to food or feed were reasonable. Details of the calculations of costs and benefits which led EPA to this conclusion are found in the Regulatory Impact Analysis. EPA's responses to specific comments are contained in the Support Document for the Electrical Use Rule—Response to Comments.

This final rule does not make any major changes to the proposed conditions of the use authorization for PCB-containing transformers that do not pose an exposure risk to food or feed. The few minor changes that were made are explained in subsequent paragraphs.

To reduce the risks associated with the release of PCBs from PCB Transformers, this rule requires inspection and maintenance procedures as a condition to the use authorization for all PCB Transformers. These conditions vary with the potential for exposure to PCBs. A quarterly inspection and maintenance program is required for all PCB Transformers that do not pose an exposure risk to food or feed. However, the inspection frequency is reduced to annually for any PCB Transformer which contains less than 60,000 ppm PCBs or has secondary containment capable of holding at least 100 percent of the transformer's fluid volume. No inspection or follow-up maintenance procedures are required for transformers containing less than 500 ppm PCBs because of the low concentration of PCBs involved.

A program of inspection and maintenance for PCB Transformers reduces the amount of PCBs released and resultant PCB exposure by finding, stopping, and cleaning up small leaks of dielectric fluid. Properly maintained transformers are less likely to experience leaks, spills, or equipment failure. An inspection program also keeps company personnel informed and alert to the potential impact of PCBs discharged from electrical equipment.

Although some data submitted in response to the proposed rule indicated that certain government-owned PCB Transformers leak more than transformers owned by others, EPA believes that the required follow-up maintenance to correct leaks addresses this problem. In addition, owners of transformers that have high service costs to repair recurring leaks have an incentive to replace it as PCB-Contaminated Electrical Equipment or reclassify the transformer.

Servicing restrictions also apply as a condition to the use authorization for transformers that contain PCBs. Any servicing of a PCB Transformer (including rebuilding) that requires the removal of the transformer coil from the transformer casing is prohibited. This condition not only reduces the exposure risks to service personnel, but, also prevents the use of PCB Transformers beyond their normal operating lives. Other servicing conditions primarily prevent the further contamination of PCB-containing transformers.

EPA believes that authorizing the use of PCB-filled transformers and mineral oil-filled transformers containing PCBs according to the proposed conditions does not present an unreasonable risk for the following reasons:

a. If EPA did not authorize the use of PCBs in tranformers, it would cost the public and United States industry billions of dollars, primarily as a result of the disruption of electrical service. The resulting reduction in risk would not outweigh these substantial costs.

b. The required inspection and maintenance program reasonably reduces the exposure risks associated with the use of PCBs in PCB Transformers, and the servicing conditions prevent further PCB

contamination of transformers. These measures are much less costly than a ban on the use of PCBs in transformers would be.

c. Releases of PCBs to the environment and exposure to humans and biological organisms from mineral oil transformers are minimal. EPA estimates that these transformers contain less than 0.15 percent of all the PCBs used in transformers and release less than one half of a percent of these PCBs on an annual basis.

d. The costs associated with other risk reduction measures such as accelerated phase-out, reducing the PCB concentration in the dielectric fluid, or providing containment for transformers are not reasonable when compared to the potential reduction in release of PCBs achieved if any of these measures were required for all PCB Transformers.

Several comments said that even though phase-out, containment, and reduction of PCB concentration are not warranted as regulatory requirements, each of these measures might be cost-effective in individual situations on a voluntary basis. In fact, some companies have already initiated such efforts because of benefits in their specific cases. EPA agrees with these comments, and, to recognize the positive effect those actions have in reducing risks from PCB Transformers, this rule provides for less frequent inspections for those PCB Transformers. For a PCB Transformer with secondary containment capacity of at least 100 percent of the transformer's total dielectric fluid volume, or a PCB Transformer which contains less than 60,000 ppm (6 percent) PCBs, a visual inspection is required only once every 12 months. Secondary containment of at least 100 percent of the transformer's total dielectric fluid volume will contain virtually all releases of PCBs from the transformer. Draining, flushing, and refilling a PCB Transformer reduces the amount of PCBs in a transformer by a factor of between 10 and 15, leaving a residual PCB concentration of between 30,000 and 80,000 ppm. EPA believes that, for transformers with these kinds of reduced risks, it is reasonable to inspect no more often then once per year. EPA chose a 60,000 ppm PCB concentration cutoff because, on the basis of numerous demonstrations, it has been shown to be a consistently achievable concentration after one carefully conducted fluid replacement for a PCB Transformer. Additional incentives (such as reduced or eliminated use, servicing and disposal requirements) exist in the PCB rules which encourage further reduction in PCB concentration to 50 and 500 ppm.

Several persons commented that the visual inspection required by this final rule could pose an electrical shock hazard to unqualified personnel. It has always been EPA's intent that the extent of a visual inspection should be only as complete as safely possible. This will vary, depending on the physical constraints of each transformer installation. No visual inspection should require an electrical shutdown of the transformer being inspected. Transformers that require electrical isolation (shutdown) to be inspected thoroughly (due to safety precautions, enclosures, etc.) may be inspected as completely as possible without disconnecting the transformer. Future inspections should then be coordinated when possible with equipment outages from the power system so that more thorough inspections can be completed.

The proposed rule did not specify the time period in which quarterly and annual inspections must take place. Several comments suggested that inspection frequencies should be flexible in order to take advantage of equipment outages which can occur at irregular intervals. EPA agrees with this comment and, for quarterly inspections, has added regulatory language that allows inspections for leaks of dielectric fluid to take place any time during the quarter (i.e. January–March, April–June, July–September, and October–December) as long as there is a minimum of 30 days between inspections. Inspections may also take place any time during the calendar year for annual inspections as long as there is a minimum of 180 days between inspections.

Follow-up maintenance activities to repair a leak are required only if corrective action is necessary to stop the leak. EPA recognizes that some small leaks of dielectric fluid are unavoidable in the operation of a transformer and repairs are not always required to stop a leak. A leak of dielectric fluid which has run off or is about to run off the external surface of the transformer clearly needs repair to prevent further leaking. A leak of dielectric fluid which does not form a run or drip, i.e. a sweat or a weep, and does not require repair to prevent further leaking, only requires proper cleanup. All leaks must be cleaned up within 48 hours and the PCB-contaminated materials properly disposed of in a timely fashion. If dielectric fluid is actively leaking, the leak must be contained to prevent the PCBs from entering the environment and inspected daily to verify that the leak is being contained until the leak is corrected.

This final rule requires recordkeeping of each PCB Transformer's inspection and maintenance history. This requirement will assist companies in the operation of their inspection and maintenance program and help management determine that the company is meeting the conditions of the use authorization. These records may be maintained in any form or format as long as all of the required information is available (in hard copy) upon request by EPA. These records must be maintained for at least three years after disposing of the transformer and should be coordinated with other records required for the transformer under the PCB rule (formerly 40 CFR 761.45 and correctly recodified in this document to 40 CFR 761.180). This time period was reduced from the five-year requirement in the proposed rule. Several comments indicated that five years was excessive and resulted in unnecessary costs. EPA has reduced the period in response to these comments and because it believes that the three-year time period provides a sufficient history for EPA to monitor compliance with a reasonable interval between compliance inspections.

Because reporting of PCB spills are mandated under § 311 of the Clean Water Act for discharges to navigable waters, and under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund) for discharges to other media, this rule does not require any additional reporting.

D. Use of Capacitors

This section on the use of capacitors analyzes only those capacitors that do not pose an exposure risk to food or feed. Analysis of the exposure risks associated with equipment that poses an exposure risk to food or feed is found in section E.

Large PCB Capacitors (PCB Large High Voltage and PCB Large Low Voltage) are also used extensively by electric utilities and other industries. Large PCB Capacitors contain more than 3 pounds of dielectric fluid and are commonly used to improve the voltage and power factor of the electric power system. Virtually all capacitors (large and small) manufactured prior to 1978 were filled with PCB fluid at a concentration near 100 percent. Capacitors manufactured after 1978 did not use PCB dielectric fluid.

EPA estimates that there were 2,800,000 utility-owned large PCB

Capacitors in service at the end of 1981. EPA also estimates that the total population of in-service nonutility-owned large PCB Capacitors was 490,000 at the end of 1981.

Large PCB Capacitors are located within fenced electrical substations, within buildings, and on utility poles throughout the service areas of electric utilities. Many comments pointed out that there are significant differences between the risk posed by Large Capacitors depending upon their location. Therefore, this final rule recognizes the widespread distribution of large PCB Capacitors and distinguishes two different exposure risk categories by capacitor location. The two categories are: (1) capacitors used within restricted-access electrical substations or used in contained and restricted-access indoor installations, and (2) capacitors used in all other locations (primarily in electric utility distribution systems).

1. *Magnitude of exposure.* Large PCB Capacitors used within restricted-access electrical substations and in contained and restricted-access indoor locations pose comparatively low exposure risk. A restricted-access electrical substation is a fenced or walled-in facility that is restricted to public access and used in the transmission or distribution of electric power. Releases of PCBs from capacitors in these substations beyond the confines of the substation are extremely limited. In most cases, PCBs become intimately bound to the gravel and soil and very little PCBs evaporate or dissolve or are driven off by rain. In a report by Dr. Donald Mackay titled Environmental Pathways of Polychlorinated Biphenyls (Volume IV of the EEI/USWAG study), Dr. Mackay calculates that the likely extent of evaporation from a "typical" pure PCB spill into soil is 0.16 percent per day and the dissolution rate of a spill into water is typically a factor of 100 slower than evaporation. Many comments indicated that substations are inspected at regular intervals, often at intervals of one week or less. Because of these frequent inspections and because there is evidence that PCBs usually migrate slowly from a spill within a substation, EPA concludes that a very high percentage of all PCB releases from capacitors in these locations can be identified and cleaned up quickly with very little risk of exposure to humans or the environment. EPA estimates that 41,073 pounds of PCBs could be released from large PCB Capacitors in Restricted-access electrical substations.

Similarly, certain other facilities, described in this rule as contained and restricted-access indoor installations, also present limited exposure risk potential. An installation meeting this description has a roof, walls, and floors that will contain any release of PCBs within the indoor installation. This type of installation also prevents rain from reaching the large PCB capacitors and has controlled access to these PCB capacitors. A building which prevents PCB releases from escaping, including escape through drains or expansion joints, would be acceptable. This type of contained and restricted-access installation allows proper cleanup of PCBs with very little exposure to humans or the environment. EPA estimates that 25,728 pounds of PCBs could be released from large PCB capacitors in contained and restricted-access indoor installations.

The second category of large PCB Capacitor locations represents all other locations. The capacitors in this category are primarily located on utility poles throughout electric service areas. The exposure risks associated with those capacitors vary due to their widespread use. These capacitor installations are used in residential neighborhoods, industrial areas, rural areas, public areas (such as shopping centers, schools, etc.), and even near waterways. The capacitors, because of their locations, have a greater potential for exposing humans, animals, and the environment during their use than other large PCB Capacitors. EPA estimates that without any risk reduction measures these capacitors could release as many as 730,110 pounds of PCBs during their remaining useful life.

2. *Benefits of PCBs and availability of substitutes.* The electrical properties of PCBs are so well suited as a dielectric fluid for capacitors that no other fluids were commonly used in capacitors prior to 1978. Since 1978, electric utilities and other industries have been installing non-PCB Capacitors with no apparent replacement or operational problems.

Under this final rule EPA estimates that 1.087 million large PCB Capacitors (or 108.7 million KVAR, assuming an average size of 100 KVAR) will require removal due to the accelerated phase-out requirements. (KVAR is the abbreviation for reactive kilovolt-ampers, which is a standard power rating for capacitors.) EPA assumes that companies will take one year to plan for the phase-out and five years to implement it. Considering the additional capacitors that will require replacement due to failure or obsolescence, EPA estimates that a peak annual power capacitor manufacturing capacity of 29 million KVAR (about 145,000 200-KVAR units) will be required to meet the total demand for replacements. EPA's estimates for the demand for new power capacitor applications (unrelated to any demand for replacements) range from 9.7 million KVAR to 20.3 million KVAR per year. Therefore, the maximum total annual demand for power capacitors should be between 38.7 and 49.3 million KVAR under this final rule.

In a survey of domestic capacitor manufacturers by the National Electrical Manufacturers Association in response to this rulemaking, four respondents indicated that production could be increased 65 percent by 1983 or earlier. With this increase in production, the total annual power capacitor manufacturing capacity would be 47.85 million KVAR.

According to these estimates, manufacturing capacity is adequate for companies to comply with the requirement to phase out these capacitors over the next six years. The derivation of the estimates and a further discussion of the methodology used to arrive at this conclusion is found in the Regulatory Impact Analysis prepared for this final rule.

3. *Economic and environmental impacts of regulatory requirements.* The economic impact of this final rule was calculated in terms of the lost economic value associated with removing PCB Capacitors before the end of their useful lives. EPA estimates this cost to be $135.8 million. EPA estimates that the net present value of the phase-out cost for the electric utility industry is only 0.05 percent of the 1979 net value of assets in electric plant nationally.

It should be noted that the direct costs of the regulatory requirements for large PCB Capacitors do not include the energy savings associated with the use of more efficient replacement capacitors. This savings is very significant for capacitors that were manufactured using paper insulation (approximately pre-1966). The Regulatory Impact Analysis prepared for this final rule estimates that the payback period for capacitors with paper insulation is approximately 11 years, assuming that the capacitors are in use 50 percent of the time.

By removing large PCB Capacitors before the end of their useful service lives it prevents the release of PCBs during the remaining years of use. EPA estimates that this final rule avoids an estimated 572,000 pounds of PCBs from release from large PCB Capacitors that doe not pose an exposure risk to food and feed. A more complete discussion of the costs and benefits associated with the regulatory requirements is presented

in the Regulatory Impact Analysis prepared for this final rule.

4. *Findings on the use of capacitors.* The proposed rule discussed whether the use of PCBs in capacitors should continue and the options EPA considered to reduce the risks from the use of PCBs in capacitors. The proposed rule authorized the use of capacitors for ten years. Several comments suggested that capacitors should be categorized on the basis of difference in potential for exposure. These differences arise because of differences in the accessability of the capacitor location and differences in the degree of containment of any PCB spills or leaks which may occur. EPA agrees with these comments and has created categories based on the comments. Other comments urged EPA to eliminate the phase-out requirement altogether. With respect to those capacitors in the category with comparatively low exposure potential, EPA agrees with these comments and has eliminated the phase-out, but with respect to other capacitors, EPA has concluded that the cost of a six-year phase-out is reasonable because of the large quantity of PCBs release which will be avoided and because of the comparatively high potential for exposure in these locations.

This final rule prohibits the use of large PCB Capacitors after October 1 1988, unless the capacitors are used in restricted-access outdoor electrical substations, or in contained and, restricted-access indoor installations. EPA finds that the more limited potential for exposure in these restricted-access locations warrants authorizing their use for the remainde of their useful lives.

A very large number of comments stated that the benefits of an inspection program for capacitors do not outweigh the costs. In most cases, large releases of PCBs from capacitors (ruptures) happen very suddenly as a result of a large amount of energy entering the capacitor in a very short time period. Inspections of in-service capacitors cannot detect characteristics which indicate a capacitor's potential to release PCBs. EPA agrees that the effectiveness of an inspection program for large PCB Capacitors is very limited in preventing future releases of PCBs. Therefore, this final rule eliminates the proposed requirement that large PCB Capacitors must be inspected for leaks of dielectric fluid on a quarterly basis.

An inspection program can speed the detection and cleanup of PCBs in cases where a release has already occurred and the release has not been detected or cleaned up. However, EPA has learned from comments on the proposed rule that for large capacitors located on distribution systems that a utility company or other owner is almost always notified of PCB releases by the public or company personnel within a much shorter time period than the proposed quarterly inspection frequency. Furthermore, large PCB Capacitors located in electrical substations and indoors are typically inspected by company crews more frequently than the proposed quarterly inspection due to existing concerns for system efficiency and stability.

EPA finds that authorizing the use of PCBs in capacitors not posing an exposure risk to food or feed, under the required conditions, does not present an unreasonable risk for the following reasons:

a. The use of PCBs in large PCB Capacitors that are located in restricted-access indoor installations for their remaining useful lives is such that PCBs released from these capacitors are readily identified and cleaned up with limited exposure potential to humans and the environment.

b. The required six-year phase-out period for large PCB Capacitors should prevent more than 500,000 pounds of PCBs from entering the environment and some unknown percentage of that quantity from entering the food chain. This time period also avoids any disruption of electrical service.

c. The cost of the phase-out requirement is reasonable when compared to the large amount of PCBs it prevents from entering the environment and the costs and benefits of alternative risk reduction measures. This cost is only $237 per pound of PCB release avoided.

5. *Small capacitors.* PCB Small Capacitors contain less than 3 pounds of dielectric fluid. These capacitors commonly contain between 0.1 and 0.6 pounds of PCBs and are used in fluourescent light ballasts, household appliances, and industrial equipment. In most applications, the equipment containing the small capacitor in its circuitry cannot function without it. In 1976, an EPA study estimated that 870 million small capacitors, containing 275 million pounds of PCBs, were in use in a wide variety of applications. Today, EPA estimates that approximately 500 million of these small capacitors are still in use. EPA calculated this figure assuming that 10 percent of these capacitors are removed from service annually due to equipment or appliance obsolescence and capacitor failure.

No data has been submitted to EPA which indicate that small capacitors have a different propensity to leak than other capacitors. Additionally, no comments have identified any practical and cost-effective use restrictions regarding the use of PCB Small Capacitors. Because of the widespread and diverse nature of their use and the small amount of PCBs contained within each individual small capacitor, all regulatory approaches targeted at controlling releases from these capacitors are very expensive when compared to the potential quantity of PCBs kept from the environment. Consequently, EPA has not identified a reasonable cost-effective regulatory alternative that would result in significantly reducing the risks associated with the remaining PCB Small Capacitors in service. Therefore, this final rule does not require any restrictions regarding the use of PCBs in small capacitors. However, EPA encourages commercial and industrial firms that use and dispose of large quantities of PCB Small Capacitors to establish voluntarily a collection and disposal program that results in waste capacitors being disposed of in an EPA-approved incinerator or chemical waste landfill. Such programs could be expanded to encourage voluntary collection and disposal of PCB Small Capacitors from the public and other firms. Any firm which desires more information about identifying and disposing of PCB Small Capacitors should contact the nearest EPA regional office or the Industry Assistance Office at 800-424-9065 for assistance.

Since these capacitors contain small quantities of dielectric fluid and significant amounts of absorbant material such as paper, and because many of these capacitors are encapsulated, PCBs are rarely released from these capacitors during their use or from the equipment using the capacitors. Therefore, exposure risks to humans, food, feed, water, or the environment from the use of these capacitors are low. In conclusion, EPA finds that the use of small capacitors containing PCBs is not unreasonable because their use provides society with the benefits from the use of millions of pieces of electronic equipment and consumer products, it avoids billions of dollars in replacement costs, and there appear to be no practical, cost-effective risk reduction measures.

E. Use of PCB Transformers, Capacitors, and Electromagnets That Pose an Exposure Risk to Human Food and Animal Feed

EPA estimates that at the end of 1979 there were approximately 47,500 large PCB Capacitors and 9,580 PCB Transformers in use on the premises of

food and feed facilities. Because of comments that much of this equipment never posed an exposure risk to food or feed and that, for much of the rest of it, steps have been taken to eliminate the risk, EPA estimates that ten percent of the equipment used on the premises of food and feed facilities poses an exposure risk to food or feed products.

Since publication of the proposed rule, EPA has received a comment that indicated that electromagnets designed to contain PCBs are still in use over grain elevators. EPA was unaware that this use still existed at the time of the proposed rule. In 1979, EPA estimated that a total of 200 PCB-filled electromagnets were in use with an unknown percentage of these in use in coal operations.

1. *Magnitude of exposure.* Human food and animal feed represent EPA's greatest concern for exposure because of the increased health risks associated with the ingestion of PCBs. Electrical equipment filled with askarel dielectric fluid presents the greatest exposure risks to food and feed due to the high concentrations and large quantities of PCBs. Any leakage from such equipment has the potential to cause severe harm. One incident, involving a single PCB Transformer, occurred at a plant manufacturing animal feed ingredients. The contaminated feed was fed to poultry and livestock, resulting in millions of dollars of damages. Implicated food and feed products were distributed to nineteen states and two foreign countries.

2. *Benefits of PCBs and availability of substitutes.* The benefits of using PCBs and the availability of substitutes for PCBs in transformers and capacitors that pose an exposure risk to food and feed are identical to those discussed for PCB Transformers and PCB Capacitors. The benefit of using PCBs in electromagnets is the safety provided by the fire resistant properties of the PCBs. The substitutes for PCBs in transformers are also available and suitable for use in electromagnets.

3. *Economic and environmental impacts of regulatory requirements.* The food contamination incident previously described which involved a single PCB Transformer demonstrates that the cost to society of a PCB spill affecting food or feed can be more than one million dollars per pound of PCBs spilled. Therefore, only a very small reduction in PCB leakage is needed for a risk reduction measure to be cost effective in food and feed facilities. The Regulatory Impact Analysis contains an examination of the cost effectiveness of different accelerated phase-out time periods and inspection program frequencies.

The impact of replacing the affected PCB Transformers and large PCB Capacitors in food and feed facilities is estimated to be $16.04 million, and the impact of replacing the affected electromagnets is $0.38 million. These estimates assume that ten percent of the PCB Transformers and Capacitors used by the food and feed industry pose an exposure risk to food and feed and that ten percent of the estimated 200 PCB-filled electromagnets in service in 1979 pose an exposure risk to food and feed.

4. *Findings on the use of PCBs posing an exposure risk to food and feed.* In the proposed rule, EPA found that it was reasonable to require weekly inspection of all PCB Transformers and Large PCB Capacitors that pose an exposure risk to food or feed and to prohibit the use of these capacitors after October 1, 1992. Several comments suggested that EPA categorize equipment according to differences in the risk of exposure. Other comments expressed concern that EPA was proposing to allow indefinite use of PCBs in transformers in the areas of greatest risk. After further analysis of the cost-effectiveness of various accelerated phase-out periods and consideration of these comments, EPA has decided to establish a prohibition o the use of PCB Transformers, PCB Large Capacitors, and PCB-filled electromagnets that pose an exposure risk to food and feed. This prohibition becomes effective in three years for PCB Transformers and PCB-filled electromagnets and in six years for PCB Large Capacitors. The cost-effectiveness calculations are contained in the Regulatory Impact Analysis.

Other comments urged EPA not to prohibit the use of any electrical equipment in food or feed establishments, but to rely on the effectiveness of an inspection and maintenance program. EPA did not choose this option because, although an inspection and maintenance program does have benefits, the need to avoid contamination of human food with PCBs justifies the imposition of additional protective measures.

The three-year time period for transformers and electromagnets is based on an estimated one year to analyze the specifics of the individual situation, to choose the method to be used to eliminate the exposure risk to food or feed, and to develop a plan for compliance with the regulation and two years to implement the plan. Given the comparatively small amount of equipment involved, EPA believes that this period of time is sufficient for affected persons to avoid logistical difficulties.

The six-year time period for PCB Large Capacitors is based on an estimated one year for planning for compliance and five years for implementation of the plan. EPA decided not to shorten this period any further for these capacitors because the quantity of PCBs involved is much less than the quantity of PCBs in transformers posing this exposure risk and because the cost per pound of preventing PCB release was higher than for the transformers.

Prohibiting the use of PCB-containing equipment in a location that poses an exposure risk to food or feed represents the most effective risk reduction measure of the alternatives EPA has considered. Persons subject to this requirement actually have several choices as to how to comply. They may replace the equipment. They may provide secondary containment so that the exposure risk to food or feed is eliminated. They may relocate the equipment to a location which does not present an exposure risk. For transformers and electromagnets, they may service the equipment to reduce the PCB concentration to less than 500 ppm.

Many comments agreed with EPA's finding in the proposed rule that a weekly inspection frequency is not unreasonable primarily because it is an effective risk reduction measure for equipment such as transformers and electromagnets and because of the large exposure risks associated with the use of PCB Transformers and PCB-filled electromagnets near food or feed. As discussed in an earlier section of this preamble, the effectiveness of an inspection program for capacitors is very limited and in most cases ruptures of this equipment are identified in shorter time frames than the inspection frequency. Therefore, this final rule eliminates the proposed weekly inspection requirement for Large PCB Capacitors and retains this program for PCB Transformers and PCB-filled electromagnets.

Most comments in response to the proposed rule did not support any use restrictions for mineral oil-filled electrical equipment posing an exposure risk to food or feed since very little of this equipment is used in food and feed facilities. In most cases, mineral oil equipment contains very little PCBs, and it is expensive to test all the equipment to determine which items actually contains PCBs. Therefore, EPA made no changes in the proposed authorization for this equipment which allows its use without restriction.

Other comments in response to the proposed rule recommended that EPA include in the final rule clarifications that were issued under the Interim Measures Program. These clarifications have been incorporated into the final rule where appropriate and are discussed in this preamble.

The proposed rule required special inspection procedures for transformers which are in a location that pose a risk of exposure to human food or animal feed. This exposure risk is presumed to exist in any facility manufacturing, processing, packaging, or holding human food or animal feed, or in any federally inspected meat, poultry product or egg product establishment. Because several comments pointed out a need for more specificity as to which equipment is subject to inspection requirements, EPA has further clarified the definition of posing an exposure risk to food or feed in this rule under 40 CFR 761.3(11).

This new definition clarifies that PCB Items pose an exposure risk to food or feed only when there exists a potential pathway for PCBs discharged from the item to contaminate food or feed products. Food and feed covered by this definition includes items regulated by USDA and FDA as food or feed including additives. Food and feed is excluded from this definition if it is used or stored in private residences by the public because a very small amount of food would be potentially exposed in a single incident in a private residence and because the enforcement of this requirement in private residences would place a very large demand on EPA enforcement resources. This definition, does cover food and feed that are held in all other facilities including grocery stores, restaurants, warehouses, barns, bins, sheds, silos, and other structures, and in feedlots, open fields, and animal grazing areas.

Comments also encouraged the clarification of the responsibilities between users and owners of PCB-containing electrical equipment that pose an exposure risk to food and feed. As in the Interim Measures Program it is the responsibility of the user of a PCB Transformer to fulfill all appropriate inspection, recordkeeping and maintenance requirements until the owner is notified that the transformer may pose an exposure risk to food or feed, or until the owner has other knowledge indicating that the transformer may pose an exposure risk to food or feed. It is the ultimate responsibility of the owner of the PCB-containing electrical equipment to determine if it poses an exposure risk to food or feed. Although users of PCB-Transformers, PCB capacitors, and PCB-filled electromagnets are not responsible for phasing-out any of this equipment, users should contact the owner if they feel that this equipment poses an exposure risk to food or feed. In any event, the user still has responsibility under other Federal laws to insure that food and feed distributed in commerce are not contaminated.

In the **Federal Register** of May 9, 1980, EPA proposed a rule amendment which would have prohibited the use of PCB Items in facilities manufacturing, processing, or storing fertilizers or agricultural pesticides. EPA received comment upon this proposed rule and, on May 6, 1981, in light of the court-ordered rulemaking on the use of PCBs in electrical equipment, EPA put that proposed rule in abeyance. Because the promulgation of this final rule deals with PCBs that pose an exposure risk to food or feed, EPA has decided not to issue a final rule from the May 9, 1980 proposed rule. The final rule on the use of PCBs in electrical equipment does not recognize agricultural pesticides and fertilizers as food or feed additive or require additional provisions for PCB Items which pose an exposure risk to agricultural pesticides and fertilizers. The rulemaking record from the May 9, 1980, proposed amendment has been incorporated into the record for this final rule.

F. Use and Servicing of Voltage Regulators, Switches (Including Sectionalizers and Motor Starters), and Electromagnets

Voltage regulators and switches (including sectionalizers and motor starters) are used by electric utilities and industry to control, transmit, and distribute electric power efficiently. Almost all of this electrical equipment is mineral oil-filled and not designed to contain PCB dielectric fluid. Very few items are contaminated with greater than 500 ppm PCBs. Electromagnets are primarily used over conveyor belts to remove iron from non-magnetic commodities and are not commonly used by the electric utility industry. Electromagnets designed to contain PCBs are used in areas such as coal mines, coal preparation plants, and coal-fired generating stations. PCB-filled electromagnets that pose an exposure risk to food or feed are discussed in section E.

1. *Magnitude of exposure.* The total pounds of PCBs in oil-filled voltage regulators, switches, and electromagnets represent less than 0.01 percent of the total PCBs in-service in electrical equipment. EPA estimates from data in the rulemaking record that the annual leakage of oil-filled voltage regulators and switches would amount to a release of approximately 65 pounds of PCBs per year.

Leaks of dielectric fluid from oil-filled electrical equipment have the potential for exposing humans or the environment to low concentrations (parts per million) of PCBs because some of this equipment is used in the Nation's electrical distribution system which is located near consumers of electric power. In addition, releases of PCBs anywhere in the environment have the potential to reach aquatic systems, build up in the food chain, and ultimately result in human exposure. Leaks of PCBs from electromagnets used in coal-handling systems, however, present negligible risks since the coal in these systems is handled automatically and eventually is burned in combustion devices (such as high efficiency boilers) capable of destroying PCBs.

2. *Benefits of PCBs and availability of substitutes.* The PCBs in almost all of this electrical equipment serve no specific purpose since the PCBs are in such small concentrations and are the result of contamination from servicing and manufacturing activities. For this equipment, the PCBs provide no significant benefits. For any equipment designed to contain PCBs, the use of PCBs in the equipment provides the same safeguards against fire hazards as that described for transformers.

The availability of substitutes was discussed in the proposed rule.

3. *Economic and environmental impacts of regulatory requirements.* This final rule reduces the amount of worker and environmental exposure associated with servicing (including rebuilding) this equipment. This rule also prevents further PCB contamination of this equipment.

The economic impacts are discussed in further detail in the proposed rule and the Regulatory Impact Analysis prepared for this final rule. There are no significant changes from the analysis done for the proposed rule.

4. *Findings on the use and servicing of this electrical equipment.* The proposed rule contained an authorization for the use of PCBs in voltage regulators, switches (including sectionalizers and motor starters), and electromagnets for their remaining useful lives with no use restrictions. It also restricted servicing activities in order to prevent this equipment from being further contaminated with PCBs and to reduce PCB exposure of servicing personnel and the environment during these activities. Comments in response to the proposed rule did not raise any new

issues that warranted changes in the proposal. Therefore, EPA reaffirms its proposed findings in this final rule.

EPA finds that authorizing the use of PCBs in voltage regulators, switches (including sectionalizers and motor starters), and electromagnets with the servicing conditions does not present an unreasonable risk for the following reasons:

a. Allowing this use of PCBs to continue avoids disruption of electric service and the costs associated with a prohibition. (This reason does not apply to electromagnets.)

b. There is little PCB contamination of this oil-filled equipment and very small amounts of PCBs are expected to be released annually.

c. EPA does not believe that the cost associated with restrictions regarding the use of this equipment is justified by the small PCB exposure that would be prevented by such measures.

d. The servicing restrictions will prevent easily avoidable human exposure to PCBs.

This rule authorizes the servicing of electrical equipment not previously mentioned in the PCB rule, such as voltage regulators and switches. Persons who service this equipment should note that any processing and distribution in commerce of PCBs for servicing this equipment requires an exemption from the July 1, 1979 ban of these activities. Procedures for submitting a petition for exemption from the PCB processing and distribution in commerce prohibitions under section 6(e)(3)(B) of TSCA are described in 40 CFR Part 750. (44 FR 31558, May 31, 1979).

G. Use and Servicing of Circuit Breakers, Reclosers, and Cable

Circuit breakers, reclosures, and cable are used primarily by electric utilities to protect other equipment in the electric power system from damage caused by electrical faults and to transmit electric power. Circuit breakers, reclosers, and cable are types of oil-filled electrical equipment generally not designed to contain PCBs. However, available data indicate that a small percentage of this electrical equipment contains PCBs resulting from past servicing and manufacturing practices.

1. *Magnitude of exposure.* Although approximately 26.3 percent of all oil-filled circuit breakers can be expected to leak during an average year, this could amount to a release of only 50.88 pounds of PCBs, according to the EEI/USWAG study. This same study indicates that releases of dielectric fluid from reclosers could amount to 6.64 pounds of PCBs per year. As with other oil-filled electrical equipment, leaks of dielectric fluid have the potential for exposing humans and the environment to low concentrations of PCBs because of the equipment's location throughout electric power system service areas.

2. *Benefits of PCBs and availability of substitutes.* Both the benefits and availability of substitutes for PCBs in circuit breakers, reclosers, and cable are the same as that discussed for other mineral oil-filled equipment (transformers, voltage regulators, switches, etc.).

3. *Economic and environmental impacts of regulatory requirements.* Since this electrical equipment may be assumed to contain less than 50 ppm PCBs, the economic and environmental impact of the servicing and disposal requirements is minimal and difficult to measure. These requirements would only apply to equipment that is known to contain PCBs in excess of 50 ppm (e.g. from test results). Additional discussion of the costs and benefits associated with the regulatory requirements is found in the proposed rule and the Regulatory Impact Analysis prepared for this final rule. There are no significant changes from the analysis done for the proposed rule.

4. *Findings on the use and servicing of this electrical equipment.* The proposed rule contained an authorization, with servicing conditions, which would have allowed the use of PCBs in circuit breakers and reclosers for the remaining useful life of this equipment. No comments contained data which would warrant changing this part of the proposal.

The proposed rule also authorized the use of oil-filled cable and contained a requirement that oil-filled cable must be assumed to contain between 50 and 500 ppm PCBs if the concentration were unknown. This requirement was included in the proposal because there was virtually no data in the rulemaking record on PCB concentrations in cable. Comments in response to the proposed rule contained additional data on the PCBs concentrations of oil-filled cable, indicating that virtually none of the cable is contaminated in excess of 50 ppm. Therefore, this final rule allows the assumption that oil-filled cable contains less than 50 ppm PCBs if the actual concentration is unknown.

EPA authorizes the use and servicing of PCBs in circuit breakers, reclosers, and cable for the remainder of their useful lives, according to the servicing restrictions of § 761.30(m)(1). These servicing conditions prevent further PCB contamination of equipment containing less than 50 ppm PCBs. The disposal requirements of 40 CFR 761.60 and the servicing requirements of 40 CFR 761.30(h) apply to any oil-filled circuit breaker, recloser, or cable found to contain 50 ppm or greater PCBs. EPA believes that this use authorization with servicing conditions does not present an unreasonable risk for the following reasons:

a. Allowing this use of PCBs to continue avoids disruption of electric service and the costs associated with a prohibition.

b. There is little PCB contamination of this oil-filled equipment and very small amounts of PCBs are expected to be released annually.

c. EPA does not believe that the cost associated with restrictions regarding the use of this equipment is justified by the small PCB exposure that would be prevented by such measures.

d. The servicing restrictions will prevent easily avoidable human exposure to PCBs and further contamination of this equipment.

VI. Other Amendments to the PCB Rule

A. PCB-Contaminated Electrical Equipment

Because this rulemaking has identified electrical equipment containing PCBs that was not previously recognized in the PCB rule, changes have been made to definitions presented in the rule. This final rule deletes the definition of a "PCB-Contaminated Transformer" (40 CFR 761.3(z)) and substitutes a definition titled "PCB-Contaminated Electrical Equipment.

"PCB-Contaminated Electrical Equipment" means any electrical equipment that contains at least 50 ppm, but less than 500 ppm PCB. Electrical equipment includes transformers (including those used on railway locomotives and self-propelled cars), capacitors, voltage regulators, electromagnets, cable, circuit breakers reclosers, and switches (including sectionalizers and motor starters).

Although the use of PCBs in certain electrical equipment is authorized regardless of PCB concentration, the disposal requirements of the May 1979 PCB rule make certain distinctions on the basis of PCB concentration. That is, different disposal requirements apply to PCBs at concentrations of 500 ppm or greater and at concentrations between 50 and 500 ppm. The definition of PCB-Contaminated Electrical Equipment was developed in order to refer to the electrical equipment that contains between 50 and 500 ppm PCBs.

Prior to publication of the proposed rule, EPA had received data regarding the actual PCB concentrations in different types of electrical equipment.

These data indicate that approximately 12 to 14 percent of oil-filled transformers, voltage regulators, and switches contain PCB concentrations of 50 ppm or greater, but PCB concentrations greater than 500 ppm in this equipment are rare, estimated to occur in less than 2 percent of the equipment. Because the contamination was caused by unintentional manufacturing and servicing practices, it is impossible to determine for certain which pieces of equipment are contaminated without testing them all. EPA estimates the cost of such testing to be over two billion dollars, based on a total of cost of $100 per test. Based on these data, EPA requires that all oil-filled transformers, voltage regulators, switches, and electromagnets must be assumed to be PCB-Contaminated Electrical Equipment unless the oil has been tested, or otherwise verified, and found not to contain between 50 and 500 ppm PCBs. In other words, if the actual PCB concentration of any oil-filled transformer, voltage regulator, switch, or electromagnet is unknown, the equipment must be assumed to contain more than 50 ppm PCBs and may be assumed to contain less than 500 ppm PCBs for purposes of servicing and disposing of this equipment. This will allow owners of this equipment to avoid the cost of testing if they choose.

Little monitoring data were available to EPA prior to publication of the proposed rule regarding the PCB concentration in oil-filled electromagnets. Comments on the proposed rule added little additional information. Because electromagnets use the same kind of oil and are serviced in the same manner as other types of oil-filled equipment, there is no reason to believe its PCB concentration would frequently exceed 500 ppm. Therefore, EPA requires that oil-filled electromagnets be included in the category of PCB-Contaminated Electrical Equipment so that they must be assumed to have a PCB concentration between 50 and 500 ppm if the concentration is unknown.

Data in the rulemaking record indicate that less than two percent of oil-filled circuit breakers, reclosers, and cable are contaminated with PCB concentrations of 50 ppm or greater. EPA estimates that it would cost approximately forty million dollars to indentify all of the circuit breakers, reclosers, and cable whose PCB contamination exceeds 50 ppm. Because the cost of either testing all the equipment or treating it as contaminated in excess of 50 ppm is high relative to the number of pieces of equipment that are likely to contain greater than 50 ppm, EPA allows that oil-filled circuit breakers, reclosers and cable need not be classified as PCB-Contaminated Electrical Equipment if the PCB concentration is unknown.

B. Clarification of Existing Definitions

This final rule retains, as proposed, changes to the definitions of "Large High Voltage Capacitor", "Large Low Voltage Capacitor", "Small Capacitor", and PCB Article (40 CFR 761.3(d) (1), (2), and (3) and 761.3(t), respectively). No comments on the proposed rule raised any new issues regarding these changes.

C. Distribution in Commerce

EPA in its April 22, 1982 **Federal Register** notice proposed changes to the list of PCB activities it found to be in a totally enclosed manner, due to new information submitted prior to the proposal. This final rule is identical to the proposal. To assure that PCBs are not released from electrical equipment being distributed in commerce under the provisions of section 6(e)(3)(C), EPA finds the distribution in commerce of only intact and nonleaking transformers (including transformers used on railway locomotives and self-propelled cars), capacitors, electromagnets, voltage regulators, circuit breakers, reclosers, switches (including sectionalizers and switches), and cable to be totally enclosed activities. Coupled with 40 CFR 761.30(c)(1), this will restrict the applicability of section 6(e)(3)(C) to intact, nonleaking equipment. Persons wishing to distribute in commerce electrical equipment which is not intact and nonleaking must apply for an exemption from the ban on distribution in commerce, using the exemption procedures found in 40 CFR Part 750.

D. Disposal Requirements

Since this rulemaking has identified uses of PCB-containing electrical equipment not recognized in the earlier PCB regulations, changes have been made to the disposal requirements for PCBs and PCB Items. The major difference between this final rule and the proposal is that language specifying the extent of cleanup required for a PCB spill has been deleted.

1. *Mineral oil dielectric fluid.* This final rule allows mineral oil dielectric fluid from any type of PCB-Contaminated Electrical Equipment to be disposed following the requirements of 40 CFR 761.60(a)(2). All mineral oil from transformers, electromagnets, voltage regulators, and switches is subject to the disposal requirements of this section, unless the oil has been tested (or otherwise verified) and found to contain less than 50 ppm PCBs. No comments on this proposed change affected EPA's conclusions regarding the degree of contamination of this equipment.

2. *PCB items.* The proposed rule established disposal requirements for PCB-Contaminated Electrical Equipment. This equipment must be drained of all free flowing liquid, and the liquid must be disposed of under 40 CFR 761.60(a)(2). The proposed rule also regulated the disposal of PCB Articles with a PCB concentration of 500 ppm or more under 40 CFR 761.60(b)(5), but did not regulate the disposition of a PCB Article containing less than 500 ppm once all free flowing liquid has been drained from the PCB Article. Comments received generally agreed with these requirements, and this final rule retains them as proposed. However, one comment stated that some capacitors have been found to contain between 50 and 500 ppm PCBs. These comments pointed out that capacitors are not designed to be drained of dielectric fluid and would have to be punctured or cut open. Puncturing or cutting open a Large PCB Capacitor poses a potential PCB exposure risk to workers and the environment due to the sudden release of internal pressure that may have built up in a failed capacitor. In order to discourage this potentially hazardous activity, this final rule requires disposal of capacitors containing between 50 and 500 ppm PCBs in an incinerator that complies with § 761.70 or in a chemical waste landfill that complies with § 761.75.

Although this rule does not require testing of mineral oil dielectric fluid for PCB concentration, some people may choose to do so. In order to reduce the costs associated with testing for PCB concentrations in mineral oil dielectric fluid, this rule allows, as proposed, common container collection ("batch testing") of mineral oil dielectric fluid from all electrical equipment containing mineral oil dielectric fluid (see 40 CFR 761.60(g)(1)). Common container collection is permitted so that mineral oil from multiple sources can be collected and tested without requiring a separate test of each individual piece of electrical equipment to determine disposal options. However, in order to prevent persons from using dilution to circumvent the disposal rules, dielectric fluid from oil-filled circuit breakers, reclosers, or cable, collected in a common container with untested dielectric fluid from other oil-filled equipment must be assumed to contain at least 50 ppm PCBs.

3. *Spills and leaks.* The proposed rule clarified the definition of disposal by

including leaks in the definition. The final rule refines this clarification. A number of comments stated that it was unfair to charge a party with unauthorized disposal when PCBs are spilled or leaked during authorized use of electrical equipment but prompt cleanup is initiated. It is not the Agency's intention that § 761.3(h) and § 761.60(d) should be applied in this way. Where the responsible party shows that: (1) The spill, leak, or uncontrolled discharge occurred during authorized use of electrical equipment and (2) adequate cleanup measures were initiated within 48 hours, the Agency will not charge the party with a disposal violation.

The proposal also contained requirements for cleanup of PCB contamination resulting from spills, leaks, and other uncontrolled discharges of PCBs. Comments in response to these provisions varied. Some comments stated that a requirement for level of cleanup should be set, but that cleanup to a concentration of 50 ppm was always appropriate. Other comments expressed concern about setting any specific requirements for level of cleanup at this time and about how these levels would be determined in the field. Still others approved of the standards set in the proposed rule.

The Agency has decided not to include language regarding the required level of cleanup in this final rule. A part of § 761.60(d)(2) (formerly § 761.10(d)(2)), which was sometimes construed as setting a required level of cleanup has been deleted.

4. *Storage for disposal.* The storage for disposal of nonleaking and structurally undamaged PCB Large High Voltage Capacitors and PCB-Contaminated Transformers on pallets next to qualified storage facilities was permitted until January 1, 1983, under the May 31, 1979, PCB rule (formerly 40 CFR 761.42(c)(2)). This provision was designed to relieve the burden on PCB storage facilities until EPA-approved incineration facilities were commercially available.

A number of comments pointed out that if EPA were going to require accelerated phase-out of capacitors, there would be additional storage needed for phased-out equipment awaiting disposal. After considering these comments, EPA has decided to allow this type of storage for disposal for nonleaking and structurally undamaged PCB Large High Voltage Capacitors and PCB-Contaminated Electrical Equipment after January 1, 1983.

The May 31, 1979, PCB rule did not envision an accelerated phase-out for certain PCB Transformers and large PCB Capacitors or the use of PCB-containing oil-filled electrical equipment other than transformers. In order to lessen the burden on existing storage facilities and reduce the need to build additional facilities, this final rule allows this type of storage for disposal to continue indefinitely, according to the provisions of 40 CFR 761.65(c)(2).

The May 1979 rule exempted PCB Small Capacitors from the storage requirements. In the April 22, 1982, proposed rule, this exemption (§ 761.10(b)(6)) was printed erroneously. This error made it appear that EPA was proposing to exempt PCB-Contaminated Electrical Equipment from storage requirements instead of PCB Small Capacitors. EPA did not intend to propose any change in the language of this paragraph. The introductory text to § 761.60(b)(6) in this final rule corrects this error.

E. Reclassification of Electrical Equipment Containing PCBs

The May 1979 rule prohibits rebuilding of PCB Transformers and allows the PCB concentration in electrical equipment to be reduced for purposes of reclassifying the equipment. The proposed rule retained these provisions. Under the provisions for reclassification the equipment must be put back into service for three months before testing the PCB concentration. Comments on the proposed rule pointed out that the proposed servicing restrictions prohibit reclassification of PCB Transformers which have failed electrically because failed transformers can not be put back into service unless rebuilt. In response to this comment, EPA has added a provision to the final rule which allows the Assistant Administrator for Pesticides and Toxic Substances to approve a method of simulating the loading conditions associated with in-service use. To apply for approval of any method which uses conditions other than in-service use, a letter should be sent to the Assistant Administrator for Pesticides and Toxic Substances (TS-794), Environmental Protection Agency, 401 M Street S.W., Washington, D.C. 20460. Responses to any applications for approval will be in writing. All applications should show that alternative conditions result in equivalent or greater release of PCBs from the internal components of the equipment into the dielectric fluid as three months of in-service use.

This final rule also clarifies the definition of in-serrvice use for transformers by specifying a minimum dielectric fluid temperature of 50° C. This temperature has been shown experimentally to be associated with a condition of light electrical loading and to cause release of PCBs from the internal components of the transformer into the dielectric fluid. This clarification also provides guidance as to what constitutes adequate in-service use.

VII. Executive Order 12291

Under Executive Order 12291, issued February 17, 1981, EPA must judge whether a rule is a "major rule" and, therefore, subject to the requirement that a Regulatory Impact Analysis be prepared. EPA has determined that this amendment to the PCB rule is not a major rule as the term is defined in section 1(b) of the Executive Order.

EPA has concluded that the amendment is not "major" under the criteria of section 1(b) because the annual effect of the rule on the economy will be less than $100 million; it will not cause a major increase in costs or prices for any sector of the economy or for any geographic region; and it will not result in any significant adverse effects on competition, employment, investment, productivity, or innovation or on the ability of United States enterprises to compete with foreign enterprises in domestic or foreign markets. In fact, this rule allows uses of PCBs in electrical equipment to continue that would otherwise be prohibited by section 6(e) of TSCA. This rule avoids the severe disruption of electric service to the public and industry that would occur if the use were prohibited. It also greatly reduces the economic impact that would result from a requirement to replace the equipment as soon as possible. However, although this proposal is not a major rule, EPA has prepared a Regulatory Impact Analysis using the guidance in the Executive Order to the extent possible within the time constraints of the court's order.

This final rule amendment was submitted to the Office of Management and Budget (OMB) prior to publication as required by the Executive Order.

VIII. Regulatory Flexibility Act

Section 604 of the Regulatory Flexibility Act, 5 U.S.C. 604, requires EPA to prepare and make available for comment a "regulatory flexibility analysis" in connection with any rulemaking for which there is a statutory requirement that a general notice of proposed rulemaking be published. The "regulatory flexibility analysis" describes the effect of a final rule on small business entities.

Section 605(b) of the Regulatory Flexibility Act, however, provides that

section 604 of the Act "shall not apply to any proposed or final rule if the head of the Agency certifies that the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."

The effect of this final rule is to avoid severe disruption of electric service to industry and the public and to reduce the costs of complying with TSCA. In general, this rule will reduce the burden on small businesses that would otherwise be encountered if an immediate ban on PCB-containing electrical equipment were to take effect. If an immediate ban were imposed, large costs would be incurred by all producers and users of electricity, including small businesses.

Since the actual distribution of electrical equipment ownership is unknown, EPA estimated the effect of the capacitor phase-out on different groups of utilities, including the rural electric cooperatives, using number of customers as a predictor of number of capacitors owned by the utility group. Four groups were analyzed: private investor-owned utilities, local public utilities, rural electric cooperatives, and federally owned utilities. The rural electric cooperative group would be expected to include the most small utilities. Using a number of measures of impact, none of the groups analyzed, including the rural electric cooperatives, would be significantly affected by this final rule. EPA estimated that the total costs of the capacitor phase-out for rural electric cooperatives would be $13.97 million, or 0.072 percent of the net value of assets in electric plant in 1979. The maximum annual increase in capitalized costs as a percent of net investment would be 0.31 percent for the rural electric cooperatives. The maximum revenue requirement increase over the phase-out period for the rural electric cooperatives would be 0.084 percent of 1979 revenues.

The impact of the regulation on the food and feed industries should also be very small since most of the industry has voluntarily moved or replaced their PCB Transformers and Large Capacitors. Further, the impact on small food and feed companies will be negligible since most small firms do not own their own transformers and capacitors.

Since the effect of this rule avoids the economic impact associated with a disruption of electric service and based on the regulatory analysis which indicates that there is a net benefit from the rule, I certify that this rule will not have a significant economic impact on a substantial number of small entities. Therefore, a "regulatory flexibility analysis" is not required and will not be prepared for this rulemaking.

VIII. Paperwork Reduction Act

The Paperwork Reduction Act of 1980 (PRA), 44 U.S.C. 3501 *et seq.*, authorizes the Director of the OMB to review certain information collection requests by Federal agencies. EPA has determined that the recordkeeping requirements set out in 40 CFR 761.30 constitute a "collection of information," as defined in 44 U.S.C 3502(4), making these requirements subject to the terms of the PRA.

In 40 CFR 761.30(a) EPA grants authorizations for the use of PCB-containing transformers provided that records are kept which indicate when the equipment was inspected for leaks, whether any leaks were found, and what action it took if any leaks were found. The person is required to keep the records until three years after disposing of the equipment, and upon request, to make them available to EPA for inspection. This requirement has been reduced from the five-year period that was in the proposal.

These recordkeeping requirements minimize paperwork burden and are designed to obtain only information necessary to assure that companies are complying with the rule. By eliminating the inspection requirements for capacitors, the paperwork burden of this final rule has been reduced to less than six percent of the burden for the requirements in the proposed rule.

This final rule amendment has been forwarded to the Director of OMB for review under the terms of the PRA. OMB has assigned the following control number to this final rule: 2070-0003.

IX. Official Record of Rulemaking

In accordance with the requirements of section 19(a)(3)(E) of TSCA, EPA is publishing the following list of documents, which constitute the record of this rulemaking. However, public comments, the transcript of the rulemaking hearing, or submissions made at the rulemaking hearing or in connection with it will not be listed because these documents are exempt from **Federal Register** listing under section 19(a)(3). A full list of these materials is available on request by contacting the Industry Assistance Office (see listing under **"For Further Information Contact"**).

A. Previous Rulemaking Records

1. Official Rulemaking Record from "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions Rule" published in the **Federal Register** of May 31, 1979, (44 FR 31514).

2. Official Rulemaking Record from "Polychlorinated Biphenyls (PCBs); Proposed Restrictions on Use at Agricultural Pesticide and Fertilizer Facilities," published in the **Federal Register** of May 9, 1980, (45 FR 30989).

B. Federal Register Notices

3. 44 FR 31514, May 31, 1979. USEPA. "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions."

4. 45 FR 14232, March 5, 1980. USEPA. "Polychlorinated Biphenyls (PCBs); Request for Information on PCB Transformers."

5. 46 FR 16096, March 10, 1981. USEPA. "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions; Use in Electrical Equipment; Court Order on Inspection and Maintenance."

6. 46 FR 16096, March 10, 1981. USEPA. "Polychlorinated Biphenyls (PCBs); Use in Electrical Equipment."

7. 46 FR 25411, May 6, 1981. USEPA. "Polychlorinated Biphenyls (PCBs); Proposed Restrictions on Use at Agricultural Pesticide and Fertilizer Facilities; Abeyance of Proposed Rule Amendment."

8. 46 FR 27614, May 20, 1981. USEPA. "Polychlorinated Biphenyls (PCBs); Use in Electrical Equipment; Interim Measures Program."

9. 47 FR 17426, April 22, 1982. USEPA. "Polychlorinated Biphenyls (PCBs); Use in Electrical Equipment."

C. Support Documents

10. USEPA, OTS, "Regulatory Impact Analysis—for the Proposed PCB-Containing Electrical Equipment Rulemaking."

11. USEPA, OTS "Regulatory Impact Analysis of the Use Rule for PCB-Containing Electrical Equipment."

12. USEPA, OTS "Response to Comments on Health Effects of PCBs submitted by the Chemical Manufacturers Association and the Edison Electric Institute."

13. USEPA, OTS "Support Document for the Electrical Equipment Use Rule—Response to Comments."

D. Reports

14. Chemical Manufacturers Association, "Summary of the Health Effects of PCBs." Prepared by Ecology and the Environment, Inc.

15. Edison Electric Institute and Utilities Solid Waste Activities Group, "Comments and Studies on the Use of Polychlorinated Biphenyls (PCBs) in Response to an Order of the U.S. Court of Appeals for the District of Columbia Circuit."

Vol I.—Executive Summary and Integrated Comments (02/12/82)

Vol. II.—Potential Health Effects in the Human from Exposure to Polychlorinated Biphenyls and Related Impurities (2/12/82) Prepared under contract to Drill, Friess, Hays, Loomis & Shaffer, Inc.

Vol. III.—Report of the Study on PCBs in Equipment Owned by the Electric Utility Industry (02/12/82). Prepared under contract to Resource Planning Corp.

Vol. IV.—Environmental Pathways of Polychlorinated Biphenyls (02/12/82). Prepared by Donald MacKay, Dept. of Chemical Eng. and Applied Chemistry, Inst. of Environmental Studies, Univ. of Toronto, CA.

16. Edison Electric Institute, "Initial Cost Impact to Utility Companies of the Regulation of PCBs in Food-Related Industries." (December 1980) Prepared by Resource Planning Corp.

17. Edison Electric Institute and Utilities Solid Waste Activities Group, "Preliminary Findings of the Study of PCBs in Equipment Owned by the Electric Utilities Industry, Task I and II" (10/29/81). Prepared by Resource Planning Corp.

18. Electric Power Research Institute, "Equilibrium Study of PCBs Between Transformer Oil and Transformer Solid Materials" (December 3, 1981). Prepared by RTE Corp.

19. ENSCO, "Emission Testing During Incineration of PCBs at Energy Systems Co." (December 1981). Prepared by TRW, Inc., Env. Div.

20. National Electric Manufacturers Association, "Potential Health Effects in the Human from Exposure to Polychlorinated Biphenyls (PCBs) and Related Impurities" (01/25/82). Prepared by Drill, Friess, Hays, Loomis & Shaffer, Inc.

21. Northeast Utilities Service Co., "Capacitor Protective Schemes Investigated by Northeast Utilities." Presented to EPRI PCB Seminar, Dallas, TX (December 1–3, 1981).

22. Rollins Env. Services, "The PCB Incineration Test Made by Rollins Environmental Services (TX), Inc. at Deer Park, TX." (November 10–12, 1981).

23. USEPA, OTS, "Summary Data on Substitutes for Polycholorinated Biphenyls (PCBs)" (February, 1981). Prepared by SRI International.

24. USEPA, OTS, "Assessment of the Use of Selected Replacement Fluids for PCBs in Electrical Equipment" (March 1979). Prepared by Versar, Inc.

25. USEPA, Reg. 6, AHMD, Solid Waste Division, "Incineration of PCBs Summary of Approval Actions—Energy Systems Co. (ENSCO), El Dorado Park, TX" (02/06/81).

26. USEPA, WH, Marine Protection, "Marine Protection, Research, and Sanctuaries Act (Incineration at Sea) Permit."

X. Statutory Authority

Under section 6(e) of TSCA (15 U.S.C. 2605), the Administrator may by rule authorize the manufacture, processing, distribution in commerce or use (or any combination of such activities) of any PCBs in other than a totally enclosed manner if the Administrator finds that it will not present an unreasonable risk of injury to health or the environment. The Administrator also has authority to amend or modify the PCB Manufacturing, Processing, Distribution in Commerce, and Use Prohibition Rule (40 CFR Part 761), published in the Federal Register of May 31, 1979, (44 FR 31514).

List of Subjects in 40 CFR Part 761

Hazardous materials, Labeling, Polychlorinated biphenyls, Reporting and recordkeeping requirements, Environmental protection.

Dated: August 18, 1982.

John W. Hernandez,

Acting Administrator.

Therefore, 40 CFR Part 761 is amended as follows:

PART 761—POLYCHLORINATED BIPHENYLS (PCBs) MANUFACTURING, PROCESSING, DISTRIBUTION IN COMMERCE, AND USE PROHIBITIONS

1. In § 761.3, paragraphs (d)(1), (2), and (3), (h), (t), and (z) are revised and paragraph (ll) is added to read as follows:

§ 761.3 Definitions.

* * * * *

(d) * * *

(1) "Small Capacitor" means a capacitor which contains less than 1.36 kg (3 lbs.) of dielectric fluid. The following assumptions may be used if the actual weight of the dielectric fluid is unknown. A capacitor whose total volume is less than 1,639 cubic centimeters (100 cubic inches) may be considered to contain less than 1.36 kg (3 lbs.) of dielectric fluid and a capacitor whose total volume is more than 3,278 cubic centimeters (200 cubic inches) must be considered to contain more than 1.36 kg (3 lbs.) of dielectric fluid. A capacitor whose volume is between 1,639 and 3,278 cubic centimeters may be considered to contain less than 1.36 kg (3 lbs.) of dielectric fluid if the total weight of the capacitor is less than 4.08 kg (9 lbs.).

(2) "Large High Voltage Capacitor" means a capacitor which contains 1.36 kg (3 lbs.) or more of dielectric fluid and which operates at 2000 volts (a.c. or d.c.) or above.

(3) "Large Low Voltage Capacitor" means a capacitor which contains 1.36 kg (3 lbs.) or more of dielectric fluid and which operates below 2000 volts (a.c. or d.c.).

* * * * *

(h) "Disposal" means intentionally or accidentally to discard, throw away, or otherwise complete or terminate the useful life of PCBs and PCB Items. Disposal includes spills, leaks, and other uncontrolled discharges of PCBs as well as actions related to containing, transporting, destroying, degrading, decontaminating, or confining PCBs and PCB Items.

* * * * *

(t) "PCB Article" means any manufactured article, other than a PCB Container, that contains PCBs and whose surface(s) has been in direct contact with PCBs. "PCB Article" includes capacitors, transformers, electric motors, pumps, pipes and any other manufactured item (1) which is formed to a specific shape or design during manufacture, (2) which has end use function(s) dependent in whole or in part upon its shape or design during end use, and (3) which has either no change of chemical composition during its end use or only those changes of composition which have no commerical purpose separate from that of the PCB Article.

* * * * *

(z) "PCB-Contaminated Electrical Equipment" means any electrical equipment, including but not limited to transformers (including those used in railway locomotives and self-propelled cars), capacitors, circuit breakers, reclosers, voltage regulators, switches (including sectionalizers and motor starters), electromagnets, and cable, that contain 50 ppm or greater PCB, but less than 500 ppm PCB. Oil-filled electrical equipment other than circuit breakers, reclosers, and cable whose PCB concentration is unknown must be assumed to be PCB-Contaminated Electrical Equipment. (See § 761.30(a) and (h) for provisions permitting reclassification of electrical equipment containing 500 ppm or greater PCBs to PCB-Contaminated Electrical Equipment).

* * * * *

(ll) "Posing an Exposure Risk to Food or Feed" means being in any location where human food or animal feed products could be exposed to PCBs released from a PCB Item. A PCB Item poses an exposure risk to food or feed if PCBs released in any way from the PCB Item have a potential pathway to human food or animal feed. EPA considers human food and animal feed to include items regulated by the U.S. Department of Agriculture or the Food and Drug Administration as human food or animal feed; this includes additives. Food or feed is excluded from this definition if it is used or stored in private homes.

* * * * *

2. The introductory text of § 761.20 is revised to read as follows:

§ 761.20 Prohibitions.

Except as authorized in § 761.30 the activities listed in paragraphs (a) and (d) of this section are prohibited pursuant to section 6(e)(2) of TSCA. The requirements set forth in paragraphs (b) and (c) of this section concerning export and import of PCBs for purposes of

disposal and PCB Items for purposes of disposal are established pursuant to section 6(e)(1) of TSCA. Subject to any exemptions granted pursuant to section 6(e)(3)(B) of TSCA, the activities listed in paragraphs (b) and (c) of this section are prohibited pursuant to section 6(e)(3)(A) of TSCA. In addition, the Administrator hereby finds, under the authority of section 12(a)(2) of TSCA, that the manufacture, processing, and distribution in commerce of PCBs and PCB Items for export from the United States presents an unreasonable risk of injury to health within the United States. This finding is based upon the well-documented human health and environmental hazard of PCB exposure; the high probability of human and environmental exposure to PCBs and PCB Items from manufacturing, processing, or distribution activities; the potential hazard of PCB exposure posed by the transportation of PCBs or PCB Items within the United States; and the evidence that contamination of the environment by PCBs is spread far beyond the areas where they are used. In addition, the Administrator hereby finds that any exposure of human beings or the environment to PCBs as measured or detected by any scientifically acceptable analytical method is a significant exposure, as defined in § 761.3(dd). Section 761.3(hh) and TSCA section 6(e)(2)(C) define the term totally enclosed manner as "any manner which will ensure that any exposure of human beings or the environment to a polychlorinated biphenyl will be insignificant * * *." Since any exposure to PCBs is found to be a significant exposure, a totally enclosed manner is a manner that results in no exposure of humans or the environment to PCBs. The following activities are considered totally enclosed: distribution in commerce of intact, nonleaking electrical equipment such as transformers (including transformers used in railway locomotives and self-propelled cars), capacitors, electromagnets, voltage regulators, switches (including sectionalizers and motor starters), circuit breakers, reclosers, and cable that contain PCBs at any concentration and processing and distribution in commerce of PCB Equipment containing an intact, nonleaking PCB Capacitor. See paragraph (c) (1) of this section for provisions allowing the distribution in commerce of PCBs and PCB Items.

* * * * *

3. Section 761.30 is amended by revising paragraphs (a) and (h) and adding paragraphs (l) and (m) to read as follows:

§ 761.30 Authorizations.

* * * * *

(a) *Use in and servicing of transformers (other than railroad transformers).* PCBs at any concentration may be used in transformers (other than transformers for railroad locomotives and self-propelled railroad cars) and may be used for purposes of servicing including rebuilding these transformers for the remainder of their useful lives, subject to the following conditions:

(1) *Use conditions.* (i) After October 1, 1985, the use and storage for reuse of PCB Transformers that pose an exposure risk to food or feed is prohibited.

(ii) A visual inspection of each PCB Transformer (as defined in § 761.3(y)) in use or stored for reuse shall be performed at least once every three months. These inspections may take place any time during the three month periods; January–March, April–June, July–September, and October–December as long as there is a minimum of 30 days between inspections. The visual inspection must include investigation for any leak of dielectric fluid on or around the transformer. The extent of the visual inspections will depend on the physical constraints of each transformer installation and should not require an electrical shutdown of the transformer being inspected.

(iii) If a PCB Transformer is found to have a leak which results in any quantity of PCBs running off or about to run off the external surface of the transformer, then the transformer must be repaired or replaced to eliminate the source of the leak. In all cases any leaking material must be cleaned up and properly disposed of according to disposal requirements of § 761.60. Cleanup of the released PCBs must be initiated as soon as possible, but in no case later than 48 hours of its discovery. Until appropriate action is completed, any active leak of PCBs must be contained to prevent exposure of humans or the environment and inspected daily to verify containment of the leak. Trenches, dikes, buckets, and pans are examples of proper containment measures.

(iv) Records of inspection and maintenance history shall be maintained at least 3 years after disposing of the transformer and shall be made available for inspection, upon request, by EPA (OMB Control Number: 2070–0003). Such records shall contain the following information for each PCB Transformer:

(A) Its location.

(B) The date of each visual inspection and the date that a leak was discovered, if different from the inspection date.

(C) The person performing the inspection.

(D) The location of any leak(s).

(E) An estimate of the amount of dielectric fluid released from any leak.

(F) The date of any cleanup, containment, repair, or replacement.

(G) A description of any cleanup, containment, or repair performed.

(H) The results of any containment and daily inspection required for uncorrected active leaks.

(v) A reduced visual inspection frequency of at least once every 12 months applies to PCB Transformers that utilize either of the following risk reduction measures. These inspections may take place any time during the calendar year as long as there is a minimum of 180 days between inspections.

(A) a PCB Transformer which has impervious, undrained, secondary containment capacity of at least 100 percent of the total dielectric fluid volume of all transformers so contained, or

(B) A PCB Transformer which has been tested and found to contain less than 60,000 ppm PCBs (after three months of inservice use if the transformer has been serviced for purposes of reducing the PCB concentration).

(vi) An increased visual inspection frequency of at least once every week applies to any PCB Transformer in use or stored for reuse which poses an exposure risk to food or feed. The user of a PCB Transformer posing an exposure risk to food or feed is responsible for the inspection, recordkeeping, and maintenance requirements under this section until the user notifies the owner that the transformer may pose an exposure risk to food or feed. Following such notification, it is the owner's ultimate responsibility to determine whether the PCB Transformer poses an exposure risk to food or feed.

(2) *Servicing conditions.* (i) Transformers classified as PCB-Contaminated Electrical Equipment (as defined in § 761.3(z)) may be serviced (including rebuilding) only with dielectric fluid containing less than 500 ppm PCB.

(ii) Any servicing (including rebuilding) of PCB Transformers (as defined in § 761.3(y)) that requires the removal of the transformer coil from the transformer casing is prohibited. PCB Transformers may be serviced

(including topping off) with dielectric fluid at any PCB concentration.

(iii) PCBs removed during any servicing activity must be captured and either reused as dielectric fluid or disposed of in accordance with the requirements of § 761.60. PCBs from PCB Transformers must not be mixed with or added to dielectric fluid from PCB-Contaminated Electrical Equipment.

(iv) Regardless of its PCB concentration, dielectric fluids containing less than 500 ppm PCB that are mixed with fluids that contain 500 ppm or greater PCB must not be used as dielectric fluid in any electrical equipment. The entire mixture of dielectric fluid must be considered to be greater than 500 ppm PCB and must be disposed of in an incinerator that meets the requirements in § 761.70.

(v) A PCB Transformer may be converted to PCB-Contaminated Electrical Equipment or to a non-PCB Transformer and a transformer that is classified as PCB-Contaminated Electrical Equipment may be reclassified to a non-PCB Transformer by draining, refilling and/or otherwise servicing the transformer. In order to reclassify, the transformer's dielectric fluid must contain less than 500 ppm PCB (for conversion to PCB-Contaminated Electrical Equipment) or less than 50 ppm PCB (for conversion to a non-PCB Transfomer) after a minimum of three months of in-service use subsequent to the last servicing conducted for the purpose of reducing the PCB concentration in the transformer. In-service means that the transformer is used electrically under loaded conditions that raise the temperature of the dielectric fluid to at least 50° Centigrade. The Assistant Administrator may grant, without further rulemaking, approval for the use of alternative methods that simulate the loaded conditions of in-service use. All PCBs removed from transformers for purposes of reducing PCB concentrations are subject to the disposal requirements of § 761.60.

(vi) Any dielectric fluid containing 50 ppm or greater PCB used for servicing transformers must be stored in accordance with the storage for disposal requirements of § 761.65.

(vii) Processing and distribution in commerce of PCBs for purposes of servicing transformers is permitted only for persons who are granted an exemption under TSCA 6(e)(3)(B).

* * * * *

(h) *Use in and servicing of electromagnets, switches and voltage regulators.* PCBs at any concentration may be used in electromagnets, switches (including sectionalizers and motor starters), and voltage regulators and may be used for purposes of servicing this equipment (including rebuilding) for the remainder of their useful lives, subject to the following conditions:

(1) *Use conditions.* (i) After October 1, 1985, the use and storage for reuse of any electromagnet which poses an exposure risk to food or feed is prohibited if the electromagnet contains greater tha 500 ppm PCBs.

(ii) A visual inspection of each electromagnet subject to paragraph (h)(1)(i) shall be performed at least once every week according to the conditions contained in § 761.30(a)(1)(iii) and (iv).

(2) *Servicing conditions.* (i) Servicing (including rebuilding) any electromagnet, switch, or voltage regulator with a PCB concentration of 500 ppm or greater which requires the removal and rework of the internal components is prohibited.

(ii) Electromagnets, switches, and voltage regulators classified as PCB-Contaminated Electrical Equipment (as defined in § 761.3(z)) may be serviced (including rebuilding) only with dielectric fluid containing less than 500 ppm PCB.

(iii) PCBs removed during any servicing activity must be captured and either reused as dielectric fluid or disposed of in accordance with the requirements of § 761.60. PCBs from electromagnets switches, and voltage regulators with a PCB concentration of at least 500 ppm must not be mixed with or added to dielectric fluid from PCB-Contaminated Electrical Equipment.

(iv) Regardless of its PCB (concentration, dielectric fluids containing less than 500 ppm PCB) that are mixed with fluids that contain 500 ppm or greater PCB must not be used as dielectric fluid in any electrical equipment. The entire mixture of dielectric fluid must be considered to be greater than 500 ppm PCB and must be disposed of in an incinerator that meets the requirements of § 761.70.

(v) An electromagnet, switch or voltage regulator with a PCB concentration of at least 500 ppm may be converted to PCB-Contaminated Electrical Equipment or to a non-PCB classification and PCB-Contaminated Electrical Equipment may be reclassified to a non-PCB classification by draining, refilling and/or otherwise servicing the equipment. In order to be reclassified, the equipment's dielectric fluid must contain less than 500 ppm PCB (for conversion to PCB-Contaminated Electrical Equipment) or less than 50 ppm PCB (for conversion to a non-PCB classification) after a minimum of three months of in-service use subsequent to the last servicing conducted for the purpose of reducing the PCB concentration in the equipment. In-service use means the equipment is used electrically under loaded conditions. The Assistant Administrator may grant, without further rulemaking, approval for the use of alternative methods that simulate the loaded conditions of in-service use. All PCBs removed from this equipment for purposes of reducing PCB concentrations are subject to the disposal requirements of § 761.60.

(vi) Any dielectric fluid containing 50 ppm or greater PCB used for servicing electromagnets, switches, or voltage regulators must be stored in accordance with the storage for disposal requirements of § 761.65.

(vii) Processing and distribution in commerce of PCBs for purposes of servicing electromagnets, switches or voltage regulators is permitted only for persons who are granted an exemption under TSCA 6(e)(3)(B).

* * * * *

(l) *Use in capacitors.* PCBs at any concentration may be used in capacitors, subject to the following conditions:

(1) *Use conditions.* (i) After October 1, 1988, the use and storage for reuse of PCB Large High Voltage Capacitors and PCB Large Low Voltage Capacitors which pose an exposure risk to food or feed is prohibited.

(ii) After October 1, 1988, the use of PCB Large High Voltage Capacitors and PCB Large Low Voltage Capacitors is prohibited unless the capacitor is used within a restricted-access electrical substation or in a contained and restricted-access indoor installation. A restricted-access electrical substation is an outdoor, fenced or walled-in facility that restricts public access and is used in the transmission or distribution of electric power. A contained and restricted-access indoor installation does not have public access and has an adequate roof, walls, and floor to contain any release of PCBs within the indoor location.

(2) [Reserved]

(m) *Use in and servicing of circuit breakers, reclosers and cable.* PCBs at any concentration may be used in circuit breakers, reclosers, and cable and may be used for purposes of servicing this electrical equipment (including rebuilding) for the remainder of their useful lives, subject to the following conditions:

(1) *Servicing conditions.* (i) Circuit breakers, reclosers, and cable may be serviced (including rebuilding) only with dielectric fluid containing less than 50 ppm PCB.

(ii) Any circuit breaker, recloser or cable found to contain at least 50 ppm PCBs may be serviced only in accordance with the conditions contained in 40 CFR 761.30(h)(2).

(2) [Reserved]

4. In § 761.40, paragraphs (a)(2) and (c)(1) are revised to read as follows:

§ 761.40 Marking requirements.

(a) * * *

(2) PCB Transformers at the time of manufacture, at the time of distribution in commerce if not already marked, and at the time of removal from use if not already marked. [Marking of PCB-Contaminated Electrical Equipment is not required];

* * * * *

(c) * * *

(1) All PCB Transformers not marked under paragraph (a) of this section [marking of PCB-Contaminated Electrical Equipment is not required];

* * * * *

5. The heading for Subpart D is revised to read as follows:

Subpart D—Storage and Disposal

6. In § 761.60 paragraph (b)(1)(ii) is removed and reserved and the introductory text of paragraph (a)(2), paragraph (b)(2)(i), the introductory text of paragraph (b)(2)(iii), paragraph (b)(4) and (5), paragraph (d), and paragraph (g)(1) are revised and paragraph (b)(6) is added to read as follows:

§ 761.60 Disposal requirements.

(a) * * *

(2) Mineral oil dielectric fluid from PCB-Contaminated Electrical Equipment containing a PCB concentration of 50 ppm or greater, but less than 500 ppm, must be disposed of in one of the following:

* * * * *

(b) * * *

(2) *PCB Capacitors.* (i) The disposal of any capacitor shall comply with all requirements of this subpart unless it is known from label or nameplate information, manufacturer's literature (including documented communications with the manufacturer), or chemical analysis that the capacitor does not contain PCBs.

* * * * *

(iii) Any PCB Large High or Low Voltage Capacitor which contains 500 ppm or greater PCBs, owned by any person, shall be disposed of in accordance with either of the following:

* * * * *

(4) *PCB-Contaminated Electrical Equipment.* All PCB-Contaminated Electrical Equipment except capacitors shall be disposed of by draining all free flowing liquid from the electrical equipment and disposing of the liquid in accordance with paragraph (a)(2) or (3) of this section. The disposal of the drained electrical equipment is not regulated by this rule. Capacitors that contain between 50 and 500 ppm PCBs shall be disposed of in an incinerator that complies with § 761.70 or in a chemical waste landfill that complies with § 761.75.

(5) *Other PCB Articles.* (i) PCB Articles with a PCB concentration of 500 ppm or greater must be disposed of:

(A) In an incinerator that complies with § 761.70; or

(B) In a chemical waste landfill that complies with § 761.75, provided that all free-flowing liquid PCBs have been thoroughly drained from any articles before the articles are placed in the chemical waste landfill and that the drained liquids are disposed of in an incinerator that complies with § 761.70.

(ii) PCB Articles with a PCB concentration between 50 and 500 ppm must be disposed of by draining all free flowing liquid from the article and disposing of the liquid in accordance with paragraph (a)(2) or (3) of this section. The disposal of the drained article is not regulated by this rule.

(6) *Storage of PCB Articles.* Except for a PCB Article described in paragraph (b)(2)(ii) of this section and hydraulic machines that comply with the municipal solid waste disposal provisions described in paragraph (b)(3) of this section, any PCB Article shall be stored in accordance with § 761.65 prior to disposal.

* * * * *

(d) *Spills.* (1) Spills, leaks, and other uncontrolled discharges of PCBs constitute the disposal of PCBs.

(2) PCBs resulting from the clean-up and removal of spills, leaks, or other uncontrolled discharges, must be stored and disposed of in accordance with paragraph (a) of this section.

(3) These regulations do not exempt any person from any actions or liability under other statutory authorities, including but not limited to the Clean Water Act, the Resource Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980.

* * * * *

(g) *Testing procedures.* (1) Owners or users of mineral oil dielectric fluid electrical equipment may use the following procedures to determine the concentration of PCBs in the dielectric fluid:

(i) Dielectric fluid removed from mineral oil dielectric fluid electrical equipment may be collected in a common container, provided that no other chemical substances or mixtures are added to the container. This common container option does not permit dilution of the collected oil. Mineral oil that is assumed or known to contain at least 50 ppm PCBs must not be mixed with mineral oil that is known or assumed to contain less than 50 ppm PCBs to reduce the concentration of PCBs in the common container. If dielectric fluid from untested oil-filled circuit breakers, reclosers, or cable is collected in a common container with dielectric fluid from other oil-filled electrical equipment, the entire contents of the container must be treated as PCBs at a concentration of at least 50 ppm, unless all of the fluid from the other oil-filled electrical equipment has been tested and shown to contain less than 50 ppm PCBs.

(ii) For purposes of complying with the marking and disposal requirements, representative samples may be taken from either the common containers or the individual electrical equipment to determine the PCB concentration, except that if any PCBs at a concentration of 500 ppm or greater have been added to the container or equipment then the total container contents must be considered as having a PCB concentration of 500 ppm or greater for purposes of complying with the disposal requirements of this subpart. For purposes of this subparagraph, representative samples of mineral oil dielectric fluid are either samples taken in accordance with American Society of Testing and Materials method D-923 or samples taken from a container that has been thoroughly mixed in a manner such that any PCBs in the container are uniformly distributed throughout the liquid in the container.

* * * * *

7. In § 761.65, paragraph (c)(2) is revised to read as follows:

§ 761.65 Storage for disposal.

* * * * *

(c)* * *

(2) Non-leaking and structurally undamaged PCB Large High Voltage Capacitors and PCB-Contaminated Electrical Equipment that have not been drained of free flowing dielectric fluid may be stored on pallets next to a storage facility that meets the requirements of paragraph (b) of this section. PCB-Contaminated Electrical Equipment that has been drained of free flowing dielectric fluid is not subject to the storage provisions of § 761.65. Storage under this subparagraph will be permitted only when the storage facility

has immediately available unfilled storage space equal to 10 percent of the volume of capacitors and equipment stored outside the facility. The capacitors and equipment temporarily stored outside the facility shall be checked for leaks weekly.

* * * * *

§ 761.45 Correctly designated as § 761.180.

8. Section 761.45 which was incorrectly redesignated as § 761.80 in the **Federal Register** of May 6, 1982 (47 FR 19527) is correctly redesignated as § 761.180 in Subpart J.

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APPENDIX D

Part III

Environmental Protection Agency

Polychlorinated Biphenyls (PCBs); Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions; Use in Closed and Controlled Waste Manufacturing Processes

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 761

[OPTS-62017B; TSH-FRL 2217-6]

Polychlorinated Biphenyls (PCBs); Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions; Use in Closed and Controlled Waste Manufacturing Processes

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This final rule amends portions of an existing EPA rule concerning certain chemical substances known as polychlorinated biphenyls (PCBs). The Toxic Substances Control Act (TSCA), 15 U.S.C. 2605(e), generally prohibits the manufacture, processing, distribution in commerce, and use of PCBs. This rule excludes PCBs produced in certain limited manufacturing processes from the TSCA prohibitons. Appropriate safeguards are included to ensure compliance with the conditions for exclusion provided by the rule.

DATES: These amendments shall be considered promulgated for purpose of judicial review under section 19 of TSCA at 1:00 p.m. Eastern Daylight Time on October 27, 1982. These amendments shall be effective on November 22, 1982.

FOR FURTHER INFORMATION CONTACT: Douglas G. Bannerman, Acting Director, Industry Assistance Office (TS-799), Office of Toxic Substances, Environmental Protection Agency, Rm. E-509, 401 M St., SW., Washington, D.C. 20460, Toll Free: (800-424-9065), In Washington, D.C.: (554-1404), Outside the USA: (Operator-202-554-1404). Copies of this rule and its support documents can be obtained from the Industry Assistance Office listed above.

SUPPLEMENTARY INFORMATION: OMB Control Number: 2070-0008.

I. Recodification of 40 CFR Part 761

Notice of the recodification of 40 CFR Part 761 appears in the **Federal Register** of May 6, 1982 (47 FR 19527). This final rule contains the new designations:

New designation	Former designation
Subpart B	Subpart D
§ 761.185	§ 761 45
§ 761 3	§ 761.2
§ 761 65	§ 761 42.
§ 761 70	§ 761 40
§ 761.75	§ 761.41.

II. Background

Section 6(e) of the Toxic Substances Control Act (TSCA) prohibits the manufacture, processing, distribution in commerce, and use of polychlorinated biphenyls (PCBs). However, the statute enables EPA to promulgate rules to reduce the impact of the ban. EPA promulgated a rule, published in the **Federal Register** of May 31, 1979 (44 FR 31514), to implement section 6(e) of TSCA. This rule is listed in the Code of Federal Regulations under 40 CFR Part 761. This rule, among other things, generally excluded from the ban materials containing PCBs in concentrations under 50 parts per million (ppm).

The Environmental Defense Fund (EDF) obtained judicial review of the rule in the U.S. Court of Appeals for the District of Columbia Circuit. EDF challenged the provision described above, among others. On October 30, 1980, the court invalidated the regulatory exclusion for PCB concentrations below 50 ppm *Environmental Defense Fund* v. *EPA*, 636 F.2d 1267. The court remanded the rule to EPA for further action consistent with the opinion. The court's decision placed industries that had relied upon the PCB Ban Rule in a difficult position. Issuance of the court's mandate would have activated section 6(e)'s broad prohibitions on the manufacture, processing, distribution in commerce, and use of PCBs, resulting in the disruption of many activities in industries throughout the United States.

Accordingly, the parties to the lawsuit filed a joint motion on February 20, 1981, to seek a stay of the court's mandate. The joint motion proposed that during the period encompassed by the stay: (1) EPA would conduct new rulemaking with respect to PCBs, and (2) industry groups would initiate studies to provide information for the new rulemaking.

During discussions which led up to this joint motion, representatives of some affected industries stated that some of the processes which produce PCBs are designed and operated so that no releases of PCBs occur or that the PCBs formed in the processes are released only in wastes that are disposed of appropriately. Consequently, virtually no risk to humans or the environment is associated with such processes because the likelihood of exposure is so low. Therefore, the joint motion proposed that EPA would publish an Advance Notice of Proposed Rulemaking (ANPR) requesting comments on the possible exclusion of these PCBs from the provisions of section 6(e) of TSCA.

In addition to dealing with closed and controlled waste processes, the February 20 joint motion also proposed to publish an ANPR requesting information on all other manufacture, processing, distribution in commerce, and use of PCBs in low concentrations. PCBs generated in and released from other than closed or controlled waste processes are referred to as "uncontrolled PCBs."

On April 13, 1981, the court entered an order in *EDF* v. *EPA*, in response to the February 20 joint motion. The text of the court's order is set forth in the **Federal Register** of May 20, 1981 (46 FR 27615). The April 13 order stayed issuance of the court's mandate with respect to activities relating to PCBs in concentrations below 50 ppm. Thus, the 50 ppm regulatory cutoff remains in effect for the duration of the stay, and persons who manufacture, process, distribute in commerce, and use PCBs in concentrations less than 50 ppm may continue these activities during the stay. The order also adopted a plan for further actions by EPA and industry groups leading toward new EPA rulemaking on the regulation of PCBs in concentrations below 50 ppm. The April 13 order required EPA: (1) to publish two ANPRs on developing rules to cover PCBs in concentrations below 50 ppm; (2) to promulgate a final rule, within 18 months from the date of the order (i.e., October 13, 1982), with respect to exclusion of the generation of PCBs in closed and controlled waste manufacturing processes from the prohibitions of section 6(e)(3), or to explain the reasons for not proceeding with such a rule; and (3) to advise the court, within 11 months after the date of the order (i.e., March 13, 1982), of EPA's plan and schedule for further action on PCBs in concentrations below 50 ppm generated as uncontrolled PCBs.

In the **Federal Register** of May 20, 1981 (46 FR 27617 and 46 FR 27619), EPA issued two ANPRs on the 50 ppm regulatory cutoff. The ANPRs established bifurcated rulemaking proceedings with respect to PCBs in concentrations below 50 ppm. The first ANPR announced rulemaking on PCBs generated in closed and controlled waste manufacturing processes. The second ANPR announced the framework for the Agency's exploration of the scope of the problem presented by PCBs in concentrations below 50 ppm in other than closed or controlled waste processes.

On March 11, 1982, EPA submitted, in accordance with the April 13, 1981 court order, a report to the court that contained its plans for further regulatory

action on uncontrolled PCBs. EPA requested that the court allow EPA to report on its further plans for regulatory action on uncontrolled PCBs following the completion of the rulemaking on closed and controlled waste processes (but no later than November 1, 1982). EPA also requested that the court extend its stay of mandate until December 1, 1982, to allow EPA time to present its plans for regulatory action on uncontrolled PCBs to the court and for the court to respond. On April 9, 1982, the court granted EPA's requests.

In its report to the court on uncontrolled PCBs, due November 1, 1982, EPA intends to describe its plans for regulatory action on uncontrolled PCBs and at the same time, request a further extension of the court's stay of mandate, until the completion of rulemaking on uncontrolled PCBs.

After considering all comments submitted to the Agency in response to the first ANPR, EPA issued a proposed rule in the **Federal Register** of June 8, 1982 (47 FR 24976), which would exclude PCBs produced in closed and controlled waste manufacturing processes from the TSCA ban on the manufacture, processing, distribution in commerce, and use of PCBs. EPA received 48 comments on the proposed rule and, on July 26, 1982, held a public hearing in Washington, D.C. At the hearing, three participants provided testimony on various aspects of the proposed rule.

EPA has considered all the comments received on the proposed rule and has modified the proposed rule where appropriate. Further, EPA has prepared a support document for this rulemaking which addresses all major comments made on the proposed rule and includes EPA's responses to suggestions which were not incorporated in the final rule. This document, entitled "Response to Comments on the Closed and Controlled Waste Rule," is available by contacting the Industry Assistance Office (see **FOR FURTHER INFORMATION CONTACT**).

In order to avoid a "race to the courthouse" by persons seeking judicial review of this rule, EPA has decided to designate the time and date of "promulgation" of this rule as 1:00 p.m. Eastern Daylight Time on October 27, 1982. The Agency has previously taken this approach for rules promulgated under the Clean Water Act (see 40 CFR 100.01, 45 FR 26048). The Agency will be considering a general rule for TSCA similar to 40 CFR 100.01.

III. Summary of the Final Rule

The objective of this final rule is to exclude certain process situations from the prohibitions and requirements of section 6(e) of TSCA. This exclusion is voluntary; manufacturers are not required by this rule to take advantage of the exclusion.

This final rule modifies and clarifies some of the requirements presented in the proposed rule because of information obtained during the public comment period and at the public hearing on the proposed rule. Briefly, in the proposed rule: (1) EPA defined the absence of PCBs in releases from closed and controlled waste manufacturing processes by referencing an analytical technique, (2) EPA defined controlled wastes as wastes disposed of in facilities approved by EPA for the disposal of PCB wastes under 40 CFR 761.60, and (3) EPA required recordkeeping by persons taking advantage of the exclusion.

In the final rule: (1) EPA is setting numerical cutoffs for purposes of defining the absence of PCBs in releases from closed and controlled waste processes, (2) EPA is adding additional disposal mechanisms to the list of acceptable mechanisms for the disposal of controlled wastes containing PCBs in concentrations between the limit of quantitation and 50 ppm, and (3) EPA is instituting a new recordkeeping requirement and a reporting requirement in addition to the recordkeeping requirements listed in the proposed rule.

In this final rule, EPA is excluding from the requirements of section 6(e) the manufacture, processing, distribution in commerce, and use of PCBs created in closed manufacturing processes and controlled waste manufacturing processes. A closed manufacturing process is defined as a manufacturing process that produces PCBs, but releases PCBs only in concentrations below the practical limits of quantitation for PCBs in air emissions, water effluents, products, and process wastes.

Similarly, a controlled waste manufacturing process is a manufacturing process that produces PCBs, but releases PCBs only in concentrations below the practical limits of quantitation for PCBs in air emissions, water effluents, and products, and all remaining PCBs are disposed of in accordance with methods for disposal specified in this rule. Controlled wastes containing PCBs in concentrations between the practical limit of quantitation and 50 ppm, must be disposed of in a qualified incinerator (see discussion under IV.A.5.), or in an EPA-approved PCB landfill, or be stored for incineration or landfilling in accordance with § 761.65(b)(1). (Controlled wastes, containing PCBs in concentrations above 50 ppm, must be handled like all PCB waste above 50 ppm, in accordance with the existing PCB disposal and marking rule (43 FR 7150)).

For purposes of this rule, the practical limit of quantitation for PCBs in any release to air is ten micrograms per cubic meter (roughly 0.01 part per million (ppm)) per resolvable gas chromatographic peak; in any release to water, the limit is 100 micrograms per liter (roughly 0.1 ppm) per resolvable gas chromatographic peak; and in any product or waste, the limit is two micrograms per gram (2 ppm) per resolvable gas chromatographic peak. (See discussion of the practical limit of quantitation of PCBs under IV.A.3.c. for more details.) These PCB concentrations represent the lowest concentrations of PCBs which EPA believes can be practically quantified in air, water, products, and process waste streams. EPA believes that for all practical purposes, it would be impossible to determine whether regulation of PCBs below these levels had any effect on actually reducing releases of PCBs. Consequently, EPA has concluded that there would be no measurable gain in protecting the environment or public health by attempting to regulate PCB at levels that are not practically measurable.

In specifying the methods for the disposal of controlled wastes containing less than 50 ppm PCBs, EPA is confident that these wastes will be disposed of in a manner that will result in little or no environmental contamination. At the same time, EPA believes that this rule will not place unreasonable burdens on existing disposal facilities or create excessive disposal costs for manufacturers disposing of wastes containing PCBs in concentrations between the practical limit of quantitation and 50 ppm.

In addition to meeting the criteria for eligibility described above, manufacturers who want to take advantage of the exclusion must fulfill certain recordkeeping and reporting requirements. These include: (1) certifying that their processes qualify, (2) notifying EPA that they have made this certification and how they have made the determination, and (3) maintaining a record of the determination that their processes qualify for exclusion. Manufacturers are provided the option of conducting theoretical assessments to support certification or of conducting actual monitoring of PCB levels in releases. Recertification and renotification of EPA are required upon significant process changes.

In providing for theoretical assessments in lieu of actual monitoring

of PCB levels, EPA has concluded that such determinations may be possible in certain process situations; therefore, it would be unreasonable to require actual monitoring of PCB levels in all situations. Manufacturers have the burden of making the decision about when a theoretical assessment in lieu of actual monitoring of PCB levels is appropriate. Because of the difficulty of estimating actual PCB levels, EPA recommends that a theoretical assessment be used to qualify for the exclusion only when the results of the theoretical assessment indicate that PCB concentrations in releases will be substantially below the practical limits of quantitation.

EPA is issuing some general guidelines for conducting a theoretical assessment to aid manufacturers in completing this assessment. Nonetheless, EPA expects that each individual manufacturer will exercise judgment in choosing the methodology to be used in conducting a theoretical assessment, and in deciding when to undertake chemical analysis of process streams to determine if a process qualifies for exclusion.

EPA will not be performing theoretical assessments in enforcement inspections to determine whether a process qualifies for exclusion, but rather, will be conducting chemical analysis of process streams. In monitoring compliance with this rule, if EPA identifies a process that is supported by a complete theoretical assessment but is determined to be operating in violation of TSCA section 6(e) (through chemical analysis of process releases), then the process will be ineligible for exclusion, regardless of the results of the manufacturer's theoretical assessment.

EPA believes that recordkeeping and reporting are necessary to ensure that only processes which meet the definitions of closed and controlled waste processes are permitted to operate under this exclusion. A reporting requirement also enables EPA to develop an effective compliance monitoring program. Thus, EPA has determined that the benefits of instituting a reporting requirement far outweigh the costs to manufacturers of submitting this information to EPA.

TSCA explicitly provides only for case-by-case exceptions to the ban on the manufacture, processing, distribution in commerce, and use of PCBs. However, Federal courts have recognized the "de minimis" exception to legislative mandates. Although the court in *EDF* v. *EPA* overturned portions of the Agency's PCB regulations, it nevertheless noted that administrative agencies have the power "inherent in most statutory schemes, to overlook circumstances that in context may fairly be considered de minimis." 636 F. 2d 1283. Courts and agencies should be reluctant to apply a statute literally in pointless expenditure of effort, where regulation would yield a gain of trivial or no value. EPA has evaluated closed and controlled waste manufacturing processes in this context and finds that circumstances surrounding these processes may fairly be considered de minimis situations.

A substantial number of industry comments have criticized EPA for failure, in this rule, to deal with the entire universe of PCBs generated in low concentrations. Some would have the Agency use this rule as a vehicle to create exclusions from the regulatory ambit of section 6(e) for all low concentration PCBs on the basis that they present de minimis risks to health or the environment. EPA emphasizes that this rule has a more limited purpose. It is intended only to exclude a specific class of chemical processes from further regulation. This rule does not establish a single PCB concentration below which all PCBs are excluded from regulation and above which all PCBs will always be regulated.

EPA is not prepared at this time to make any decisions on processes releasing PCBs in concentrations above the practical limits of quantitation. For those instances in which PCBs are generated and released in concentrations below 50 ppm, but are not excluded by this rule, EPA intends to request a further stay of the D.C. Circuit Court's mandate until an additional rule can be promulgated. Under the terms of such a stay, PCBs produced in processes not qualifying as closed or controlled waste processes under this regulation could continue to be generated in the interim period. In any case, until that further stay is granted, a manufacturing process not qualifying as a closed or controlled waste process under this regulation, but producing and/or releasing PCBs in concentrations below 50 ppm, may continue, at least for the period of the current stay of the Court's mandate. The current stay extends to December 1, 1982.

EPA intends to submit a plan for addressing other than closed and controlled waste processes to the court by November 1, 1982. In the next PCB rulemaking, EPA intends to determine whether other PCBs may present de minimis risks, whether some other forms of administrative exclusion might be appropriate, or whether any exclusion at all is appropriate.

Since the closed and controlled waste process exclusion is voluntary, manufacturers who believe they qualify for the exclusion set out in this final rule have the option of delaying their decision on whether to take advantage of the exclusion until the next PCB rulemaking is completed.

IV. Major Elements of the Final Rule

A. Definitions of Closed and Controlled Waste Manufacturing Processes

1. *Historical perspective.* During the course of discussions among EPA, EDF, and industry immediately after the court's decision, industry suggested that manufacturing processes that produce PCBs but do not release PCBs be excluded from the TSCA section 6(e) ban on the manufacture, processing, distribution in commerce, and use of PCBs. EPA and EDF agreed. From the literal definitions of these process types, it logically follows that if no PCBs are released from a process or if PCBs are released only to wastes that are destroyed or otherwise properly disposed of, then the exposure and risk to humans and the environment from these processes must be extremely small. There would be little or no benefit from regulating the processes under section 6(e) since there could be no reasonable means of determining whether any regulatory actions could actually reduce human or environmental exposure.

The practical application of this concept requires an understanding of the way chemical processes work. Chemical manufacturing processes are generally made up of a series of unit operations. Each unit operation causes chemical and/or physical changes in the material passing through the process. These changes are brought about by the chemical reactions or various types of physical manipulations that are never one hundred percent effective or complete.

In some processes which manufacture PCBs in low concentrations, virtually all the PCBs are destroyed in the process or are drawn off in a waste stream. However, there inevitably will be at least a few molecules of PCBs in every product or effluent that exits the process.

EPA recognized at the time of proposal the need to define, in a practical sense, the absence of PCBs in releases to the environment from these processes. Specifically, EPA recognized that it had to establish how the absence of PCBs is defined in air emissions, water effluents, products, and wastes from closed processes; and how the

absence of PCBs is defined in air emissions, water effluents, and products from controlled waste processes. Further, EPA recognized the need to specify appropriate methods for disposal of process wastes from controlled waste processes to insure that PCBs and the toxic decomposition products which can result from incomplete combustion would not be released to the environment from disposal operations.

2. *Defining the absence of PCBs in products, wastes, emissions and effluents.* In the June 8, 1982, proposed rule, EPA specified in analytical method and procedures to be used to determine the absence of PCBs. If PCBs were absent from all releases to air, water, and products (and wastes from closed processes), using EPA's method and procedures, the process would be eligible for exclusion. Under this approach, EPA gave some general guidance concerning the PCB concentrations it expected its procedures to be capable of quantifying (see 47 FR 24980).

EPA proposed this approach for several reasons. The Agency believed that the choice of analytical method was one of the major sources of variability when attempting to measure PCBs. During the fall of 1981, the Chemical Manufacturers Association (CMA) conducted a round robin experiment in which five different samples of material from processes which manufacture PCBs as a byproduct were analyzed by eight different laboratories using a total of ten different analytical methods. The round robin experiment shows considerable variability in the results obtained by the ten different methods. Specifying the analytical method would eliminate one of the sources of this variability.

EPA also believed that specifying a method was preferable to specifying a cutoff because the difficulty of analyzing products and wastes varies considerably among processes. EPA believed that with a numerical cutoff specified, some companies would be able easily to measure PCBs in their process streams below the cutoff, and other companies might have extreme difficulty measuring PCBs at the cutoff due to chemical matrix effects. In this regard, a numerical cutoff might put greater burdens on some manufacturers. EPA believed that specifying an analytical procedure would mitigate this problem.

The majority of comments submitted in response to the proposed rule criticized the proposed approach, and suggested alternate means for defining the absence of PCBs in releases from closed and controlled waste manufacturing processes. These comments maintain that the approach proposed by EPA provides no target for the analytical chemist because, with enough resources, a chemist would ultimately be able to measure any level of PCBs. These comments indicate that with improving analytical techniques, it would be virtually impossible to state that any substance is absent from a particular matrix. In the case of PCBs, they believe that by investing greater and greater resources in the extraction, cleanup, and analysis of given samples, lower and lower amounts of PCB congeners will become quantifiable, almost without limit. In light of this, the comments state that it is not possible for a chemist simply to stop analyzing his samples at a particular point and honestly certify that the PCBs are not quantifiable. A chemist can only certify that PCBs are not present above a specific preestablished concentration.

EPA agrees with these comments and has concluded that "nonquantifiable" PCBs could be defined differently by different parties, even if the analytical hardware to be used for the analysis is specified by regulation. Further, EPA also agrees with other comments that maintain that the limits of PCB quantitation will vary depending on the particular CGC/EIMS instrument used for analysis. These comments have pointed out that several instrument manufacturers currently market a variety of CGC/EIMS instruments, each of which has its own characteristics and inherent sensitivity.

Several comments have suggested that EPA specify the sample size, the extraction protocol, the cleanup procedures, and other details of the analytical method by regulation, to eliminate some of these sources of variability in measuring PCBs. Other comments have supported EPA's efforts to keep these parameters open and flexible, to accommodate various situations. Still other comments have suggested that it may be ultimately impossible to specify these parameters given the wide range of sample types which require analysis.

EPA agrees that given the wide variety of matrices in which PCBs are found, it is not practical or feasible to establish detailed procedures for the analysis of PCBs, especially in the areas of extraction and cleanup of samples for analysis. This is because different types of samples require different types and degrees of extraction and cleanup prior to anlaysis. EPA further agrees with testimony provided at the public hearing which suggested that the proposed approach was not practical and that a preferred approach would be for EPA to set a numerical cutoff, and thereby allow each individual laboratory to develop the appropriate procedures specific to the analysis of particular process samples.

Even if EPA could establish standards for the rigor of extraction and cleanup, an alternative suggested by some comments, many comments on the proposed rule have criticized EPA's proposed approach on separate grounds. Specifically, many persons have maintained that with advances in analytical procedures for the extraction and cleanup of samples, and technological improvements in the actual analytical hardware, in time, lower and lower levels of PCBs will be subject to regulation under section 6(e) of TSCA. Thus, specifying an analytical technique in the absence of a numerical cutoff would result in a moving regulatory target. These comments argue, then, that a numerical cutoff is not only preferable, but necessary to avoid the problems which would be encountered by adopting an approach that would result in a moving regulatory target.

In response to the comments received on the proposed rule, EPA has concluded that using an analytical method to define the absence of a chemical may result in substantially different limits of quantitation for different process samples, and therefore, substantially different levels of release. Depending upon the analyst, the analytical hardware, and the specific techniques used, especially in the areas of extraction and cleanup of samples prior to analysis, limits of quantitation could vary by several orders of magnitude. Further, EPA agrees with comments that suggest that nonquantifiable levels could vary over time, as new developments in cleanup and extraction protocols and improvements in analytical hardware occur. Therefore, EPA has decided to establish numerical cutoffs for purposes of defining the absence of PCBs in air emissions, water effluents, products, and process wastes from closed and controlled waste manufacturing processes.

Although EPA believes that with a numerical cutoff specified some companies will be able easily to measure PCBs in their process streams at the cutoff, others may have extreme difficulty quantifying PCBs at the cutoff due to chemical matrix effects. However, comments on the proposed rule acknowledged the advantages and disadvantages of the available alternatives and expressed clear preference for the approach set out in

this final rule. Thus, EPA has concluded that there are substantial merits in setting numerical cutoffs. First, numerical cutoffs are fixed and will not move in time independent of EPA intervention. Second, numerical cutoffs are not open to widely differing interpretations. Finally, numerical cutoffs provide targets for the analytical chemist. In addition to specifying numerical cutoffs, EPA is also recommending an analytical technique and methods for the analysis of air samples, water samples, and product and process waste samples for byproduct PCBs (see discussion under IV.A.3.b.).

3. *Establishing the numerical cutoffs*—a. *Limit of Detection (LOD) v. Limit of Quantitation (LOQ).* The analytical system most often used to monitor PCB's includes a gas chromatograph with a suitable detector. The detector response is converted to an electrical signal which is recorded on a strip chart, and the quantity of material present can be determined by measuring the intensity of the respose. When only the matrix is passing the detector, the detector generates an electrical signal, referred to as "background" or "noise." Detecting and confirming the presence the PCBs depends on the analyst's ability to measure an increase in the recorded electrical signal above this noise.

The lowest concentration of a substance than an analytical process can detect is referred to as the limit of detection (LOD). A commonly used standard is that an LOD should be based on a ratio of at least three between the average magnitude of the electrical signal from the sample and the standard deviation of the electrical signal from the background. This ratio is called the signal-to-noise ratio.

The lowest concentration of a substance that an analytical process can reproducibly quantify with a known level of precision is referred to as the limit of quantification (LOQ). A commonly used standard is that an LOQ should be based on a signal-to-noise ratio of at least ten.

One comment expressed preference for the use of "nondetectable" PCBs versus "nonquantifiable" PCBs as the definition of the absence PCBs for purposes of defining closed and controlled waste manufacturing process. The comment suggested that EPA require that releases be tested at the limit of detection (LOD) for the presence of PCBs, primarily because the statutory ban speaks in terms of "any" PCBs. EPA has concluded, as explained in IV.B. below, that PCBs present in concentrations below the LOQ present a de minimis risk to public health and the environment. Furthermore, it is not practical to test releases of PCBs at the LOT because it may be impossible to confirm the identity of the PCBs at that level. This is particularly important in the analysis of PCBs present as byproducts and impurities because in many instances chemically similar compounds are also present in the sample undergoing analysis. For compliance monitoring purposes, a PCB concentration at or near the LOQ is needed to confirm the identity of the chlorinated biphenyl. For this reason, EPA has selected LOQ instead of LOD for purposes of defining the absence of PCBs in releases from closed and controlled waste manufacturing processes.

b. *Selecting the analytical technique.* LOQs, in general, vary with: (1) the analytical technique, (2) the analytical method, and (3) the type of chemical matrix in which the PCBs are found. For purposes of this rule, an analytical technique is defined as the type of analysis. Thin-layer chromatography, gas chromatography coupled to mass spectrometry, and high performance liquid chromatography are all examples of analytical techniques. In order to determine what the practical LOQ is for PCBs, EPA first evaluated several different types of analytical techniques (with varying degrees of sophistication), and considered the complexities of the chemical matrices in which the PCBs are found, the availability and cost of analytical hardware, and the cost of conducting analyses. As a general rule, more sophisticated analytical techniques are more costly and less readily available, but are capable of measuring PCBs at lower concentrations (i.e., these techniques have very low LOQs) than less sophisticated techniques. (See "Methods of Analysis for Incidentally Generated PCBs Literature Review and Preliminary Recommendations" for a further discussion of available analytical techniques for PCB analysis.)

In selecting the most appropriate analytical technique, EPA first identified analytical techniques that were specific for PCB byproduct analysis. EPA then considered the sensitivity of the identified techniques, the availability of the instrumentation, and the cost of obtaining the instruments and conducting the analyses.

In the proposed rule, EPA selected capillary gas chromatography (CGC) coupled to electron impact mass spectrometry (EIMS) as the analytical technique to be used in determining whether PCBs were quantifiable in releases from a manufacturing process. For purposes of this rule, EPA selected CGC/EIMS because: (1) it is cost effective for the analysis of air, water, products, and process waste samples, (2) it is reproducible, and (3) it provides confirmatory evidence for PCBs. EPA expected this technique to supply reliable data of known quality if users implemented an appropriate and documented quality assurance plan. The vast majority of comments on the proposed rule that addressed this point agreed with EPA that CGC/EIMS is the preferred technique for the analysis of PCB byproducts.

During the public comment period for the proposed rule, and during the development of the final rule, EPA sponsored preliminary analytical method validation studies to test the efficacy of CGC/EIMS for the analysis of PCBs. The method validation exercise was undertaken to check the validity of the proposed protocol for the analysis of PCBs in commercial products and process waste streams in particular. Data are presented in the analytical method validation study from the evaluation of the efficiency of cleanup and extraction protocols as well as from the actual (CGC/EIMS) analyses of process samples (See MRI reports: "Analytical Methods for Incidentally Generated PCBs—Preliminary Validation and Interim Methods"). The data generated from the analysis of PCBs in the matrices studied indicate that the method is applicable and useful for the analysis of PCBs. Although additional validation work is continuing and additional data will be gathered, this technique is the most reasonable analytical procedure currently available for the analysis of PCBs generated as byproducts and is thus appropriate for use in implementing this regulation. Testimony provided at the public hearing on the proposed rule supported the method validation trials conducted by the Midwest Research Institute (MRI) as technically competent.

Since the majority of comments that addressed this point supported the proposed selection of CGC/EIMS as the preferred technique, EPA has selected CGC/EIMS as the analytical technique from which it would estimate the practical LOQs of PCBs in air emissions, water effluents, products, and process waste streams for purposes of defining closed and controlled waste manufacturing processes in this final rule.

c. *Establishing the practical LOQs of PCBs.* For purposes of this rule, an analytical method is defined as a series of procedures used when chemically analyzing a sample. Analytical methods

include procedures for sample collection, protocols for the extraction and cleanup of samples, and procedures for the analysis of the specimen by the analytical technique. The limit of quantitation of a particular analytical method is a function of six major factors: (1) the inherent sensitivity of the analytical instrument, (2) the size of the sample taken for analysis, (3) the volume extracted, (4) the volume injected into the instrument, (5) the amount of interferences, and (6) the degree of the chemical matrix effects.

The LOQ of an analytical method depends upon the values selected for the factors listed above. For each variable, values could be selected that would ultimately minimize (or maximize) the overall LOQ of an analytical method. However, there is a limit to the degree to which the LOQ can be minimized without significantly increasing the cost and difficulty of analysis. To select reasonable values to assign to each of these variables (for purposes of calculating the practical LOQ of PCBs), EPA balanced the benefits of increased sensitivity versus the resultant increased costs and practical considerations associated with minimizing the LOQ.

The class of PCBs is made up of 209 individual chemical compounds, individually referred to as chlorinated biphenyl congeners. Using CGC, each separate resolvable peak on a gas chromatograph may represent a single chlorinated biphenyl congener, or it may represent more than one chlorinated biphenyl congener. Comments on the proposed rule have pointed out that all 209 PCB congeners cannot, for all practical purposes, be individually resolved by CGC/EIMS, or by any other single analytical instrument currently in existence. Thus, although it may be most desirable to define the absence of PCBs on a per congener basis, this is not possible because this separation cannot be accomplished for every sample. To accommodate this situation, EPA is defining the absence of PCBs by setting numerical cutoffs according to PCB levels represented by resolvable gas chromatographic peaks. To qualify for exclusion, no single peak on a gas chromatogram can register PCBs at or in excess of the numerical cutoffs set by EPA for PCBs in air, water, or products (or wastes from closed processes).

1. *Instrument sensitivity.* Depending upon the particular CGC/EIMS instrument used to analyze for PCBs, the instrument's sensitivity (or limit of quantitation) may be one picogram per resolvable gas chromatographic peak, one microgram per resolvable peak, or an intermediate level. Although this wide range of sensitivities exists for CGC/EIMS equipment, highly sensitive equipment is very costly and not generally available in most analytical laboratories. To calculate the practical LOQ of PCBs, EPA selected a value for the sensitivity of CGC/EIMS that is representative of the average minimum sensitivity of this type of analytical technique. This required a balancing of sensitivity versus costs and availability.

EPA selected ten nanograms (ng) per resolvable gas chromatographic peak as a reasonable estimate of the average sensitivity of CGC/EIMS. This number represents the smallest amount of a substance that a typical EIMS system can measure and is EPA's estimate of the average minimum amount of PCBs expected to be measured.

The determination that ten ng per resolvable gas chromatographic peak represents the average minimum amount expected to be measured was based upon contacts with a manufacturer of GC/MS equipment about the sensitivities and costs of available CGC/EIMS instruments; more costly instruments are capable of measuring PCBs at lower levels. Available data indicate that the cost of CGC/EIMS equipment ranges from $87,000 for the least sensitive equipment, through $380,000 for the most sensitive equipment (see records of telephone communications between Redford and Moll of EPA and Finnigan MAT). EPA selected this level of sensitivity as representative of an average sensitivity of CGC/EIMS because it is intermediate in sensitivity, and CGC/EIMS instruments capable of measuring this level are readily available, are of moderate cost, and are expected to be currently available in most analytical laboratories.

This estimate of the average system sensitivity is also supported by research results reported by Dr. E. Pellizari of Research Triangle Institute in his 1981 report entitled: "State-of-the-Art Instrumental Analysis in Environmental Chemistry," which appeared in Chapter 10 of "Environmental Health Chemistry." Dr. Pellizari reports a minimum detection range for EIMS from one nanogram through .1 milligram. EPA's estimate of ten ng/peak as an average sensitivity falls within the range of Dr. Pellizari's reported detection limits for any peak on an EIMS (since limits of quantitation are often at least three times as high as limits of detection).

Further, the Dry Color Manufacturers Association's (DCMA's) research on the analysis of PCBs in organic pigments reports the sensitivity of CGC/EIMS as ten ng per resolvable gas chromatographic peak (see page 5 of "An Analytical Procedure for the Determination of Polychlorinated Biphenyls in Dry Phthalocyanine Blue, Phthalocyanine Green and Diarylide Yellow Pigments; Proposed by the Dry Color Manufacturers Association").

2. *Sample size.* The actual minimum quantitatable level for an analytical method depends on not only the inherent sensitivity of the analytical instrument, but also the amount of original sample that had its PCB contents extracted and condensed for analysis by CGC/EIMS. For instance, a sample that is ten times larger than another from the same source would contain the same concentration (ug/volume) of PCBs but would actually contain ten times the mass of PCBs (nanograms). When both are concentrated to one milliliter, the extract resulting from the larger sample would be ten times more concentrated than the other, and when injected into the detector, it would yield a response ten times greater. This would translate to a quantitation limit in the larger sample that was ten times lower than in the smaller sample.

However, there is a limit to the extent to which one can maximize the sample size (in an attempt to minimize the LOQ) without encountering substantial additional costs in collection and extraction, and experiencing handling difficulties. Larger sample sizes require longer collection times (especially pertinent in air sampling), more effort (resources) in extraction and cleanup, and in some cases, may require specialized equipment.

With this relationship in mind, EPA has estimated reasonable sample sizes, ones that would provide enough material for a reasonable determination as to whether PCBs are present without presenting sampling and handling problems. These estimated sample sizes are: Ten cubic meters for air, one liter for water, and fifty grams for products or process waste streams. Then cubic meters of air, and one liter of water are commonly accepted sample sizes for these media, considering the type of chemical undergoing analysis (i.e. halogenated aromatics).

In selecting 50 grams as a reasonable sample size for products and process wastes, EPA analyzed available data and developed a list of expected products containing PCBs as impurities or byproducts. For each product on the list, EPA considered various sample sizes, ranging from one gram to 100 grams, and selected the most

appropriate sample size for each individual product. EPA considered the capacity of typical laboratory equipment, the physical and chemical properties of the product/sample, handling problems, measurement problems, the inherent cost of the material to be analyzed, and other related factors in determining the most appropriate sample sizes for each individual product. After considering appropriate sample sizes for individual products, EPA selected 50 grams as representative of a reasonable sample size for products and process wastes (see "Rationale for Levels of Quantitation for CGC/EIMS," "Rationale for Choosing a Reasonable Sample Size and Matrix Interference Allowance for the PCB Analytical Method," "PCB Quantitation List Parameters," and "Transmittal of MRI's PCB Quantitation List Parameters Memorandum with Additional Comments").

3. *Extract and injection volumes.* For air, water, products, and process waste samples, typical extract and injection volumes would be one milliliter and one microliter, respectively. The Midwest Research Institute (MRI), in conducting CGC/EIMS method validation trials (see "Analytical Methods for Incidentally Generated PCBs—Preliminary Validation and Interim Methods"), considered several extraction volumes and injection volumes. The volumes selected as reasonable by EPA were determined to be most appropriate during these trials. Larger injection volumes either might damage the mass spectrometer or the chromatographic column. Smaller injection volumes, below one microliter, would increase the likelihood of measurement errors, decreasing the accuracy of any measured PCB level. Increases in the extract volume or greater concentration of the extract either lowers recovery efficiency, overly concentrates the injection, or requires excessive efforts to extract and condense the extract. With extraction volumes below one milliliter, the potential for measurement errors and losses from evaporation increases, decreasing the accuracy of the PCB levels measured (see "PCB Quantitation List Parameters," and "Transmittal of MRI's PCB Quantitation List Parameters Memorandum with Additional Comments").

4. *Interferences and matrix effects.* In the absence of interferences and matrix effects, the estimated lower limits of quantitation of PCBs in air, water, products, and process wastes, using CGC/EIMS, reasonable sample sizes, and reasonable extract and injection volumes, would be one microgram per cubic meter (roughly 0.001 ppm) in air, ten micrograms per liter (roughly 0.01 ppm) in water, and .2 microgram per gram (0.2 ppm) in products and process waste streams, per resolvable gas chromatographic peak. These lower limits of quantitation assume an instrument sensitivity of ten ng per resolvable gas chromatographic peak, reasonable sample sizes, and reasonable extract and injection volumes.

However, interferences and matrix effects are commonly experienced in the analysis of PCB byproducts because of the similarity in chemical structure between the PCBs produced in the process and the matrix of chemical substances in which the PCBs are found. In byproduct PCB analysis, these factors influence an analytical instrument's ability to measure accurately low level PCBs. Therefore, an allowance for these considerations must be made in calculating the practical LOQ for PCBs in air, water, products and process waste streams.

To accommodate this situation, EPA assumed an upper quantitation limit of 100 ng per resolvable peak as a reasonable allowance for interferences and matrix effects. This allowance is supported by experimental data produced by MRI through method validation trials (see "Analytical Methods for Incidentally Generated PCBs—Preliminary Validation and Interim Methods," "PCB Quantitation List Parameters," "Rationale for Choosing a Reasonable Sample Size and Matrix Interference Allowance for the PCB Analytical Method," and "Transmittal of MRI's PCB Quantitation List Parameters, Memorandum with Additional Comments"). MRI found that in the analysis of some samples, interferences and matrix effects were negligible, thus, the LOQ approximated the lower quantitation limit of the analytical instrument. However, in the analysis of other samples, interferences and matrix effects were significant, and resulted in a LOQ that was two orders of magnitude higher than the lower quantitation limit of the analytical instrument. EPA's estimate of a reasonable allowance for interferences and matrix effects is one order of magnitude higher than the average lower quantitation limit of CGC/EIMS as estimated by EPA.

5. *Conclusion.* Per peak then, the practical LOQ of PCBs in air corresponds to ten micrograms per cubic meter (roughly 0.01 ppm); in water, 100 micrograms per liter (roughly 0.1 ppm); and, in products and process waste streams, two micrograms per gram (2 ppm). This means that for a process to be eligible for exclusion under the closed and controlled waste process exclusion, no single peak on a gas chromatogram registers PCBs in excess of: ten micrograms per cubic meter in air emissions, 100 micrograms per liter in water effluents, and two micrograms per gram in products and uncontrolled waste streams, regardless of the number of PCB congeners known to be or expected to be represented by the peak. (See Unit IV.B. for a discussion of the extremely low exposure which will result from setting cutoffs at these levels.)

EPA considered setting numerical cutoffs based on total PCBs, instead of setting numerical cutoffs according to levels represented by resolvable gas chromatographic peaks. Under that approach, EPA would attempt to estimate an average number of gas chromatographic peaks that would be resolved upon analysis of process samples, and then multiply that average number by the practical limits of quantitation per resolvable peak. This approach would result in separate numerical cutoffs for total PCB levels in air emissions, water effluents, products, and wastes from closed processes.

After evaluating this approach, EPA concluded that there is insufficient information upon which to base an estimate of the average number of PCB congeners created in manufacturing processes. Although some information on PCB concentrations in products and processes is available, little comprehensive factual data are available on the type and number of different congeners created in these processes. Without this type of information, EPA could not support any estimate of the average number of congeners created in manufacturing processes.

d. *Aroclor v. non-Aroclor PCB analysis.* The limits of quantitation of PCBs in air, water, products, and wastes, discussed in the preceding unit, are EPA's estimates of the practical limits of quantitation of PCBs produced as byproducts and impurities (non-Aroclor PCBs). These PCBs are not easily measured in air emissions, water effluents, products, or process waste streams, because up to 209 different chemical compounds can be produced and be present in different concentrations in a sample undergoing analysis. Before these PCBs can be measured in a sample, they must first be identified as PCBs.

In contrast, PCBs produced for use as dielectric fluids (Aroclors) are much

more easily measured. These PCBs display characteristic patterns upon analysis that are easily recognizable as representing PCBs. Unlike these PCBs, PCBs produced as byproducts and impurities do not display characteristic or easily recognizable patterns upon analysis. (See "Methods of Analysis for Incidentally Generated PCBs Literature Review and Preliminary Recommendations" for a comparison of the methods for Aroclor vs. non-Aroclor PCB analysis.)

Because of this fact, and the need to identify byproduct PCBs as truly PCBs, the limits of quantitation of byproduct PCBs in different media may be several orders of magnitude higher than the limits of quantitation of Aroclor PCBs in these same media. Thus, other environmental regulations pertaining to the release of Aroclor PCBs (such as under the Clean Water Act, 33 U.S.C. 466 *et seq.*) may place limits on the release of PCBs that are orders of magnitude below the practical limit of quantitation for byproduct PCBs as established in this final rule.

4. *Determining what constitutes a process.* In the proposed rule, EPA applied the exclusion to any person who produces PCBs in a chemical manufacturing "process" which qualifies as a closed manufacturing process or a controlled waste manufacturing process. Comments received in response to the proposed rule requested clarification of the term "process" in the definitions of closed and controlled waste manufacturing processes. The comment said that the term "process" could be open to differing interpretations; it could, at one extreme, mean a single unit of a multi-unit operation operating at a site, or, at the other extreme, it could mean the entire series of operations (possibly operating at different geographic localities) leading to the production of a final commercial product.

EPA defines the term "process" in this final rule to mean all the unit operations operating at a site. Therefore, PCB-containing isolated intermediates manufactured at one location on a plant site can be processed further at some different on-site location. Analytical or theoretical analyses of PCB levels in the product would take place only prior to its removal from the site. Similarly, PCB concentrations in water effluents and process wastes would be analytically determined or theoretically estimated only prior to the release from a site.

Because it is difficult to define the boundaries of the atmosphere surrounding a facility, for air emissions, PCB concentrations would be determined at the most convenient sampling point prior to release to the atmosphere.

For water effluents, PCB levels would be determined prior to release from the site. For example, if deep well injection is used to dispose of water effluents from a process, PCB levels would need to be determined at some point prior to injection. The objective is to allow companies to determine PCB levels in the water effluent as close to the final point of release to the environment as possible. If on-site water treatment occurs, PCB levels would need to be analytically or theoretically determined only prior to release to the receiving body of water (i.e., at the point of outflow from the on-site water treatment facility).

EPA uses the term site to mean a contiguous property unit. Property divided only by a public right-of-way is considered one site. There may be more than one manufacturing plant on a single site (See 40 CFR 710.1(a)).

5. *Determining appropriate methods for disposal.* EPA already has in effect a Disposal and Marking Rule (40 CFR 761.60) which requires PCBs in concentrations over 50 ppm to be stored and disposed of in accordance with the criteria prescribed under §§ 716.65, 761.70, and 761.75. These are the same disposal criteria that EPA proposed for the disposal of wastes (containing any concentration of PCBs) from controlled waste processes in the proposed rule.

EPA proposed these mechanisms for disposal of controlled wastes on the premise that EPA must be reasonably confident that the wastes from controlled waste processes are disposed of in a manner which results in negligible environmental contamination. Although this basic premise remains valid, EPA has concluded that certain less costly, alternate disposal mechanisms would result in negligible environmental contamination as well.

Several comments criticized the proposed requirement that wastes from controlled waste manufacturing processes be incinerated in EPA-approved PCB incinerators. They maintain that in selecting this regulatory option, EPA did not consider the enormous potential costs of disposing of wastes containing PCBs in concentrations between the LOQ and 50 ppm in EPA-approved PCB incinerators. Data were provided by the CMA which indicate that the costs of destroying liquid wastes containing PCBs in EPA-approved PCB incinerators is $0.23 per pound of waste. Thus, as the concentration of PCBs in the wastes decreases, the cost of disposal per pound of PCB increases substantially. At PCB concentrations near the practical limit of quantitation in wastes, the cost of disposal in EPA-approved PCB incinerators per pound of PCB could be very high.

Further, comments indicate that unlike mineral oil contaminated with low level PCBs, chemical manufacturing process waste streams with similarly low levels of PCBs cannot, in general, be used as fuel in high efficiency, energy generating boilers because of their high chlorine content. Finally, certain comments indicate that since there are so few EPA-approved PCB incinerators in existence, priority should be given to the destruction of higher concentration wastes in these facilities. Restricting the incineration of controlled wastes containing less than 50 ppm PCBs to EPA-approved PCB incinerators would place demands on these facilities, which could result in a shortage of PCB disposal capacity.

One comment, however, strongly supported EPA's proposal to require the incineration of controlled wastes in EPA-approved PCB incinerators. Specifically, the comment stated that incinerators used for the destruction of PCBs should be required to meet certain standards to prevent the formation and release of dibenzofurans and other potentially toxic products of incomplete combustion.

As a result of the comments received in response to the proposed rule, EPA has decided to modify the requirement that wastes from controlled waste manufacturing processes be disposed of in EPA-approved PCB incinerators. Certain less costly disposal mechanisms should result in negligible environmental contamination as well, and further, should preclude the formation of toxic incomplete combustion products.

Thus, in this final rule, EPA is allowing PCB wastes (containing PCBs in concentrations below 50 ppm) to be destroyed in incinerators which have been approved under section 3005(c) of the Resource Conservation and Recovery Act (RCRA) 42 U.S.C. 6925(c). The incinerator must be capable of destroying compounds which are less readily burned than the PCB homologs in the waste. The manufacturer of PCBs who wishes to qualify for exclusion under the controlled waste exclusion by disposing of PCB wastes in a RCRA-approved incinerator is responsible for determining that the incinerator is capable of destroying the PCBs, and for certifying that this is the case (see IV.D.). The manufacturer is also responsible for obtaining reasonable assurances that the incinerator, when burning PCB waste, will be operated under conditions that have been shown

to enable the incinerator to destroy less readily burned compounds. Manufacturers may use heat of combustion or other indicators of ease of incinerability addressed in the "RCRA Guidance for Hazardous Waste Incineration," to support this certification. This approach should ultimately increase the number of incinerators qualified for the destruction of PCBs and should also prevent the formation of toxic products of incomplete combustion during incineration.

One of the factors used to determine how efficiently a substance may be destroyed is the heat of combustion. Heat of combustion is the heat evolved when a definite quantity of a substance is completely burned. According to classical thermodynamics, compounds with lower heats of combustion should be less readily burned and should require higher temperatures for destruction than compounds with higher heats of combustion. Heat of combustion values are measured under controlled laboratory conditions or derived from theoretical calculations.

Under RCRA, EPA has developed a ranking of hazardous constituents based on heat of combustion values. This hierarchy allows the applicant for a permit to incinerate hazardous wastes to demonstrate the required level of performance for a large number of constituents of a waste stream by successfully burning one or several of those which are most difficult to destroy. In the permitting of facilities, EPA does not intend to use the incinerability ranking alone, but rather, to use it in conjunction with the permit writer's engineering judgment. The list provides the permit writer and the applicant for the permit with a useful means of identifying the constituents of a waste which are likely to be most difficult to destroy, and may be used in conjunction with other information relating to the incinerability of an organic constituent, when available (see "RCRA Guidance for Hazardous Waste Incineration").

The "RCRA Guidance for Hazardous Waste Incineration" contains this list of compounds, including the PCB homologs, ranked according to heats of combustion. While EPA has little experimental data that indicate that heat of combustion is the best criteria (or the only criteria) to be used in judging the relative ease of destruction of chemical compounds, it can be used as an indicator (see "A Method for Designation of the Principal Organic Hazardous Constituents for Hazardous Waste Incineration " "Heats of Formation and Combustion from the Method of Handrick," "Comparison of Ranking Factors," and "RCRA Guidance for Hazardous Waste Incineration"). Thus, manufacturers may use heat of combustion values to support their determination that a particular RCRA-approved facility is capable of destroying their PCB wastes.

Although RCRA requires a minimum destruction and removal efficiency of 99.99 percent for the incineration of chemical wastes, and the TSCA requirements will result in a minimum destruction efficiency of 99.9999 percent (for the incineration of PCBs in concentrations over 50 ppm) EPA believes that for PCBs in concentrations below 50 ppm, a destruction and removal efficiency of 99.99 percent is adequate to insure only negligible environmental release. If one assumes that all the PCBs created in closed and controlled waste manufacturing processes (approximately 56,000 pound) will be incinerated annually in these RCRA-approved incinerators, then the difference in destruction efficiencies between the proposed requirement and the final rule will result in a maximum of an additional 5.54 pounds of PCBs released annually throughout the entire United States as a result of the modification to the proposed requirement.

In addition to allowing the destruction of controlled wastes in certain RCRA-approved incinerators, EPA is also adding to the list of acceptable disposal mechanisms, the destruction of controlled wastes (containing PCBs in concentrations between the limit of quantitation and 500 ppm) in any high efficiency boiler that has been specifically approved to burn PCBs present in fluid other than mineral oil, in accordance with the requirements of § 761.60(a)(3). This will create an additional mechanism for the disposal of controlled wastes, while providing continued protection against the formation of toxic incomplete combustion products during incineration. Wastes containing PCBs in concentrations between the practical limit of quantitation and 50 ppm may also be destroyed in EPA-approved PCB incinerators as well, and would qualify as controlled wastes. This rule does not change the requirements of the PCB Marking and Disposal Rule (40 CFR 761.60) for the disposal of PCBs in concentrations over 50 ppm.

Thus, these modifications will: (1) Increase the number of incinerators ultimately available for the destruction of PCB wastes; (2) reduce the potential for accidents during the transport of wastes; (3) ultimately provide for less costly disposal alternatives to manufacturers disposing of controlled wastes; and (4) should continue to provide protection against the formation of toxic incomplete combustion products during incineration.

B. The De Minimis Determination

1. *Exposure Analysis.* EPA's rough estimate of the amount of PCBs produced in closed and controlled waste manufacturing processes is less 56,000 pounds per year. Of these roughly 56,000 pounds of PCBs, extremely small quantities of PCBs in concentrations below the practical limits of quantitation will be released to the environment in wastes from closed processes and in air emissions, water effluents, and products. Actual environmental releases from products are expected to be in concentrations even less than the limits of quantitation, since the PCBs in many products are bound in solid matrices (e.g., paints and polymers). Although wastes from controlled waste processes will contain higher concentrations of PCBs, the requirements for handling these wastes will prevent significant releases to the environment.

Based on available information (supplied by CMA), EPA estimates that less than one thousand pounds of byproduct PCBs are likely to actually enter the environment each year from closed and controlled waste manufacturing processes. The estimated actual releases to the environment from closed and controlled waste processes is only 0.0006 percent of the estimated 150,000,000 pounds of PCBs that currently exist in the environment as free PCBs. Further, this amount is only 0.0001 percent of the estimated 750,000,000 pounds of PCBs currently in use in electrical equipment in the United States.

EPA is imposing both recordkeeping and reporting requirements (see IV.D.) to reduce the likelihood of processes being mislabeled as closed or controlled waste manufacturing processes when releases are actually above the practical limits of quantitation. These requirements help to ensure that PCBs released to the environment as a result of this exclusion remain below the practical limits of quantitation.

2. *De Minimis Finding.* TSCA section 6(e) specifically bans the manufacture, processing, distribution in commerce, and use of PCBs in other than a totally enclosed manner. To be eligible for exclusion from the provisions of section 6(e), processes must meet EPA's definitions of closed or controlled waste manufacturing processes. This means

that releases of PCBs in products, air emissions, and water effluents are below practical limits of quantitation. For closed manufacturing processes, releases of PCBs in wastes are also below the practical limit of quantitation. Wastes from controlled waste processes are disposed of in qualified incinerators (see discussion under IV.A.5.) or in landfills approved under § 761.75 or are stored for incineration or landfilling in compliance with the standards and requirements prescribed in § 761.65(b)(1). Recordkeeping and reporting by manufacturers helps to ensure that releases of PCBs from these processes are actually below the practical limits of quantitation, and that exposure to PCBs as a result of EPA creating this exclusion remains negligible.

EPA believes that for all practical purposes, it would be impossible to determine whether regulation of PCB concentrations below the practical limits of quantitation had any effect on actually reducing releases of PCBs. EPA believes that PCBs present in concentrations below the practical limits of quantitation are of such low concentration, and the total amount of PCBs released would be so low, that it would be impossible to determine if regulation of these levels provided anything greater than trivial benefits. Consequently, EPA has concluded that there would be no measurable gain in protecting the environment or public health by attempting to regulate PCBs at levels that are unmeasurable for all practical purposes.

EPA finds that closed and controlled waste manufacturing processes represent de minimis situations and should not be subject to the prohibitions and other provisions of section 6(e) of TSCA because: (1) releases of PCBs from closed and controlled waste processes (excluding controlled wastes) are below the practical limits of quantitation, (2) the estimated amount of PCBs released from these processes per year is only 0.0006 percent of the estimated 150,000,000 pounds of PCBs present in the environment as free PCBs, (3) controlled wastes are disposed of in a manner that should result in negligible environmental contamination, and (4) manufacturers operating these processes are required to keep records and notify EPA of processes that qualify for exclusion.

C. Determination of No Unreasonable Risk

EPA has concluded that there would be no measurable benefits to public health or the environment by regulating closed and controlled waste processes (as defined in this rule) under section 6(e) of TSCA. Therefore, as previously noted, these processes are eligible for exclusion under the de minimis principle. Nonetheless, the Agency has also considered whether closed and controlled waste processes present an unreasonable risk to human health or the environment. To determine whether a risk is unreasonable, EPA balances the probability that harm will occur from the activity against the adverse effect on society from regulation. In making a determination of whether an unreasonable risk is present from these processes, EPA considered the following factors:

1. The effects of PCBs on human health and the environment.
2. The magnitude of PCB exposure to humans and the environment.
3. The benefits from products containing PCBs, the availability of substitutes, and the ability to prevent the formation of PCBs.
4. The economic impact resulting from the rule upon the national economy, small business, technological innovation, the environment, and public health.

After considering all available information, within the context of the factors listed above, EPA finds that excluding closed and controlled waste processes presents no unreasonable risk to human health or the environment. This finding is based on the following analysis.

1. *Health and environmental effects and exposure to PCBs.* Toxicity and exposure are the two basic components of risk. During this rulemaking, EPA has conducted an analysis of the health and environmental effects of PCBs (see "Response to Comments on Health Effects of PCBs" for details). EPA has concluded that in addition to chloracne, there is a potential for reproductive effects and developmental toxicity as well as oncogenic effects in humans, based on animal data. EPA has also concluded that PCBs do present a hazard to the environment.

However, PCBs are not uniquely toxic, and minimizing exposure to PCBs will minimize any potential risk. EPA evaluated the potential for exposure to PCBs from closed and controlled waste manufacturing processes, and has determined that the exposure to PCBs from closed and controlled waste processes is so low as to be unmeasurable for all practical purposes.

In calculating the practical limits of quantitation of PCBs, EPA considered setting lower levels. While lower numerical cutoffs would theoretically further reduce the risks posed from closed and controlled waste manufacturing processes, it would not be practically possible to measure this reduction in risk afforded by the lower levels of release (see IV.A.3.c.). Thus, regulating PCBs at levels below the practical limits of quantitation provides no measurable benefits to public health or the environment.

As part of the de minimis determination, EPA also considered the public health and environmental benefits of recordkeeping and reporting and their effect on reducing the risks posed from closed and controlled waste manufacturing processes. EPA concluded that recordkeeping and reporting by manufacturers operating closed and controlled waste processes would substantially reduce the likelihood that processes would be mislabeled and, therefore, would result in a reduction in the actual amount of PCBs released to the environment as a result of this exclusion (see IV.D.). Thus, recordkeeping and reporting would help to ensure that only de minimis situations are allowed to operate as a result of this exclusion.

2. *Benefits of products generated in closed and controlled waste processes, the availability of substitutes, and economic impacts.* If the ban on all manufacturing, processing, distribution in commerce, and use of PCBs was made effective for all closed and controlled waste processes, there could be a major disruption of the chemical industry and several other industries in the United States. Since there could be a large number of controlled waste processes, an immediate ban could cost billions of dollars. An immediate ban could disrupt the manufacture of a wide variety of products including paints, varnishes, enamels, agricultural chemicals, adhesives and sealants, printing ink, plastic materials, drugs, and soaps and cosmetics. Such products have great societal value, and a ban of this nature would create great hardship for the public and industry due to the unavailability of these products and would have a severe economic impact. Should such processes be subject to the section 6(e) ban, all manufacturers utilizing closed and controlled waste manufacturing processes which generate PCBs as byproducts would be required to conform with the prohibitions and requirements of section 6(e). Industry has commented that, in general, substitutes are not available for products contaminated with low level PCBs at the same or equivalent costs as PCB-contaminated products, and that processes cannot be modified to prevent the formation of any PCBs. CMA has

commented that research programs to study ways to reduce incidental PCB formation are very costly and have met with limited success. CMA provided an example of a process adjusted to reduce formation of PCBs to below 50 ppm, and estimated that the cost of this project was on the order of $800,000.

Although TSCA does provide a mechanism for obtaining relief from the total ban of PCBs, industry has commented that the statutory process for obtaining an exemption is unworkable for the many operations that manufacture, process, or distribute in commerce PCBs in low concentrations. Since TSCA requires a company to obtain an annual exemption, industry representatives indicated that the uncertainty associated with knowing whether they would be able to continue operations and the large cost of submitting petitions each year would be a burden. A quick survey of companies which filed PCB exemption petitions with EPA in the past showed that the annual costs of developing the information required by an exemption petition plus the cost of filing the petition may cost between $16,000 and $132,440 per process. Although EPA does not know precisely how many processes meet the definition of closed and controlled waste processes, if 500 processes were eligible, the avoided cost of submitting petitions for exemption could range from $8 million to $66 million per year. These estimates will vary depending upon the actual number of processes eligible for the exclusion. Administering exemption petitions for closed and controlled waste processes could require extensive EPA resources.

This rule has no significant negative economic impact. Although for those companies who choose to take advantage of it, it imposes additional burdens, it avoids the larger burdens imposed on industry by the prohibitions of section 6(e). As discussed in the following unit, EPA is requiring manufacturers who operate closed and controlled waste manufacturing processes and who desire exclusion to certify that their processes are closed or controlled waste processes, and to notify EPA that the processes qualify for exclusion. EPA has concluded that recordkeeping and reporting by manufacturers affords substantial human health and environmental benefits that greatly outweigh the costs of recordkeeping (see IV.D. for further analysis).

EPA is providing manufacturers the option of conducting a theoretical analysis or of actually monitoring releases for PCB levels. EPA estimates the cost of conducting a theoretical analysis to be on the order of $1,014 per process. EPA estimates the cost of recordkeeping and certification to be on the order of $374 per process per year. If actual monitoring of PCB levels is undertaken, using the EPA recommended method, EPA estimates the costs of monitoring to range between $120 and $770 per sample. Total costs per process range from $844 to $45,990, depending on the frequency of sampling and the actual costs of testing (see support document entitled "Economic Analysis for the Final Rule to Exclude Closed and Controlled Processes from the PCB Ban" for details). The upper estimate of the cost per process of monitoring incorporates $32,000 for air sampling. In adding this amount into its calculation of the upper estimate, EPA assumed that monitoring of air emissions is not currently ongoing for other purposes. Therefore, all costs associated with air emission monitoring have been added to the costs of recordkeeping and reporting under this rule. Since it is unlikely that this is the case for most manufacturing facilities, the upper estimate provided by EPA may be artifically high. For most companies, EPA expects that the costs will not exceed $26,600 per process. This assumes that sampling equipment preparation and data reduction/report writing are the only costs of air emissions monitoring that would be directly attributable to this rule.

3. *Unreasonable risk determination.* EPA has evaluated the human health and environmental effects and exposure to PCBs from closed and controlled waste processes, the benefits of the processes producing the PCBs, and the economic impact of regulating these processes under section 6(e) of TSCA. EPA has concluded that closed and controlled waste processes represent de minimis situations because: (1) The PCBs released from closed and controlled waste manufacturing processes are released at low concentrations, (2) the estimated amount of PCBs released from these processes per year is only 0.0006 percent of the 150,000,000 pounds of PCBs currently in existence in the environment as free PCBs, (3) controlled wastes are disposed of in a manner that should result in negligible environmental contamination, and (4) manufacturers operating these processes are required to keep records and notify EPA of processes operating under the exclusion.

EPA has considered the benefits of closed and controlled waste processes and found them to be substantial. Further, EPA has considered the statutory process of petitioning for yearly exemptions from the TSCA ban and found it to be resource intensive. Finally, EPA has considered the costs of recordkeeping and reporting by manufacturers operating closed and controlled waste processes. EPA has found that these costs do not represent an excessive burden.

Thus, after balancing the risks to human health and the environment created as a result of this exclusion against the benefits afforded by the exclusion, EPA concludes that the exclusion of closed and controlled waste manufacturing processes poses no unreasonable risks to public health and the environment.

D. Recordkeeping and Reporting

1. *Summary of requirements.* In the proposed rule, EPA proposed certain recordkeeping requirements for closed and controlled waste manufacturing processes. EPA proposed that either theoretical assessments or actual monitoring of PCB levels in releases be completed in order to qualify for exclusion, that the records of the analysis be maintained at the facility, and that manufacturers certify that their processes qualify for exclusion. The certification was to be completed by a responsible corporate officer, who was also required to certify that the analysis was true and accurate to the best of his knowledge and that the analysis had been conducted by qualified personnel. The certifications (and records to support the certifications) were to be maintained at the facility for three years after a process ceased operation or for seven years, whichever was shorter. The submission of these records and cerifications to EPA was not required in the proposed rule.

EPA proposed these recordkeeping requirements to: (1) Reduce the likelihood of processes being mislabeled as closed or controlled waste processses, and (2) to aid EPA in monitoring compliance with the rule.

In addition to the recordkeeping requirements of the proposed rule, in the final rule, EPA is requiring: (1) That manufacturers using RCRA-approved facilities for the disposal of controlled wastes certify that the facility qualifies for the disposal of the PCB wastes, and document the basis for the determination, and (2) that EPA be notified of any processes operating under the closed and controlled waste manufacturing process exclusion. Manufacturers are also required to notify EPA of the basis for the determination that a process is

excluded, by indicating whether a theoretical assessment or actual monitoring of PCB levels has been completed. If the process is a controlled waste process, manufacturers are also required to notify EPA of the type, the name, and the location of the disposal facility. Manufacturers have the option, as provided under TSCA section 14(c), of declaring any of this information to be confidential. Manufacturers desiring exclusion would: (1) identify processes which they believe generate PCBs as impurities or by-products; (2) determine if the processes are closed processes or controlled waste processes; (3) place data and records of their determinations in files at the facility: (4) certify that the process qualifies; and (5) transmit a letter to EPA notifying EPA that processes are excluded and the bases of the determinations. Should manufacturers periodically undertake monitoring of PCB levels in processes or in releases from the processes, these data are also retained at the facility. EPA is requiring that such records be maintained for at least three years after the particular process being used at the facility ceases operations or for seven years, whichever is shorter. Further, EPA is requiring that processes be reevaluated and that a new certification be filed upon significant process changes that invalidate the previous certification. Significant process changes include changes that are likely to change the concentration of PCBs in releases from the processes (except in controlled wastes) outside the values in the original assessment and changes in the facility in which PCBs are disposed. The costs of recordkeeping and reporting to manufacturers operating closed and controlled waste manufacturing processes will vary depending upon the nature of the manufacturing process. Processes that are frequently changed or are known to release PCBs in air emissions, water effluents, or products in concentrations that approach the limit of quantitation will probably require more frequent analyses than other types of processes.

Manufacturers are not required to use this rule. They can use the statutory exemption process as an alternative to taking advantage of this exclusion.

2. *Recordkeeping and monitoring requirements.* In the proposed rule, EPA proposed certain recordkeeping requirements. EPA proposed: (1) That either theoretical analyses or actual monitoring of PCB levels be conducted; (2) that the records of the analysis be maintained at the facility: (3) that manufacturers certify that the processes qualify for exclusion; and (4) that all records be maintained for three years after a process ceased operation or for seven years, whichever was shorter.

Certain comments on the proposed rule suggested that EPA should impose a reporting requirement in addition to the proposed recordkeeping requirements (see IV.D.3.). Other comments, however, questioned the need for even the proposed recordkeeping requirements. They maintained that since closed and controlled waste manufacturing processes by definition have been determined to represent de minimis situations, recordkeeping by manufacturers operating such processes creates an unnecessary burden.

However, EPA has concluded that the benefits to public health and the environment of recordkeeping are substantial, and further, that an additional recordkeeping requirement is warranted as a result of the modification to the disposal requirements (see IV.A.5.).

In addition to the recordkeeping requirements of the proposed rule, in the final rule, EPA is requiring that manufacturers disposing of controlled wastes in RCRA-approved incinerators certify that the incinerator is capable of destroying the PCB wastes and maintain records of the basis of the determination. EPA believes that this additional recordkeeping requirement is needed to ensure that controlled wastes are disposed of in qualified RCRA-approved facilities. Manufacturers may use any generally accepted criteria to demonstrate the capability of the incinerator to destroy the PCBs, including the use of heat of combustion values and other parameters addressed in the "RCRA Guidance for Hazardous Waste Incineration."

With recordkeeping requirements in place, fewer processes will be mislabeled by manufacturers as qualifying for exclusion. With fewer processes being mislabeled, less total PCBs will be released to the environment as a result of EPA creating this exclusion. The recordkeeping requirements help to ensure that only situations that have been determined to be de minimis are excluded from regulation under TSCA section 6(e). Further, such recordkeeping is necessary to the development of an effective compliance monitoring program by EPA. Without records (and notification of EPA), EPA will have little or no information upon which to develop an effective compliance monitoring program.

EPA estimates the cost of recordkeeping alone to be on the order of $374 per process per year. This cost does not include the costs associated with conducting the theoretical assessment or monitoring PCB levels in releases.

In view of the substantial benefits afforded public health and the environment described above and the relatively low costs of recordkeeping to manufacturers, EPA has concluded that the benefits, in terms of public health and environmental protection, far outweigh the costs.

In the proposed rule, EPA provided manufacturers the option of utilizing a theoretical assessment to support a determination that a process qualified for exclusion. However, a number of comments criticized the portion of the proposed rule that provided for theoretical assessments in lieu of actual monitoring of PCB levels. Several comments on the proposal maintained that many manufacturers may be either unable to complete a theoretical assessment or uncomfortable with relying on this means of analysis. Other comments suggest that EPA should impose strict monitoring requirements for manufacturers taking advantage of this exclusion.

EPA does not agree that monitoring of process releases is necessary in all process situations. EPA believes that theoretical assessments which correctly conclude that PCBs are not released above the practical limits of quantitation will be possible in some process situations and that it would be unreasonable to require actual monitoring of PCB levels when reason and logic alone clearly dictate that a process qualifies for exclusion. Further, EPA has concluded that it is not reasonable for EPA to eliminate this option for all manufacturers simply because certain manufacturers have commented that they would be uncomfortable relying on a theoretical analysis.

The objective of conducting a theoretical assessment is to use reason, logic, and chemical/mathematical calculations to make a correct determination of whether a manufacturing process is a closed or controlled waste manufacturing process and, therefore, qualifies for exclusion. Specifically, the objective is to determine if PCB levels in releases from a process to other than controlled wastes exceed certain levels (the practical limits of quantitation of PCBs) without actually monitoring these releases. Obviously, if the expected concentration of PCBs in releases (derived through a theoretical calculation) approaches the level set as the regulatory cutoff, actual monitoring

of PCB levels would be advisable. The need to actually undertake monitoring of releases can be determined only by each manufacturer and will depend upon the expected level of release, its relationship to the cutoff, and the level of confidence placed in the accuracy of the estimate. The ultimate burden of making a correct decision to rely on theoretical analyses rests on each manufacturer.

A primary consideration in completing a theoretical assessment is determining the probable point(s) of manufacture of PCBs, the likely mechanism(s) of formation, and the probable identity and concentrations of the PCB congeners formed. Once these have been determined, the fate of the PCBs is traced from the point(s) of manufacture, through the process, to the point(s) of release. Factors to be considered in projecting the movement of the PCBs through the process include: (1) The concentrations of PCBs at different points in the manufacturing process, (2) the solubility, volatility, and density of the PCB congeners relative to the other process components, (3) the temperatures and pressures at different points in the process, (4) the potential for the PCBs to be transformed into other compounds or destroyed prior to release, and (5) the physical characteristics of the process and the processing equipment used within the process. Additional guidance on conducting a theoretical assessment is provided in a support document to this rulemaking entitled: "Guidance for Conducting a Theoretical Assessment." This document is available in the rulemaking record, and by contacting the Industry Assistance Office (see FOR FURTHER INFORMATION CONTACT).

A theoretical assessment is to address: (1) The reaction or reactions believed to be producing the PCBs, (2) the levels of PCBs generated and released, (3) the bases for estimates of PCB concentrations in releases, and (4) the name and qualifications of the person or persons performing the analysis.

If actual monitoring of PCB levels is undertaken, records are to be maintained and must include: (1) The method(s) of analysis, (2) the results of the analysis for PCB levels in releases, including data from the quality assurance plan, (3) the name of the analyst or analysts, and (4) the date and time of the analysis.

A determination that PCBs are absent by actual monitoring of PCB levels should take into account the statistical variability in analytical results which will always occur. Recognizing that there will be variation in results of a series of samples taken from a particular stream, EPA is recommending a sampling procedure that uses a sequential sampling scheme. (See support document entitled "Guidance for Sample Collection.")

This approach should result in a considerable savings over standard statistical sampling methods without adding to the risks of making incorrect decisions. Sequential sampling is a procedure where, unlike other statistical methods, the sample size is not fixed in advance. After every sample or group of samples is analyzed, the sequential sampling procedure indicates whether sufficient samples have been gathered to make a decision or whether additional samples are needed. On the average, fewer samples are required for this procedure than with other methods.

In general, for any statistical method, two decision errors are possible: (1) declaring processes which are qualified for an exclusion to be not qualified for exclusion, and (2) declaring processes which are not qualified for exclusion to be qualified for exclusion. The sequential sampling scheme recommended by EPA eliminates any significant likelihood of committing an error of the first type. The recommended maximum number of samples (seven) was chosen because, when several PCB peaks are present, it results in an acceptably low probability of the second type of error without necessitating an excessive amount of sampling to declare a process qualified for exclusion.

Manufacturers are required to certify that their processes qualify for exclusion, certify that the analysis completed is accurate to the best of their knowledge, and maintain these records and certifications for three years after a process ceases operation or for seven years, whichever is shorter.

EPA estimates that cost of conducting a theoretical analysis to be on the order of $1,014 per process. EPA estimates the cost of certification without actual monitoring of PCB levels in releases to be on the order of $374 per process per year. If actual monitoring of PCB levels is undertaken, using the EPA-recommended method, EPA estimates the costs of monitoring to range between $120 and $770 per sample. Total costs per process are estimated to range from $844 to $45,990, depending upon the frequency and actual cost of sampling (see "Economic Analysis for the Final Rule to Exclude Closed and Controlled Processes from the PCB Ban" for detailed assessment).

3. *Reporting requirement.* In the proposed rule, EPA did not propose that reporting of data to the Agency be required. However, in response to the proposed rule, EPA received several comments that suggested that a reporting requirement should be imposed in addition to the proposed recordkeeping requirements. These comments maintain that the cost to manufacturers of notifying EPA that certain processes qualify for exclusion is trivial (less than $1.00 per process), and the benefits to EPA of developing an effective compliance monitoring program far outweigh these trivial costs. Other comments, however, question the need for even the proposed recordkeeping requirements (see IV.D.1.) for situations that have been determined to be de minimis. These comments suggest that reporting and recordkeeping requirements impose unnecessary burdens on industry.

After considering these comments, EPA is instituting a reporting requirement in the final rule. The final rule requires manufacturers to notify EPA that closed and controlled waste processes are operating at their facilities. Further, manufacturers are required to indicate, in the notification letter, whether a theoretical assessment or actual monitoring of PCB levels was used to make the determination that the processes qualify for exclusion. If the manufacturing process is a controlled waste process, the manufacturer must also notify EPA of the type, the name, and the location of the disposal facility. Manufacturers have the option of declaring this information to be confidential, under TSCA section 14(c). Manufacturers also have the option to sending a copy of the actual assessment to EPA.

EPA has concluded that requiring notification of EPA that processes are excluded and submission of information on the general bases for the determinations that the processes are excluded provides a relatively low cost incentive for manufacturers to carefully evalute their processes for eligibility for exclusion. Further, EPA believes, as several comments have suggested, that such a reporting requirement would provide benefits which greatly outweigh the costs to manufacturers of transmitting letters to EPA. Specifically, the letters could be used by EPA in developing an enforcement strategy and in monitoring compliance with the rule. EPA agrees with these comments and has concluded that establishing a reporting requirement of the nature described here does not place unreasonable burdens on the regulated community.

E. The EPA Recommended Analytical Method for Quantifying PCBs

For purposes of this rule only, EPA has designated capillary gas chromatography coupled to an electronic impact mass spectrometer (CGS/EIMS) as the EPA recommended analytical technique for quantifying PCBs in air emissions, water effluents and product/process streams. (Different analytical techniques may be more appropriate for other situations). This is the analytical technique which EPA will use in monitoring compliance with this final rule and which manufacturers may very well choose to use. To qualify for the closed and controlled waste process exclusion, PCBs must be below practical limits of quantitation for PCBs in air, water, and products (and wastes from closed processes). It should be emphasized that actual monitoring of releases is not required as a condition for exclusion (theoretical analyses are acceptable), and this method is not required if monitoring is elected.

1. *Chemical analytical methodology.* True confirmation of chlorinated biphenyls (PCBs) in specimens which may contain other chlorinated aromatic compounds can reliably be accomplished by capillary gas chromatography coupled to mass spectrometry. In order to obtain the selectivity to use this analytical technique, specific separation, extraction, and cleanup steps are a necessary part of the chemical analysis process. There are many analytical procedures for separation, extraction, cleanup, and detection which can successfully be used to indicate the presence of PCBs. Some suggested protocols appear in the support document: "Analytical Methods for Incidentally Generated PCBs—Initial Validation and Interim Methods."

2. *Quality assurance plan for measurement of incidentally generated chlorinated biphenyls.* An integral part of CGC/EIMS analysis is the quality assurance program (QAP). QAPs insure the integrity of the data produced.

A QAP includes the following: (1) History and disposition of samples, (2) sampling and sample collection procedures and (3) extraction and instrumental analysis procedures. A QAP documents how a laboratory intends to demonstrate its capability to produce data of acceptable quality. A QAP is essential for establishing the validity of the analytical data generated. In monitoring compliance, EPA will use CGC/EIMS in conjunction with a QAP to verify the accuracy of the data generated.

3. *Guidelines.* EPA has issued guidance on: (1) Sample collection and homogenization of the sample, (2) addition of surrogate compounds to the sample, (3) extraction and cleanup, (4) concentration or dilution of the extract, (5) analysis of the final extract, (6) reporting the results of the chemical analysis as specific PCB isomers or total PCBs, (7) developing a QAP, and (8) performing a theoretical assessment. In addition, the "RCRA Guidance for Hazardous Waste Incineration" is also available. These guidance documents are support documents for this rulemaking and are available by contacting the Industry Assistance Office (see FOR FURTHER INFORMATION CONTACT).

F. Relationship of the Final Rule to Other PCB Rules

1. *Disposal and marking rule.* The Disposal and Marking Rule, published in the **Federal Register** of February 17, 1978 (43 FR 7150), as Part 761 of Title 40 of the Code of Federal Regulations, requires that when PCBs and PCB items are removed from service, disposal be in accordance with specific criteria. Briefly, PCBs in concentrations below 50 ppm are not required to be disposed of in any special manner; liquid PCBs in concentrations between 50 ppm and 500 ppm are required to be disposed of in an incinerator which complies with certain standards, in a chemical waste landfill, or in a high efficiency boiler; non-liquid PCBs are required to be disposed of in an incinerator which complies with certain standards or in a chemical waste landfill; and liquid PCBs in concentrations at or above 500 ppm are required to be disposed of in an incinerator which complies with certain standards.

This rule has no direct effect on the existing marking and disposal regulations. PCBs created in other than closed and controlled waste manufacturing processes in concentrations between the LOQ and 50 ppm are not required by this rule to be disposed of in any special manner. This rule simply excludes PCBs generated in controlled waste manufacturing processes from the section 6(e) ban when all PCBs generated and released above the LOQ are handled in a manner specified in this rule.

2. *Regulatory exclusion at 50 ppm.* The PCB Manufacturing, Processing, Distribution in Commerce, and Use Prohibition rule, published in the **Federal Register** of May 31, 1979, (44 FR 31514), as Part 761 of Title 40 of the Code of Federal Regulations basically prohibits the manufacture, processing, distribution in commerce and use of PCBs in concentrations above 50 ppm in other than a totally enclosed manner. As discussed under the Background unit in this preamble, this exclusion of PCBs in concentrations below 50 ppm was successfully challenged by the Environmental Defense Fund. The court granted a stay of mandate with respect to the 50 ppm cutoff, and persons manufacturing, processing, distributing in commerce and using PCBs in concentrations below 50 ppm were permitted to continue these activities. The initial stay of mandate was scheduled to expire on October 13, 1982. However, in its report to the court on uncontrolled PCBs, filed in March of 1982, EPA requested and was subsequently granted an extension of this stay of mandate until December 1, 1982. Prior to that time (but no later than November 1, 1982), EPA will submit a plan to the court for rulemaking on uncontrolled PCBs. EPA anticipates that its plan will include a schedule for rulemaking for uncontrolled PCBs and a request for an additional extension of the stay of mandate for processes covered by the rulemaking until it is completed.

V. Official Rulemaking Record PCB Regulations for Closed and Controlled Waste Manufacturing Processes

In accordance with the requirements of section 19(a)(3)(E) of TSCA, EPA is publishing the following list of documents constituting the record of this rulemaking. This list does not include public comments, the transcript of the rulemaking hearing, or submissions made at the rulemaking hearing or in connection with it. These documents are exempt from **Federal Register** listing under section 19(a)(3).

A. Previous Rulemaking Records

1. Official Rulemaking Record from "Polychlorinated Biphenyls (PCBs) Disposal and Marking Final Regulation," 43 FR 7150, February 17, 1978.
2. Official Rulemaking Record from "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions Rule," 44 FR 31514, May 31, 1979.
3. Official Rulemaking Record from "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions; Use in Electrical Equipment," 47 FR 37342, August 25, 1982.

B. Federal Register Notices

1. 46 FR 27617, May 20, 1981, USEPA, "Polychlorinated Biphenyls (PCBs); Manufacture of PCBs in Concentrations Below 50 Parts Per Million; Possible Exclusion From Manufacturing Prohibition; Advance Notice of Proposed Rulemaking."

2. 46 FR 27615, May 20, 1981, USEPA, "Polychlorinated Biphenyls (PCBs); Court Order Regarding PCBs in Concentrations Below 50 Parts Per Million."
3. 47 FR 24976, June 8, 1982, USEPA, "Polychlorinated Biphenyls (PCBs); Manufacture, Processing, Distribution in Commerce, and Use in Closed and Controlled Waste Manufacturing Processes, Proposed Rule."
4. 47 FR 25555, June 14, 1982, USEPA, "Polychlorinated Biphenyls (PCBs): Manufacture, Processing, Distribution, and Use in Closed and Controlled Waste Manufacturing Processes, Correction."
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C. Support Documents

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4. USEPA, OPTS, ETD, "Draft: Cost Analysis for the Proposal to Exclude Controlled Processes from the PCB Ban" (April 1982).
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9. USEPA, OPTS, EED, "Quality Assurance Guidelines" (April 22, 1982).
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12. USEPA, OPTS, EED, "Analytical Methods for Incidentally Generated PCBs—Intitial Validation and Interim Protocols. Preliminary Draft, Draft Interim Report #4" (June 24, 1982).
13. USEPA, OPTS, EED, "Guidance for Sample Collection, Preliminary Draft" (July 8, 1982).
14. USEPA, OPTS, CCD, "Response to Comments on the Closed and Controlled Waste Rule" (October 12, 1982).
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23. USEPA, OPTS, EED, Response to Peer Review of "Analytical Methods for Incidentally Generated PCBs Initial Validation and Interim Protocols" (August 16, 1982).
24. USEPA, OPTS, EED, Memo to CMA from Smith "Sample Collection" (July 26, 1982).
25. USEPA, OPTS, EED, "List of Products That May Contain PCBs Generated as Impurities or Byproducts" (August 11, 1982).
26. USEPA, OPTS, EED, "Evaluation of PCB Isomers Identified in Chemical Manufacturing Processes Producing PCBs as Impurities" (September 2, 1982).
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28. USEPA, OPTS, EED "Update on Protective Garment Materials Resistant to PCBs" (August 17, 1982).
29. USEPA, OPTS, EED, "Revised Materials Balance for Inadvertently Produced PCBs" (April 22, 1982).
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31. USEPA, OPTS, EED, "List of Plants and Chemical Manufacturing Processes Known or Suspected to Generate PCBs as Impurities" (September 9, 1982).
32. USEPA, OSW, "Comparison of Ranking Methods" (May 14, 1982).
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39. USEPA, OPTS, ETD, Memo from Kingsley to Moll, "Cost Estimates for Implementation of MRI Analytical Protocol for Incidentally Generated PCBs" (August 23, 1982).
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41. USEPA, OPTS, EED, Memo from Guimond to Cox, "Response to CMA's Questions" (August 3, 1982).
42. USEPA, OPTS, "Response to CMA's Request for Cross Examination" (August 17, 1982).
43. USEPA, OPTS, "Response to CMA's Request for Dr. Erickson to Testify at the July 26 PCB Hearing" (July 22, 1982).
44. USEPA, "EPA Report in Accordance with this Court's April 13, 1982 Order Concerning EPA Proposal for Action on Polychlorinated Biphenyls in Concentrations Below 50 Parts Per Million Resulting From Uncontrolled PCBs and Motion for Extension of Stay of Mandate as to EPA Action on Uncontrolled PCBs Until December 1, 1982" (March 11, 1982).
45. CMA, Letter to Gunter (EPA) from Fensterheim (CMA), "Summary of Discussion on Erickson Testimony" (July 13, 1982).
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48. USEPA, OSW, "RCRA Guidance for Hazardous Waste Incineration."
49. USEPA, OPTS, EED, "Methods of Analysis for Incidentally Generated PCBs Literature Review and Preliminary Recommendations, Draft Interim Report" (April 6, 1982).
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51. USEPA, OPTS, EED, "Methods of Analysis for Incidentally Generated PCBs Literature Review and Preliminary Recommendations, Draft Interim Report, Revision #3" (June 17, 1982).
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53. USEPA, OPTS, EED, "Methods of Analysis for Incidentally Generated PCBs-Synthesis of ^{13}C-PCB Surrogates, Draft Interim Report #3" (June 29, 1982).

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55. USEPA, Memo from R.G. Bell to Don Clay, "OTS Obligations Under the Environmental Research, Development and Demonstration Authorization Act of 1978" (July 30, 1982).

D. Reports

1. Chemical Manufacturers Association, "A Report of a Survey on the Incidental Manufacture, Processing, Distribution, and Use of Polychlorinated Biphenyl at Concentrations Below 50 ppm."

2. Chemical Manufacturers Association, "The Analysis of Chlorinated Biphenyls."

3. Ecology and Environment, Incorporated, "Summary of the Health Effects of PCBs."

VI. Authority

Section 6(e) of TSCA [15 U.S.C. 2605]. The Administrator of EPA has authority to amend or modify the PCB Manufacturing, Processing, Distribution in Commerce and Use Prohibition Rule (40 CFR Part 761), published in the Federal Register (44 FR 31514, May 31, 1979).

VII. Executive Order 12291

Under Executive Order 12291, issued February 17, 1981, EPA must judge whether a rule is a "major rule" and, therefore, subject to the requirement that a Regulatory Impact Analysis be prepared. EPA has determined that this final rule is not a major rule as the term is defined in section 1(b) of the Executive Order. Therefore, EPA has not prepared a Regulatory Impact Analysis for this proposed rule.

EPA has concluded that this final rule is not "major" under the criteria of section 1(b) because the annual effect of the rule on the economy will be less than $100 million; it will not cause a major increase in costs or prices for any sector of the economy or for any geographic region; and it will not result in any significant adverse effects on competition, employment, investment, productivity, or innovation or on the ability of United States enterprises to compete with foreign enterprises in domestic or foreign markets. In fact, this final rule allows certain uses of PCBs that would otherwise be prohibited by section 6(e) of TSCA and, therefore, reduces the overall costs and economic impact of section 6(e).

VIII. Regulatory Flexibility Act

Under section 605(b) of the Regulatory Flexibility Act, the Administrator may certify that a rule will not, if promulgated, have a significant impact on a substantial number of small entities and, therefore, does not require a regulatory flexibility analysis. The amendment to the PCB rule excludes persons who manufacture PCBs in closed and controlled waste manufacturing processes from the ban on manufacture of PCBs. For those persons who qualify for the exclusion, the effect of this rule is to avoid the economic impact associated with the ban. Since no negative economic effect is expected upon any business entity from the promulgation of this rule, I certify that this rule will not have a significant economic impact on small entities.

IX. Paperwork Reduction Act

The Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq* (the Act), authorized the Director of the OMB to review certain information collection requests by Federal agencies. EPA has determined that the recordkeeping and reporting requirements of this rule constitute a "collection of information," as defined in 44 U.S.C. 3502(4). In accordance with the Act, the recordkeeping and reporting requirements of this rule have been submitted to OMB under section 3504(b) of the Act. OMB has assigned the control number 2070-0008 to this final rule.

List of Subjects in 40 CFR Part 761

Hazardous materials, Labeling, Polychlorinated biphenyls, Recordkeeping and reporting requirements, Environmental protection.

Dated: October 12, 1982.

Anne M. Gorsuch,

Administrator.

PART 761—POLYCHLORINATED BIPHENYLS (PCBs) MANUFACTURING, PROCESSING, DISTRIBUTION IN COMMERCE, AND USE PROHIBITIONS

Therefore, 40 CFR Part 761 is amended as follows:

1. Paragraph (f) is added to § 761.1, to read as follows:

§ 761.1 Applicability.

* * * * *

(f) Persons who manufacture, process, distribute in commerce, or use PCBs generated as byproducts, impurities or intermediates in closed and controlled waste manufacturing processes (as defined in § 761.3 (jj) and (kk)) are exempt from the requirements of Subpart B. To qualify for this exclusion, such processes must also fully comply with § 761.185.

2. Paragraphs (jj), (kk), (mm), and (nn) are added to § 761.3, to read as follows:

§ 761.3 Definitions

* * * * *

(jj) "Closed manufacturing process" means a manufacturing process in which PCBs are generated but from which less than 10 micrograms per cubic meter from any resolvable gas chromatographic peak are contained in any release to air; less than 100 micrograms per liter from any resolvable gas chromatographic peak are contained in any release to water; and less than 2 micrograms per gram from any resolvable gas chromatographic peak are contained in any product, or any process waste.

(kk) "Controlled waste manufacturing process" means a manufacturing process in which PCBs are generated but from which less than 10 micrograms per cubic meter from any resolvable gas chromatographic peak are contained in any release to air; less than 100 micrograms per liter from any resolvable gas chromatographic peak are contained in any release to water; less than 2 micrograms per gram from any resolvable gas chromatographic peak are contained in any product, and the remainder of PCBs generated are incinerated in a qualified incinerator, landfilled in a landfill approved under the provisions of § 761.75, or stored for such incineration or landfilling in accordance with the requirements of § 761.65(b)(1).

(ll) [Reserved]

(mm) "Manufacturing process" means all of a series of unit operations operating at a site, resulting in the production of a product.

(nn) "Qualified incinerator" means one of the following:

(1) An incinerator approved under the provisions of § 761.70.

(2) A high efficiency boiler approved under the provisions of § 761.60(a)(3).

(3) An incinerator approved under section 3005(c) of the Resource Conservation and Recovery Act (42 U.S.C. 6925(c)) (RCRA). The manufacturer seeking to qualify a process as a controlled waste process by disposing of wastes in a RCRA-approved incinerator must make a determination that the incinerator is capable of destroying less readily burned compounds than the PCB homologs to be destroyed. The manufacturer may use the same guidance used by EPA in making such a determination when issuing an approval under section 3005(c) of RCRA. The manufacturer is also responsible for obtaining reasonable assurances that the incinerator, when burning PCB wastes, will be operated under conditions which have been shown to enable the incinerator to destroy the less readily burned compounds

3. Section 761.185 is added to read as follows:

§ 761.185 Certification program and retention of special records by persons generating PCBs in closed manufacturing processes and controlled waste manufacturing processes.

(a) In addition to meeting the basic requirements of § 761.1(f), PCB-generating manufacturing processes shall be considered "closed manufacturing processes" or "controlled waste manufacturing processes" (and thus, be excluded from the TSCA section 6(e) ban on manufacture), only if the owner/operator of the manufacturing facility:

(1) Performs either a theoretical analysis of PCB levels in releases or conducts actual sampling of PCB levels in releases.

(2) Determines that the disposal facility is qualified for the disposal of controlled wastes under § 761.3(nn) (for controlled waste processes only).

(3) Maintains (for a period of 3 years after a process ceases operations or for 7 years, whichever is shorter) records containing the following information on the processes:

(i) *Theoretical analysis.* (A) The reaction or reactions believed to be producing the PCBs, the levels of PCBs generated, and the levels of PCBs released.

(B) The basis for all estimations of PCB concentrations.

(C) The name and qualifications of the person or persons performing the theoretical analysis.

(ii) *Actual monitoring.* (A) The method of analysis.

(B) The results of the analysis, including data from the Quality Assurance Plan.

(C) The name of the analyst or analysts.

(D) The date and time of the analysis.

(iii) *Qualifications of the disposal facility.* (A) The type of disposal facility.

(B) The name of the disposal facility.

(C) The location of the disposal facility.

(D) If the disposal facility is a RCRA-approved incinerator, the basis for the determination that the incinerator qualifies for the destruction of the PCB wastes to be destroyed.

(b) The data collected, and the analysis performed under paragraph (a) of this section must support the following certification if the processes are to be excluded under the closed manufacturing process and controlled waste manufacturing process exclusion. Persons desiring exclusion of a PCB-generating process under the closed and controlled waste process exclusion shall certify that:

(1) An analysis of the manufacturing process for PCB levels and releases (either theoretical or through actual monitoring for PCBs) has been completed.

(2) The analysis of the manufacturing process is on record at the facility.

(3) The concentration of PCBs in air emissions is below 10 micrograms per cubic meter per resolvable gas chromatographic peak; in water effluents, below 100 micrograms per liter per resolvable gas chromatographic peak; and in products, below 2 micrograms per gram per resolvable gas chromatographic peak.

(4) Either:

(i) The concentration of PCBs in process wastes is below 2 micrograms per gram resolvable gas chromatographic peak.

(ii) All process wastes are either incinerated in a qualified incinerator (see § 761.3(nn)), landfilled in a landfill approved under § 761.75, or stored for such incineration or landfilling in accordance with the requirements of § 761.65(b)(1).

(c) The certification must be signed by a responsible corporate officer. This certification must be filed at each facility in which a closed or controlled waste process is operating for a period of three years after a process ceases operation or for seven years, whichever is shorter, and must be made available to EPA upon request. For the purpose of this section, a responsible corporate officer means:

(1) A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation.

(2) The manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25,000,000 (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(d) This certification process must be repeated whenever process conditions are significantly modified to make the previous certification no longer valid. Significant modifications include changing disposal mechanisms or facilities for the disposal of controlled wastes.

(e) Any person signing a document under paragraph (b) (1) through (4) of this section shall also make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate information. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for falsifying information, including the possibility of fines and imprisonment for knowing violations.

Dated: _____.

Signature _____.

(f) Manufacturers operating closed and controlled waste manufacturing processes shall transmit a letter to EPA notifying EPA of:

(1) The number, the type, and the location of the closed and controlled waste manufacturing processes.

(2) Whether the determinations that the processes qualify for exclusion are based on theoretical assessments or on actual monitoring of PCB levels in releases.

(3) The type, the name, and the location of the waste disposal facility, if the process is a controlled waste manufacturing process.

[FR Doc. 82-28779 Filed 10-20-82; 8:45 am]

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APPENDIX E

Part IV

Environmental Protection Agency

Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions; Amendment To Use Authorization for PCB Railroad Transformers

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 761

[OPTS-62020A; TSH-FRL 2205-7]

Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions; Amendment To Use Authorization for PCB Railroad Transformers

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: On May 31, 1979, EPA promulgated a rule under section 6(e) of the Toxic Substances Control Act (TSCA) that authorizes the use of polychlorinated biphenyls (PCBs) in railroad transformers until July 1, 1984. Under this authorization, these transformers may not contain dielectric fluids with a PCB concentration exceeding 60,000 parts per million (ppm) (6 percent) after January 1, 1982, and exceeding 1,000 ppm (0.1 percent) after January 1, 1984. This rule amends the use authorization by: (1) Requiring these railroad organizations to meet the 60,000 ppm concentration level by July 1, 1984; (2) requiring these railroad organizations to meet the 1,000 ppm concentration level by July 1, 1986; and (3) authorizing the use of PCBs for the remaining useful life of these transformers at concentrations below 1,000 ppm. Finally, EPA is also amending the May 1979 rule to permit railroad organizations to service these transformers to reduce PCB concentrations and thereby to reduce the costs of disposal. The two primary reasons for these amendments are: (1) The majority of the affected railroad organizations did not select an adequate non-PCB substitute until October 1981, and (2) for certain organizations, necessary Federal funding for this activity was not received in time to perform the required servicing on PCB railroad transformers.

DATES: These amendments shall be considered promulgated for purposes of judicial review under section 19 of TSCA at 1:00 p.m. Eastern Daylight Time on January 17, 1983. These amendments shall be effective on February 2, 1983.

FOR FURTHER INFORMATION CONTACT: Douglas G. Bannerman, Acting Director, Industry Assistance Office (TS-799), Office of Toxic Substances, Environmental Protection Agency, Rm. E-509, 401 M St., SW., Washington, D.C. 20460; toll free: (800-424-9065); in Washington, D.C.: (554-1404); outside the USA: (Operator 202-554-1404).

SUPPLEMENTARY INFORMATION: EPA regulation at 40 CFR Part 761 have been recodified. Notice of the recodification appeared in the **Federal Register** of May 6, 1982 (47 FR 19527). As a result of this recodification, the revised section numbers will be used in this rule. Refer to the **Federal Register** Notice of May 6, 1982 to determine equivalent provisions under the former codification.

I. Background

On January 1, 1982, there were 756 railroad transformers in service that contained PCB dielectric fluid. Of this equipment, 730 transformers are used in self-propelled railroad cars and 26 transformers are used in locomotives. These PCB railroad transformers are operated in the northeastern United States by the National Railroad Passenger Corporation (Amtrak) and four State and metropolitan transit authorities.

Section 6 (e) of the Toxic Substances Control Act (TSCA), 15 U.S.C. 2601 *et seq.*, prohibit the manufacture, processing, distribution in commerce, and use of polychlorinated biphenyls (PCBs). In section 6(e) (2), there are two exceptions under which EPA may, by rule, allow a particular use of PCBs to continue. First, EPA may find that the use is in a "totally enclosed" manner. A "totally enclosed" manner is defined in section 6 (e) (2) (C) to be "any manner which will ensure that any exposure of human beings or the environment to a polychlorinated biphenyl will be insignificant as determined by the Administrator by rule." Second, EPA may authorize PCBs to be used in a manner other than in a "totally enclosed manner" if the Agency finds that the use "will not present an unreasonable risk of injury to health or the environment."

A. Other PCB Regulations

EPA issued in the **Federal Register** of May 31, 1979 (44 FR 31514) final rules to modify the general ban on the manufacture, processing, distribution in commerce, and use of PCBs. The May 1979 rule, *inter alia:* (1) Excluded from regulation PCBs in concentrations less than 50 ppm: (2) defined all electrical capacitors, electromagnets, and non-railroad transformers as "totally enclosed," thus automatically exempting them from regulation under the Act; and (3) authorized 11 non-totally enclosed uses based on consideration of the health and environmental effects of PCBs, the exposure to PCBs resulting from these activities, the availability of substitutes for the PCBs, and the economic impact of restricting those uses. Included in the non-totally enclosed uses was an authorization to use PCBs in railroad transformers until July 1, 1984, with certain use and servicing restrictions. This authorization provided that railroad transformers in active service may not contain dielectric fluid with a PCB concentration exceeding 60,000 ppm (6.0 percent on a dry weight basis) after January 1, 1982, may not contain greater than 1,000 ppm (0.1 percent on a dry weight basis) after January 1, 1984, and may not contain PCBs after July 1, 1984.

The Environmental Defense Fund (EDF) obtained judical review of the provisions described above in the U.S. Court of Appeals for the District of Columbia Circuit. *Environment Defense Fund* v. *Environmental Protection Agency*, 636 F.2d 1267. As a result of the lawsuit, the court invalidated the 50 ppm regulatory exclusion and the EPA determination that the use of PCBs in electrical equipment was "totally enclosed" and remanded these issues to EPA for further action consistent with its opinion. The court upheld all PCB use authorizations including the use authorization for railroad transformers. Accordingly, this rulemaking is not affected by the PCB litigation.

Invalidation of the 50 ppm regulatory cutoff and the "totally enclosed" use finding would have made effective the general statutory ban on PCBs. This would have caused significant disruption in the electrical industry, which heavily depends on PCB equipment in current use, and in the chemical industry, which uses a large number of processes that inadvertently generate PCBs in very low concentrations. To avoid this disruption, parties to the lawsuit sought a stay of the court's mandate pending further rulemaking. As a result, the court entered orders for futher actions by EPA and industry groups leading toward future rulemakings on PCBs. These court-ordered activities do not affect this final rule on the use of PCBs in railroad transformers. In response to the court order, EPA issued a proposed rule on the use of PCBs in electrical equipment which was published in the **Federal Register** of April 22, 1982 (47 FR 17426). The final rule for this use of PCBs was published in the **Federal Register** of August 25, 1982 (47 FR 37342). In addition, EPA issued a proposed rule excluding from regulation certain PCBs manufactured under conditions of very low risk, which was published in the **Federal Register** of June 8, 1982 (47 FR 24976). The final rule for this regulatory exclusion was published in the **Federal Register** of October 21, 1982 (47 FR 46980).

B. EPA Rulemaking Activities on the Use of PCBs in Railroad Transformers

Several railroad organizations had indicated to EPA that they could not comply with the deadlines affecting railroad transformers in the May 1979 rule. As a result, EPA proposed to extend the deadlines as published in the **Federal Register** of November 18, 1981 (46 FR 56626). The proposed deadline extension for the 60,000 parts per million (ppm) concentration level was based on a schedule submitted by the Southeastern Pennsylvania Transportation Authority (SEPTA) on February 5, 1981. Under that schedule, SEPTA estimated that the earliest that it could complete its servicing ("retrofill") program to meet the 6 percent PCB concentration level was October 1, 1983. (The term "retrofill" is used to denote the entire process of draining, flushing, and refilling a transformer with a non-PCB fluid.) This date was based on SEPTA's assumption that Federal funding for this retrofill activity would be received by October 1, 1981. SEPTA later requested an extension of the first two performance deadlines to July 1, 1984 and July 1, 1986, respectively. In addition, it requested an amendment of the second performance deadline to require a 20,000 ppm (2 percent) PCB concentration level. The November 1981 proposed amendment to the May 1979 rule also requested comment on the compliance deadline for achieving a 1,000 ppm concentration level.

Following a comment period for these proposed amendments, an informal hearing was held on January 5, 1982. Participants included SEPTA, other affected railroad organizations, representatives from transformer servicing firms, and manufacturers of substitute dielectric fluids. Reply comments were received through January 19, 1982. Many of the participants in the January 5, 1982 hearing contributed reply comments.

II. Specific Amendments to the Railroad Transformer Use Authorization

EPA considered three options in this rulemaking: (1) To maintain the deadlines in the May 1979 rule and thereby prohibit the use of PCBs in railroad transformers in violation of the January 1, 1982 deadline; (2) to rescind the deadlines in the May 1979 rule and to allow the use of PCBs in railroad transformers at their present concentration level; and (3) to extend the deadlines in the May 1979 rule. With respect to the third option, there were three additional considerations: (1) whether to change the PCB concentration levels mandated for the respective deadlines; (2) whether to require a phased schedule for the lowering of the PCB concentration levels in railroad transformers and thereby to require six performance deadlines rather than two deadlines; and (3) whether to delete the expiration deadline of July 1, 1984 and thereby allow the use of PCBs for the remaining useful life of these transformers at a concentration level at or below 1,000 ppm. In this rule, EPA has chosen: (1) To extend the deadlines in the May 1979 rule; (2) to require a six-stage schedule of deadlines for lowering the PCB concentration levels in railroad transformers; and (3) to allow the use of PCBs at a concentration level at or below 1,000 ppm for the remaining useful lives of the railroad transformers. In addition, EPA is adding a provision to the servicing conditions of this use rule to allow for the reclassification of railroad transformers using PCBs.

A. Deadlines for Attaining PCB Concentration Levels

In this amendment to the May 1979 rule, two sets of three performance deadlines are established to meet the 60,000 ppm and 1,000 ppm PCB concentration levels, respectively. The three performance deadlines that these railroad organizations must achieve to meet the 60,000 ppm level are: (1) After July 1, 1983, the number of railroad transformers containing a PCB concentration greater than 60,000 ppm in use by any railroad oganization may not exceed two-thirds of the total railroad transformers containing PCBs in use by that organization on January 1, 1982; (2) after January 1, 1984, the number of railroad transformers containing a PCB concentration greater than 60,000 ppm in use by any railroad organization may not exceed one-third of the total railroad transformers containing PCBs in use by that organization on January 1, 1982; and (3) after July 1, 1984, the use of railroad transformers that contain dielectric fluids with a PCB concentration level of greater than 60,000 ppm is prohibited. The environmental risks and economic impacts involved in these three performance deadlines for the 60,000 ppm concentration level are discussed in Unit IV.D.3. of this preamble.

The three performance deadlines for the 1,000 ppm concentration level follow a schedule that parallels that set for the 60,000 ppm level: (1) After July 1, 1985, the number of railroad transformers containing a PCB concentration greater than 1,000 ppm in use by any affected railroad organization may not exceed two-thirds of the total railroad transformers containing PCBs in use by that organization on July 1, 1984; (2) after January 1, 1986, the number of railroad transformers containing a PCB concentration greater than 1,000 ppm in use by any affected railroad organization may not exceed one-third of the total railroad transformers containing PCBs in use by that organization on July 1, 1984; and (3) after July 1, 1986, use of railroad transformers that contain dielectric fluids with a PCB concentration greater than 1,000 ppm is prohibited. The environmental risks and economic impacts involved in these three performance deadlines for the 1,000 ppm concentration level are discussed in Unit IV.D.3. of this preamble.

As required by section 6(e)(2)(B) of TSCA, the Agency has balanced the public health and environmental risks of this use of PCBs with the benefits and economic impacts of this use. In addition, EPA has compared the risks and benefits involved in the proposed amendment with the comparable risks and benefits of the alternative regulatory options. This analysis is discussed, together with the Agency's unreasonable risk determination and findings in Unit IV of this preamble.

B. Provision for the Reclassification of Railroad Transformers Subject to This Use Rule

EPA has added a provision to the PCB rules to permit these railroad organizations to service PCB railroad transformers in order to change their classification and thereby reduce burdens associated with disposal. Thus, railroad transformers will be serviced in a manner consistent with other transformers under 40 CFR 761.30(a)(5). Section 761.30(a)(5) allows the conversion of a PCB Transformer to a PCB-Contaminated Transformer or a non-PCB Transformer by draining, refilling, and otherwise servicing the non-railroad transformer. In order to reclassify, the non-railroad transformer's dielectric fluid must contain less than 500 ppm PCB (for conversion to a PCB-Contaminated Transformer) or less than 50 ppm (for conversion to a non-PCB Transformer) after a minimum of three months of in-service use subsequent to the last servicing conducted for the purpose of reducing the PCB concentration in the transformer. Therefore, paragraph (b)(2)(vii) of § 761.30 has been added to this use rule to provide similar reclassification procedures for both railroad and non-railroad transformers. This amendment is intended to provide an additional incentive for railroad organizations to conduct the necessary retrofill operations to lower the PCB concentration levels in their railroad

transformers below 1,000 ppm. These organizations can realize cost savings through lower disposal costs for PCB-Contaminated and non-PCB Transformers under EPA regulations at 40 CFR 761.60. By providing further incentive for railroad organizations to lower PCB concentrations in these transformers below 1,000 ppm, this provision will also aid in ensuring that unreasonable risks are not presented by the promulgation of this rule.

C. Date of Promulgation for This Rule

In order to avoid a "race to the courthouse" by persons seeking judicial review of this rule, EPA has decided to designate the time and date of promulgation of this rule as 1:00 p.m. Eastern Daylight Time on January 17, 1983. The Agency has previously taken this approach for rules promulgated under the Clean Water Act (see 40 CFR 100.01, 45 FR 26048). The Agency will be considering a general rule for TSCA similar to 40 CFR 100.01.

The remainder of this preamble includes three primary units. Unit III of the preamble presents a review of significant information submitted by the railroad organizations during this rulemaking activity. Unit IV includes a discussion of the specific factors considered in the unreasonable risk determination with respect to these changes in the use rule. Finally, in Unit V, the Agency will respond to other proposed amendments presented by railroad organizations in this rulemaking.

III. Information Submitted by the Railroad Organizations on Technical Problems of Retrofilling PCB Railroad Transformers

During this rulemaking activity, the affected railroad organizations contributed information directly related to EPA concerns in promulgating the May 1979 rule. The following categories of information have been relied on by the Agency in the development of this rule.

A. Compliance Problems With the May 1979 Rule

The affected railroad organizations contributed significant information with respect to specific performance deadline requirements. These organizations provided two primary reasons for their failure to comply with the performance deadlines in the May 1979 rule: (1) The majority of these railroad organizations did not select an adequate non-PCB substitute until October 15, 1981, and (2) for certain organizations, necessary Federal funding for this activity was not received in time to perform the required retrofills on transformers. The factors in the respective choices of substitute dielectric fluids are discussed in Unit IV.C. of this preamble. The issue of Federal funding for this activity is of particular importance for one of these organizations, the Southeastern Pennsylvania Transportation Authority (SEPTA). Of these organizations, SEPTA owns the largest number of PCB railroad transformers. As a result of the limited amount of non-Federal funds for its maintenance projects, SEPTA depends significantly on funding from the Urban Mass Transit Administration (UMTA) of the U.S. Department of Transportation. SEPTA's delay in receiving necessary UMTA funds was due to several factors: (1) Its failure to receive the necessary matching funds from the Commonwealth of Pennsylvania and its constituent localities; (2) alterations in the UMTA procedure for funding applications for capital modification projects; and (3) the delay in the submission of the SEPTA application for the first phase of retrofilling which was not formally received by UMTA until April 8, 1982.

B. Restrictions in Conducting the Necessary Retrofills

In its consideration of specific compliance dates for the 60,000 ppm and 1,000 ppm concentration levels, EPA has relied on information from the railroad organizations with respect to the maximum amount of railroad transformers that can be serviced each week. SEPTA has stated that only four of its cars per week can be properly retrofilled by its servicing contractor. In addition, SEPTA commented that, if the New York Metropolitan Transportation Authority (New York MTA) and the New Jersey Transit Corporation (New Jersey Transit) are each planning to retrofill one transformer per week, in addition to SEPTA's four transformers per week, the General Electric service shop in Philadelphia, Pennsylvania would probably be at its limit of capacity. Hence, the most rapid retrofill schedule that can be conducted for the transformers in violation of the January 1, 1982 deadline of the May 1979 rule is 6 transformers per week. (This calculation disregards Amtrak which performs its own retrofilling operations.)

SEPTA and other railroad organizations have commented that certain factors limit their capacity to retrofill their railroad transformers. First, they believe that only "quality" retrofills will result in meeting the compliance deadlines. This process requires removal of the transformer, application of a proper retrofill process, and the subsequent reattachment of the transformer to the respective vehicles. SEPTA has stated that if retrofilling is performed on a transformer attached to a self-propelled car, approximately 15 percent of the total dielectric fluid would still remain. As a result, any non-PCB substitute used to retrofill a transformer would become contaminated with the remaining PCB fluid. Hence, SEPTA has concluded that removal of the transformer from the car can decrease the amount of PCB fluid remaining in the transformer after draining. Second, with the exception of Amtrak, these railroad organizations rely on the General Electric service shop in Philadelphia, Pennsylvania as their sole contractor for these retrofilling operations. In particular, SEPTA believes that the General Electric shop is the only service facility that is capable of providing the required retrofill services with the removal of the transformers from the respective cars. Third, the "drop tables" at each of the railroad organization's facilities used to remove the transformers from the cars cannot be used exclusively for retrofilling, because these facilities are also required for routine maintenance and repairs resulting from collisions or other non-routine maintenance damage. At least 10 percent of each of these railroad organization's cars are out of service for routine inspection and maintenance.

The maximum retrofill schedule might be accelerated by the entry of additional service contractors with the capacity to perform retrofills with the removal of the transformer from the car. Comments from Westinghouse Electric Corporation and Energy Optimization Incorporated (EOI) indicated that other retrofill servicing firms might be able to provide the required retrofill services in the near future. Amtrak has also provided information that it could perform these retrofill services for other railroad organizations. Despite the possible entry of these firms to provide retrofilling services for these railroad organizations, a large number of railroad cars or locomotives to be retrofilled cannot be removed from service within any single period.

According to SEPTA and the other railroad organizations, the aforementioned constraints on their compliance with the respective PCB concentration levels require that they proceed on a phased, uniform retrofilling schedule. Any clustering of retrofilling operations resulting in the removal of a

large number of self-propelled cars from commuter service is not possible.

C. Necessary Retrofill Operations To Achieve Compliance With the 1,000 PPM PCB Concentration Level

In their comments, all of the railroad organizations agreed that the 60,000 ppm PCB concentration level could be achieved in one retrofill. Prior to recent results from a SEPTA demonstration project, however, there was concern whether the 1,000 ppm concentration level could be met in two retrofills. A demonstration project by SEPTA on a PCB railroad transformer in operation since June 1979 has contributed important information following the first and second retrofills of this transformer with a non-PCB dielectric fluid (IRA-LEC T1). After one retrofill, in February 1980, the PCB concentration level was measured at 15,600 ppm (1.56 percent PCB concentration level). Following a second retrofill, the transformer was measured in August 1981 as containing a PCB concentration level of 137 ppm. Later measurements in November 1981 and February 1982 showed levels of approximately 480 ppm and 489 ppm, respectively.

Comments have also been received that in addition to traditional technologies that use liquid solvents as a flushing medium, there exists an alternative method for the railroad organizations to meet the 1,000 ppm concentration level requirement. This alternative retrofill method uses an electrical grade non-PCB flushing fluid which is chemically equivalent to standard freon refrigerants. This method transforms the fluid into a gas for penetration of the transformer interior. (The freon product used in this method is commercially known as "freon 113.") According to the developer of this method, the process depends on a combination of liquid sprays, rinses, and soaks, interspersed with freon gas bombardment of the transformer interiors. The process will require approximately five days per railroad transformer. This method can be applied with the transformer in place under the railroad car.

The developer of this system conducted a demonstration on a 750 KVA network transformer containing 270 gallons of PCB dielectric fluid. The trend in the leaching rate for PCBs into transformer fluid used in this demonstration indicates that after 53 days of operation, the PCB concentration has leveled off and remained under 500 ppm.

IV. Specific Factors Considered in This Unreasonable Risk Determination Concerning PCB Railroad Transformers

To authorize any use of PCBs under section 6(e)(2)(B) of TSCA, EPA must find that the activity will not present an unreasonable risk of injury to human health or the environment. This determination involves balancing the probability that harm will occur from the use of PCBs and the magnitude and severity of that harm against the benefits to society that would result from the proposed regulatory action. In determining whether an unreasonable risk is present, EPA has considered the following factors:

1. The effects of PCBs on human health and the environment, including the magnitude of PCB exposure.
2. The benefits of PCBs in railroad transformers.
3. The adequacy of the available substitute dielectric fluids.
4. The reasonably ascertainable economic impact of the rule after the consideration of impacts on the national economy, small business, technological innovation, the environment, and public health.

These factors are listed in section 6(c) of TSCA and are applicable to determinations concerning whether a chemical presents an unreasonable risk under section 6(a) and 6(e) of TSCA.

This unit will discuss these key factors in the unreasonable risk determination for this use rule. Finally, it will present specific findings for the determination that this use of PCBs does not present an unreasonable risk.

A. Human Health and Environmental Risks

In determining whether this amendment to the May 1979 rule is warranted, EPA considered information concerning the effects of PCBs on human health and the environment. The effects of PCBs were described in various documents which were part of the rulemaking record for the May 1979 rule. EPA evaluated this information, new information submitted to the Agency, as well as other recent literature on the effects of PCBs. The results are presented in the document "Response to Comments on Health Effects of PCBs." This document is included in the rulemaking record. Copies of this document are available through the Industry Assistance Office (see the "**FOR FURTHER INFORMATION CONTACT**" paragraph).

1. *Health effects.* In sum, EPA has determined that while PCBs have not been found to be uniquely toxic, they are toxic and persistent.

Chloracne occurs in humans exposed to PCBs. Although the effects of chloracne are reversible, EPA does not consider it insignificant. Chloracne is painful, disfiguring, and may require a long period of time before symptomatology disappears. Other areas of major concern have been identified by EPA. EPA finds that reproductive effects, developmental toxicity, and oncogenicity are areas of concern and may produce effects in humans exposed to PCBs.

Available data show that some PCBs have the ability to alter reproductive processes in mammalian species, sometimes even at doses that do not cause other signs of toxicity. Animal data and limited available human data indicate that prenatal exposure to PCBs can result in various degrees of developmentally toxic effects. Postnatal effects have also been demonstrated on immature animals following exposure prenatally and via breast milk.

Available animal studies indicate an oncogenic potential (the degree of which would be dependent on exposure). Available epidemiological data are not adequate to confirm or negate oncogenic potential in humans at this time. Further epidemiological research is needed in order to correlate human and animal data, but EPA does not find any evidence to suggest that the animal data would not be predictive of human potential.

EPA agrees that little or no mutagenic activity from PCBs is indicated from available data. It is EPA's opinion that more information is needed to draw a final conclusion on the possibility of mutagenic effects from PCBs.

EPA does not attribute all the effects observed with PCBs to be due to toxic impurities. Relatively pure PCB congeners have been shown to produce toxicity equivalent to that found when testing commercial PCB mixtures containing higher levels of impurities.

EPA also does not assume that all PCBs are equivalent toxicologically. It cannot be assumed that if one PCB congener is positive or negative for a specific health effect, then all PCB congeners are also positive or negative for that specific health effect. Research is just beginning in this area; many more studies need to be conducted on specific congeners before conclusions can be reached on an isomer or cogener specific basis. Until such time, however, based on long-standing EPA policy, the Agency has determined that under section 6(e) all PCB congeners will be regulated uniformly.

2. *Environmental effects.* PCBs have been shown to affect the productivity of

phytoplankton and the composition of phytoplankton communities. Deleterious effects on environmentally important freshwater invertebrates from PCBs have been demonstrated. PCBs have also been shown to impair reproductive success in birds and mammals.

It has been demonstrated that PCBs are toxic to fish at very low exposure levels. The survival rate and the reproductive success of fish can be adversely affected in the presence of PCBs. Various sublethal physiological effects attributed to PCBs have been recorded in the literature. Abnormalities in bone development and reproductive organs have also been demonstrated.

EPA concludes that PCBs can be concentrated and transferred in freshwater and marine organisms. Transfer up the food chain from phytoplankton to invertebrates, fish, and mammals can result ultimately in human exposure through consumption of PCB-containing food sources

3. *Risks.* Toxicity and exposure are the two basic components of risk. As indicated above, EPA concludes that in addition to chloracne, there is the potential for reproductive effects and developmental toxicity as well as oncogenic effects in humans based on animal data. EPA also concludes that PCBs do present a hazard to the environment.

Minimizing exposure to PCBs should minimize any potential risk. The requirements in this amendment to the May 1979 rule will result in the reduction of exposure relative to present exposure levels from railroad transformer use. EPA's analysis of regulatory options in section D. of this unit includes examining the effectiveness of each option in reducing exposure, thereby reducing the associated risk.

Human health and environmental risks involved in this use authorization relate to several categories of activity. Through normal operation of railroad cars, certain concentrations of PCBs in dielectric fluid are frequently spilled onto railroad beds. These spills can occur as a result of overheating or electrical failure in the transformers and of damage to these transformers from rocks and debris on the railroad bed. The transformers on self-propelled railroad cars are hung beneath their mainframes, and they are consequently vulnerable to puncture and other damage when the trains strike debris on the tracks. These activities result in risks to human health and the environment. As noted in the preamble to the proposed PCB ban rule published in the **Federal Register** of June 7, 1978 (43 FR 24808), PCBs in railroad transformers are released during servicing and volatilized during overheating in operation. The design of these transformers, to fit within confined spaces on locomotives and self-propelled cars, has compounded the overheating problem.

There are two categories of persons that could be exposed to PCBs by the continuation of this use authorization: (1) Workers in service shops and railroad lines, and (2) persons exposed to PCBs leaked or spilled on railroad lines. PCB exposure from servicing operations is largely confined to workers in service shops. EPA believes that current service practices will result in minimal human exposure to PCBs. According to comments submitted in this rulemaking proceeding by various railroad organizations, adequate workplace controls to reduce risks from exposure to PCBs are provided by the marking and disposal requirements in 40 CFR Part 761, together with procedures for the handling and disposal of PCBs used by the Consolidated Rail Corporation (Conrail). Conrail is a railroad organization created by Congress in the Regional Rail Reorganization Act of 1973, 45 U.S.C. 741, which provides maintenance and other operational services to the railroad organizations subject to this rule except for Amtrak. Amtrak has developed its own procedures for the handling and disposal of PCBs. The railroad organizations have stated that when Conrail ceases to provide operational service after January 1, 1983, Conrail's servicing procedures will be continued by servicing contractor(s). It is also anticipated that at least a portion of the present servicing obligations of Conrail will be replaced by the recently incorporated Commuter Services Corporation which was created by Congress in 1981 to replace Conrail's maintenance and other operational services. Included in these procedures are guidelines concerning: (1) Protective clothing to minimize exposure during retrofills and normal shop maintenance functions; (2) workplace procedures for conducting retrofills; (3) precautionary measures, including cleanup procedures, to prevent skin contact with or ingestion of PCBs; (4) floor and curbing specifications; (5) inspection of storage areas for leaks; and (6) handling and storage of PCBs in yard and shop areas. In addition to these general guidelines, there exist more detailed procedures that have been designed by railroad organizations for certain railroad work sites and retrofill/repair shops. These general and particular servicing practices, and strict compliance with EPA marking and disposal requirements in 40 CFR Part 761 will significantly reduce any potential exposure to PCBs suffered by workers who service transformers.

Because leaks and moderate spills do not cause the immediate failure of railroad transformers, railroad transformer leaks and spills can spread PCBs over extensive distances along the railroad beds. Hence, persons can be exposed to PCBs leaked or spilled on these railroad lines. Westinghouse Electric Corporation has indicated that as much as 30 percent of the dielectric fluid of a railroad transformer can leak before the unit fails. SEPTA has commented that its self-propelled cars operate from one to twenty miles between stops. There are some express commuter cars in SEPTA's system that could run twenty miles without stopping. In Amtrak's experience, punctures frequently result in leaks of dielectric fluid along the right of way.

The magnitude of exposure to PCBs from railroad transformers relates to the amount and concentration of PCBs in dielectric fluid that are released from these transformers. The capacity of self-propelled cars and locomotives varies in the ranges of 130–220 gallons and 420–750 gallons of dielectric fluid, respectively. The magnitude of exposure to PCBs in these transformers resulting from leaks and spill events will vary by the concentration levels of PCBs in the dielectric fluid of these transformers and by the amounts of PCBs which are leaked or spilled. For example, at a 550,000 ppm PCB concentration level (a typical PCB concentration in a railroad transformer in violation of the May 1979 rule), the maximum leakage of PCBs and exposure to PCBs from a single spill event would be approximately 268 pounds. In contrast, at a concentration of 60,000 ppm, the maximum leakage of PCBs from a transformer would be lowered to 29 pounds. Further, at a concentration of 1,000 ppm, the maximum leakage of PCBs from a transformer would be lowered to about 0.5 pounds. (Under 40 CFR 761.3(m), "leaks" refer to instances in which any electrical equipment, including PCB railroad transformers, have any PCBs on any portion of their external surface(s). Hence, the Agency views "leaks" as any release of PCBs on any portion of the railroad transformer. "Spill events" refer to significant leaks of dielectric fluid that can be identified by the railroad organizations in their normal operational practices.)

EPA has extrapolated to determine the maximum PCB leakage from the operation of railroad transformers. Given the information received during

this rulemaking activity, EPA has determined that if no restrictions were required for railroad transformers, a maximum of approximately 231,000 pounds would be released over the remaining useful lives of the PCB railroad transformers in active service on January 1, 1982. This determination is based on the following assumptions: (1) 773,000 pounds of PCBs are present in railroad transformers in active service on January 1, 1982, and (2) a maximum of 30 percent of the total dielectric fluid in a railroad transformer can be released as leaks or spills before the transformers fail. This amount of PCBs potentially released in railroad beds or workplaces could cause a significant risk of injury to human health or the environment.

Data concerning recorded spill events experienced by certain railroad organizations support the finding that this use of PCBs presents a risk of injury to human health or the environment. The New York Metropolitan Transportation Authority (New York MTA) has submitted information that in 1980 and 1981, there were 11 recorded spills in the New York MTA/Connecticut Department of Transportation (ConnDOT) systems. SEPTA has submitted data that in 1981, there were 15 recorded spill events in its system, with 168 gallons of dielectric fluid (approximately 1,155 pounds of PCBs) discharged into the environment as a result of these events.

B. Benefits of PCB Use in Railroad Transformers

The benefits of PCB use in railroad transformers include: (1) The unique properties of PCBs as a dielectric fluid, and (2) the benefits derived from allowing their continued use in railroad transformers, i.e., avoidance of further retrofilling or replacement costs and of service interruptions.

Perhaps the most important attribute of PCBs as a dielectric fluid for railroad transformers is their nonflammability. Prior to the enactment of section 6(e) of TSCA in 1976, these railroad organizations had relied on PCBs as a liquid coolant and as an insulating medium in railroad transformers. PCBs have good heat transfer and dielectric properties.

At present, these railroad organizations do not have a sufficient number of locomotives and self-propelled cars equipped with non-PCB railroad transformers to enable them to retire those equipped with PCB transformers. Transformers in 756 electric railroad self-propelled cars and locomotives operated in the northeastern United States by Amtrak and four State/metropolitan commuter transit authorities contain PCBs. The respective railroad organizations' reliance on PCB railroad transformers varies among the organizations. The respective levels of reliance on PCB railroad transformers include: (1) 53 percent for Amtrak's commuter service in the Northeast Corridor; (2) 86 percent for SEPTA's metropolitan Philadelphia commuter service; and (3) 100 percent for the New Haven, Connecticut to New York City line of New York MTA and ConnDOT. New Jersey Transit relies on its self-propelled cars and locomotives with PCB transformers for its South Amboy, New Jersey to New York City line. Removal of these transformers without adequate replacements would seriously disrupt necessary commuter rail service areas. In addition, these organizations do not have adequate funding to replace these transformers. Moreover, the accquisition of new transformers or entire new self-propelled cars by these organizations cannot be accomplished within the time frame of the 1979 use authorization.

The aforementioned problems of these railroad organizations are particularly significant as related to the number of PCB railroad transformers operating in these specific service areas. According to information submitted during this rulemaking, SEPTA owns 319 transformers in self-propelled cars. New York MTA and ConnDOT own 244 PCB transformers in self-propelled cars. New Jersey Transit owns 106 PCB transformers used in self-propelled cars and 11 PCB transformers in its locomotives. Amtrak owns 87 PCB transformers, with 61 transformers in self-propelled cars and 26 transformers in locomotives. The 61 transformers in self-propelled cars were in compliance with the January 1, 1982 deadline. The 26 transformers in locomotives are not in compliance with that deadline. In addition, Conrail and the Maryland Department of Transportation own PCB railroad transformers in inactive service.

Because of the reliance of these organizations on PCB railroad transformers to maintain commuter service, it is important that EPA provide performance deadlines that allow for the continuation of this use of PCBs with consideration for the minimization of risks to public health or the environment.

C. Adequacy of the Available Substitute Dielectric Fluids

At the time of promulgation of the May 31, 1979 rule, railroad organizations had been testing for potential substitute dielectric fluids. By that date, no PCB substitutes had performed satisfactorily in tests in railroad transformers. When the performance deadlines in the May 1979 rule were promulgated, EPA had expected timely testing and selection of an adequate PCB substitute from these continuing tests. In this testing, several non-PCB dielectric fluids successfully used for retrofilling non-railroad transformers overheated or created pumping problems in railroad applications. The failure of these common PCB substitutes considerably delayed the process of selecting a suitable non-PCB dielectric fluid for PCB railroad transformers. In the preamble to the proposed amendment to this use rule, EPA stated that certain dielectric fluids appeared to be feasible PCB substitutes: IRA-LEC, FR-15, Midel 7131, and RTEmp Blend (Rail Temp). Subsequent to the publication of the proposed amendment on November 18, 1981, Rail Temp (a trichlorobenzene product) has been canceled by its distributor. In its comments concerning this decision, the distributor of Rail Temp cited a 1979 report concerning certain public health and environmental risks that might result from the incineration of chlorobenzenes at high temperatures. Following a review of this report, the distributor chose to concentrate its marketing efforts on a synthetic ester substitute, Envirotemp 100. During this period, EPA has been informed of other substitute fluids that have been introduced to the market.

1. *Information Concerning Non-PCB Dielectric Fluids.* a. *IRA-LEC/FR-15.* IRA-LEC and FR-15 have been tested by SEPTA and other railroad organizations and have been found to be suitable dielectric fluids for PCB railroad transformers. Unlike substitute dielectric fluids with synthetic esters, IRA-LEC and FR-15 are non-flammable. According to SEPTA and other railroad organizations, these fluids possess good dielectric properties and thermal characteristics. IRA-LEC and FR-15 are mixtures of 1,2,3-trichlorobenzene; 1,2,4-trichlorobenzene; 1,2,3,4-tetrachlorobenzene; and other hydrocarbons.

Certain railroad organizations have expressed concern that the toxicity and persistence of the chlorinated benzenes contained in FR-15 and IRA-LEC may make them subject to future regulatory action. One of the trichlorobenzenes contained in these fluids, 1,2,4-trichlorobenzene, is listed as a "hazardous constituent" for EPA regulations, 40 CFR Part 261, under the Resource Conservation and Recovery Act, 42 U.S.C. 6902. Therefore, given this possibility of future Federal regulation, certain railroad organizations have been

reluctant to use these fluids for retrofilling. At this point, however, these fluids are suitable for meeting the performance deadlines in this use rule. EPA is in the process of negotiating an agreement with producers of certain isomers of chlorinated benzenes to conduct specific health effects tests of these isomers, including 1,2,4-trichlorobenzene contained in FR-15 and IRA-LEC. A notice describing the terms of this agreement will be published for public comment in the Federal Register prior to the commencement of these health effects tests. An evaluation of the results of these tests will determine whether any regulatory action is necessary under section 6 of TSCA to protect public health and the environment from exposure to trichlorobenzene.

b. *Midel 7131.* Midel 7131 is composed of pentaerythritol esters and is manufactured in the United Kingdom and the United States. According to SEPTA and other railroad organizations, Midel provides good dielectric strength and is non-toxic and biodegradable. However, certain railroad organizations have expressed concern about Midel's fire point of 310° C. which is close to the minimum standard of section 450-23 of the National Electrical Code of the National Fire Protection Association, i.e., 300° C. This standard has been accepted by these railroad organizations as their minimum standard for dielectric fluids in passenger applications.

According to Amtrak, Midel's fire point is sufficiently higher than the minimum standard of the National Electrical Code. In addition, Amtrak has cited the successful use of Midel as a substitute for PCB fluids in enclosed switches in the Dartford Tunnel, London. According to Amtrak's comment, this application of Midel demonstrates its high resistance to repeated arcing in the fluid as compared with the arcing which would be experienced, mainly under fault conditions, in a PCB railroad transformer.

Based on a review of tests of the flammability of Midel in railroad transformers as conducted by Factory Mutual Research Corporation, the Federal Railroad Administration has concluded that Midel is satisfactory as a non-PCB dielectric fluid for railroad transformer use.

c. *Other non-PCB dielectric fluids.* Envirotemp 100 is composed of pentaerythritol esters, and its dielectric properties and chemical composition are similar to Midel 7131. Like Midel Envirotemp is biodegradable; non-bioaccumulating, and non-toxic.

Given comments received from a major supplier of synthetic-based lubricants for jet engines, another transformer fluid with a chemical composition and dielectric properties similar to Midel could be introduced in the near future.

2. *Technological feasibility of achieving the 1,000 ppm PCB concentration level.* As described in Unit III.C. of this preamble, the Agency has received information that confirms that these PCB railroad transformers can achieve the 1,000 ppm PCB concentration level in two retrofills. As a result of a demonstration project conducted by SEPTA on a PCB railroad transformer in operation since June 1979, there is substantial evidence that the PCB concentration level has been lowered to below 1,000 ppm after two retrofills using FR-15 or IRA-LEC. The last recorded reading of this demonstration, conducted eight months after the second retrofill, has shown that the leaching of PCBs from the transformer has not resulted in a PCB concentration level exceeding the 1,000 ppm level. As described in Unit III.C. of this preamble, the results of the SEPTA demonstration project indicate that the PCB concentration level in the transformer has leveled off and remained under 500 ppm. Although EPA believes that this demonstration confirms that the 1,000 ppm level is feasible as a mandated concentration level for the second set of performance deadlines, the results from this demonstration have not yet provided sufficient data to confirm the feasibility of a 500 ppm mandated concentration level.

D. Economic and Environmental Impacts of Regulatory Options

EPA considered three primary regulatory options in amending this use rule. These options were: (1) To maintain the deadlines in the May 1979 rule, (2) to rescind the performance deadlines of the May 1979 rule, and (3) to extend the deadlines in the May 1979 rule. This unit will consider the economic and environmental impacts of these regulatory options.

1. *Maintenance of the performance deadlines in the May 1979 use rule.* Without this amendment to the current performance deadlines, approximately 669 transformers would be in violation of the January 1, 1982 performance deadline. These transformers provide most of the daily commuter service to the metropolitan areas of the northeastern United States. If transformers were removed from service, there would be severe interruptions in daily commuter service which could affect both users of the railroads and railroad workers, and would have secondary effects on related businesses. For example, small businesses serving metropolitan areas of the northeastern United States could suffer significant commercial losses, resulting from a temporary cessation of public transit. This effect on small businesses would result from the dependency of businesses in these commercial areas on public transit operations conducted by these railroad organizations. These public transit operations provide necessary access for residents of the affected metropolitan areas to shop in commercial areas served by public rail transit.

Without an extension of the performance deadlines in the May 1979 rule, there would be increased vehicular traffic in the affected metropolitan areas resulting from reduced railroad commuter traffic. Congestion would be increased in these metropolitan areas, with increased air pollution and a higher risk of automobile accidents. If the current performance deadlines are not extended and these railroad organizations ceased commuter service, SEPTA has estimated that the following impacts would result in its service area: (1) Approximately 73,000 increased auto trips per day; (2) approximately 32,500,000 aggregate pounds per year in increased air pollution through emissions of carbon monoxide, hydrocarbons, and nitrogen oxide; and (3) an increase of approximately 61,000 gallons in daily regional gasoline consumption. Similar impacts could be expected for other affected metropolitan areas in the northeastern United States.

Existing service capacity for commuters could be maintained only by these organizations incurring significant costs to replace existing PCB railroad transformers. Given cost estimates provided by SEPTA and the other affected organizations, the total incremental replacement costs for these transformers would range from approximately $28 million, assuming a useful life of 15 years for a transformer, to $63 million assuming a useful life of 30 years for a transformer.

The advantages of maintaining the performance deadlines of the May 1979 rule include the prevention of PCB exposure to railroad workers and persons affected by PCB leaks and spills along the railroad lines, and the avoidance of cleanup costs that result from releases of PCBs during this use.

2. *Rescission of the performance deadlines in the May 1979 rule.* This option was proposed by certain railroad organizations, including SEPTA and

New York MTA, as an alternative to their proposed modification of the performance deadlines in the May 1979 rule. It was presented in conjunction with their argument that PCB railroad transformers should qualify as "totally enclosed" uses under section 6(e)(2)(C) of TSCA. (For a discussion of this issue, see Unit V.A. of this preamble.)

Under this option, 773,000 pounds of PCBs in railroad transformers would be used in active service for the remaining useful lives of these transformers. Westinghouse Electric Corporation estimated that a maximum of 30 percent of the total dielectric fluid in a railroad transformer might be released as leaks and spills before the transformer fails. Hence, a maximum of approximately 231,000 pounds of PCBs could be released into the environment under this alternative. Compared with the other options, this alternative would represent the greatest magnitude and risk of exposure from the use of PCBs in railroad transformers.

The advantage of this option is the avoidance of the cost of performing one or two retrofills for these transformers. The total costs of retrofilling these PCB railroad transformers to meet the 1,000 ppm concentration level ranges from $8.3 to $23 million. Under this option, however, small businesses that could provide retrofilling functions for these railroad organizations would lose the opportunity to perform these services. These cost estimates are described in greater detail in the Agency's economic analysis prepared for this rulemaking.

3. *Extension of the performance deadlines in the May 1979 rule.* As described in Unit II, in their comments for this rulemaking, the railroad organizations presented the following proposal for the extension of the performance deadlines in the May 1979 rule. In sum, they urged EPA to: (1) Order the reduction of PCB concentrations in railroad transformers to 60,000 ppm by July 1, 1984; (2) order the reduction of PCB concentrations in railroad transformers to 20,000 ppm by July 1, 1986; and (3) allow the use of PCBs for the remaining useful lives of these transformers below 20,000 ppm.

This amendment to the use rule differs from the proposed rule in the following requirements. First, the amendment establishes a set of three performance deadlines for these transformers to achieve a 60,000 ppm level. Under these deadlines, one-third of the transformers in active service by each railroad organization must reach this level by July 1, 1983; another third by January 1, 1984; and the final third by July 1, 1984. Second, the amendment establishes a set of three performance deadlines for meeting the 1,000 ppm level. Under these deadlines, one-third of the transformers in active service by each railroad organization must reach this level by July 1, 1985; another third by January 1, 1986; and the final third by July 1, 1986. Finally, the amendment deletes an expiration deadline for this use of PCBs at or below 1,000 ppm, allowing this use of PCBs for the remaining useful lives of these transformers below 1,000 ppm. This unit will analyze the economic impacts and environmental risks of each of the principal requirements of this amendment to the May 1979 rule.

a. *Extension of the performance deadlines for the 60,000 and 1,000 ppm concentration levels.* In its joint petition of October 15, 1981, SEPTA together with New Jersey Transit, New York MTA, and ConnDOT has provided certain cost assumptions which the Agency has used to calculate the economic impact of this amendment. In addition, the Agency has applied other assumptions in calculating the total cost of retrofilling railroad transformers under the deadlines of this amendment. These costs were estimated based on present value calculations. (These present value calculations take into account the opportunity costs of expenditures that are deferred by railroad organizations and shifted into retrofilling operations required under this rule.) The total costs of retrofilling these PCB railroad transformers to meet the 1,000 ppm concentration level ranges from $8.3 million to $23 million. For SEPTA, the range is between $3 million and $9.65 million. The estimate ranges of costs for the other railroad organizations are: $3 million to $7.4 million for New York MTA/ConnDOT, $938,000 to $3.2 million for New Jersey Transit, and $654,000 to $2.4 million for Amtrak. According to the Agency's economic analysis, the average cost-effectiveness of this amendment, excluding clean-up cost savings, ranges from $85 to $1,205 per pound of PCBs saved from the environment. The assumptions and calculations supporting these estimates are presented in the economic analysis prepared for this rulemaking.

The developer of the freon retrofill method has commented that through application of its method, the 1,000 ppm PCB concentration level can be met in one retrofill. Under cost assumptions presented by Positive Technologies Inc. (PTI), the total cost for the railroad organizations to meet the 1,000 ppm PCB concentration level could range from approximately $8.3 million, assuming a 15-year useful life for transformers, to $9.7 million, assuring a 30-year useful life. At this time, the Agency cannot confirm the accuracy of the cost assumptions presented by PTI.

The extension of these performance deadlines would also have economic implications for small businesses. This amendment to the use rule for PCB railroad transformers would avoid any adverse economic impact on small businesses. This amendment should provide incentives for the development of non-PCB substitute fluids and alternative retrofill technologies, a portion of which is provided by small businesses. In addition, this amendment will provide a stimulus for continued improvements in existing alternative retrofill methods including those retrofill methods provided by small businesses.

Compliance by railroad organizations under the performance deadlines of this amendment would remove most of the PCBs in the dielectric fluid of railroad transformers. On January 1, 1982, there were 773,000 pounds of PCBs in railroad transformers used in active service. Under the performance deadlines of this rule, by July 1, 1984, there should be 93,000 pounds of PCBs remaining in railroad transformers used in active service (60,000 ppm PCB concentration). Under the 1,000 ppm concentration requirement, by July 1, 1986, there would be only 1,550 pounds of PCBs remaining in railroad transformers used in active service. This will represent the maximum pounds of PCBs remaining in railroad transformers used in active service with the elimination of an expiration deadline under this rule. Therefore, with full compliance by railroad organizations, 99.8 percent of the PCBs present in the transformers on January 1, 1982 will be eliminated by this rule. This will greatly reduce the potential for contamination of the environment and exposure to humans from the continued use of railroad transformers.

The aforementioned estimates have been derived from data provided by several railroad organizations. A key assumption for these estimates was an average PCB concentration in railroad transformers, with the exception of transformers used in Amtrak self-propelled cars, of 550,000 ppm (55.0 percent on a dry weight basis). Amtrak was able to retrofill the 61 transformers in its self-propelled cars to meet the 60,000 ppm (6 percent) concentration level by January 1, 1982. Hence, for these estimates, the average PCB concentration in these transformers is at a 6 percent PCB level, rather than at a 55 percent PCB level. Amtrak did not, however, retrofill the 26 PCB railroad transformers in its locomotives by that date. The average PCB concentration in

these transformers is at a 55 percent concentration level.

The possible reliance by certain railroad organizations on the freon gas method to supplement the retrofilling of these transformers with a non-PCB substitute fluid will present no known risks to public health or the environment. Given information provided by the developer of this method, EPA has determined that as used in the retrofill of these transformers, an insignificant amount of this freon product will be released into the environment. After each retrofill of a transformer with this process, the freon gas is recycled and used for other retrofills. Given the minimal exposure risk presented by the use of the freon product in this retrofill process, no regulatory action by the Agency under section 6 of TSCA will be initiated.

b. *Performance deadlines for lowering PCB concentration levels in railroad transformers to 60,000 ppm and 1,000 ppm.* The Agency considered three options for the establishment of performance deadlines for lowering PCB concentration levels in railroad transformers to 1,000 ppm by July 1, 1986. These options were: (1) Requiring only a single performance deadline of July 1, 1986, for compliance with the 1,000 ppm concentration level; (2) requiring one performance deadline for compliance with the 60,000 ppm level (July 1, 1984) and one performance deadline for compliance with the 1,000 ppm level (July 1, 1986); and (3) requiring three performance deadlines for compliance with the 60,000 ppm level and three additional deadlines for compliance with the 1,000 ppm level. The Agency also considered requiring periodic reports of progress together with each of these options.

Under any of these approaches, with traditional retrofill technology, these organizations will conduct two retrofills of their railroad transformers to meet the 1,000 ppm PCB concentration level by July 1, 1986. The testing, inspection, and maintenance costs should be identical under any of these approaches.

EPA has determined that options with more performance deadlines ensure the reduction of risk to human health and the environment associated with this use of PCBs in a shorter period than options with fewer deadlines. Because there are significant differences in the risks involved with use of PCBs at different concentrations, the six-stage PCB reduction schedule has been promulgated in this amendment to hasten retrofill progress. Given the present concentration level in most PCB railroad transformers, there would be a maximum release of 268 pounds of PCBs from a maximum spill of 39 gallons of dielectric fluid. With the 60,000 ppm level, there would be a maximum release of approximately 29 pounds of PCBs from a similar transformer. With the 1,000 ppm level, there would be a maximum release of approximately 0.5 pound of PCBs from a similar transformer. It is EPA's concern for the minimization of risks from a single spill event that makes a schedule with more performance deadlines more desirable. Requiring periodic reports of progress from these organizations would not contribute to the reduction of risks. Such a requirement would merely provide information, rather than risk-minimization.

EPA has determined that of the options considered, a schedule with six performance deadlines provides the greatest assurance that these railroad organizations will not fall behind in their retrofill schedule. This safeguard is important because, according to the comments provided by these organizations, each of them is limited as to the rate at which cars can be removed from service. Because of the limitation, it is necessary for the retrofilling to proceed at a steady rate. Options which theoretically would provide greater flexibility for the railroad organizations by specifying fewer interim deadlines are not desirable because such flexibility has no practical value. This conclusion is supported by the comments of the railroad organizations that the maximum rate of removal of cars from service cannot be exceeded. Therefore, to comply with the final deadline, railroad organizations must not fall behind schedule. Requiring compliance with interim deadlines provides incentive for these organizations to stay on schedule. Requiring periodic reports of progress from these organizations would not provide additional incentive for them to maintain their schedule, and would impose unnecessary costs.

Given these considerations, EPA has decided that a total of six performance deadlines should be required for compliance with the rule. Periodic progress reports will not be required. The six performance deadlines in this rule are easily achievable by any of the railroad organizations because the deadlines have been developed to follow the schedule proposed by them.

EPA has determined that no adverse economic impacts will result from the promulgation of a uniformly phased schedule of six performance deadlines as compared with the performance deadlines that would be established under any of the other options. Compared with these options, the establishment of six performance deadlines will not impose any additional costs on the affected railroad organizations.

c. *Deletion of the expiration deadline for this use of PCBs at a concentration level below 1,000 ppm.* The use authorization for PCB railroad transformers in the May 1979 rule expires on July 1, 1984, six months after the performance deadline for the 1,000 ppm concentration level. This amendment will delete the expiration deadline for this use of PCBs below a concentration of 1,000 ppm.

This deletion of the expiration deadline will allow these railroad organizations to avoid the cost of at least an additional retrofill of their transformers to further reduce PCB concentrations below 1,000 ppm. EPA has estimated that the cost of a third retrofill for these transformers to further reduce PCB concentrations below 1,000 ppm would range from approximately $6.7 million to $9.1 million. Alternatively, the replacement costs for these transformers would range from approximately $28 million to $63 million. Finally, the Agency cannot determine that it is technologically possible to completely eliminate PCBs from railroad transformers through retrofilling operations, including the freon gas method.

After the last performance deadline of this rule, July 1, 1986, there will remain a maximum of approximately 1,550 pounds of PCBs in active service in these transformers. These transformers can lose at most 30 percent of their dielectric fluid before they fail. Hence, approximately 460 pounds of PCBs as a portion of the total dielectric fluid of these transformers could be released through leaks and spills on railroad beds before the transformers fail. Similarly, under the 1,000 ppm concentration level, the maximum leakage of PCBs from a railroad transformer for a single spill event will be approximately 0.5 pound of PCBs.

E. Findings on the Use of PCBs in Railroad Transformers

The Agency has concluded that the risks associated with extending the deadlines and allowing the use of PCBs for the useful remaining lives of railroad transformers at a concentration level at or below 1,000 ppm are outweighed by the benefits of continued operation of commuter rail service in the northeastern United States and the costs that are avoided by not requiring the reduction of the PCB concentration level below 1,000 ppm. Therefore, EPA finds that authorizing the use of PCBs in

railroad transformers with the performance deadlines specified in this rule does not present an unreasonable risk to health or the environment for the following reasons:

1. These performance deadlines should progressively reduce the human health and environmental risks involved in this use of PCBs. By July 1, 1986, PCB concentration levels in dielectric fluid in railroad transformers will be at or below 1,000 ppm. At this concentration level, a minimal amount of PCBs (approximately 1,550 pounds) will remain in railroad transformers. This amount constitutes 0.2 percent of the amount of PCBs used in railroad transformers in active service on January 1, 1982. Under this schedule, the risks involved in a release of PCBs from these transformers will decrease from a maximum release of 268 pounds of PCBs from a single spill event under present concentration levels to a maximum release of 0.5 pound of PCBs under the 1,000 ppm concentration level. Further reductions in risk should occur as a result of servicing provisions permitting transformer reclassifications. Railroad organizations will have the incentive to reduce PCB concentrations in transformers below 500 ppm, if feasible, in order to reduce their disposal burdens.

2. The risks from continued use of PCBs in railroad transformers would be low, given the amount and concentrations of PCBs remaining after July 1, 1986, existing railroad workplace controls, and EPA disposal requirements in 40 CFR Part 761.

3. The estimated costs for the necessary retrofill operations under this amendment will range between $8.3 million and $23 million.

4. The costs to these railroad organizations associated with retrofilling under these performance deadlines are not excessive compared to the amount of PCBs that are removed from potential release into the environment.

5. Compared with the alternative of two final compliance dates for the 60,000 ppm and 1,000 ppm PCB concentration levels, the establishment of six performance deadlines will not impose any additional costs for testing, inspection, and maintenance of these transformers under requirements in 40 CFR Part 761.

6. The continued use of PCBs in railroad transformers under the performance deadlines of this rule would avoid a disruption of necessary commuter rail service in the northeastern United States.

7. The continued use of PCBs in railroad transformers under the performance deadlines of this rule would avoid increased vehicular traffic in affected metropolitan areas with related congestion and air pollution.

8. There exist adequate non-PCB dielectric fluids for use in railroad transformers to lower the PCB concentration level in railroad transformers below 1,000 ppm. In addition, there is evidence that railroad organizations might be able to lower PCB concentration levels to below 500 ppm. These organizations are encouraged to reach this level in order to reduce their disposal burdens.

9. The elimination of PCBs from these railroad transformers might not be technologically feasible through retrofill operations. Hypothetically, assuming that additional retrofills could eliminate all PCB fluid from these transformers, the costs of such retrofills (at least $6.7 million to $9.1 million) would be excessive. It would cost approximately as much to eliminate the last 0.2 percent of the PCB fluid as the first 99.8 percent. In addition, the cost of replacement for these transformers (between $28 million and $63 million) would be an unreasonable burden considering the small amount of PCBs (a maximum of 1,550 pounds) that would be eliminated. Under the 1,000 ppm concentration level, the maximum release of PCBs from these transformers for a single spill event would be only 0.5 pound of PCBs.

V. Other Proposed Amendments Presented by Railroad Organizations in This Rulemaking

Through the comment periods and informal hearing related to the proposed amendments to this use rule as published in the **Federal Register** of November 18, 1981, the affected railroad organizations presented several regulatory options not adopted in this final use rule. This section presents summaries of these proposed amendments as presented by the affected railroad organizations and EPA determinations on the validity of these proposed options.

A. Issue Concerning Whether PCB Railroad Transformers Should Qualify as "Totally Enclosed" Uses Under Section 6(e)(2)(C) of the Toxic Substances Control Act

Reply comments presented by SEPTA and New York MTA proposed that their PCB railroad transformers should be defined as "totally enclosed" uses and thereby excluded from this use rule. Under section 6(e)(2)(C) of TSCA, the continued use of PCBs in a "totally enclosed" manner is permitted. TSCA defines that category as "any manner which will ensure that any exposure of human beings or the environment to a polychlorinated biphenyl will be insignificant as determined by the Administrator." As presented in EPA regulations at 40 CFR 761.20, the Agency found that any exposure of humans or the environment to PCBs as measured or detected by any scientifically acceptable analytical method is a significant exposure.

In the comments of SEPTA and New York MTA, no information was provided by these organizations that the use of their railroad transformers would result in no exposure to humans or the environment. Documentation was provided concerning the number of recorded spill accidents during 1980 and 1981. According to these data, in 1980 and 1981, there were eleven recorded spill events in the New York MTA and ConnDOT service system (five recorded spills in 1980, six recorded spills in 1981). In 1981, there were 16 recorded spill events of 168 gallons of dielectric fluid, including PCBs, in the SEPTA system.

Through data received during this rulemaking activity from the affected railroad organizations, estimates of maximum leakage from these PCB transformers in active service have been developed. These estimates are presented in Unit IV of this preamble.

The U.S. Circuit Court of Appeals for the District of Columbia in *Environmental Defense Fund v. Environmental Protection Agency*, 636 F.2d 1267 (1980), has reviewed the legal status of the current use rule for PCB railroad transformers. In footnote 31 of that decision, the Court acknowledged the Agency conclusion that railroad transformers cannot be considered totally enclosed. In addition, the Court stated that "[b]ecause of the strenuous conditions under which they operate, railroad transformers often leak PCBs onto railroad beds, risking exposure to the environment and to workers and other persons near rail lines." 636 F.2d at 1279.

B. Transfer of PCB Railroad Transformers to Museums or Historical Societies

In its comments, Amtrak has proposed amendments to 40 CFR 761.20 concerning the distribution in commerce of PCB equipment, including PCB railroad transformers. First, Amtrak proposed that the owner of a railroad locomotive or self-propelled car with a PCB railroad transformer may at any time sell or otherwise distribute in commerce or export the locomotive or car provided that certain conditions are met. These conditions are that these Amtrak transformers must contain

dielectric fluid with either: (1) A concentration level no greater than 60,000 ppm or (2) the concentration level set by EPA for the first retrofill requirement in effect six months after the date of sale, distribution, or export, whichever is lower. Second, Amtrak proposed that the owner of an electric locomotive or self-propelled car containing a PCB Transformer may at any time transfer ownership of such locomotive or car to a "reputable historical society or institution" for premanent display. This transfer would be permitted provided that certain precautions were met prior to the transfer. These precautions would be: (1) All free-flowing dielectric fluid would be drained from the transformer; (2) the transformer would be filled with an appropriate non-PCB solvent and allowed to stand for a period of not less than 18 hours; (3) a sufficient quantity of appropriate absorbent material would be placed in the transformer to absorb any remaining fluid; (4) the transformer would be sealed by welding or another process to insure that it is totally enclosed within the statutory definition; and (5) the transformer must be prominently marked as a PCB Transformer, consistent with EPA marking rules presented in 40 CFR 761.40(a)(2).

The first proposal of Amtrak should be submitted in the form of an exemption petition under section 6(e) of TSCA for the distribution in commerce of railroad cars and locomotives equipped with railroad transformers with PCB fluid. Section 6(e)(3)(A)(ii) of TSCA prohibits the distribution in commerce of PCBs after July 1, 1979 unless the agency has granted an exemption for the activities. Section 6 of TSCA provides exemption procedures applicable to Amtrak's proposal for the distribution in commerce of locomotives or self-propelled cars equipped with a PCB railroad transformer. Exemption petitions must be consistent with procedures presented in section 6(e)(3)(B) of TSCA and EPA regulations at 40 CFR Part 750.

EPA regulatory provisions in 40 CFR Part 761 are applicable to Amtrak's second proposal for the transfer of ownership of GG-1 locomotives to historical institutions and the related retirement of these locomotives with their PCB railroad transformers. PCB Transformers must be disposed in accordance with the disposal requirements of the PCB rule, 40 CFR 761.60. Section 761.60(b) of the disposal requirements states that drained PCB Transformers must be sent either to an incinerator under § 761.70 or to an EPA-approved chemical waste landfill. EPA rules at 40 CFR 761.65 provide requirements for transformers in locomotives or cars that are stored for disposal. Furthermore, if the transformers were not disposed of, the museums and historical societies would be using PCBs in a manner not found to be totally enclosed or authorized by the PCB rule. Such uses are banned under section 6(e)(2)(A) of TSCA.

The use authorization for PCBs in electrical equipment in the May 1979 rule has recently been amended. The final amendment to the use authorization was published in the **Federal Register** of August 25, 1982 (47 FR 37342). Included in this final amendment are modifications to the distribution in commerce provisions in 40 CFR 761.20 for electrical equipment with PCB fluid. This provision allows the distribution in commerce of all intact, nonleaking electrical equipment with PCB fluid including PCB railroad transformers. Hence, under this provision, in order to transfer ownership of these GG-1 locomotives, Amtrak must ensure that these locomotives are "intact" and "nonleaking."

VI. Executive Order 12291

Under Executive Order 12291, issued February 17, 1981, EPA must judge whether a rule is a "major rule" and, therefore, subject to the requirement that a Regulatory Impact Analysis be prepared. EPA has determined that this amendment to the PCB rule is not a "major rule" as that term is defined in section 1(b) of the Executive Order. Therefore, EPA has not prepared a Regulatory Impact Analysis for this rule.

EPA has concluded that the amendment is not "major" under the criteria of section 1(b) because the annual effect of the rule on the economy will be less than $100 million; it will not cause a major increase in costs or prices for any sector of the economy or for any geographic region; and it will not result in any significant adverse effects on competition, employment, investment, productivity, or innovation or on the ability of United States enterprises to compete in domestic or foreign markets. Indeed, it will reduce the burden on railroad organizations to comply with the PCB rule. By extending the performance deadlines in the May 1979 rule and eliminating an expiration deadline for this use of PCBs at or below 1,000 ppm, this amendment should reduce costs for the railroad industry and for governmental bodies that operate railroads.

This regulation was submitted to the Office of Management and Budget for review as required by Executive Order 12291.

VII. Regulatory Flexibility Act

Section 604 of the Regulatory Flexibility Act (5 U.S.C. 604) requires EPA to prepare a "regulatory flexibility analysis" in connection with any rulemaking for which there is a statutory requirement that a general notice of proposed rulemaking shall be published. The "regulatory flexibility analysis" describes the effect of a final rule on small business entities.

Section 605(b) of the Regulatory Flexibility Act (5 U.S.C. 605(b)), however, provides that section 604 of the Act "shall not apply to any proposed or final rule if the head of the agency certifies that the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."

Since the effect of this rule avoids the economic impact associated with a disruption of passenger railroad service, and no negative economic effect is expected upon any business entity from this amendment, the Administrator of EPA has certified that promulgation of this amendment will not have a significant economic impact on a substantial number of small entities. Therefore, a "regulatory flexibility analysis" is not required and will not be prepared for this rulemaking.

VIII. Paperwork Reduction Act

The Paperwork Reduction Act (PRA) of 1980, 44 U.S.C. 3501 *et seq.*, requires Federal agencies to submit certain collection of information requests to the Office of Management and Budget (OMB) for its review and approval. Without appropriate approval from OMB under the Act, agencies may not impose penalties for noncompliance with certain types of collection of information requests, including recordkeeping requirements. Based on a review of the specific recordkeeping requirements under this use rule, EPA has determined that these requirements do not meet the threshold criteria for "collection of information" under the PRA.

The recordkeeping requirements of this use rule are presented in 40 CFR 761.30(b)(1)(iii). This provision requires that the concentration of PCBs in the dielectric fluid of railroad transformers must be measured at two points in time:

(1) Immediately upon completion of any authorized servicing of a railroad transformer conducted for the purpose of reducing the PCB concentration in the transformer, and (2) between 12 and 24 months after each servicing conducted

under this rule. In addition, these measurements must be recorded and retained until January 1, 1991.

This amendment does not alter the recordkeeping requirements contained in 40 CFR 761.30 (b)(1)(iii) of the current rule. The only change in the recordkeeping requirements from the current rule refers to the extension of the performance deadlines and the related extension of the period for railroad organizations to measure the concentration of PCBs in the dielectric fluid of railroad transformers. Under this change, these organizations would be required to measure the concentration of PCBs for compliance with the respective performance deadlines through July 1, 1986, rather than through July 1, 1984, under the current rule.

Under section 3502(4) of the Act, "collection of information" includes "the obtaining or soliciting of facts or opinions by an agency through the use of written report forms, application forms, schedules, questionnaires, reporting or recordkeeping requirements, or other similar methods." In addition, to meet the statutory definition of "collection of information," any recordkeeping requirements under this use rule must request either of the following responses: (1) "Answers to identical questions posed to, or identical reporting or recordkeeping requirements imposed on, ten or more persons, other than agencies, instrumentalities, or employees of the United States" or (2) "answers to questions posed to agencies, instrumentalities, or employees of the United States which are to be used for general statistical purposes." The recordkeeping requirements under this use rule do not meet either of these categories. With respect to the first response category, the requirements in the use rule are applicable to less than 10 affected railroad organizations with PCB railroad transformers in either active or inactive service. With respect to the second category, none of the affected railroad organizations are "agencies, instrumentalities, or employees of the United States." In addition, the testing records concerning PCB concentration levels that must be maintained through January 1, 1991 are to measure compliance with the performance deadlines, and are not to be used for general statistical purposes.

IX. Official Record of Rulemaking

In accordance with the requirements of section 19 (a)(3)(E) of TSCA, EPA is issuing the following list of documents constituting the record of this rulemaking. However, this list does not include public comments, the transcript of the rulemaking, hearing, or submissions made at the rulemaking hearing or in connection with it. These documents are exempt from Federal Register listing under section 19(a)(3). A full list of these materials will be available on request from the Industry Assistance Office listed under "FOR FURTHER INFORMATION CONTACT."

A. Previous Rulemaking Records

1. Official Rulemaking Record from "Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce and Use Prohibitions Rule" published in the Federal Register of May 31, 1979, (44 FR 31514).

2. Official Rulemaking Record from "Proposed Amendment to Use Authorization for PCB Railroad Transformers" published in the Federal Register of November 18, 1981, (46 FR 56626).

B. Support Documents

3. USEPA, OTS, "Cost-Effectiveness Analysis for the PCB Railroad Transformer Rule Amendment."

4. USEPA, OTS, "Response to Comments on Health Effects of PCBs."

5. USEPA, OTS, "Support Document for the PCB Railroad Transformer Rule: Response to Comments."

C. Reports

6. Buser, H. R., "Formation of Polychlorinated Dibenzofurans (PCDFs) and Dibenzo-p-dioxins (PCDDs) from the Pyrolysis of Chlorobenzenes," 8 *Chemosphere*, 415 (1979).

X. Statutory Authority

Under section 6(e) of TSCA (15 U.S.C. 2605), the Administrator may by rule authorize the manufacture, processing, distribution in commerce, or use (or any combination of such activities) of any PCBs in other than a totally enclosed manner if the Administrator finds that it will not present an unreasonable risk of injury to human health or the environment.

List of Subjects in 40 CFR Part 761

Hazardous materials, Labeling, Polychlorinated biphenyls, Recordkeeping and reporting requirements, Environmental protection.

Dated: December 20, 1982.

Anne M. Gorsuch,

Administrator.

PART 761—[AMENDED]

Therefore, in 40 CFR 761.30, the introductory text in paragraph(b) and paragraph(b)(1) are revised, and paragraph(b)(2)(vii) is added to read as follows:

§ 761.30 Authorizations.

* * * * *

(b) *Use in and servicing of railroad transformers.* PCBs may be used in transformers in railroad locomotives or railroad self-propelled cars ("railroad transformers") and may be processed and distributed in commerce for purposes of servicing these transformers in a manner other than a totally enclosed manner subject to the following conditions:

(1) *Use restrictions.* (i) After July 1, 1983, the number of railroad transformers containing a PCB concentration greater than 60,000 ppm (6.0 percent on a dry weight basis) in use by any affected railroad organization may not exceed two-thirds of the total railroad transformers containing PCBs in use by that organization on January 1, 1982.

(ii) After January 1, 1984, the number of railroad transformers containing a PCB concentration greater than 60,000 ppm in use by any affected railroad organization may not exceed one-third of the total railroad transformers containing PCBs in use by that organization on January 1, 1982.

(iii) After July 1, 1984, use of railroad transformers that contain dielectric fluids with a PCB concentration greater than 60,000 ppm is prohibited.

(iv) After July 1, 1985, the number of railroad transformers containing a PCB concentration greater than 1,000 ppm (0.1 percent on a dry weight basis) in use by any affected railroad organization may not exceed two-thirds of the total railroad transformers containing PCBs in use by that organization on July 1, 1984.

(v) After January 1, 1986, the number of railroad transformers containing a PCB concentration greater than 1,000 ppm in use by any affected railroad organization may not exceed one-third of the total railroad transformers containing PCBs in use by that organization on July 1, 1984.

(vi) After July 1, 1986, use of railroad transformers that contain dielectric fluids with a PCB concentration greater than 1,000 ppm is prohibited.

(vii) The concentration of PCBs in the dielectric fluid contained in railroad transformers must be measured:

(A) Immediately upon completion of any authorized servicing of a railroad transformer conducted for the purpose of reducing the PCB concentration in the dielectric fluid in the transformer, and

(B) Between 12 and 24 months after each servicing conducted in accordance with paragraph (b)(1)(vii)(A) of this section;

(C) The data obtained as a result of paragraph (b)(1)(vii) (A) and (B) of this

section shall be retained until January 1, 1991.

(2) * * *

(vii) A PCB Transformer may be converted to a PCB-Contaminated Transformer or to a non-PCB Transformer by draining, refilling, and/or otherwise servicing the railroad transformer. In order to reclassify, the railroad transformer's dielectric fluid must contain less than 500 ppm (for conversion to PCB-Contaminated Transformer) or less than 50 ppm PCB (for conversion to a non-PCB Transformer) after a minimum of three months of inservice use subsequent to the last servicing conducted for the purpose of reducing the PCB concentration in the transformer.

* * * * *

[FR Doc. 82-35528 Filed 12-30-82; 8:45 am]
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June 13, 1983

COMMERCIAL LANDFILLS APPROVED FOR PCB DISPOSAL

Section 6(e) requires EPA to control the manufacturing, processing, distribution in commerce and use of polychlorinated biphenyls (PCBs). Under the PCB rule (44 FR 31514, May 31, 1979) disposal of many PCBs, as defined in the rule, is prohibited, except at EPA approved facilities. All facility approvals are granted in writing by the appropriate EPA regional administrator. Listed below is the latest information on commercial landfills approved for PCB disposal.

STATE	CORPORATE INFORMATION	EPA CONTACT	• Drained transformers & containers • Contaminated soil, dirt, rags and other debris • Dredge soil and municipal sludges • Contaminated asphalt	Liquid PCBs 50-500 ppm
Alabama	(Site Location) Chemical Waste Mgmt. Alabama Inc. Box 55 Emelle, AL 35459 (205) 652-9531 ..... (Sales Office) Chemical Waste Mgmt. Marietta, GA 30061 Box 3065 (404) 952-0444 ATTN: Al McCoy	Ralph Jennings (404) 251-3864	X	X
California	(Site Location) Casmalia Resources Casma NTU Rd. Casmalia, CA (805) 937-8449 ..... (Site mailing address) Box E, Casmalia, CA 93429 ..... (Corporate Headquarters) Casmalia Resources 539 San Ysidro Rd.), (805) 969-5897 ATTN: Jim McBride	Raymond Seid (415) 974-8066	X	

APPENDIX F

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STATE	CORPORATE INFORMATION	EPA CONTACT	• Drained transformers & containers • Contaminated soil, dirt, rags and other debris • Dredge soil and municipal sludges • Contaminated asphalt	Liquid PCBs 50-500 ppm
California	(Site Location) Chemical Waste Mgmt., Inc. Box 157, Kettleman City, CA 93239 (209) 386-9711 (Sales Office) Box 1104 Coalinga, CA 93210 (209) 386-9711 ATTN: Craig McKenzie/ Mark Langowski	Raymond Seid (415) 974-8389	X	
Idaho	Envirosafe Services, Inc. of Idaho Box 936, Mt. Home, ID 83647 (208) 587-8434 ATTN: Dave Ralston	Roger Fuentes (206) 442-1254	X	X
Nevada	(Site Location) U.S. Ecology Inc. Box 578 Beatty, NV 89003 (702) 553-2203 ATTN: Steve Carpenter ..... (Corporate Headquarters) U.S. Ecology Inc. 9200 Shelbyville Rd. Louisville, KY 40222 (502) 426-7160/(800) 626-5317 ATTN: Jackie Dickenson	Raymond Seid (415) 974-8389	X	
New York	(Site Location) CECOS International 56th St. & Niagara Falls Blvd. (716) 282-2676 ..... (Corporate Headquarters) CECOS International Box 619 Niagara Falls N.Y. 14302 (716) 873-4200 ATTN: Customer Services	John Brogard (212) 264-2637	X	

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STATE	CORPORATE INFORMATION	EPA CONTACT	• Drained transformers & containers • Contaminated soil, dirt, rags and other debris • Dredge soil and municipal sludges • Contaminated asphalt	Liquid PCBs 50-500 ppm
New York	(Site Location) SCA Chemical Services Box 200 Model City N.Y. 14107 (716) 754-8231 ATTN: Customer Service	John Brogard (212) 264-2637	X	X
Ohio	(Site Location) CECOS/International 5092 Aber Road Williamsburg, Ohio (513) 720-6114 ..... CECOS/International 4879 Spring Grove Ave. Cincinnati, OH 45232 (513) 681-5731 ATTN: Customer Services	Y.J. Kim (312) 353-1428 and W.E. Muno (312) 886-6136	X	
Oregon	(Site Location) Chem-Security Systems, Inc. Star Route Arlington, OR 98712 (503) 454-2777 ATTN: Denis Sapiro ..... (Corporate Headquarters) Chem-Nuclear Systems, Inc. Box 1866 Bellevue, WA 98009 (206) 827-0711 ATTN: Roger Nelson/Alex Cook	Roger Fuentes (206) 442-1254	X	X

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DISPOSAL COMPANIES*

COMPANY	ADDRESS	PHONE
Incinerator		
ENSCO	P.O. Box 1975 ElDorado, AK, 71730	501-863-7173
Rollins	P.O. Box 609 Deer Park, TX, 77536	713-479-6001
Vulcanus Chemical Waste Mgt.	c/o Waste Mgt. Inc. 600 Maryland Ave. Washington, D.C. 20004	202-347-4023
Pyrotech Systems	P.O. Box 1653 Tullahoma, TN 37388	615-455-9954
General Electric	100 Woodlawn Ave. Pittsfield, MA 01201	413-494-3729
Chemical		
Acurex	485 Clyde Ave. Mountain View, CA 94042	415-964-3200
General Electric	1 River Road Schenectady, N.Y. 12345	518-385-3134
PCB Destruction	304 N. Baltimore Kansas City, MO 64116	816-474-1661
PPM	8220 Travis Overland Park, KA	913-648-0448
Rose Chemical	2459 Charolotte St. Kansas City, MO 64108	816-471-7227
Sunohio Inc.	1700 Gateway Blvd., S.E. Canton, OH 44707	216-452-0837

* This listing, compiled in March 1983, is subject to change. For a status check of the above call the Industry Assistance Office's Toll-Free Number 800-424-9065 (in Washington D.C. area: 554-1404).

COMPANY	ADDRESS	PHONE
Capacitor Disposal		
Environmental International	912 Scott Kansas City, KS 66105	800-255-0154
SED, Inc.	Box 1306 Waukesha, WI	414-784-3740

COMPARATIVE TABLES ON MATERIALS USED TO PROTECT AGAINST DERMAL EXPOSURES TO PCBs

715-M-135

August 17, 1982

*Table 1. Recommendations for Protection Against Aroclor 1254 Undiluted and Paraffin Oil[a]

Highly Recommended	Recommended	Not Recommended
Vitron	Teflon [b,c]	Surgical rubber
Vitron SF	Polyvinyl alcohol	Polyethylene
Vitrile	Nitrile[b]	
	Neoprene	
	Saranex[b]	
	Butyl[b]	

Table 2. Recommendations for Protection Against Aroclor 1254 in Trichlorobenzene: $\geq$ 58 percent Aroclor 1254[a]

Highly Recommended	Recommended	Not Recommended
Vitrol	Teflon	Saranex
Vitron SF	Nitrile	Butyl
	Polyvinyl alcohol	Neoprene
	Vitrile	Polyethylene
		Surgical rubber

a "Highly recommended" materials showed no breakthrough in 24 hours. Breakthrough time was 8 to 24 hours for the "recommended" category. Breakthrough time was less than 8 hours for the "not recommended" category. These recommendations assume comparable thickness, thus are based on normalized breakthrough times.

b Investigators noticed what appeared to be defects in both butyl and Saranex-laminated tyvek and nitrile; in one Teflon thumb, penetration appeared to occur through a seam.

c Teflon is not highly recommended because when it is flexed, as it would be when worn, permeation sometimes takes place due to physical defects which flexing produces.

*From the EPA/OTS TSCA Public Files; Versar, Inc. OPTS 62017 PCBs Controlled Wastes Communication N 23 File.

TABLE 2. *BREAKTHROUGH TIMES FOR VARIOUS PROTECTIVE GARMET MATERIALS EXPOSED TO SELECTED HAZARDOUS LIQUIDS

Type of Material	Thickness	Test Reagent			
		1,2-dichloroethane	1,1,1-trichloroethane	1,1,2-trichlorethane	PCB
Homogeneous, nonbonded materials					
butyl rubber	22 mils	140 mins.	60 mins.	50 mins.	2.5 mins.
Neoprene rubber latex	23	20	45	7	0.5
nitrile rubber latex	8	2.5	30	--	1.0
nitrile rubber milled	12	2.5			
polyethylene, medium density	2	2.3	3	3.5	0.8
poly(vinyl alcohol), unsupported	15	22	--	15	0.6
surgical rubber latex	8	1.5	4	1	0.3
Treflon					
crumpled	2	90	--	175	--
noncrumpled	2	1440+	--	1440+	--
Viton elastomer	10	820	1440+	1440+	60.
Coated/bonded materials*					
butyl-coated nylon**	15	70	25	45	3
polyethylene-coated					
Tyvek	5				
Tyvek toward H20		--	10	--	--
polyethylene toward H20		--	12	--	--
polyurethane-coated nylon	4	--	2	<1	0.5
poly(vinyl chloride)-coated nylon	10	--	3	--	0.5

The report notes that the coated/bonded materials are not commonly used for glove materials. They are in the prototype stage, or are used exclusively for other protective garments, such as aprons.

* These are also referred to as composite or multilayered materials.
** Mil C-12189.

-- Testing was not performed. Not all materials were tested against all chemicals because of contract limitations. The decision about which tests were not conducted was based on the utility of the findings. For example, most of the coated materials were tested only against a representative of the halogenated ethanes.

Source: Weeks and McLeod 1980.
[*From the EPA/OTS TSCA Public Files; Versar Inc.
OPTS 62017 PCB. Controlled Wastes

APPENDIX H

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APPENDIX I

STATUS FOR THE "UNCONTROLLED" PCB RULEMAKING

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

ENVIRONMENTAL DEFENSE FUND, INC., Petitioner, v. ENVIRONMENTAL PROTECTION AGENCY, Respondent, AD HOC COMMITTEE ON LIQUID DIELECTRICS OF THE ELECTRONIC INDUSTRIES ASSOCIATIONS, et al., EDISON ELECTRIC INSTITUTE, et al. Intervenors.	Civ. No. 79-1580

EPA REPORT IN ACCORDANCE WITH THIS COURT'S APRIL 9, 1982, ORDER CONCERNING EPA'S PROPOSAL FOR ACTION ON POLYCHLORINATED BIPHENYLS IN CONCENTRATIONS BELOW 50 PARTS PER MILLION RESULTING FROM UNCONTROLLED PCB PROCESSES AND MOTION FOR EXTENSION OF STAY OF MANDATE AS TO EPA ACTION ON UNCONTROLLED PCB PROCESSES UNTIL OCTOBER 1, 1984

In accordance with this Court's order of April 9, 1982, the Environmental Protection Agency ("EPA") hereby reports its plans for further regulatory action with respect to manufacturing, processing, distribution in commerce and use of polychlorinated biphenyls (PCBs) at concentrations less than 50 parts per million

(ppm), in other than closed manufacturing processes ("closed processes") and processes producing only controlled wastes ("controlled processes").*/ For the purposes of this document, we have referred to this aspect of the PCB rulemaking as dealing with "uncontrolled PCB processes."

EPA intends to promulgate a final rule regulating uncontrolled PCB processes by July 1, 1984, and hereby requests extension until October 1, 1984, of this Court's stay of its mandate affecting such PCBs. The reasons for EPA's determination to suggest this course of action for further rulemaking on uncontrolled PCB processes is explained below.

I. BACKGROUND

A. GENERAL BACKGROUND OF THIS LITIGATION

Section 6(e) of the Toxic Substances Control Act ("TSCA"), 15 U.S.C. §2605(e), authorizes EPA, among other things, to adopt rules governing the manufacturing, processing, distribution in commerce, and use of PCBs. On May 31, 1979, EPA promulgated such rules, called the "PCB Ban Regulations," 44 Fed. Reg. 31542-58, 40 CFR Part 761. The Environmental Defense Fund, Inc. ("EDF") obtained judicial review of the PCB Ban Regulations. On October 30, 1980, this Court held, inter alia, that two aspects of

*/ A "closed manufacturing process" is one which generates PCBs but which releases PCBs only in concentrations below the practical limits of quantification. In a "controlled waste process," PCBs may be released in concentrations above the practical limits of quantification only as constituents of wastes which are incinerated or disposed of in EPA approved facilities. See 47 Fed. Reg. 46981 (1982).

the PCB Ban Regulations were invalid. EDF v. EPA, 636 F.2d 1267.*/

This Court set aside the portion of the PCB Ban Regulations that, generally, had limited the applicability of those rules to materials containing PCBs in concentrations of at least 50 ppm. 636 F.2d at 1279-1284. In addition, the Court set aside EPA's determination that certain uses of PCBs were "totally enclosed" uses and, therefore, exempt from regulation under Section 6(e). 636 F.2d at 1284-6. The rules were then remanded for further rulemaking by EPA, consistent with the Court's opinion. 636 F.2d at 1284.**/

The Court's decision placed industries that had relied upon the PCB Ban Regulations in a difficult position. EPA and EDF believed that issuance of the Court's mandate would have activated Section 6(e)'s broad prohibitions on the manufacture, processing, distribution in commerce and use of PCBs. It was believed that numerous manufacturing activities created PCBs in low concentrations. The parties, therefore, filed a series of joint motions with the Court to seek a stay of the Court's mandate, proposing that during such a stay: (1) EPA would conduct new rulemaking with respect to PCBs; (2) industry groups would undertake activities related to the new rulemaking; and (3) users

*/ The Court also upheld the PCB Ban Regulations' authorization of eleven non-enclosed uses of PCBs. 636 F.2d at 1275-9.

**/ On August 25, 1981, in response to this Court's order with respect to uses of PCBs in electrical equipment, EPA published in the Federal Register final regulations which deal comprehensively with such uses. See 47 Fed. Reg. 37342.

of transformers containing PCBs would institute an interim inspection and reporting program.

The Court responded in several orders, one of which is germane to this filing. On April 13, 1981, the Court issued an order in response to a joint motion that was submitted on February 20, 1981 (the "April 13 Order"). The April 13 Order stayed issuance of the Court's mandate with respect to activities relating to PCBs in concentrations below 50 ppm. The order also adopted a plan for further actions by EPA and industry groups leading toward new EPA rulemaking on the regulation of PCBs in concentrations below 50 ppm. The April 13 Order required EPA: (1) to publish two Advance Notices of Proposed Rulemaking ("ANPR") on developing rules to cover PCBs in concentrations below 50 ppm; (2) within 18 months from the date of the order (i.e., October 13, 1982), to promulgate a final rule with respect to exclusion from the prohibitions of Section 6(e)(3) of the generation of PCBs in "closed manufacturing processes" or only as constituents of "controlled wastes," or to explain the reasons for not proceeding with such a rule; and (3) within eleven months after the date of the order (i.e., March 13, 1982), to advise the Court of EPA's plans for further action on PCBs in concentrations below 50 ppm generated in uncontrolled PCB processes.

For the uncontrolled PCB processes described in item 3, EPA needed to collect a range of additional factual information in order to develop an adequate rulemaking record consistent with the Court's opinion of October 30, 1980. This need for collection and evaluation of additional data accounts for the relatively greater

difficulties EPA will face in completing rulemaking on uncontrolled PCB processes as compared with the "closed" and "controlled" processes.

B. EPA ACTIVITIES RELATING TO PCBs IN CONCENTRATIONS LESS THAN 50 PPM

1. Publication of ANPRs and Related Notices.

On May 20, 1981, EPA published in the Federal Register ANPRs establishing bifurcated rulemaking proceedings with respect to PCBs in concentrations below 50 ppm, 46 Fed. Reg. 27614. The first ANPR announced activities that would lead to rulemaking on PCBs generated in the "closed manufacturing" processes and "controlled waste" processes. The second ANPR announced the framework for the Agency's exploration of the scope of the problem presented by PCBs in concentrations below 50 ppm in uncontrolled PCB processes. EPA there stated that it needed to develop a substantial factual basis to support rulemaking on these PCBs.*/ 46 Fed. Reg. 27619.

The comment period for both ANPRs expired on November 16, 1981. Approximately 50 public comments were submitted in response to the two ANPRs published on May 20th.

2. Report to the Court of March 1982

On March 11, 1982, EPA filed its report on the Agency's plans for regulation of uncontrolled PCB processes. Review of available information indicated that the initiation of rulemaking for

*/ On May 20, 1981, EPA also had published in the Federal Register a summary and the full text of the April 13 Order. 46 Fed. Reg. 27615.

uncontrolled PCB processes should not begin until the Agency was better able to estimate how many processes would be subject to such rulemaking.

This estimation rested in turn, on an understanding of how many processes could be considered "closed" or "controlled."*/ Accordingly, EPA requested a short time after promulgation of the "closed" and "controlled" rule to report further to the Court on final plans for completing rulemaking on the uncontrolled PCB processes. EPA requested that it be allowed to report its plans on uncontrolled PCB processes on or about November 1, 1982, and that the Court extend its stay of mandate until December 1, 1982, with respect to uncontrolled PCB processes at levels below 50 ppm concentration. The period between November 1, and December 1, would allow sufficient time for review of the Agency's plans before of April 9, 1982, this Court extended the stay of its mandate until December 1, 1982.

3. The "Closed" and "Controlled" Rule.

On October 12, 1982, EPA promulgated a final rule for "closed" and "controlled" PCBs (47 Fed. Reg. 46980). If a PCB-generating process meets the rule's definitions of "closed manufacturing process" or "controlled waste manufacturing process," the manufacturer may have that process excluded from regulation under section 6(e) of TSCA.

*/ In its March 1982 report, the Agency pointed out that, if the number of "uncontrolled PCB" processes were very large, resources for formulating and administering the rules could be severely strained. Larger numbers of processes would make it more difficult to develop definitions of terms or recordkeeping and reporting requirements that could uniformly apply to the persons subject to the rule. See March 1982 Report at 8-14.

The rule defines "closed processes" as those that produce PCBs in concentrations below the practical limits of quantification for PCBs in specified media: approximately 10 micrograms per cubic meter in air emissions, approximately 0.1 ppm in water effluent and 2 ppm in products and waste streams. See 47 Fed. Reg. 46995.

In addition, if wastes are disposed of in a manner specified in the rule, a process may still be excluded from regulation even if it produces PCBs above 2 ppm in its waste stream, as long as PCBs are below the limits, described above, in ambient air, water effluent and products. These latter processes are called "controlled waste" processes. Controlled waste processes are for practical purposes divided into two categories: (1) those with PCBs in the wastes in concentrations above 50 ppm, and (2) those with PCB waste concentrations below 50 ppm. Under the rule disposal of the first group of wastes continues to be controlled by TSCA regulations set out at 40 C.F.R. Part 761. For the second group, certain facilities approved under the provisions of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6901, et seq., may also be used. See 47 Fed. Reg. 46995.

EPA determined that excluding these small amounts of PCBs from regulation, at the option of the chemical manufacturer, will present de minimis risks to health and the environment. A certification and reporting process is established for manufacturers wishing to take advantage of the rule. See 47 Fed. Reg. 46996.

II. THE REGULATORY PLAN FOR UNCONTROLLED PCB PROCESSES

A. FACTORS EPA CONSIDERED IN DEVELOPING THE PLAN

Comments submitted during the rulemaking process leading to the October 12, 1982, rule have given the Agency a better grasp on the number of processes that are likely to produce PCBs as byproducts or impurities. On the basis of that information and other information obtained since EPA's March 1982 report to this Court, EPA staff estimates that there are approximately 120 chemical plants generating PCBs as byproducts or impurities in approximately 500 processes throughout the United States. EPA staff anticipates that several hundred of these processes may be classified as uncontrolled PCB processes.

In view of the large number of great diversity of processes that must be considered, EPA intends to consider a variety of regulatory options. Regardless of which option is eventually selected, EPA intends to fashion a regulatory scheme that will direct available resources and administrative attention to those processes which present the greatest environmental or health concerns.

To support rulemaking EPA is currently considering assessments of the risks presented for particular processes that produce PCBs. For many aspects of these assessments EPA can rely on data accumulated in the course of its previous PCB rulemakings. Useful data have been submitted in comments on the

prior rules adopted pursuant to this Court's stay of its mandate.*/

As the focus of EPA's inquiry has narrowed, however, the Agency staff has decided that additional information, particularly on PCB exposure, should be obtained. In particular, EPA will seek additional data concerning the actual or estimated levels of PCBs that may be present in products, air emissions, and wastewater streams, or that may be released in accidents. EPA also will consider information on the pathways that these PCBs take and on their ultimate fate. EPA will seek the assistance of interested industry groups in the collection of any necessary data.

B. Time Periods Necessary To Complete Rulemaking.

EPA staff reports that the various phases of rulemaking should be reasonably completed in the following time periods:

(1) April 1, 1983, four months from the current date of expiration of the stay of mandate, to complete preliminary information gathering;

(2) December 1, 1983, eight months from submission of information described in item one, to issue a proposed rule;

*/ In particular, EPA received extensive data on PCBs generated in concentrations below 50 ppm from the Chemical Manufacturers Association (CMA) in connection with the rule on "closed" and "controlled" PCBs. EPA described CMA's data -- contained in a document titled, A Report of A Survey on the Incidental Manufacturing, Processing, Distribution, and Use of Polychlorinated Biphenyl at Concentrations Below 50 ppm [hereafter "CMA Survey Report"] -- in the Agency's March 11, 1982, report to this Court. A copy of the CMA Survey Report was attached as an Appendix to the EPA March 1982 report. CMA had collected information from eighty-five member firms, representing between 36 and 51 percent of total U.S. chemical industry sales. As explained in EPA's March 1982 report, the CMA data were very helpful in developing the "closed" and "controlled" rule.

(3) July 1, 1984, seven months from signing of the proposed rule, to issue a final rule (assuming a 90-day period for public comment).

Notwithstanding these time periods, EPA staff hopes to expedite the rulemaking schedule to the maximum extent possible. Following information collection, EPA staff anticipates that it will take approximately eight months to collate and review all relevant data and to fashion proposed rules, given the complexities of the technical issues and the diverse industrial categories involved. Following proposal of rules, EPA staff expects that seven months will be needed for adoption of final rules for uncontrolled PCB processes. EPA also requests that the stay of the mandate expire approximately three months after issuance of the final rule to allow EPA Regional Offices, the regulated community and other interested persons to prepare for compliance. The stay of mandate, accordingly, would expire on October 1, 1984.

Counsel for Respondent, EPA, has been advised that Petitioner EDF does not oppose this plan.

Wherefore, EPA requests that this Court extend its stay of mandate on uncontrolled PCB processes until October 1, 1984.

Respectively submitted,

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CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing "EPA Report In Accordance With This Court's April 9, 1982, Order . . ." have been served by first class mail, postage pre-paid, this 1st day of November 1982, upon the following:

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