U.S. Department of Transportation
United States Coast Guard

Commandant
United States Coast Guard

(G-WS-1)
Washington, D.C. 20593
(202) 426-3300

COMDTINST M16478.2
16 NOV 1991

COMMANDANT INSTRUCTION M16478.2

Subj: The Procurement, Handling and Disposal of Polychlorinated Biphenyls (PCBs) RCS: G-WS-14029

Ref: (a) P.L. 94-469 Toxic Substance Control Act (P.L. 94-469 (15 U.S.C. 2601))
(b) Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions (40 CFR 761)
(c) Polychlorinated Biphenyls Approved PCB Disposal Facilities (44 FR 66989, 21 Nov 1979)

1. PURPOSE. This Manual Instruction prescribes policies, responsibilities and procedures for the use and disposal of Polychlorinated Biphenyls (PCBs) and equipment that contain PCBs owned, controlled or serviced by the U.S. Coast Guard.

2. DISCUSSION: Complete compliance with this Manual Instruction may require significant resources. Immediate funding will be required to control situations where PCBs are leaking and threatening the environment, while longer term funding will be needed for the change out or retrofill of PCB transformers and disposal. At the present time no funds have specifically been made available for these purposes. Resources Change Proposals (RCP) have been initiated for inventorying and clean-up efforts. Funding procedures are discussed in Chapter 1 paragraph B.

3. ACTION. District commanders and commanding officers of Headquarters units shall insure that the provisions of this Manual Instruction are followed in their respective commands.

4. CHANGES. Recommendations and amendments for improvement of this Instruction shall be submitted to Commandant (G-WS-1).

/s/ W. E. CALDWELL
Chief, Office of Marine
Environment and Systems

TABLE OF CONTENTS

Chapter 1

A. Regulations.

1. Section 6(e) of reference (a), requires the Environmental Protection Agency (EPA) to establish:

   a. Methods for the disposal of PCBs.

   b. Methods for the marking (labeling) of PCB Containers, Articles, equipment, etc. with an adequate warning, disposal instruction and emergency contact in case of a spill.

2. References (b) and (c) were issued by the EPA to assure that PCB users meet the above requirements. Additionally these regulations cover the reporting, transportation, and storage requirements for PCBs.

   a. Effective immediately PCBs can only be used in a totally enclosed manner; i.e. a manner that results in no exposure of humans or the environment to PCBs. Allowed uses include intact non-leaking PCB Transformers, PCB-Contaminated Transformers, electromagnets, capacitors, and equipment containing intact, non-leaking capacitors. Exemptions are provided for the servicing of PCB Transformers until 1 July 1984.

   b. PCB Articles and PCB Containers stored for disposal before 1 January 1983 shall be removed from storage and disposed of as required by Chapter 17 before 1 January 1984. Any PCB Article or PCB Container stored for disposal after 1 January 1983 shall be removed from storage and disposed of as required by Chapter 17 within one year from the date when it was first placed into storage.

B. Funding. To meet the time constraints indicated in paragraph 1-A-2 above, early identification of retrofilling or replacement requirements of PCB Transformers and PCB-Contaminated equipment is essential. Normal funding procedures should be followed for this long term retrofill or replacement activity. Regularly allotted funds should be utilized for actions. Concerning deteriorated PCB-Contaminated equipment. Requests for emergency funding beyond district resources should be made through Coast Guard Headquarters (G-CBU).

C. Polychlorinated Biphenyls (PCB).

1. Chemical Composition. PCB actually describes a group of synthetic chlorinated organic compounds. The chemical formula is (C 12 H (10-X) Clx) but by arrangement of the hydrogen (H) and chlorine (Cl) atoms there are 209 different chlorinated Biphenyls.

2. Physical Properties of PCB. It is a light yellow oily liquid or a colorless to white powder and is practically odorless. PCB liquid has a specific gravity of 1.3-1.8 and weighs 10 to 12 pounds per gallon. PCB will not float in water but sinks to the bottom; thus floating booms will not contain it.

1-C-3. Fire Hazards. PCB will burn and has a flashpoint of about 286 degrees Fahrenheit. PCB fires may be extinguished with water, foam, dry chemical or carbon dioxide. When burning, PCB gives off irritating and toxic gases.

4. Degradation. PCBs are very resistant to degradation. They are thermally stable and resistant to oxidation, acids, bases, and other chemical agents.

5. Solubility. PCBs are only slightly soluble in water, glycerol or glycols, but are soluble in most common organic solvents such as kerosene, and diesel fuel.

6. Water Pollution. PCBs are harmful to aquatic life in very low concentrations and have a high potential to bioaccumulate in the food chain.

7. Hazard to Humans. The known toxic effects of PCBs in humans include an acne-like skin eruption, chloracne, visual disturbance, gastrointestinal symptoms with jaundice, and they have been linked with cancer in humans.

8. Containment. Floating booms normally can not be used to contain PCBs since PCBs sink once they enter the water. However, in shallow water or on land, booms can be used to contain PCBs by serving as barriers to stop the flow into the water or keep it in the shallow water. Absorbent type booms are recommended for use on land since they act as both a barrier and absorbent. Apparently any material that will absorb oil will absorb PCBs.

CHAPTER 2. POLICY AND RESPONSIBILITIES

A. Policy.

1. Procurement. Procurement requests and specifications for items that contain dielectric, hydraulic, heat transfer fluids, oil, waste oils and paints should include the following statements.

   a. A statement that the dielectric, hydraulic, or heat transfer fluids should contain No PCBs unless it can be proven that they are required for the proper operation of the equipment.

   b. A statement requiring a label on the container stating whether or not the fluid contains PCBs. The label should also state what the generic names and the chemical characteristics of the fluid are, i.e. ignitability, corrosivity, reactivity and Extraction Process (EP) toxicity, if applicable.

2. Replacement or Decontamination. Each District and Headquarters unit, as appropriate, should develop and submit to Commandant (G-CPE) a planning proposal for decontamination (retrofill) or replacement and disposal of PCBs and equipment containing PCBs identifying the budgetary impact of implementing the plan utilizing normal procurement policies.

3. Servicing. Servicing of PCB equipment should be done by:

   a. Coast Guard personnel technically experienced in servicing contaminated equipment and fully knowledgable in the requirements of this instruction;

   b. An EPA approved service company.

4. Waste Oil. Waste oil containing PCBs shall not be used as a sealant, coating or dust control agent.

5. Testing. Testing shall be done on all unknown or suspected dielectric fluids, hydraulic fluids (excluding transmission oils used in motor vehicles), heat transfer fluids, and PCB containment and clean-up material in accordance with Chapter 15 of this Instruction.

6. Marking (Labeling). PCB items owned or controlled by the Coast Guard shall be marked in accordance with Chapter 12 of this Instruction.

7. Records. Records shall be maintained on PCBs and PCB Items in service or stored for reuse or disposal, which are owned or controlled by the Coast Guard, in accordance with Chapter 16 of this Instruction.

8. Inspection. An inspection program will be established and a log maintained on the inspection to assure that PCB Transformers, Large PCB Capacitors, equipment containing PCB components or PCB Containers are not leaking in accordance with Chapter 13 of this Instruction.

2-A-9. Scraping. PCB Transformers shall not be sold as scrap or to someone else to scrap. PCB Transformers can be retrofilled and reclassified to PCB-Contaminated or Non-PCB Transformers and then sold as scrap.

10. Selling. PCB Transformers can be surplused by the owners if they had not been purchased for resale and the buyer does not purchase them for resale but for his own use. Properly drained PCB-Contaminated Transformers can be surplused without restriction.

11. Storage. Storage of PCBs and PCB Items will be done in accorance with Chapter 19 of this Instruction. Except in emergency situations, permanent storage of PCBs will not be undertaken at Coast Guard facilities.

12. Disposal. Disposal of PCBs and PCB Items will be done in accordance with Chapter 17 of this Instruction.

13. PCB Spills. PCB spills containment, clean-up, and disposal of material shall be done in accordance with Chapter 14 of this Instruction and the established SPCC plan. A PCB spill is any discharge (accidental or deliberate) of PCBs onto or into land or water.

14. Personnel Health. The occupational health instructions established in Chapter 20 of this Instruction shall be followed by Coast Guard personnel.

15. Spill Prevention Control and Countermeasure Plan (SPCC Plan). All SPCC plans developed pursuant to this instruction shall be comparable in scope to the example contained in Enclosure (9).

B. Responsibilities.

1. PCB Inventory. District commanders and commanding officers of Headquarters units shall assure that PCBs are inventoried by Coast Guard facilities under their command and that a copy of the initial inventory record is sent to Commandant (G-WS-1) in accordance with Chapter 16 of this Instruction.

2. Records Maintenance. Records of the inventory will be maintained in current status at each Coast Guard facility and a copy of July records forwarded to Commandant (G-WS-1) by 30 July of each year.

3. Chief, Office of Marine Environment and Systems (G-W). The Chief, Office of Marine Environment and Systems has responsibility for administering and directing through the Chief, Ports and Waterways Planning Staff (G-WS), the Coast Guard Environmental Impact Programs. Within that framework, the Chief, Environmental Impact Branch (G-WS-1) is responsible for developing, managing and coordinating the Coast Guard's Hazardous Waste Management System, which includes this Instruction on the Procurement, Handling and Disposal of Polychlorinated Biphenyls (PCBs). This will provide assistance to program managers, district commanders, and commanding officers of Headquarters units in meeting their environmental protection responsibilities by:

2-B-3. a. Ensuring development of appropriate policies, program elements and procedures to guide commands in the handling and disposal of PCBs and PCB equipment.

b. Provide technical support to District and Headquarters units through the conduct of environmental evaluation and studies.

c. Assist the Office of Engineering in developing a system to evaluate the condition of transformers, and determine whether or not non-PCB transformer oils can be substituted in specific transformers.

4. Chief, Office of Engineering (G-E). The Chief, Office of Engineering (G-E), assisted by Chief, Office of Command, Control, and Communications (G-T) has the responsibility for providing engineering policy and guidance to:

a. Develop an inspection program to evaluate the physical condition of Coast Guard PCB Equipment (transformers, capacitors, etc.) to assure that it is not leaking.

b. Develop a program for the replacement or retrofitting of PCB Transformers on a case by case basis. The program must consider the economics of retrofill verses replacement.

c. Develop standard inspection procedures on PCB Storage for field activities.

d. Assure that this Instruction is included as part of the program in the review of equipment maintenance.

e. Develop a program for decontaminating PCB fluid hydraulic systems, where applicable, through a program of testing, draining, refilling and/or topping-off in accordance with Chapter 10.

5. Chief, Office of Comptroller (G-F). The Chief, Office of Comptroller has responsibility to implement procurement policy and disposal requirements in accordance with Coast Guard requirements contained in this Instruction.

a. Procurement. In the procurement of materials, Coast Guard activities shall identify purchased materials that contain PCB fluids and, when possible, substitute a non-PCB fluid after consulting with the Office of Engineering. Initial cost of the non-PCB fluid should not be used as a controlling factor.

b. Disposal. In the review of property disposal, the board of survey (for both personal and real property) will address whether or not the property or equipment contains PCBs. If the property does contain PCBs or PCB equipment, the program manager is responsible for ensuring that the property has been handled in accordance with Chapter 17 and any other applicable chapters of this Instruction. Prior to completing a Board of Survey or submitting

2-B-5. (cont'd) a Board of Survey to the Commandant, a certification shall be inserted in the survey stating that the requirements of Chapter 17 of this Instruction have been met.

6. Chief, Safety Programs Division (G-CSP). The Chief, Safety Programs Division has responsibility to:

a. Develop and promulgate Safety and Occupational Health procedures for Coast Guard personnel.

b. Ensure that Chapter 20 of this Instruction includes all safety and occupational health requirements for the safe handling of PCBs.

b. Provide occupational health and technical support to District and Headquarters units as requested to evaluate occupational exposure conditions when handling PCBs and their solvents.

7. Field Command Responsibilities. District commanders and commanding officers of Headquarters units are responsible for implementing the policy and procedures in this Instruction. This includes areas assigned to G-E, G-F and G-CSP if they have been delegated that responsibility as part of their functional requirements.

A. Monsanto Corporation. Monsanto Corporation was the principal manufacturer of PCBs in the United States and used the trade name "ASKAREL".

B. Representative PCB Trade Names.

Dielectric Fluid

1. Aroclors
2. Diachlor
3. Elemex
4. Hyvol
5. No - Flamol
6. Saf-T-Kuhl
7. Pyroclor
8. Therminol
9. Pyralene*
10. Santotherm
11. Dykanol
12. Inerteen
13. Asbestol
14. Chlorextol
15. Aroclor B
16. Clorinol
17. Clorphen
18. Eucarel
19. Pyranol
20. EEC-18
21. Clophen **
22. Fenclor ***
23. DK ***
24. Kennechlor ****
25. Phenoclor *
26. Solvol *****
27. Eucarel
28. Diacolor

Imported

* France
** Germany
*** Italy
**** Japan
***** USSR

Heat Transfer Fluid

1. Therminol FR-0
2. Therminol FR-10
3. Therminol FR-1
4. Therminol FR-2
5. Therminol FR-3

Vacuum Fluid

1. Santo Vac 1
2. Santo Vac 2

Hydraulic Fluid

1. Pydraul A-2008 A-200-B*
2. Pydraul AC, AC-A* B AC-28
3. Pydraul F-9, & F-9-A
4. Pydraul 135 & 135-A
5. Pydraul 150 & 150-A
6. Pydraul 2308230-A*
7. Pydraul 280
8. Pydraul 312 & 312-A*
9. Pydraul 540, 540-A & 540-B*
10. Pydraul 625 & 625-A

* Liquids contained Polychlorinated Terphenyls that may be contaminated with PCBs. These liquids should be tested to determine PCB content.

CHAPTER 4. NON - PCB TRANSFORMER OILS

A. Transformer Oils. The following are a few transformer oils/liquids that do not contain PCBs according to their manufacturers. When selecting an oil for retrofill the specifications of the various oils shall be evaluated to determine the most appropriate for the particular application.

1. Dow Corning 561 Silicone Insulating Liquid.

2. Exxon oils.

   a. Uminolt 33

   b. Uminolt 35

   c. Uminolt 60

   d. Uminolt 61

3. GE Silicone Insulating Liquid.

4. Gulf Trancress H5582.

5. Shell Drala - AX.

6. RTE Corporation.
   a. RTEMP Fluid

7. Texaco.

   a. Texaco Code 600 Transformer Oil 55

   b. Texaco Code 1515 Transformer Oil 55

B. Capacitor Oils. The following oil and capacitor types do not contain PCBs, have a low toxicity and are biodegradable according to their manufacturers.

1. DOW X FS-41691.

2. Non-PCB Power capacitors.

   (a) General Electric's Econol line.

   (b) Sprague's Econol line.

CHAPTER 5. ELECTRONIC EQUIPMENT CONTAINING PCBs

A. U.S. Coast Guard Electronic Items.

1. Enclosure (1) is a list of U.S. Coast Guard procured electronic items containing or suspected of containing PCB fluids based on an inventory made by Coast Guard Supply Center Brooklyn.

2. U.S. Coast Guard electronic items, obtained thru the U.S. Navy supply system, containing or suspected of containing PCB fluids are listed in Enclosure (2).

CHAPTER 6. DEFINITIONS

A. Capacitor. Means a device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by a dielectric material.

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 dielectric fluid and which operates at 2000 volts alternating current (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.

B. Chemical Waste Landfill. Means a landfill at which protection against risk of injury to health or the environment from migration of PCBs or hazardous waste to land, water, or the atmosphere is provided by locating, engineering and operating the landfill as specified in 40 CFR Subpart 761.41 (Annex II).

C. Dielectric Fluid. Means a non-conducting fluid used in electrical/electronic equipment.

D. 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.

E. DOT Approved Containers. The following labeled containers are to be used by U.S. Coast Guard personnel for the storage and transport of PCBs, PCB Items and PCB materials. The DOT approved containers listed below should be available thru normal drum suppliers. However, if not available, the Steel Shipping Container Institute in New Jersey (201-688-8750) can supply you with names and addresses of drum suppliers in your area.

Container Marking	Description
DOT-5/5-10-33-55-110	Removable head steel barrels or drums
DOT-5B/5-10-15-33-55-110	Removable head steel barrels or drums
DOT-6D/5-15-30-55	Cylindrical steel overpack, straight sided for inside plastic containers
DOT-17C/5-10-30-55	Removable head steel drum (single trip)
DOT-17E/5-10-30-55	Non-removable head steel drum (single trip)

F. Fluorescent Light Ballast. Means a device that electrically controls fluorescent light fixtures and that includes a capacitor containing 0.1kg or less of dielectric.

G. Incinerator (EPA Approved). Means an engineered device using controlled flame combustion to thermally degrade PCBs and PCB Items. EPA has at this time approved two incinerators for commercial use in destroying PCBs.

H. Leak or Leaking. Means any instance in which a PCB Article, PCB Container or PCB Equipment has any PCBs on its external surface.

I. Marked. Means the marking of PCB Items, PCB storage areas and transport vehicles by means of applying a legible mark by painting, fixation of an adhesive label or any other method that meets the requirement of 40 CFR, Subpart 761.20.

J. Municipal (Sanitary) Landfill. Means a state/county approved landfill that handles municipal waste or industrial non-hazardous waste.

K. Moderate Leak. Means any leak which results in any quantity of PCBs running off or about to run off the external surface of the PCB unit.

L. Non-PCB Transformer. Means a transformer containing less than 50 ppm PCBs.

M. 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 contain such substances. PCBs have a heavy liquid, oil-like consistency, and weigh 4.53 kg (10 lbs.) to 5.44 kg (12 lbs.) per gallon.

N. 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 Articles includes capacitors, transformers, electric motors, pumps, pipes, high voltage sectional switches, and chokes.

O. PCB Article Containers. 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.

P. PCB Container. Means any package, can, bottle, bag, barrel, drum, tank or other device used to contain PCBs or PCB Articles and whose surface(s) has been in direct contact with PCBs.

Q. PCB Equipment. Means any manufactured item, other than a PCB Container, which contains a PCB Article or other PCB Equipment and includes microwave ovens, electronic equipment and fluorescent light ballasts.

R. PCB Item. Means any PCB Article, PCB Article container, or PCB Equipment that deliberately or unintentionally contains or has in a part of it any PCBs at a concentration of 50 parts per million (ppm) or greater.

S. PCB Transformer. Means any transformer that contains 500 ppm PCB or greater. A transformer must be assumed to be a PCB Transformer if any one of the following conditions exist:

6-S-1. The nameplate indicates the transformer contains PCB dielectric fluid.

2. The owner or operator has any reason to believe that the transformer contains PCB dielectric fluid.

3. The transformer's dielectric fluid has been tested and found to contain 500 ppm or greater PCBs.

4. The transformer does not have a nameplate or if there is no information available to indicate the type of dielectric fluid in it.

T. PCB - Contaminated Transformer. Means any transformer that contains 50 ppm or greater of PCB but less than 500 ppm. All mineral oil transformers must be assumed to be PCB-contaminated transformers unless labeled as a non-PCB liquid or tested and found to contain less than 50 ppm PCB.

U. Significant Exposure. Means any exposure of human beings or the environment to PCBs as measured or detected by any scientifically acceptable analytical method.

V. Storage for Disposal. Means temporary storage of PCBs for no longer than 30 days, that have been designated for disposal.

W. 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.

X. Transport Vehicle. Means a motor vehicle or railcar used for the transportation of cargo by any mode. Each cargo carrying body (e.g. trailer, railroad freight car) is a separate transport vehicle.

Y. 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.

CHAPTER 7. SERVICING PCB TRANSFORMERS

A. Coast Guard Personnel. Coast Guard personnel technically experienced in servicing transformers, may service PCB Transformers as needed until 1 July 1984. However, it is recommended that servicing be contracted out to an EPA approved servicing company. Servicing consists of testing the dielectric fluid, filtering the fluid, removal of some fluid and replacing it and replacing gaskets. PCB Transformers can not be serviced after 1 July 1984, unless EPA extends the deadline date.

B. Contractor. The servicing of PCB Transformers can be contracted to a transformer service facility as long as they add dielectric fluid supplied by the Coast Guard or if the transformer service facility has an exemption from the EPA, they can use their own dielectric fluid.

C. Dielectric Fluid. When feasible non-PCB fluid should be used in servicing PCB Transformers if it is compatible with PCB fluid and does not decrease the operational efficiency of the transformer to an unacceptable level.

CHAPTER 8. REBUILDING PCB OR PCB-CONTAMINATED TRANSFORMERS

A. PCB Transformers. It is illegal to rebuild or service PCB Transformers if it involves removing and disassembling the core, reworking or rewinding the coil, and inserting a new coil or core. PCB Transformers can be decontaminated and reclassified as PCB-Contaminated or non-PCB Transformers. Otherwise they must be disposed in accordance with Chapter 17 of this Instruction.

B. PCB-Contaminated Transformers. PCB-Contaminated Transformers can be rebuilt.

CHAPTER 9. RECLASSIFYING PCB TRANSFORMERS

A. General.

1. A great many factors must be weighed in making a decision to reclassify a transformer by retrofilling, to replace a transformer or continue to operate it as a PCB Transformer. Some of the more important factors include:

   a. Life expectancy of the PCB Transformer must be considered. If it has a life expectancy of several years and is not leaking, you could continue to use it.

   b. Risk associated with its location. If a PCB Transformer is in satisfactory condition but located so that in the event of failure the PCBs could flow into streams, lakes, wetlands, etc, the PCB Transformer should be retrofilled with non-PCB fluid or replaced with a unit containing a non-PCB fluid.

   c. Service history. If a unit has a history of leaks, breakdowns, etc. it should be replaced with a non-PCB Transformer. However, if it's leaking but the service history does not indicate this as a problem, the PCB Transformer could be retrofilled with non-PCB fluid and new gaskets installed.

   d. Rebuilding after failure. PCB Transformers can not be rebuilt after failure (Chapter 8-A.). However, a PCB Transformer can be reclassified to a PCB-Contaminated or non-PCB Transformer by decontamination, and retrofilled with non-PCB dielectric fluid, run in service for at least three (3) months, and then tested for PCBs. The test results would then determine the classification of the retrofilled transformer. If less than 500 ppm PCBs, the retrofilled transformer could be rebuilt. It may take more than one retrofill to reduce PCBs to less than 500 ppm.

   e. Cost. The final factor is cost. In the event that the PCB Transformer has a long life expectancy, it would be more economical to leave it as is until it started to leak or brake down. Then replace it or retrofill and reclassify it to a PCB-Contaminated or non-PCB Transformer, which then could be rebuilt. In the event a good PCB Transformer was leaking, the decision would be to replace or retrofill it and costs are the primary factor. However, in making costs comparisons, replacement costs include not only the purchase of the new unit, but delivery, installation and disposal of the PCB liquid, as well as the PCB Transformer carcass. DOW Corning has made comparisons on typical PCB Transformers which show that it can cost more than twice as much to replace a transformer as it would to retrofill and reclassifiy it.

B. Retrofill Liquids. The liquids normally used in retrofilling are either non-PCB Transformer oils or silicone transformer liquid. It is recommended that the silicone transformer liquid be used since it has a higher Flash and Fire Point and a lower Underwriter's Laboratories (U.L.) Fire Hazard Classification than either hydrocarbon base or mineral transformer oils. Silicone fluid is self-extinguishing in a close area because of the silca crust formed on the liquid while burning. Also, silicone transformer liquid is among the least toxic of all commercial chemicals and breaks down in the environment to carbon, methane and silica.

C. Federal Specification, VV-I-2117, insulating Fluid, Electrical, Silicone. Dow Corning 561 and General Electric insulating silicone liquids are two silicone liquids that meet the requirements of this specification. There may be others and contacts with industry are encouraged.

D. Silicone Transformer Liquid Data (data supplied by Dow Corning)

1. Thermal:

a. Flash Point degrees Celsius	300
b. Fire Point degrees Celsius	350
c. Pour Point degrees Celsius	-55
d. Relative thermal conductivity Cal/Cm Sec	3.6
e. Specific heat (Cal/gm degrees Celsius) at 25 degrees Celsius	.360
f. Coefficient of expansion (cc/cc/ degrees Celsius) at 25 degrees Celsius	.00109
g. Rate of heat release (KWATT/square M) (48" pan)	100-125
h. U.L. fire hazard rating	4-5

2. Physical.

a. Appearance	Crystal Clear
b. Weight (lb./gal) US	8
c. Interfacial Tension (dyne/Cm)	31
d. Viscosity at 25 degrees Celsius	50
e. Specific Gravity	.960

9-D-3. Electrical (water content 50 ppm).

a. Dielectric Strength (volts/mil) 350

b. Dielectric Constant 25 degrees Celsius (100 hz) 2.71

4. Clean-up Solvents.

a. Mineral Seal Oil

b. Stoddard Solvent

E. Retrofilling.

1. Coast Guard personnel experienced in servicing transformers could do the retrofilling. However, it is recommended that a qualified service company be utilized in retrofilling PCB Transformers.

2. Firms Offering Retrofilling Services Include:

a. High Voltage Maintenance (offices in Cleveland-Dayton-Indianapolis-Milwaukee) Box 316, 7200 Industrial Park Boulevard, Mentor OH 44060, (216) 951-2700 , Mr. Pat Herbert, Vice President.

b. Southwest Engineers of LA, Inc,. P.O. Box 2686, Natchitoches, LA 71457, (318) 352-2046 Mr. Chuck Kirsch, Jr,. President

c. Bath Electrical Systems (B.E.S.) Inc. (Offices in Houston-La Porte-Corpus Christi) 5009 N. Highway 288, Clute, Tx 77531, (713) 265-6124, Mr. Thad Brown, Chairman of Board.

d. Rowen and Blair Electric, 2513 North Burdick Street, Kalamazoo, MI 49007, (616) 381-3050, Mr. Jerry Arbanas.

e. Electro-Test Inc. (Offices in Los Angeles-Seattle) 3470 Fostoria Way, P.O. Box 159, San Ramon, CA, (415) 820-5666, Mr. John Moore.

f. Northeast Testing and Maintenance, 450 Murdock Ave., Meridian, CT 06450, (203) 237-8446, Mr. Richard Lusswier, Sr. and Jr.. g. Medsker Electric Inc., 28650 Grand River, Farmington, MI 48024, (313) 478-1910.

h. General Electric Company, 777 Fourteenth St. NW, Washington, D.C. 20005, (202) 637-4359, Mr. Richard Hopkins.

i. Transformer Services, Inc., P.O. Box 2144, Akron, OH, 44309, (800) 321-0132, Mr. Al Sawan.

9-E-2. j. Sunohio, 1700 Gateway Blvd. S.E., Canton, OH, (216) 875-3301.

k. Listed sources are not all inclusive and in no way is this list intended to waive prevailing regulations regarding competitive procurement. However, any unnamed source desiring to submit a proposal must clearly demonstrate its ability to comply with the specifications.

CHAPTER 10. SERVICING HYDRAULIC SYSTEMS

A. Hydraulic Systems. PCB contaminated hydraulic systems can be used until 1 July 1984, provided that a corrective program of testing, draining, refilling, and/or topping - off is undertaken. It is not likely that hydraulic systems in the Coast Guard contain PCBs, since PCB hydraulic fluid was designed for high temperature die casting machines.

B. Testing. Any hydraulic system that ever contained PCB hydraulic fluid must be tested at least 3 months after refilling, then annually until the system reaches 50 ppm PCB.

C. Draining.

1. Highly contaminated (500 ppm or greater PCB) PCB hydraulic systems will have to be drained and probably flushed and wiped clean in order to effectively reduce the PCB levels.

2. Hydraulic systems that are not highly PCB contaminated (less than 500 ppm PCB) may be effectively decontaminated by a drain and refill method.

D. Topping. Hydraulic systems with low level PCB (less than 500 ppm PCB) contamination or borderline levels may be effectively controlled by simply topping-off with non-PCB fluid.

E. Hydraulic Fluid. No fluids containing more than 50 ppm PCBs can be added. This means that fluid collected from leaking seals, fittings, etc. can not be returned to the system if it exceeds 50 ppm PCBs. F. Disposal of Hydraulic Fluid. Hydraulic fluids drained from PCB contaminated hydraulic systems or collected from leaks must be disposed of in accordance with Chapter 17.C. or D. of this Instruction depending upon PCB concentrations.

CHAPTER 11. SERVICING HEAT TRANSFER SYSTEMS

A. Heat Transfer Systems. PCBs have been used in heat transfer systems because of their high heat retention capacity, and therefore, are controlled by the requirements of reference (b).

B. Testing and Servicing. Heat transfer systems will be tested and serviced in accordance with the requirement in Chapter 10.B. and C. of this Instruction. No fluids containing more than 50 ppm PCB can be added to the heat transfer system.

CHAPTER 12. MARKING (LABLING)

A. Marking Requirements. District commanders and commanding officers of Headquarters units shall ensure that personnel mark (label) PCB items listed in B, C, and D below, that belong to or are controlled by the Coast Guard, that are not already marked, in accordance with (Enclosure (3)). PCB labels can be purchased from Direct Safety Co., 6005 Markway, P.O. Box 2994, Shawnee Mission, Kansas 66201, Telephone No. (800) 255-4416 or 4550; or Label Master, 7525 N. Wolcott Ave, Chicago, Ill. 60626, Telephone No. (800) 621-5808 or (312) 973-5100 for Illinois.

B. PCB Items (50 ppm or Greater).

1. PCB Containers, PCB Article Containers, PCB Articles, PCB Equipment and PCB Transport Vehicles;

2. Electric Motors using PCB coolants;

3. Hydraulic Systems using PCB hydraulic fluid;

4. Heat Transfer Systems using PCB fluids; and

5. Transport vehicles loaded with containers that contain more than 45 kg. (99.4 lbs.) of liquid PCBs.

C. PCB Items (500 ppm or Greater).

1. PCB Transformers.

2. PCB Capacitors containing 1.36 kg (3 lbs.) or more of dielectric fluid.

D. PCB Storage. Area used to store PCBs and PCB Items for disposal.

CHAPTER 13. INSPECTION PROGRAM

A. Inspection Procedures. Inspection procedures: Including inspection schedule type of inspection (visual, etc.) shall be developed in accordance with guidance provided by the Office of Engineering, for each facility/unit where PCBs or PCB Items are located to assure that PCBs are not leaking into the environment from PCB Containers, PCB Equipment, PCB Article Containers, PCB Transformers or PCB Capacitors. At a minimum this program must include the following:

1. A visual inspection of each PCB Transformer shall be performed at least once every three months.

2. All leaks shall be recorded. If a PCB Transformer is found to have a moderate leak, servicing is required and must commence within two business days from the date the leak is observed.

3. Records log, containing inspection/servicing history, with respect to all PCB Transformers in use or stored for reuse shall be maintained for a period of three years and shall be made available for inspection, upon request, by EPA. Such records shall contain the following information for each PCB Transformer:

   a. Its location.

   b. The date of each visual inspection made of the PCB Transformer, together with an identification of the person performing the inspection.

   c. All leaks observed in the PCB Transformer, together with the date observed, and whether the leak is a moderate leak.

   d. A description of all servicing performed on the PCB Transformer commencing as of the date the PCB Transformer is first inspected pursuant to these Interim Measures, together with the date of such servicing.

CHAPTER 14. PCB SPILLS

A. Reporting. PCB spills, or other uncontrolled discharges of PCBs shall be reported to U.S. Coast Guard National Response Center (800) 424-8802, which will notify other appropriate agencies. Refer to the applicable SPCC plan for additional actions to be taken and procedures to be followed.

B. Reportable Spills. All spills of 10 pounds or more must be reported. Additionally, any spill is to be reported if it poses a substantial risk to human health or the environment. Substantial risk is defined by EPA as follows:

1. When people come into uncontrolled contact with PCBs.

2. The extent of the spill is large enough to expose significant numbers of animals.

3. The PCB spills into water, onto shoreline, or threatens a water course.

4. When the volume or extent of the spill is unknown.

C. Containment. A spill should be contained by damming or diking, plugging the leak and soaking up the liquid with an absorbant material such as a commercial absorbant, sawdust, dirt, or rags.

D. Clean-up and Disposal.

1. Liquid PCBs should be placed in DOT approved containers as described in Chapter 6.e. of this Instruction and disposed in accordance with the requirements in Chapter 17.C. and 17.D. of this Instruction.

2. Non-liquid PCBs in the form of contaminated soil, rags, cloths, etc. shall be placed in approved DOT containers as described in Chapter 6.e. of this Instruction and disposed in accordance with the requirements in Chapter 17.F. Soil and debris that are contaminated with PCBs less than 50 ppm does not have to be collected and disposed of. Contact the appropriate EPA regional office for guidance on testing contaminated soil to determine the extent of the spill.

3. Personnel involved in the clean-up and disposal of PCB spills shall comply with the safety requirement of Chapter 20.

CHAPTER 15. SAMPLING AND TESTING PROCEDURES

A. Sampling PCB Containers and Transformers.

1. Samplings of PCBs from containers, transformers, etc. may be collected in a common container, providing that no other chemical substance is added to the container. If any PCBs of a concentration of 500 ppm or greater are added to the container, the entire contents of the container must be considered as having a PCB concentration of 500 ppm or greater. You are not allowed to dilute PCB fluids to PCB-Contaminated fluid or non-PCB fluid.

2. If the PCBs in containers or transformers have not been filled from a common source of liquid, then individual samples should be collected from each container or transformer. The reason being that some of the liquid may not contain PCBs or contain them in concentrations of 50 to 500 ppm and would not require as stringent disposal requirement as PCBs with concentrations of 500 ppm or greater. This is the preferred method since it eliminates the potential for one sample contaminating the others which can happen under the procedures of paragraph 15-A-1.

3. PCBs must be thoroughly mixed in a container before samples are taken from it for testing purposes.

B. Testing Procedures.

1. Testing of liquid PCB samples for PCB concentration will be done by a commercial testing or military laboratory.

2. Testing of non-liquid PCB samples, such as soil, gravel, sludge, fill, rags, cloths, etc., to determine if the PCB concentration is 50 ppm or greater will be in accordance with the direction given by the appropriate EPA Regional Director on correct sampling and analytical procedures.

CHAPTER 16. REPORTS (PCB INVENTORY RECORD)

A. Record Requirements. A PCB Inventory Record shall be maintained and kept current in accordance with Enclosure (4) on PCBs and PCB Items in service or awaiting reuse or disposal as in Enclosure (7). Enclosure (5) is a list of formulas for calculating PCBs in transformers and capacitors; Enclosure (6) of this Instruction is a sample PCB Inventory Record and all reports should follow this format and can be reproduced locally.

B. Record Location. The PCB Inventory Record shall be kept at the facility provided the facility is manned at least 8 hours per day. If the facility is not manned at least 8 hours per day, the record shall be kept at the District office. The essence of this requirement is that the record be available for review by an EPA inspector.

C. Report Submittal. A copy of the original and each July inventory record is to be submitted to Commandant (G-WS-1) by 30 July, RCS: G-WS-14029.

CHAPTER 17. DISPOSAL OF PCBs AND PCB ITEMS.

A. Excess Equipment. Excess PCB Equipment (transmitters and amplifiers) and PCB Articles (transformers and capacitors) must be in compliance with 40 CFR 761 prior to transfer to another Federal agency.

B. PCB Disposal Service. The following firms offer a range of PCB services, including clean-up, removal, storage, and disposal.

1. Transformer Services, Inc.
   P.O. Box 2144
   Akron, OH 44309
   800-321-0132, Mr. Al Sawan

2. High Voltage Maintenance, Inc.
   7200 Industrial Park Blvd.
   Mentor, OH 44060
   216-951-2706, Mr. Gerald Bydash

3. Holly Electric Corp.
   555 North Ellis Rd.
   Jacksonville, FL 32205
   904-783-3700, Mr. Gary King

4. Cecos, Inc.
   2001 C Greentree Executive Campus
   Route 73
   Marlton, NJ 08053
   Mr. John Perone

5. Waste Management Inc.
   2131 Kingston Court S.E. Suite 112
   Marietta, GA 30067
   800-141-7829, Mr Al McCoy

6. General Electric Company
   777 Fourteenth St. N.W.
   Washington, D.C. 20005
   202-637-4359, Mr. Richard Hopkins

7. Sunohio
   1700 Gateway Blvd. S.E.
   Canton, OH 44707
   (216) 875-3301, Mr. Carl Sorenson
   List sources are not all inclusive and in no way is this list intended to waive prevailing regulations regarding competitive procurement. However, any unnamed source desiring to submit a proposal must clearly demonstrate its ability to comply with the specifications.

C. Disposal of PCBs (500 ppm or Greater). The only fully approved method for disposal of PCBs at this concentration is in an incinerator.

C. 1. The Environmental Protection Agency has approved two commercial incinerators. Contacts should be directed to Rollins Environmental Inc. Deerpark, Texas, (713) 479-6001, Mr. Bill Stevens; and Environmental Systems Co. (ENSCO), El Dorado, Arkansas, (501) 863-7173.

D. Disposal of PCB-Contaminated Fluid (50 ppm to less than 500 ppm).

1. Mineral Oil Dielectric. PCB - Contaminated fluids from transformers must be disposed in one of the following ways:

a. In an incinerator that is approved by EPA.

b. In an approved chemical waste landfill that is approved by EPA. Enclosure (10) is a list of EPA approved chemical waste landfill facilities.

c. In a high efficiency boiler that is approved by EPA.

2. Liquids. Liquids, other than mineral oil dielectric fluid, containing 50 ppm or greater but less than 500 ppm shall be disposed of:

a. In an incinerator that is approved by EPA.

b. In a high efficiency boiler that is approved by the EPA.

c. In an approved chemical waste landfill that is approved by EPA. Enclosure (10) is an approved EPA list of chemical waste landfill facilities.

E. Disposal of Waste Oils (0 to Less Than 500 ppm PCBs).

1. Waste oils will be disposed of:

a. In a high efficiency boiler that is approved by EPA.

b. In an approved chemical waste landfill that is approved by EPA. (Enclosure (10) is an approved EPA list of chemical waste landfill facilities.)

F. Disposal of Waste Oils (500 ppm or Greater PCBs).

1. Waste oils will be disposed of in accordance with Section 17.C. of this Chapter.

G. Disposal of PCB Articles.

1. PCB Transformers shall be disposed of:
a. In an incinerator that is approved by EPA.

G. 1. b. In an approved chemical waste landfill that complies with Enclosure (8). However, the transformer must be first drained of all free flowing liquid, which is to be disposed in accordance with 17.C. of this Chapter, filled with solvent and allowed to stand for at least (18) hours and then drained throughly. Solvents removed will be disposed of in accordance with 17.D. of this Chapter. Solvents may include kerosene, diesel fuel, stoddard solvent, and other solvents in which PCBs are readily soluble.

2. PCB - Contaminated Transformers. PCB-Contaminated Transformers shall be disposed of by draining all free flowing liquid from the transformer and disposing of liquid in accordance with 17.D. of this Chapter. The disposal of the drained transformer is not regulated by reference (b) and can be sold, scraped or deposited in a municipal (sanitary) landfill.

3. PCB Capacitors.

a. Small PCB Capacitors can be disposed of as landfill waste in a municipal (sanitary) landfill.

b. Large PCB Capacitors can be disposed of in accordance with the following:

(1) In an incinerator that is approved by EPA.

(2) EPA has approved two commercial incinerators for disposal of large PCB Capacitors at this time. Contacts should be made with Rollins Environmental Inc., Deerpark, Texas, (713) 479-6001, Mr. Bill Stevens and Environmental Systems Co. (ENSCO), El Dorado, Arkansas, (501) 863-7173.

4. PCB Containers.

a. PCB Containers, that contained liquids having PCB concentrations of 500 ppm or greater, unless decontaminated in accordance with Section 18.B. of this Instruction, shall be disposed of:

1. In an incinerator which has EPA approval.

2. If drained, in a chemical waste landfill that is approved by EPA. Enclosure (10) is a list of EPA approved chemical waste landfill facilities.

b. PCB containers that contain only PCBs at a concentration less than 500 ppm shall be disposed of as municipal solid waste in an approved municipal (sanitary) landfill, providing that, if the PCBs are in a liquid state the PCB Container shall be drained and the liquid disposed of in accordance with Section 17.D. of this Chapter.

17-7. Disposal of PCB Contaminated Material.

1. Non-liquid PCBs in the form of contaminated soil, rags, clothes or other debris shall be disposed of:

   a. In an incinerator which has EPA approval.

   b. In a chemical waste landfill which has EPA approval. Enclosure (10) is a list of Environmental Protection Agency approved chemical waste landfill facilities.

   c. Liquid PCBs shall not be processed into non-liquid forms to circumvent the high temperature incineration requirements.

2. Liquid PCBs shall be disposed of in accordance with Section 17.C. and 17.D. of this Chapter.

I. EPA Approval of Disposal Facilities. EPA approvals for disposal facilities are granted by EPA regional administrators. EPA Regional offices shall be consulted prior to disposal of PCBs and PCB related material to determine what facilities are presently available.

CHAPTER 18. DECONTAMINATION

A. Transformers. PCB Transformers can be decontaminated by the following means and disposed of in a chemical waste landfill.

1. PCB Transformers should be drained of free flowing liquid.

2. Filled with solvent and allowed to stand 18 hours.

3. Drained of the free flowing solvent.

4. The PCBs should be disposed of in accordance with 17.C. of this chapter, and the solvent disposed of in accordance with 17.C. or 17.D. of this Chapter.

B. Containers. PCB Containers can be decontaminated by the following means and then be used as general containers or disposed of as municipal waste.

1. Flushing the internal surfaces of the container three times with a solvent containing less than 50 ppm PCBs.

2. The solubility of PCBs in the solvent must be five percent or more by weight, solvents such as kerosene, or diesel fuel can be used.

3. Each rinse shall use a volume of the normal diluent equal to approximately ten (10) percent of the PCB Container capacity.

4. The solvent shall be disposed of in accordance with requirements of Chapter 17.C. or 17.D. of this Instruction, and any non - liquid PCB material resulting from the decontamination shall be disposed in accordance with Chapter 17.D..

C. Hydraulic Systems. Hydraulic systems that contain hydraulic fluids with concentrations more than 500 ppm PCBs must be drained and then flushed with a solvent. The hydraulic fluid and solvent must be disposed of in accordance with 17.C. and 17.D. depending on the liquid PCB concentration. After decontamination, the equipment can be salvaged or disposed of in a municipal (sanitary) landfill.

D. Solvents. Solvents used for decontamination, such as toluene, and xylene, are toxic and flammable. Therefore, extreme care shall be used when handling them. Precautionary measures shall be taken to ensure that the solvent safety and health standards as required by the Occupational Safety and Health Act are followed. It is recommended that less hazardous solvents such as stoddard, kerosene or diesel fuel be used.

CHAPTER 19. PCB STORAGE

A. Temporary Storage.

1. Low concentration PCB liquids (50 to 500 ppm) can be temporarily stored up to 30 days. However, all temporary storage areas must have a Spill Prevention Control and Countermeasure Plan (SPCCP). Enclosure (9) is a completed format of a SPCCP.

2. Non-liquid PCB wastes, non - leaking PCB Articles, and approved PCB Containers containing leaking PCB Articles can be stored up to 30 days.

B. Long Term Storage (over 30 days).

1. "It is Coast Guard policy that no Coast Guard facility shall be used for the storage (more than 30 days) of PCB containers, PCB articles or PCB items designated for disposal. Waiver requests from this requirement shall be submitted to Commandant (G-CCS) for approval." If a waiver is granted the following must be complied with: PCB Containers, PCB Articles, and PCB Items shall be stored in accordance with Enclosure (7). All long term storage facilities must have a Spill Prevention Control and Countermeasure Plan. Enclosure (9) is a completed format of a PCB Spill Prevention Control and countermeasure Plan and Enclosure (8) is a list of regulations which govern the disposal of PCBs, PCB Articles and PCB Containers.

A. Health Effects. Exposure to PCBs has been found to produce a variety of abnormal health effects including, but not limited to chloracne and other skin disorders, digestive disturbances, jaundice, impotence, throat and respiratory irritations and severe headaches. In addition, PCBs have been linked with the production of cancer. Many of the solvents mixed with PCBs in transformers and capacitors have an anesthetic effect as well as the potential to cause damage to the liver, the kidneys and the heart upon overexposure.

B. Routes of Exposure. Harmful exposure most commonly result from the inhalation of PCBs or their solvent mixtures. The potential danger is increased greatly if these materials are heated or atomized as in spraying. PCB exposure can also occur through hand to mouth contact. Skin contact with PCBs can lead to some of the skin problems described above, while skin contact with the solvents can cause dermatitis.

C. Exposure Standard. The Coast Guard occupational health exposure standards range from 0.5 to 1.0 micrograms of PCB per cubic meter of air depending on the percentage of chlorine in the PCBs.

D. Protective clothing and Respiratory Devices. Protective clothing and an approved respiratory device must be used during any operation where workers may come in contact with material containing or suspected of containing PCBs or PCB solvent mixtures.

1. Protective clothing to be worn shall be impervious to PCBs and shall include coveralls, gloves, and shoe covers. Following such use, the clothing shall be regarded as PCB-Contaminated and disposal of in accordance with the requirements of Chapter 17.G.

2. The appropriate level of respiratory protection required for a particular operation can only be determined by an industrial hygiene survey prior to beginning the operation. When industrial hygiene assistance is not available or utilized, only the following types of NIOSH approved respiratory devices are authorized for use:

   a. A positive pressure self contained breathing apparatus with full face piece or;

   b. A type C continuous - flow supplied air respirator with full face piece.

E. Training. Coast Guard and contractor personnel required to handle PCB material shall receive training concerning potential health hazards associated with PCBs, routes of exposure, protective procedures required by this chapter and proper handling requirements contained elsewhere in this instruction.

U.S. Coast Guard Procured Electronic Items

A. Electronic Items Containing PCBs.

	Stock No.	MFG.	WT. of Eq. (lbs.)	Used In
1.	CG-5910-00-013-4600	GE	2	CAXE-ACR-7500MZ
2.	CG-5910-00-013-5518	GE	5	CAXE-ACR-7500MZ
3.	CG-5910-00-188-1440	GE	110	AM-701/FPN
4.	CG-5910-00-980-1851	GE	150	OA4483/FPN-45
5.	CG-5910-00-936-7895	GE	1	OA4483/FPN-44
6.	CG-5910-01-028-0757	GE	1	AN/FPN-45
7.	CG-5910-00-088-2773	CORNELL DUBI	1	AN/FPN-45
8.	CG-5910-00-118-8216	CORNELL	5	AN/FPN-45
9.	CG- 5910-00-900-1612	CORNELL DUBI	12	AN/FPN-44,45,44A
10.	CG-5910-00-755-6528	AXEL ELEC	50	AN/FPN-39LRE
11.	CG-5910-00-109-3237	SPAAGUE	42	AN/FRT-79

B. Electronic Items Suspected of Containing PCBs.

1.	CG-5950-00-101-2571	GE	2280	AN/FRT-39
2.	CG-5950-00-932-3089	GE	3850	AN/FPN-44,45,46
3.	CG-5950-00-932-3090	GE	3250	AN/FPN-44,45
4.	CG-5950-00-283-8639	GE	3850	AN/FPM-45

Possible U.S. Coast Guard Procured Electronic Items obtained thru Navy Supply System (PCB Item Update

A. Federal Stock Catalog 5910. Large high voltage capacitors identified as containing 3 lbs. or more of Polychlorinated Byphenyls (PCB oils and operating at 200) volts A.C. or more:

NSN	P/N	NSN	P/N
5910-00-027-0825#	.51F221AC	5910-00-614-4421	14F396
5910-00-050-7636#	14F736	5910-00-626-2342	14F1410
5910-00-062-5683	18F75G2/4/2/15C	5910-00-666-7389	1K70004P0-KM10PC
5910-00-070-4730	TKC107	5910-00-679-2007	1KB168
5910-00-078-6844	14F1342	5910-00-686-8757	P20J227
5910-00-083-8515#	23F1081G202	5910-00-781-3153	17F35
5910-00-112-6808	1K15030	5910-00-814-3157	17F198G3
5910-00-113-9966#	102013/6201	5910-00-834-6211	710601
5910-00-113-9967#	102013/6204	5910-00-837-5188	930/P712/-00
5910-00-116-2401	14F1411G102	5910-00-896-4183	18F58
5910-00-116-8691	14G1403G102	5910-00-901-1087	17F881K
5910-00-128-3233	14F680WGM746772	5910-00-904-8838	1K125W21
5910-00-161-6869	PC215171	5910-00-904-8839	P20J280
5910-00-166-8997	14F1368	5910-00-914-0493	1K150P5R
5910-00-187-4012	14F52	5910-00-922-8374#	19F142X8
5910-00-188-1447	TK20020	5910-00-923-8734	18F613
5910-00-198-9779	P20J/399	5910-00-939-4318	19F405
5910-00-235-8661	TK20020G	5910-00-950-9625	1K187
5910-00-254-2566	14F496	5910-00-961-6014	17F366
5910-00-265-2570	P20J296	5910-00-983-5209	14F1055
5910-00-465-2278#	TKM100W15	5910-00-984-6135	14F1011
5910-00-465-2282#	TKM200W5	5910-00-999-2414#	14F1056G#
5910-00-466-2246#	TKM250W5P5	_	_
5910-00-472-4476	11227153	_	_
5910-00-476-6656#	TKB187	_	_
5910-00-487-7567	17F470	5910-01-005-1950	14F1467
5910-00-491-2597	14F1359G2	5910-01-026-5791	14F1515
5910-00-552-8859	P20J299	5910-01-028-3278	148210
5910-00-610-2523	14F668G2	5910-01-029-6378	1461517G2

SC. 5910 large low voltage capacitors identified as containing 3 lbs. or more of PCB oils and operating at less than 2000 volts A.C.:

FSN	P/N	NSN	P/N
5910-00-350-1997	702013/3107	5910-00-552-0336	18F74

Items not DFSC managed.

B. FSC 5915. Filter/Networks identifies as containing more than 3 lbs. of PCBs:

FSN	P/N	NSN	P/N
5915-00-021-8796	GFP6425-4X30B	5915-00-478-0947	GF6425-3X-300
5915-00-036-9053	FSRG2584	5915-00-831-8967	FSRX100B3N
5915-00-192-2676##	___	5910-00-831-8967	FSRW5082
5915-00-192-2876##	___	5915-00-922-9143	FSRW5083
5915-00-473-2104	GF6425-3X500	5915-00-922-9145	FSRW5083N
5915-00-473-2106	GF6425-2X200DGN	5915-00-922-9146	FSRW5084
5915-00-473-2110	GF6425-4X500	5915-00-922-9148	FSRW10084
5915-00-473-2111	GF6425-3X1000	5915-00-922-9149	FSWR15084
5915-00-473-2112	GF6425-4X100D	5915-00-943-8530	FSWR20083N
5915-00-473-2113	GF6425-3X200DGN	5910-00-944-7670	FSRW2582
5915-00-473-2116	GF6425-300GN	5915-00-947-0447	FSRW2583
5915-00-473-2125	GF6425-2X300	5915-00-947-0448	FSRW2584
5915-00-473-2126	GF6425-4X300	5915-00-034-3349	FSR/W10083N

Volume Unknown (may be less than 3 lbs. PCBs).

C. FSC 5950. Transformers/reactors identified as containing PCBs; quantity unknown:

FSN	P/N	NSN	P/N
5950-00-073-5094	___	5950-00-645-4860	___
5950-00-080-3037	___	5959-00-645-5022	___
5950-00-138-4937	___	5950-00-645-5319	___
5950-00-188-4159	___	5950-00-646-2155	___
5950-00-243-6479	___	5950-00-647-6674	___
5950-00-249-1615	___	5950-00-648-3754	___
5950-00-256-8754	___	5950-00-681-1832	___
5950-00-295-7504	___	5950-00-728-0858	___
5950-00-295-7535	___	5950-00-735-9108	___
5950-00-295-7642	___	5950-00-778-7322	___
5950-00-349-0508	___	5950-00-779-0047	___
5950-00-409-7368	___	5950-00-784-6078	___
5950-00-420-3536	___	5950-00-787-0221	___
5950-00-433-5456	___	5950-00-795-2689	___
5950-00-448-5634	___	5950-00-808-4417	___
5950-00-470-1429	___	5950-00-815-6691	___
5950-00-509-8456	___	5959-00-818-3216	___
5950-00-510-4657	___	5950-00-833-8058	___
5950-00-532-1179	___	5950-00-841-4385	___
5950-00-538-2249	___	5950-00-853-0696	___
5950-00-538-6691	___	5950-00-897-9685	___
5950-00-556-9773	___	5950-00-944-1747	___
5950-00-561-6733	___	5950-00-952-1683	___
5950-00-577-9288	___	5950-00-972-3458	___

Note: The PCB transformers above are hermetically sealed units.

Marking

The Following formats shall be used for marking:

(a) Large PCB Mark-ML. Mark ML 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-Ms. Mark Ms 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).

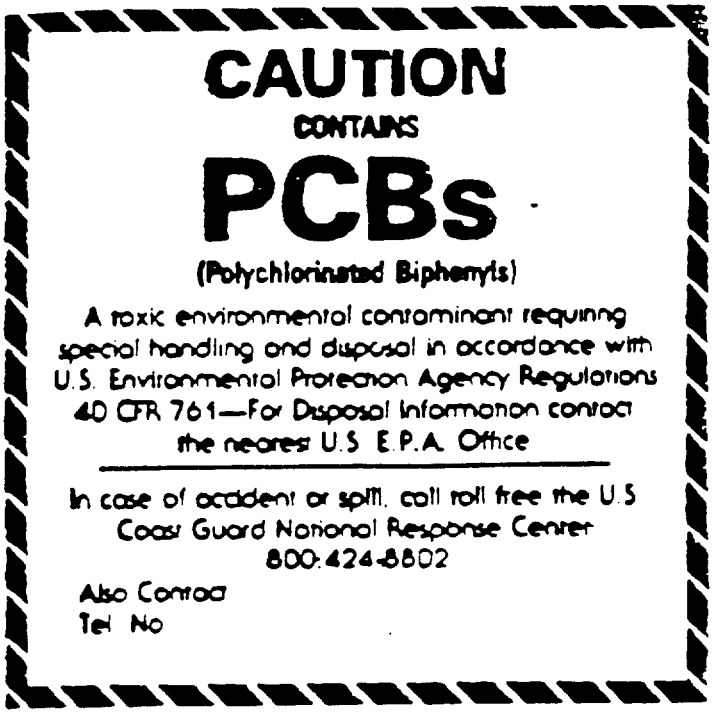


Figure 1

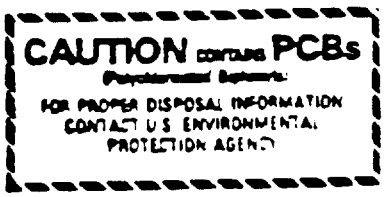


Figure 2

Records

(a) PCBs and PCB Items in service or projected for disposal. Beginning 2 July 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 1 July 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 conatined in the transformers; and

(iii) Total number of PCB Large High or Low Voltage pacitors.

Records (Cont'd) (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 1 July 1979, and each 1 July thereafter prepare and maintain a document that includes the information required in subparagraphs (1) thru (2) 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 EPA. 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 they 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 requirement 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.

Calculations for PCBs in Capacitors and Transformers

1. PCB Data:

   a. Weight 12 lbs./gal. or 3 lbs./qt.

   b. 7.48 gals./cu.ft. or .017 qts./cu.in.

   c. 89.8 lbs./cu.ft or .052 lbs./cu. in.

   d. .455 (lbs.) = Kilograms (Kgs)

2. Assumptions:

   a. 40% of the volume of a capacitor is PCBs.

   b. 50% of the volume of a transformer is PCBs.

3. Formulas:

   a. Cylinder: V(cu.ft.) = (3.14) (R)(R)(H)

   b. Rectangle/Square: V (cu.ft.) = (L)(H)(W)

   c. Capacitor:

      (1) Cylinder: V (PCBs in Kgs)= (3.14) (R)(R)(H)(40%) (.052 lbs./cu.in.)(.455 Kg.lb)

      (2) Rectangle/Square: V (PCBs in Kgs)=LWH (.50)(.052 llbs./ cu.in.) (.455 Kg/lb.)

4. Examples:

   a. Capacitor: (cylinder 6" diameter and 20" height)
      V (PCBs in Kgs)= (3.14)(3)(3)(20)(.4)(.052).455)
      V = 3.14(9)(20)(.4)(.052)(.455)
      V = 5.369
      V = 5.4 Kgs or PCBs

   b. Since the above capacitor contains more than 1.36 Kgs of PCBs, it has to be labeled and a record of it maintained.

   c. Transformer: (Rectangle 10" long x 15" wide x 20" high)
      V (PCBs in Kgs) = (10)(15)(20)(.5)(.052)(.455)
      V = 35.49
      V = 35.5 Kgs of PCBs

   d. All transformers containing PCBs must be labeled and records of them maintained.

PCB INVENTORY RECORD

In Service						Storage				Transfer			Disposal		
PCB Item	Total No.	Total Liquid Wt. PCBs (Kg)	Identification Each Item	Location	Status	PCB Label	Date	Liquid PCB Wt. (Kg)	Location	PCB Label	Date Shipped	Liquid PCB Wt. (Kg)	Co. Name & Address Driver's Name	Date Rec'd	Total Liquid PCB Wt. (Kg)	Co. Name & Address
Transformer	5	290 600	Mfg., Stock No.	Base Kodiak	4 on Line	Yes	6/9/80	180	Base Kodiak	Yes	7/6/80	180	Brown Transfer's Co. 20 Muer St., Juneau, Alaska Mr. Tom Jones	7/14/80		Chem-Nuclear Systems, Inc. P.O. Box 1249 Portland, Oregon, 97205 -
Capacitors	10	150 80	Mfg., Stock No.	"	5 on Line 10 stock	No	6/9/80	20	"	Yes	7/9/80	20	"			Site is in Arlington, Oregon Mr. Jon Smith
Capacitors	5	200 160	Mfg., Stock No.	"	4 on Line 1 stock	No	6/9/80	40	"	Yes	7/9/80	40	"		1900	
Containers	6	300 250			0 stock	Yes	5/7/80	40 + various contaminated rags etc. In seperate container	"	Yes	7/9/80	40 + Container PCB solid waste	"			
AN/FPN-63	3	4950 3300	Mfg., Stock No.	Juneau, Alaska	2 on Line stock	Yes	6/15/80	(1) Transformer 1800 3 capacitors	Juneau, AK	Yes	7/11/80	1950				

STORAGE FOR DISPOSAL

(a) Any PCB Article or PCB Container stored for disposal before 1 January 1983, shall be removed from storage and disposed of as required by 40 CFR Part 761 before 1 January 1984. Any PCB Article or PCB Container stored for disposal after 1 January 1983 shall be removed from storage and disposed of as required by 40 CFR 761.10 within one year from the date when it was first placed into storage.

(b) Except as provided in paragraph (c) of this section, after 1 July 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 continous 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 continous smooth and impervous 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 evaluation.

(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 absorbent materials to absorb any liquid 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 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 1 January 1983. PCB-Contaminated Transformers that have been drained of free flowing dielectric fluid are not subject to the storage provisions of 40 CFR 761.42. 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 40 CFR 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 absorbents or other adequate materials and residues shall be disposed of in accordance with 40 CFR 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 (Sec. 178.365) or 2SL(Sec. 178. 35a) polyethylene containers) or (Sec. 178.116 Specification 17E container).

(6) (Cont'd) 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 containers are oils as defined by section 311 of the Clean Water Act (CWA).

(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 40 CFR 761.45.

REGULATIONS WHICH GOVERN THE DISPOSAL OF OUT-OF-SERVICE PCBs

Applicability	Disposal Option			Permitted Activity				
	Incineration	Approved Chemical Waste Landfill	Alternative (Waiver Provision)	As Per Annex I Incineration	As Per Annex II: Chemical Waste Landfill	As Per Annex III: Storage for Disposal	As Per Annex IV: Decontamination	Comments
PCB chemical substances	X			X		X		
PCB liquids	X			X		X		
PCB contaminated liquids		X		X	X			Can be landfilled if not ignitable.
PCB solids								
Contaminated soil and debris resulting from a spill or as excavation material taken from an old disposal site.	X			X		X		
		X			X	X		
Other								
Contaminated soil, rags, debris	X			X		X		
		X			X	X		
Dredge spoils	X			X		X		
		X			X	X		
			X			X		Upon application to the EPA Regional Administrator, by a disposal method to be determined by the Administrator.

PCB SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

Facility PCB SPCC PLANS

PCB Spill Prevention Control and Countermeasure (SPCC) Plan* for:

Facility name & location: Support Center Kodiak, Alaska

District office & location: Seventeenth Coast Guard District

P.O. Box 3-5000 Juneau, AK 99802
(city) (state) (zip code)

Date of preparation 1 April 1980

A. MANAGEMENT APPROVAL
This PCB SPCC Plan will be implemented as herein described.

SIGNATURE A. R. SMITH, CAPT, USCG

NAME Adam Ray Smith
(print)

TITLE Commander, Support Center Kodiak

B. CERTIFICATION

I hereby certify that I have examined the facility PCB SPCC Plan, and being familiar with the provisions of 40 CFR, Parts 112.7 and 151.7 attest that this PCB ECC Plan has been prepared in accordance with good engineering practicies. (Section 112.3 (d) and 151.3 (d).

Jim Jones
Printed Name of Registered
Professional
Engineer

Jim Jones
Signature of Registered
Professional
Engineer
(seal) Registration No.
240State AK

Date signed 21 April 1980

*Prior to completing forms or reviewing plans, refer to accompanying instructions and regulations.

C. CONFORMANCE

Describe present facility conformance with SPCC Regulations governing PCBs.

The Support Center Kodiak, AK, is in complete conformance with 40 CFR 112 as dictated by the Final PCB Use Ban Regulation 40 CFR 761 as found in the 31 May 1979 Federal Register.

D. PLAN LOCATION

This plan must be located in the field office nearest the largest utility storage area and indicate the facility employee responsible for PCB operations:

Responsible Employee: Maintenance Supervisor

Plan Location: Central Power Plant

E. RECORDS AND INSPECTIONS

1. Describe all PCB related records kept and their location. This must include inspection records as well as records of PCB transfers.

PCBs and PCB Items inservice or projected for disposal inventory; storage transfers; storage inventory. These records include weights, location, dates, total numbers and all other required information as dictated by the Final PCB Use Ban Regulation 40 CFR 761.45 (Annex VI).

E. RECORDS AND INSPECTIONS (cont.)

2. Regular inspections of PCB storage areas, containers, and their respective Spill prevention apparatus will be conducted as follows:
Inspections are completed on a monthly basis for storage areas by personnel familiar with PCB procedures. All other line equipment is inspected at least monthly by service crews and/or operations personnel. Items are checked for both primary and secondary containment integrity spill potential and presence of previously undetected leakage.

F. STORAGE

1. Describe storage facilities presently in use. Indicate facilities for (a) storage for disposal, and (b) storage for PCBs prior to use.
The storage facility for disposal is a 15m x 11m corrogated aluminum shed with 30 cm containment dikes and an impervious cement floor devoid of expansion joints, drains, valves, etc. The facility door is locked at all times. (figure 1)

2. Describe the design of containment or diversionary devices presently in use for largest PCB storage areas:
- 30 cm containment dike for storage shed
- Imbiber bead columns on all outdoor drains within 30m of the storage shed.

F. STORAGE (cont.)

3. Describe any improvements planned for these facilities, their containment provisions, inspection procedures or other changes that will contribute to a more effective PCB Spill Prevention and Control Policy:
No improvements planned. Support Center Kodiak installed imbiber bead columns on the drainage inlets within 30m of the storage shed. These are designed to prevent PCB spill release to the sewer system.

G. FACILITY DRAINAGE
Sketch storage area drainage, drainage controls, and nearby waterways on the following page for reference in this section.
(If Drainage Controls in the form of Secondary Containment are completely impractical, refer to Section L.)

1. Drainage from diked areas is controlled as follows *(include operating description of valves, pumps, ejectors, etc.):*
Most leaks within the storage area will not need draining and rainwater is not a factor. Therefore, solvents and sorbents are primarily used in cleanup operations. There are no drains within the PCB storage facility. (Figure 2 and 3).

2. Drainage from undiked areas is controlled as follows *(include description of catchment basins and other methods of retaining, and/or returning PCBs to facility):*
No undiked areas or outside storage.

SKETCH OF FACILITY DRAINAGE
IN RELATION TO PCB STORAGE AREAS

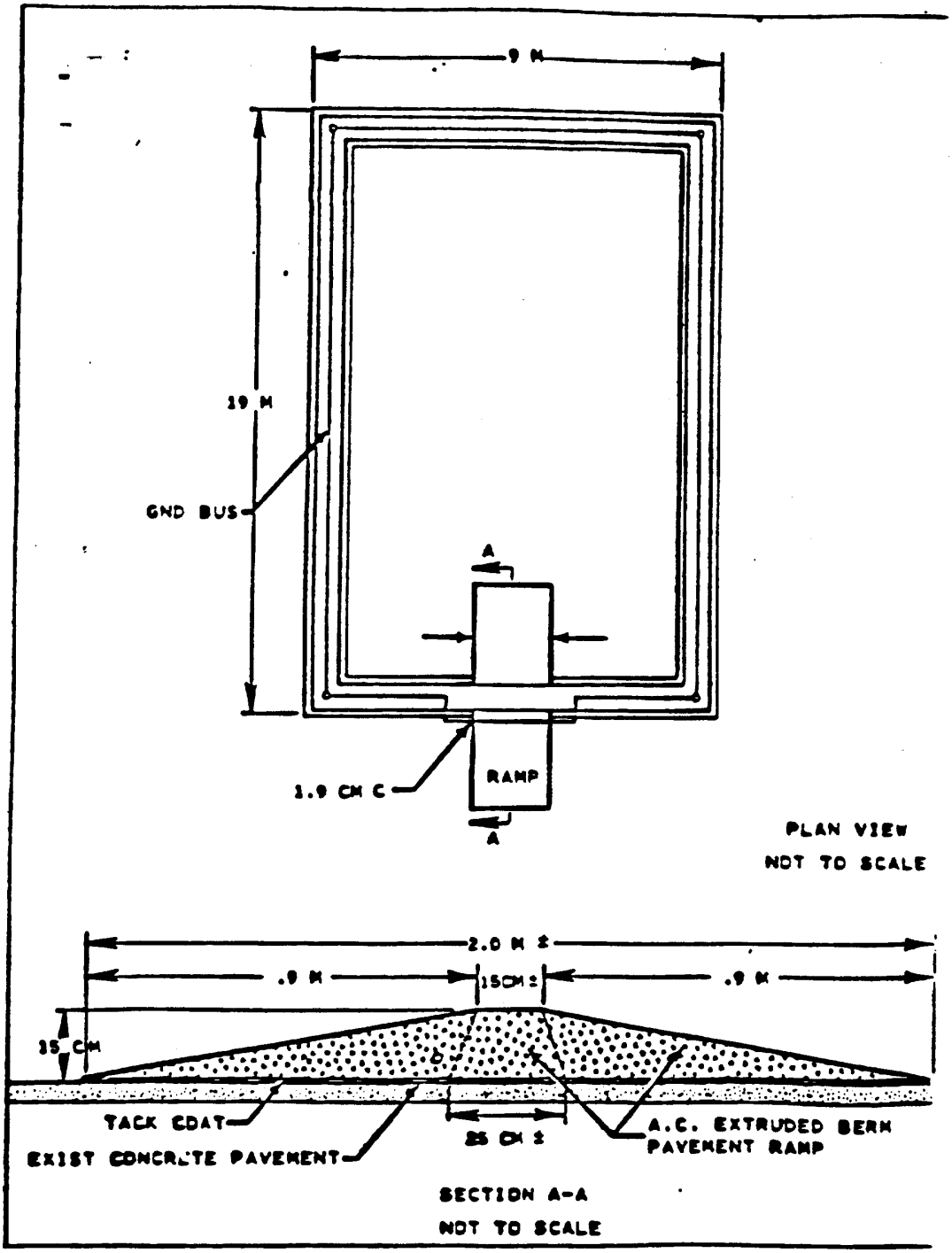


Figure 1 Example of Recommended Drainage Control at PCB Storage Site

SKETCH OF FACILITY DRAINAGE
IN RELATION TO PCB STORAGE AREAS

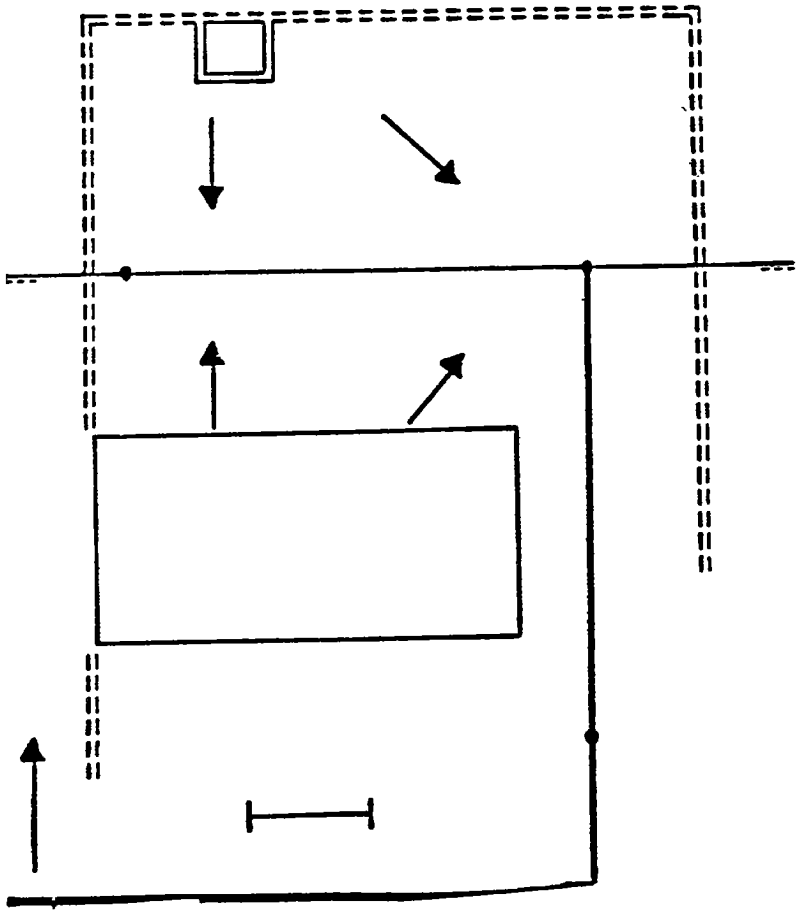
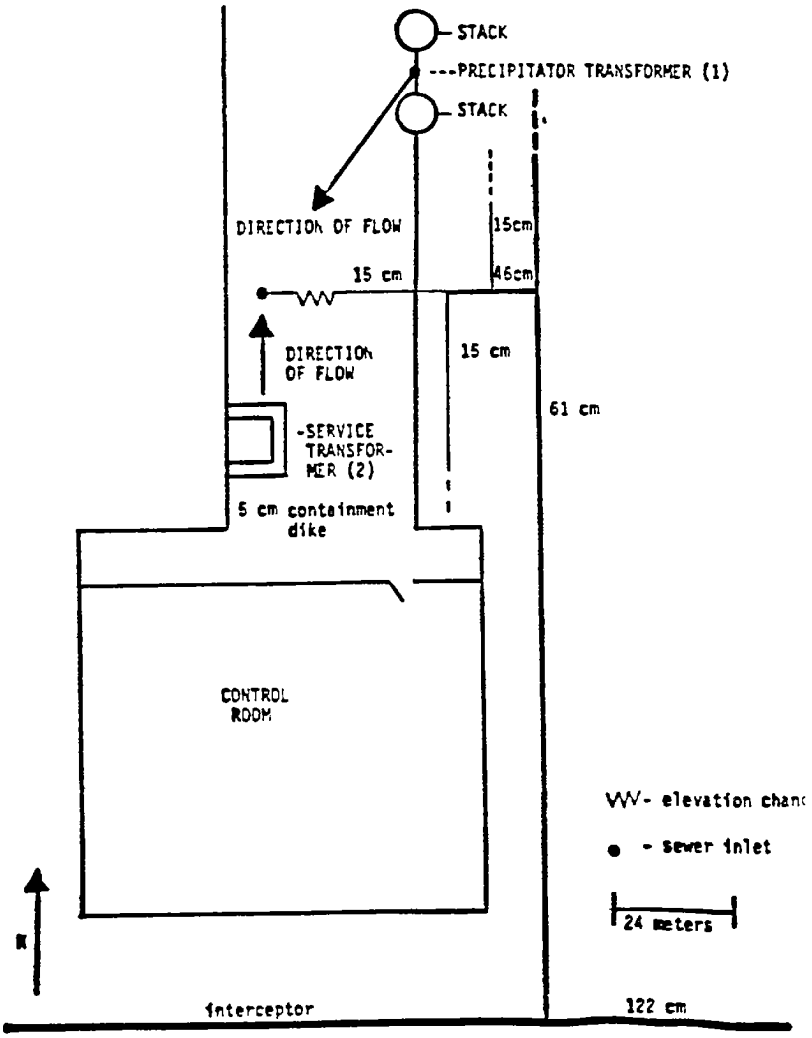


Figure 2

16 NOV 1981

SKETCH OF FACILITY DRAINAGE
IN RELATION TO PCB EQUIPMENT



:

Figure 3

H. OCCUPATIONAL HEALTH PROTECTION REQUIREMENTS.

1. Health Effects. Exposure to PCBs has been found to produce a variety of abnormal health effects including, but not limited to chloracne and other skin disorders, digestive disturbances, jaundice, impotence, throat and respiratory irritations and severe headaches. In addition, PCBs have been linked with the production of cancer. Many of the solvents mixed with PCBs in transformers and capacitors have an anesthetic effect as well as the potential to cause damage to the liver, the kidneys and the heart upon overexposure.

2. Routes of Exposure. Harmful exposure most commonly result from the inhalation of PCBs or their solvent mixtures. The potential danger is increased greatly if these materials are heated or atomized as in spraying. PCB exposure can also occur through hand to mouth contact. Skin contact with PCBs can lead to some of the skin problems described above, while skin contact with the solvents can cause dermatitis.

3. Exposure Standard. The Coast Guard occupational health exposure standards ranges from 0.5 to 1.0 micrograms of PCB per cubic meter of air depending on the percentage of chlorine in the PCBs.

4. Protective Clothing and Respiratory Devices. Protective clothing and an approved respiratory device must be used during any operation where workers may come in contact with material containing or suspected of containing PCBs or PCB solvent mixtures.

   a. Protective clothing to be worn shall be impervious to PCBs and shall include coveralls, gloves, and shoe covers. Following such use, the clothing shall be regarded as PCB-Contaminated and disposed of in accordance with the requirements of Chapter 17.G..

   c. The appropriate level of respiratory protection required for a particular operation can only be determined by an industrial hygiene survey prior to beginning the operation. When industrial hygiene assistance is not available or utilized, only the following types of NIOSH approved respiratory devices are authorized for use:

      (1) A positive pressure self contained breathing apparatus with full face piece or;

      (2) A type C continous - flow supplied air respirator with full face piece.

5. Training. Coast Guard and contractor personnel required to handle PCB material shall receive training concerning potential health hazards associated with PCBs, routes of exposure, protective procedures required by this chapter and proper handling requirements contained elsewhere in this instruction.

I. SECURITY

Those areas used for storing PCBs, PCB materials, PCB containers are to be provided with adequate security so as to prevent PCB releases due to vandalism or accidental release.

1. Describe utility provisions for each of the following:

a. Fancing: 9' Hercules fence surrounding PCB storage area.

b. Lighting: The entire area can be lighted with flood, lights and ample explosion proof lighting is also provided inside the PCB storage area.

c. Traffic Control: Not necessary, as the storage facility is isolated from most base traffic.

d. Locked Security of Storage Areas: The storage shed has a locking door and the Hercules fence is also padlocked; keys to these locks are in the possession of the Maintenance Supervisor and Security Guard.

J. TRANSPORTATION

1. Describe prearranged plans for transporting PCB-articles and/or fluids:
Transport of capacitors and transformers to field location is done by repair or line crewmen advised or property transport procedures. Transformers are delivered to the base by manufactuers. All PCB Articles or contaminated debris for disposal are transported by Chemical Waste Disposal Inc (Contractor).

_____
_____

a. Title of utility official responsible for PCB transport arrangements:
Maintenance Supervisor Phone # 472-1936

b. Title of utility official to be notified in event of transportation-related spill:
Commander Phone # 472-2121

2. Describe loading and unloading procedures for PCB articles, containers, and/or fluids:
Load and unload away from drains, treating drums, and other PCB materials as fragile. Warn or divert traffic. Report any leaking materials.

3. Describe precautions taken by utility carriers and/or demanded of contracted carriers to prevent and deal with PCB spills during transportation:
Load and unload away from drains, review notification procedures to be followed in the event of a spill, property label all waste containers. Keep records of all shipments, inspect vehicle and provide special instructions in writing, at destination Report any leaking materials immediately.

K. TRAINING PROCEDURES

1. Indicate whether personnel are properly instructed in the following:

   (a) Operation of equipment to prevent PCB releases:
   Yes

   (b) Their responsibilities in the notification process:
   Yes

   (c) Applicable pollution control rules and regulations:
   Yes

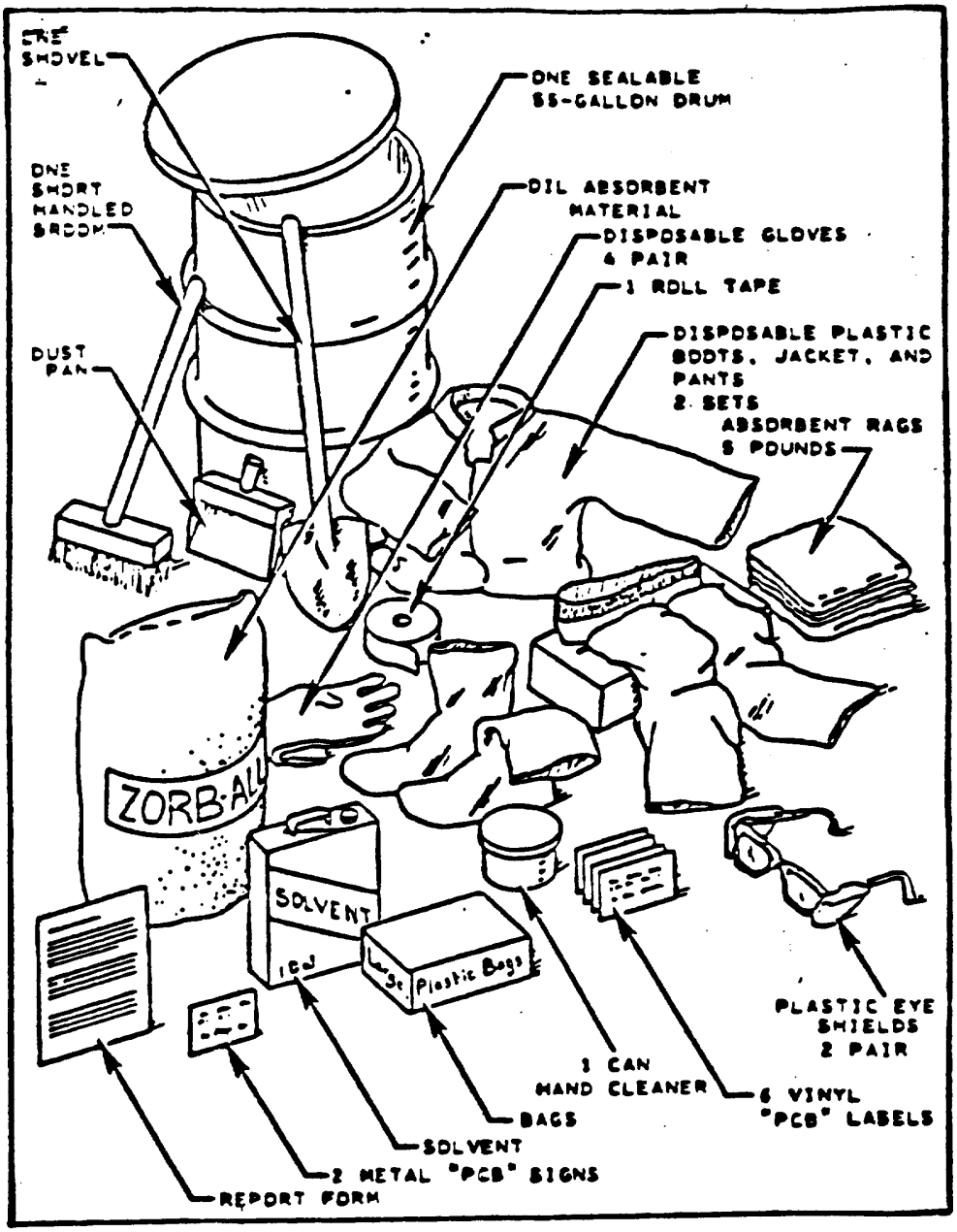
   (d) Operation of equipment used in PCB spill cleanup:
   Yes

   (e) Inspection Procedures:
   Yes

2. The procedures employed in the process of instruction are as follows:
   Spill awareness drills conducted for employees associated with PCBs. Supervisors conduct hypothetical training test by using realistic amounts of water in a spill situation. After the exercise, a debriefing period follows to answer any questions or voice concerns. Employees are also orally tested after each exercise.

3. The above instruction is repeated as required by current regulations so as to insure complete understanding of the SPCC Plan:
   (YES) NO

16 NOV 1991



PCB Spill Cleanup Kit

Note: Clean up kit should include respiratory device (not pictured)

L. POTENTIAL SPILLS

Where there is a reasonable risk of a PCB Spill from storage structures or service equipment complete the following for each scenario.

Potential Spill Source	Location	Potential Cause of PCB Release	Total Quantity (liters)	Max. Dist. of Flow from Spill Origin	Direction of Flow	Closest Sewer/ Waterway
Capacitors Transformers Sorbents Cleanup Regulations Drums full of waste fluid.	In PCB Storage shed. Just North central power station	Poor Packaging of PCB material equipment. Defective containment vessels vandalism	Maximum 2,000 kg.	None contained in diked	-	46m

M. SPILL CONTINGENCY PLANNING

If containment devices or other diversion methods are clearly impractical, the following must be completed as replacements:

- A clear demonstration of why containment practices are impractical for a particular utility facility

- Oil Spill Contingency Plan (Items 2-6).
- A written committment of manpower, equipment and materials required to control and remove PCB Spills *(Items 6, 7)*.

1. Demonstrate beyond reasonable doubt why containment or diversionary procedures are impractical for this facility: Although the completion of a spill contigency plan is not required since the Support Center has provided containment for potential PCB spill situations, the Support Center recognizes the importance of the information contained in this section. Therefore, the spill contingency plan has been completed in full, to further the Support Center's spill prevention control and countermeasure capabilities.

Encl. (9) to COMDTINST M16478.2

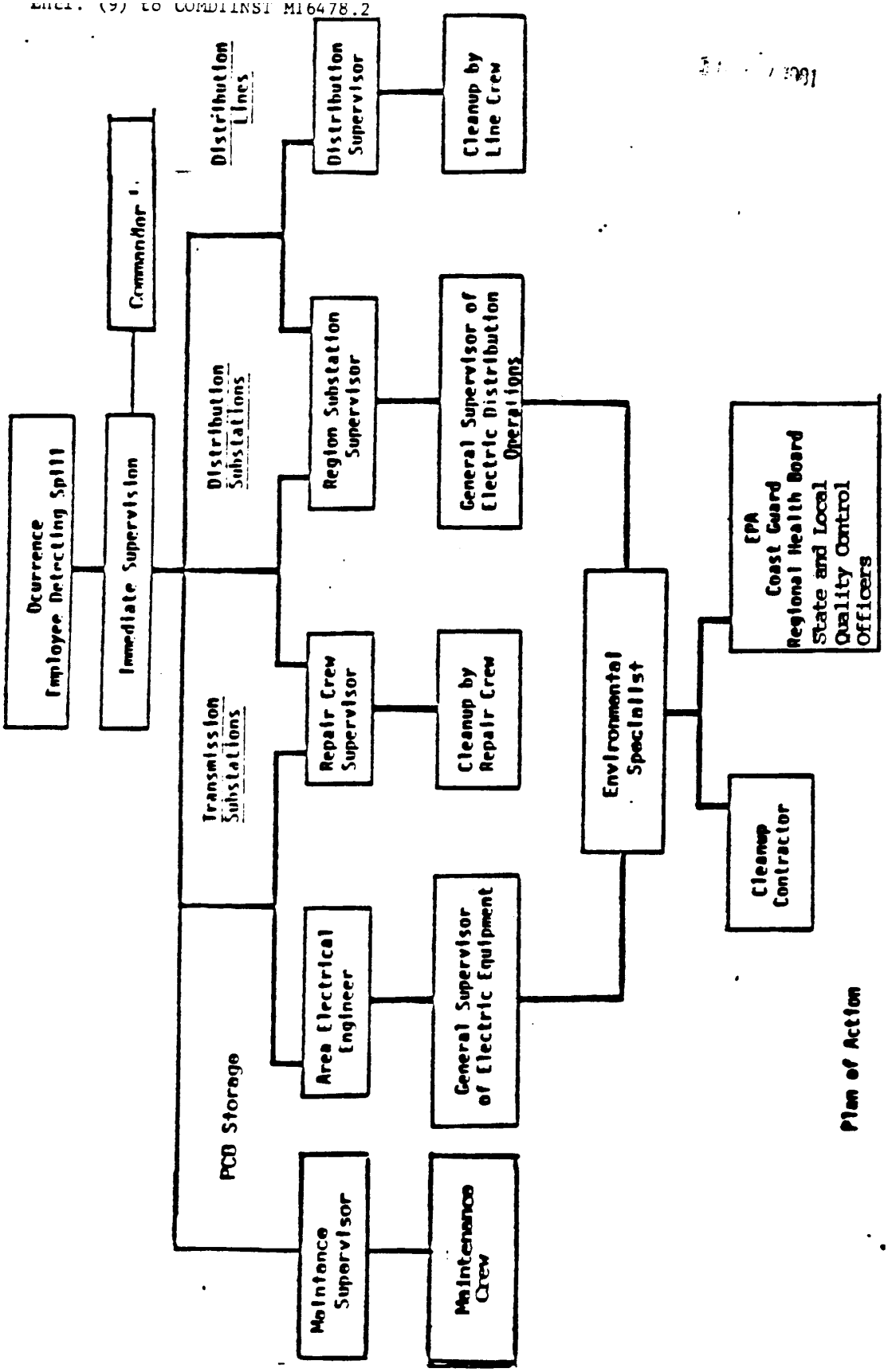


Figure 4

M. SPILL CONTINGENCY PLANNING (cont.)

2. Describe general plan of action upon receiving notification of a PCB spill. Cite specific responsibilities of central utility officials as well as provisions for notifying the U.S. Coast Guard, The Regional EPA Emergency Response Center, and state and local pollution control authorities in the event of a major spill.

The Support Center plan of action is shown on (Figure 4). Any employee detecting a spill reports to the immediate supervisor, who in turn contacts the appropriate engineer or supervisor. A cleanup crew is then dispatched to the PCB spill site. If a spill escapes the usual containment measures and reaches water resources, or if the spill is greater than 20 gallons, the Regional Environmental Protection Agency (Phone No.), the U.S. Coast Guard (800-424-8802), Chemical Waste Disposal, Inc (Phone No.) and the State Water Quality Control Division (Phone No.) offices will be contacted for assistance.

M. SPILL CONTINGENCY PLANNING (cont.)

Cleanup Procedures:
Upon discovery of a PCB spill of any amount the following actions should be taken:
* Notify the Commander immediately giving the following information: Time of spill, location of the spill including type of terrain and nearest waters or drains. Estimated volume of spill, present and anticipated movement, type of cleanup operations and time initiated, effectiveness of cleanup operations, pertinent weather conditions. Persons on the scene and persons to contact for information, date, time, and personnel contacted at various agencies
* Dispatch fluid absorbent material, equipment, and personnel as needed to contain and cleanup the spill:
* Secure assistance from base force and general contractors if required:
* Prepare and submit a written report to Commander, Support Center as soon as possible after the spill not to exceed a 30 day period: - Amount of spill and type of device involved
- Existing weather conditions
- Measures taken to control the spill
* Take immediate measures to control and confine the spill by:
- Capping, plugging or otherwise stopping the leak, plus catching, containing and confining all PCBs.

_____
_____
_____
_____

M. SPILL CONTINGENCY PLANNING (cont.)

3. Describe all communication systems established on a 24-hour per day basis to permit expeditious notifications in the event of a PCB release.
- 4 two way field radios (40 km range)
- Each service truck is equipped with a two way radio (24 Km range).
- Phones are readily available at every building with the notification procedure posted nearby.

4. Describe general facility cleanup procedures. Indicate special methods for dealing with major spills into water bodies and sewer systems:
The Support Center maintains a contract with Chemical Waste Disposal, Inc. (Phone no.), for all spill response to augment in-house capabilities and manpower. Chemical Waste Disposal, Inc. equipment includes a specially outfitted truck, a portable dredge for recovering PCBs from shallow water sediments, life support equipment, oil containment booms, sorbents, and assorted speciality hand tools.

M. SPILL CONTINGENCY PLANNING (cont.)

5. Responsibility for any necessary follow up or written reports belongs to:
   Title:_____
   Office:_____

6. Indicate all personnel by title who are acquainted with PCB spill control and cleanup procedures and can be called upon in the event of a PCB spill anytime in a 24-hour period:

   Office Phone #_____
   Title_____
   Home Phone # _____
   Office Phone #_____
   Title_____
   Home Phone # _____
   Office Phone #_____
   Title_____
   Home Phone # _____
   Office Phone #_____
   Title_____
   Home Phone #

7. Itemize equipment and/or materials available for PCB Spill Control and cleanup and location(s) of such equipment. The Support Center maintains an outgoing service contract with Chemical Waste Disposal, Inc. to provide equipment used to contain and or cleanup spills. However, the Support Center provides the equipment at locations where PCBs are prevalent. The Support Center also has the following containment and cleanup equipment: - 400 feet of booms- Truck equipped with spill control equipment, etc.

   _____
   _____

N. SPILL HISTORY

Complete this form if a PCB spill has occurred before May 31, 1979:

Name and address of facility:_____
_____
Type of facility:_____

Title of official:_____
Date:_____ Volume:_____
Cause and Description of Spill:
_____
_____

Corrective action taken:
_____
_____
_____
_____
_____
_____

Plans for preventing recurrence:
_____
_____
_____
_____
_____
_____

PCB DISPOSAL

EPA APPROVED PCB LANDFILL SITES

EPA Region	Facility Location	Facility Type	Operating Agency/ Person to Contact	Comment
II	Model City, NY	Secure landfill	SCA Chemical Waste Services. Inc. Mr. S. Odojewski (716) 754-8231	Accepts only drained and flushed transformers no liquid PCB storage.
II	Niagara Falls, NY	Secure landfill	SECO Chemical Waste Systems, Inc. Mr. W. Pierre (716) 731-3281	Transformers must be drained and flushed. Have a landfill in Ohio.
IV	Sumter Co., Al	Landfill	Waste Management of of Alabama Mr. A. Meoy (205) 652-9531	Will handle all PCB waste.
IX	Casmalia, CA	Landfill	Casmalia Disposal Mr. K.H. Hunter, Jr. (805) 969-4703	Accepts only drained and flushed transformers.
X	Grand View, ID	Missile silos	Wes-Con, Inc. Mr. G. Rinebold (208) 834-2275	Accepts only drained and flushed transformers.
X	Arlington, OR	Landfill	Chem-Nuclear Systems, Inc. Mr. F. Dement (503) 223-1912	Will not accept PCB from East of the Rockies.
IX	Beatty, NV	Landfill	Nuclear Engineering Co. Mr. Steve Carpenter (702) 426-7160	Accepts only drained and flushed transformers.

Encl. (10) to CONTINST M16478.2

Encl. (10) to COMDTINST M16478.2

16 NOV 1981

PCB Service Companies

Company	Address	Contact/Telephone	Services
1. Transformer Services Inc.	P.O. Box 2144 Akron, Ohio 44309	Mr. Al Sawan	Clean-up, removal, storage and disposal
2. High Voltage	7200 Industrial Park Blvd. Mentor, Ohio	Mr. Gerald Bydash (216) 951-2706	Clean-up, removal, storage and disposal
3. Holly Electric Corporation	555 Noth Ellis Rd. Jacksonville, FL 32205	Mr. Garry King (904) 783-3700	Clean-up, removal, storage and disposal
4. Secos, Inc.	2001 C Greentree Executive Campus Route 73 Marlton, NJ 08053	Mr. John Perone	Clean-up, removal, storage and disposal
5. Waste Management Inc.	2131 Kingston Court S.E. Suite 112 Marietta, GA 30067	Mr. Al McCoy (800) 141-7829	Clean-up, removal, storage and disposal
6. General Electric Co.	777 14th ST. N.W. Washington, D.C. 20005	Mr. Richard Hopkins (202) 637-4359	Clean-up, removal, storage and disposal

Listed sources are not all inclusive and in no way is this list intended to waive prevailing regulations regarding competitive procurement. However, any unnamed source desiring to submit a proposal must clearly demonstrate its ability to comply with the specification.

2

Listed sources are not all inclusive and in no way is this list intended to waive prevailing regulations regarding competitive procurement. However, any unnamed source desiring to submit a proposal must clearly demonstrate its ability to comply with the specification.

PCB Protective Equipment Suppliers

1. Disposable coverable that is impervious to PCBs with zip front and attached non-skid shoes.

Product Identification	Source
574 Tyvek	MELCO 6603 Governor Printz Blvd. Wilmington, DE 19809 Tel: 800-441-9749
2120Z with attached 2200 shoe cover	DURAFAB P.O. Box 658 Cleburne, TX 76031 Tel: 800-433-1824

2. Protective neoprene type glove can be purchased from any local supplier of safety equipment.

3. Respirators, NIOSH approved full facepiece self contained breathing apparatus or full facepiece Type C continuous flow supplied air respirator, can be purchased from any supplier of safety equipment. Listed sources are not all inclusive and in no way is this list intended to waive prevailing regulations regarding competitive procurement. However, any unnamed source desiring to submit a proposal must clearly demonstrate its ability to comply with the specification.