



UNITED STATES MARINE CORPS

MARINE CORPS BASE
QUANTICO, VIRGINIA 221344001

MCBO 6280.3
C 042/K
26 Jan 93

MARINE CORPS BASE ORDER 6280.3

From: Commanding General
To: Distribution List

Subj: POLYCHLORINATED BIPHENYL (PCB) MANAGEMENT

Ref: (a) **MCO P5090.2**
(b) MCCDCO 6280.1
(c) NEESA PCB Management Plan of Oct 89
(d) MCCDCO **P6240.4**
(e) MCCDCO **P5100.1A**
(f) **DoDINST 4160.21M**

Encl: (1) Definitions
(2) PCB Management Duties/Task Assignments
(3) Prohibited PCB Transformers
(4) Inventory Procedures
(5) Inventory Data Collection Form
(6) Recordkeeping Requirements
(7) Summary of Federal Recordkeeping Requirements for **PCB's**
(8) Yearly PCB Summary
(9) Storage Area Log
(10) Compliance Checklist
(11) Inspection Requirements (Daily/Quarterly/Annual)
(12) Spill Prevention, Control, and Countermeasures
(13) Spill Report Form
(14) Spill Cleanup Policy
(15) PCB Spill Cleanup Concentration Levels
(16) PCB Spill Notification
(17) Training Requirements
(18) Occupational Safety and Health Administration (OSHA) Guidelines

1. Purpose. To establish policy and procedures for the proper identification, marking, handling, storage, disposal, and **record-**keeping related to polychlorinated biphenyl (PCB) equipment in a manner that protects both human health and the environment.

2. Background

a. Marine Corps Combat Development Command (MCCDC) utilizes an electrical distribution system that has a number of old transformers that contain **PCB's**. This substance is one of a group of toxic chemicals belonging to the chlorinated hydrocarbon family. The physical and chemical properties of **PCB's** include high capacity for heat, low flammability, high stability, low vapor pressure, and low electrical conductivity. Because of these qualities, **PCB's**

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have been used extensively as insulators and coolants in electrical equipment. **PCB's** have been used primarily in electrical transformers, especially in and around buildings where a danger of fire exists. However, PCB's have also been used in capacitors, fluorescent light ballasts, electrical appliances, and motors. To a lesser extent, they have also been used in paints, adhesives, caulking compounds, plasticizers, lubricants, hydraulic and heat transfer systems, carbonless copy paper, sealants, coatings, and dust control agents. Various manufacturers have used PCB's under different trade names. Some of the most common trade names are: Arochlor, Askarel, Chlorinol, Inerteen, and Pyranol.

b. In 1976, Congress passed the Toxic Substance Control Act (**TSCA**), PL 94-469) and specifically directed the Environmental **Protection** Agency (EPA) to develop regulations regarding the manufacture, processing, distribution in commerce, use and disposal of PCB's. Congress took this action because it believed that the chemical and toxicological properties of PCB's were such that their continued use would pose significant risk to public health and the environment. EPA's concern was based on investigations that identified potential health problems resulting from exposure to PCB's. PCB's can cause irritation to eyes, skin and lungs from contact and it is suspected that PCB's may cause cancer. To date, there is insufficient evidence to prove PCB's cause cancer in humans. However, because PCB's are very stable and are very slow to break down (degrade), PCB's accumulate in the environment and in human fat tissue. Based on the possible health effects and the knowledge that PCB's were already accumulating in humans, EPA developed the TSCA PCB regulation, 40 CFR 761, prohibiting the manufacturing, distribution and use of PCB's except in a totally enclosed manner.

c. MCCDC has made a concerted effort, over the past several years, to comply with the requirements of 40 CFR 761. This effort has consisted of a phased management program that has taken steps to do the following:

- (1) Identify deficiencies.
- (2) Inventory and test suspected PCB items.
- (3) Mark all items as either non-PCB or PCB.
- (4) Inspect (quarterly/annually).
- (5) Remove and replace known PCB items.
- (6) Store items properly.
- (7) Dispose items properly.
- (8) Create spill plans and procedures.

(9) Maintain records properly.

(10) Conduct training.

(11) Comply with all Occupational Safety and Health Administration (OSHA) requirements and guidelines.

3. Scope

a. This Order covers the proper procedures for activities to manage their PCB items per present state and federal PCB regulations. This Order is applicable to all military and civilian personnel assigned to or employed at activities located at MCCDC. This Order is also applicable to all military and civilian personnel of visiting detachments, units, and commands, both domestic and foreign, for which MCCDC is serving as a host command. This Order meets state and federal requirements in a manner that will cause minimal disruption to unit mission accomplishment.

b. Because the known PCB items aboard MCCDC are electrical items, this guide focuses, in more detail than references (a) and (b), on the procedures for PCB electrical equipment. All aspects of a management program are covered, from inventory to disposal. Operational requirements and prohibitions are specified, as well as recommendations on personal protective equipment, spill prevention measures, and emergency response procedures.

4. Definitions. The definitions in enclosure (1) are based on the TSCA PCB regulations along with the interpretation of application to naval activities provided by the Chief of Naval Operations. The list is not all inclusive, further definitions can be found in reference (c).

5. Organization. The management of **PCB's** aboard MCCDC is regulated per guidance promulgated in the references. An interim permit issued by the Commonwealth of Virginia makes the command responsible for the proper management of all hazardous substances from the time they enter the facility until they are disposed of properly. The Head, Natural Resources and Environmental Affairs (NREA) Branch, Facilities Division, under the cognizance of the Director, Facilities Division, is tasked with the management of all hazardous wastes (HW) at MCCDC, to include **PCB's**. The below listed action taskings are outlined in enclosure (2).

6. Action

a. Director, Facilities Division

(1) Head, NREA Branch

(a) Serve as a single point of contact for MCCDC, concerning PCB matters and regulations. Responsible for the resolution of all conflicting and overlapping authority.

(b) Provide assistance in the identification, acquisition, and use of personal protective equipment.

(c) Inspect as required to ensure compliance with applicable directives. See enclosures (3), (4), (5), (6), and (7).

(d) Make recommendations for improving the effectiveness and completeness of required actions and recordkeeping.

(e) Maintain a complete inventory of known PCB items and distribute to those divisions/branches that require the information. See enclosures (4) and (5).

(f) Distribute PCB information and directives to all divisions/branches that have actions or responsibilities relating to PCB items. See enclosures (4), (6), and (7).

(g) Maintain permanent files and records pertaining to all PCB related activities. See enclosures (6) and (7).

(h) Procure test samples from suspected PCB items and ensure all lab tests are conducted per state and federal regulations.

(i) Store and dispose of all PCB items turned in to the command's PCB Storage Site (Bldg. 2191) per all state and federal regulations. See enclosures (6), (7), (8) and (9).

(j) Periodically (minimum of yearly), use the Compliance Checklist in enclosure (10) to determine any deficiencies in the PCB Management Program.

(k) Ensure the clean-up and decontamination of areas in which PCB spills or leaks have occurred.

(2) Head, Maintenance Branch

(a) Conduct all required actions on active (installed) equipment, or equipment stored for reuse (e.g., maintenance, inventory, inspections, spill cleanup, recordkeeping). See the enclosures.

(b) Report all prohibited electrical equipment identified in enclosure (3) to the Head, NREA Branch for identification for removal.

(c) Ensure that all electrical equipment in use or stored for reuse is inventoried, tested and properly marked with the appropriate label per its status (e.g., non-PCB, PCB-contaminated, or PCB). See enclosures (4) and (5).

(d) Report all unmarked equipment to the Head, NREA Branch for inventory, testing, and marking.

(e) Provide technical assistance to the Head, NREA Branch in all matters pertaining to PCB equipment/items.

(f) Ensure all workers who could be exposed to PCB's receive training on personal safety measures, spill response, and personal protective equipment. See enclosures (12) thru (18).

b. Director. Public Safety Division

(1) Head. Fire Protection/Prevention Branch

(a) Provide technical support as required and emergency response per reference (d). Inspect PCB storage sites and installed equipment during fire inspection cycles and report deficiencies to the Director, Facilities Division for follow-up. See enclosures (6), (11), (12), (14), and (16).

(b) Designate personnel to support the spill response team established in reference (d) and provide annual training for emergency spill response personnel. See enclosures (12) through (16).

(2) Head, Base Safety Branch

(a) Provide technical support and training as required in matters related to acquisition and use of personal protective equipment. See enclosures (17) and (18) and reference (e).

(b) Work with the Head, NREA Branch, to ensure personnel working with PCB's receive the requisite training on personal safety and use of required safety equipment. See enclosure (18) and reference (e).

(c) Inspect to ensure regulated safety measures and guidelines prescribed by OSHA are followed. See enclosures (7), (10), and (18) and reference (e).

c. Defense Reutilization and Marketing Office. The Defense Reutilization and Marketing Office (DRMO) of the Defense Logistics Agency (DLA) has been given the responsibility within the Department of Defense (DoD) for the disposal of HW/hazardous material (HM). The DRMO representative for the HW/HM operations at MCCDC is located at Ft. Belvoir. The DRMO is guided by reference (f) and other DLA directives. DRMO has been tasked by the DLA to support MCCDC to dispose of HW, including PCB contaminated items, according to state and federal regulations.

d. Director, Logistics Division

(1) Screen all incoming equipment, especially electrical items such as transformers, capacitors, etc., for PCB's.

(2) Ensure items received through the Federal Supply System are properly labeled as non-PCB, have proper documentation, and are handled per current safety and supply regulations.

e. Officer in Charge of Construction/Resident Officer in Charge of Construction

(1) Ensure that all construction contracts include provisions for the proper handling and disposal of PCB items by all contractors, to include all required recordkeeping.

(2) Ensure all job inspectors verify that contractors properly remove, inventory, store, dispose and document all PCB items found and/or removed under their contracts.

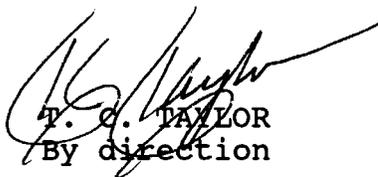
(3) Ensure contractors comply with all requirements of this and referenced Orders.

(4) Ensure all contractors and inspectors are familiar with the emergency spill/leak procedures contained herein.

(5) Provide copies of all pertinent documentation to the Head, NREA Branch, Facilities Division.

(6) Ensure all replacement/new equipment installed under contract is non-PCB and marked as such. Also, ensure any unmarked or leaking equipment found by contractors is reported to the Head, NREA Branch/Maintenance Branch, Facilities Division.

7. Violations. The intentional misuse, discharge, or negligent release of any PCB's into the environment is a violation of this Order. Per DoD and Federal regulations, violators are subject to prosecution, fine and imprisonment. Individuals responsible for violations may be subject to punitive action.


T. G. TAYLOR
By direction

DISTRIBUTION: 5 (4), 7 (2), 9, 16 (5), 29 (2)

DEFINITIONS

1. Access Nonrestricted Any area other than outdoor electrical substations and other restricted access locations. Examples include base housing, commissaries, recreational facilities, and medical facilities.
2. Access Restricted. Any area that is fenced or walled in to restrict public access. Areas located inside a base perimeter fence do not meet the definition of restricted access because of the perimeter fence alone. For indoor installations, restricted access means that the public doesn't have access and the roof, walls, and floors are adequate to contain any release of polychlorinated biphenyl (**PCB's**) within the indoor location.
3. Capacitor. A device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by a dielectric. Types of capacitors are as follows:
 - a. Small Capacitor. A capacitor which contains less than 1.36 kg (3 lbs) of dielectric fluid. The following assumptions may be used if the actual weight of the dielectric fluid is unknown. A capacitor whose total volume is less than 1,639 cubic centimeters (100 cubic inches) may be considered to contain less than 1.36 kg (3 lbs) of dielectric fluid and a capacitor whose total volume is more than 3,278 cubic centimeters (200 cubic inches) must be considered to contain more than 1.36 kg (3 **lbs**) of dielectric fluid. A capacitor whose volume is between 1,639 and 3,278 cubic centimeters may be considered to contain less than 1.36 kg (3 lbs) of dielectric fluid if the total weight of the capacitor is less than 4.08 kg (9 lbs).
 - b. Large High Voltage Capacitor. A capacitor which contains 1.36 kg (3 **lbs**) or more of dielectric fluid and which operates at 2000 volts (a.c., or d.c.) or above.
 - c. Large Low Voltage Capacitor. A capacitor which contains 1.36 kg (3 lbs) or more of dielectric fluid and which operates below 2000 volts (a.c., or d.c.).
4. CERCLA. Comprehensive Environmental Response, Compensation and Liability Act.
5. Chemical Waste Landfill. A landfill at which protection against risk of injury to health or the environment from the discharge of **PCB's** to land, water, or air is provided from **PCB's** and PCB items deposited therein by locating, engineering, and operating the landfill as specified in 40 CFR Part 761.75.

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6. CFR. Code of Federal Regulations.

7. Commercial Building. A nonindustrial, nonsubstation building. Commercial buildings are typically accessible to both members of the general public and employees, and include: office buildings, hospitals, schools, and warehouses. They do not include substations or antenna buildings. CNO has defined commercial buildings to include: (1) civilian or military personnel assembly buildings, (2) educational properties, (3) institutional properties (such as museums, hospitals, clinics), (4) residential properties (living quarters), (5) stores, (6) office buildings (including administration buildings) and (7) transportation centers (including airport terminal building).

8. Cross-contamination. Refers to the possibility of contaminating non-PCB items by servicing them with filters or fluids that have not been tested to ensure they are free of PCB's.

9. Custody. Refers to the physical location of the PCB item. If the item is stored in the PCB storage building (2191) it is in the custody of the Head, (NREA) Branch, Facilities Division. At any other location, it is in the custody of the Head, Maintenance Branch, Facilities Division.

10. Discharge. Includes, but is not limited to, any spilling, leaking, seeping, pouring, emitting, emptying, or dumping of PCB's which occurs and which affects lands and/or surface and ground waters.

11. Dispose/Disposal. Permanently remove PCB items to a facility where they will be destroyed/landfilled per all State/Federal regulations. See reference (c).

12. Double Wash/Rinse. Clean solid surfaces at least two times with an appropriate solvent. Take precautions to contain any runoff and to dispose properly of wastes generated during cleaning.

13. Electrical Substation. An outdoor, fenced-off and restricted access area used in the transmission and/or distribution of electrical power.

14. Emergency Situation. One in which the use of a PCB transformer is authorized because neither a non-PCB nor PCB-contaminated transformer is available for installation within 24 hours and immediate replacement of a failed transformer is necessary to continue electrical service.

15. Enhanced Electrical Protective System. A system to avoid transformer failures caused by sustained low current faults. Examples are: pressure sensors, temperature sensors, disconnect equipment.

ENCLOSURE (1)

16. EPA. Environmental Protection Agency.
17. Fire-related Incident. Any incident which involves the generation of sufficient heat and/or pressure to result in the rupture of a PCB transformer and the release of PCB's.
18. High Concentration. Those items that are tested and found to contain 500 ppm or greater PCB's.
19. Impervious Solid Surface. A surface which is nonporous and unlikely to absorb spilled PCB's, e.g., metal, glass, aluminum siding, enameled surfaces.
20. In or Near Commercial Buildings. Being within the interior, on the roof, attached to the exterior wall, in the parking area serving, or within 30 meters of a nonindustrial, nonsubstation building. (Also see definition of commercial building).
21. Industrial Building. A building directly used in manufacturing or other technically productive enterprises. Industrial buildings are not generally or typically accessible to other than workers. Industrial buildings include substations and antenna buildings. (Also see definition of commercial building).
22. In-service. Refers to any item which is installed and energized. A de-energized PCB or PCB-contaminated item must be removed immediately and turned in to the NREA Branch, Facilities Division for disposal. It may only be "reused" in an emergency situation.
23. KVA. Kilovolt ampere, which is a measurement of the power capacity of a transformer.
24. Leak or Leaking. Any instance in which a PCB container, or PCB equipment has any PCB's on any portion of its external surface.
25. Low Concentration. Those items that are tested and found to contain less than 500 ppm PCB's or are assumed to be so, e.g., untested mineral oil dielectric fluid.
26. Mark. Refers to a specific label required by 40 CFR 761.45 which states that the item contains PCB's. The label includes the descriptive name, instructions, cautions, or other information applied to PCB's and PCB items, or other objects subject to these rules.
27. Marked. Refers to the marking of PCB Items, PCB storage areas and transport vehicles by means of any method that states the item contains PCB's which meets the requirement of 40 CFR 761, Subpart C. (See NEESA PCB Management Plan of Oct 89).

28. Moderate leak. Any leak which results in **PCB's** running off or about to run off the external surface of the PCB item.
29. Network PCB Transformer. Refers to any PCB transformer (greater than or equal to 500 ppm PCB) which is part of a network system versus part of a radial system (see "Radial PCB Transformer"). A network system consists of several transformers which are electrically interconnected in a specific configuration often used in vaults and buildings. Network transformers can be energized from either the primary or secondary winding. The secondary winding is the winding from which energy flows during normal operation. The primary winding can be energized from the secondary winding under abnormal conditions due to transformer interconnections. Determination of configuration can be made by an electrician using wiring diagrams.
30. Non-PCB Transformer. Any transformer containing less than 50 ppm **PCB's** as determined by manufacturer certification or laboratory analysis.
31. OSHA. Occupational Safety and Health Act.
32. PCB and PCB's. A chemical compound composed of or containing any of the various chlorinated biphenyl molecules. EPA defines **PCB's** as any chemical compound or combinations of compounds that contain 500 ppm (on a dry weight basis) or greater of **PCB's**. Any materials that contained 50 ppm or greater **PCB's**, but now contain less than 50 ppm because of dilution, shall be included as **PCB's** unless otherwise stated. It is illegal to deliberately dilute PCB or **PCB-**contaminated fluids or waste for the sole purpose of reducing the PCB concentration. Substances that are regulated by this rule include, but are not limited to, dielectric fluids, contaminated solvents, oils, waste oils, heat transfer fluids, hydraulic fluids, paints, sludges, slurries, dredge spoils, soils, materials contaminated as a result of spills, and other chemical substances including impurities and by-products.
33. PCB Article. Any manufactured article, other than a PCB container, that contains **PCB's** and whose surface(s) has been in direct contact with **PCB's**. PCB article includes capacitors, transformers, electric motors, pumps, pipes and any other manufactured item.
34. PCB Cleanup Solvents. Any liquid that has less than 50 ppm **PCB's** and in which the solubility of **PCB's** is at least 5 percent, e.g., kerosene, xylene, toluene, trichloroethane, trichlorobenzene, power cleaner 155 (Penetone). The solvent used to decontaminate a surface must be compatible with the surface and with any sealant applied to the surface. Consult with the Base Safety office about the necessary protective equipment required for a given solvent.

35. PCB Container. Any package, can, bottle, bat, barrel, drum, tank, or other device that contains **PCB's** or PCB articles and whose surface(s) has been in direct contact with **PCB's**.
36. PCB - Contaminated Eaquiment. Any electrical equipment (including, but not limited to, transformers, capacitors, circuit breakers, reclosers, voltage regulators, switched, hydraulic equipment or other items, that contain 50 ppm or greater PCB, but less than 500 ppm PCB. Oil-filled equipment other than circuit breakers, reclosures, cable, and hydraulic equipment whose PCB concentration is unknown, are assumed to be PCB-contaminated equipment until proven otherwise (e.g., through laboratory testing).
37. PCB Eaquiment. Any manufactured item, other than a PCB container, which contains a PCB article or other PCB equipment. This includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures.
38. PCB Item. Any PCB article, PCB container, or PCB equipment, that contains or has as a part of it any PCB or **PCB's**.
39. PCB Transformer. Any transformer that contains 500 ppm PCB or greater.
40. **PPM**. Concentration in parts per million expressed as milligrams per kilogram (mg/kg).
41. Radial PCB Transformer. A transformer (usually a single) in a system with the distribution lines projecting from the one major transformer. A radial transformer can be energized only from the primary winding. This determination can be made by an electrician using the wiring diagrams.
42. Retrofill. Remove all PCB or PCB-contaminated fluid from the item, purge it, and refill with non-PCB fluid. This process requires that certain records kept pertaining to the retrofill and be maintained for the remaining service life of the item.
43. Reuse. Refers to the practice of removing an item from service and then retaining it to use again. See "**Stored** for Reuse."
44. SPCC Plan. Spill Prevention Control and Countermeasures Plan.
45. Stored for Disposal. Refers to items in storage awaiting disposal. No further use is anticipated.
46. Stored for Reuse. Refers to items stored (off-line) for future use. PCB-contaminated items may be stored for emergency reuse only. PCB items may **not** be reused. Items contaminated with **<50** ppm PCB should be retrofilled with clean fluid before they are placed in

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storage for reuse. The removed fluid should then be disposed of at a certified "Chemical Waste Landfill." (State of Virginia regulation).

47. Totally Enclosed Manner. Any manner that will ensure zero exposure of any concentration of PCB'S to human beings or the environment.

ENCLOSURE (1)

PCB MANAGEMENT
DUTIES/TASK ASSIGNMENTS

<u>ASSIGNMENTS</u>	<u>RESPONSIBLE ACTIVITIES</u>
Inventory	Maintenance Branch, Facilities Division
Equipment Inspections (Daily/Quarterly/Annual)	Maintenance Branch, Facilities Division
Inspections (Regulatory compliance)	Natural Resources and Environmental Affairs Branch, Facilities Division; Fire Protection/Prevention Branch, Public Safety Division
Marking	Maintenance Branch, Facilities Division or Contractor
Routine Maintenance	Maintenance Branch, Facilities Division
Special Maintenance	Contractor
Replacement: Routine	Contractor
Emergency	Maintenance Branch, Facilities Division
Testing	Contractor or Natural Resources and Environmental Affairs Branch, Facilities Division
Items in Storage for Reuse	Maintenance Branch, Facilities Division
Items in Storage for Disposal	Natural Resources and Environmental Affairs Branch, Facilities Division
Disposal	Natural Resources and Environmental Affairs Branch, Facilities Division
Transportation	Defense Reutilization and Marketing Office or Contractor
PCB Annual Disposition Report	Natural Resources and Environmental Affairs Branch, Facilities Division

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ASSIGNMENTS

RESPONSIBLE ACTIVITIES

Recordkeeping

Daily Inspections (leakers)	Maintenance Branch, Facilities Division
Quarterly Inspections (>60,000 ppm)	Maintenance Branch, Facilities Division
Annual Inspections (>50 ppm and <60,000 ppm)	Maintenance Branch, Facilities Division
Regulatory Inspections	Natural Resources and Environmental Affairs Branch, Facilities Division Activity Inspected
Inventory	Maintenance Branch, Facilities Division; Fire Protection/Prevention Branch, Public Safety Division; Natural Resources and Environmental Affairs Branch, Facilities Division
Routine Maintenance	Maintenance Branch, Facilities Division
PCB Annual Disposition Report	Natural Resources and Environmental Affairs Branch, Facilities Division
Storage Logs	Maintenance Branch and Natural Resources and Environmental Affairs Branch, Facilities Division
Yearly PCB Summary	Natural Resources and Environmental Affairs Branch, Facilities Division
Disposal	Natural Resources and Environmental Affairs Branch, Facilities Division
Training	Maintenance Branch and Natural Resources and Environmental Affairs Branch, Facilities Division
Master/Permanent Files	Natural Resources and Environmental Affairs Branch, Facilities Division
Spills/Leakers:	
Notification	Finder*/Maintenance Branch, Facilities Division

ENCLOSURE (2)

ASSIGNMENTS

RESPONSIBLE ACTIVITIES

Spills/Leakers (cont'd)

Routine Cleanup

Maintenance Branch and Natural Resources
and Environmental Affairs Branch,
Facilities Division

Emergency

Fire Protection/Prevention Branch, Public
Safety Division; and Natural Resources and
Environmental Affairs Branch, Facilities
Division

Housekeeping

Building Occupant

* Whatever organization first discovers a spill or leak (e.g.,
contractor, inspector, electrical shop, environmental, fire
prevention, etc.)

PROHIBITED PCB TRANSFORMERS

<u>TRANSFORMER SPECIFICATIONS</u>	<u>**DATE OF PROHIBITION</u>
1. \geq 500 ppm and poses an exposure risk to food or feed.	1 October 1985
2. \geq 500 ppm and in or near (<30 m) a commercial building (Except for installation for emergency situations and reclassification of a retrofilled transformer)	1 October 1985
3. \geq 500 ppm and in or near (<30 m) a commercial building and: Network configuration and, Secondary voltage greater than 480 volts.	1 October 1990
4. Any PCB concentration and: Radial transformer and, No electrical protection to prevent high current faults	1 October 1990
5. Any PCB concentration and: In or near (<30 m) commercial bldg Lower secondary voltage network and, No electrical protection to prevent high current faults and, Not inside sidewalk vaults	1 October 1990 or Removed from service by 1 October 1993

****** As long as equipment does not fall under the above restrictions, Environmental Protection Agency regulations (40 CFR, Part 761) do not require removal and disposal of PCB equipment based simply on the fact that it contains **PCB's**. Much of the PCB equipment can remain in use (in-service) for the remainder of its useful life as long as MCCDC complies with certain use and servicing restrictions.

INVENTORY PROCEDURES

1. Preparation. The preparation of a complete polychlorinated biphenyl (PCB) item inventory is a crucial step in the development of the PCB management program because the entire PCB program will be based on the PCB inventory. If the program is based on an incomplete inventory, it can never be a safe and legal PCB program.

2. Eliminate Nonregulated items. After the preliminary list of potential PCB items has been completed, all nonregulated items should be removed from the list. Information on the nonregulated items should be kept on file to respond to questions concerning the nonregulated items. The rationale for why they are nonregulated may be requested by an inspector or at the time of disposal. Since they are n®ulated by state and local agencies, the following items may be removed from the preliminary inventory:

- a. Transformers: Tested at less than 50 ppm PCB.
(If not tested see next section.)
- b. Capacitors: - Small capacitors (less than 3 pounds of dielectric fluid)
- Capacitors manufactured after 1 July 1978 marked non-PCB
- c. All others: Items tested at less than 50 ppm PCB.

See the following definitions in enclosure (1): PCB article, PCB contaminated equipment, PCB equipment, PCB item. These definitions explain "all others."

3. Item Classification

a. After potential PCB items are listed and the nonregulated items removed, each remaining item must be evaluated and classified as:

- (1) PCB: 500 ppm or greater.
- (2) PCB-contaminated: 50 - 499 ppm.
- (3) Non-PCB: less than 50 ppm.

b. For some items, nameplate information is satisfactory. Other items, especially those being disposed of, require analysis by a laboratory. Once classified, it is critical that the item be marked with the appropriate label for its status. Also, it is important to not risk cross contaminating items by using untested fluids to top off equipment during servicing and/or maintenance. Results from

field tests are not accepted by the Environmental Protection Agency (EPA) as legitimate certification of non-PCB status. However, they can be used to identify those items that are obviously PCB items. Some Defense Reutilization and Marketing Office (**DRMO's**) will accept the field test results in lieu of laboratory analysis.

c. Once again, field test results should only be used to show that an item is obviously PCB, not to show that it is non-PCB. If an item is difficult or dangerous to sample, an activity should assume that it is PCB and sample (if necessary) when the item is removed from service for disposal or when an emergency requires more information. Additional information on PCB sampling is available from NEESA PCB Management Plan of **Oct 89**.

4. Testing for Disposal by DRMO. In addition to the EPA requirements, DRMO has some specific identification requirements that must be met prior to turning PCB items in for disposal. DRMO requires testing on items turned in for disposal unless they are hermetically sealed or the activity can verify (beyond a shadow of a doubt) that it was not contaminated with **PCB's** during routine servicing. Contamination of equipment is normally due to topping off with PCB dielectric or filtering of the dielectric with a filter used on PCB equipment. Once items have been tested, it is vital that the laboratory reports with the results be kept in the permanent records. A copy should be attached to the disposal documents (manifest).

5. Distribution of Inventory Data. Information from the PCB inventory must be compiled into various reports and listings. Federal regulation requires that certain records be kept and certain persons be notified. The distribution requirements of the PCB inventory data for MCCDC are as follows:

<u>Distribution:</u>	<u>Data Required</u>
Fire Department	List of all PCB transformers. Include: Specific location type dielectric PCB concentration POC for emergency
Building owners/tenants	Information on all PCB transformers within 30 meters of the building they occupy. Include: location type dielectric
Naval Energy Environmental Support Activity	See enclosure (6), on record-keeping

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Federal Inspector

See enclosure (b), on record-keeping

Head, Natural Resources
and Environmental Affairs
Branch, Facilities Division

See enclosure (6), on record-keeping

Maintenance Branch,
Facilities Division

See enclosure (6), on record-keeping

ENCLOSURE (4)

INVENTORY DATA COLLECTION FORM

1. TRANSFORMERS (Complete this section for each transformer)
- a. Item identification (Serial No.) _____
 - b. Specific location _____
 - c. Manufacturer _____
 - d. Other name plate information _____
 - e. **KVA** rating _____
 - f. Type of dielectric fluid _____
 - g. Fluid weight: pounds/kg Fluid volume: _____gals
 - h. PCB concentration ppm Date tested: / /
 - l. Marked* as PCB (liquid cooled only)? YES / NO
 - j. Poses an exposure risk to food or feed? YES / NO
 - k. Located in or near building (other than substation)?
YES / NO
Describe location with respect to building _____

If yes, describe building usage: _____

Is building commercial? YES / NO
 - 1. Type of configuration? Network / Radial / Other
If network or radial, is it higher secondary voltage*? YES / NO
Equipped with enhanced electrical protection*? YES / NO
Describe: _____
 - m. Reclassified? YES / NO Date completed: / /
Describe process: _____
Final PCB concentration: ppm Date tested: / /

CURRENT STATUS

- a. In service*? YES / NO
If No: Date removed from service: / / .
- b. Stored for Reuse / Disposal*?
If stored for **disposal**, Date: / / .

c. Sent to disposal? YES / NO
If yes, name of disposal site: _____

If yes, Certificate of Disposal received: YES / NO

2. CAPACITORS (Complete this section for each capacitor)

a. Item identification: _____

b. Location: _____

c. Size: small / large* Note: If small capacitor* STOP
HERE. (< 1.36 kg/ 3 lbs
dielectric or < 100 cu.
in.). Small capacitors
need not be listed.

d. Voltage: high / low*

e. More than one in equipment? YES / NO
If yes, number of capacitors in equipment: _____

f. Manufacturer: _____

g. Date manufactured: / /

h. Other name plate information: _____

i. Is location restricted access*? YES / NO

j. Marked* as PCB: YES / NO

CURRENT STATUS

a. In service*? YES / NO If No: Date removed from service:
 / / .

b. Stored for reuse / disposal* YES / NO
If stored for disposal, Date stored: / / .

c. Sent to disposal? YES / NO Date: / / .
If yes, name of d i s p o s a l s i t e

* Terms are defined in enclosure (1) of this Order.

Additional inventory forms are available in NEESA PCB Management Plan
of **Oct** 89.

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RECORDKEEPING REQUIREMENTS

1. General

a. Activities which have polychlorinated biphenyl (PCB) equipment or PCB materials on-site must adhere to Environmental Protection Agency (EPA) recordkeeping requirements, regarding:

- (1) PCB item inventory and summary.
- (2) Inspections.
- (3) Servicing of equipment.
- (4) Spill response and cleanup.

b. The EPA does not require activities to submit these records to EPA offices. However, the records must be available during regulatory inspections and must be maintained for at least five years after the facility stops using or storing PCB items.

c. EPA regulations do state that activities must provide specific information to the fire response personnel and owners/tenants of buildings which contain PCB transformers or which are located near PCB transformers (less than 30 meters). See paragraph 7 of this enclosure.

d. Federal and naval recordkeeping requirements are detailed below, along with recommended formats for PCB records. These requirements also meet all State of Virginia regulations.

2. Naval Inventory Requirements

a. All naval activities must submit an annual PCB inventory to **Naval Energy** Environmental Support Activity (NEESA), as required by reference (a). Inventories must be received at **NEESA** by 1 February and must cover the previous calendar year.

b. To help activities comply with this requirement, NEESA sends out a computerized PCB inventory at the end of the calendar year. Instructions for completing the inventory form are included, or can be found in **MCO P5090.2**. The Head, Natural Resources and Environmental Affairs (NREA) Branch, Facilities Division, should update the previous **year's** printout and submit to NEESA. The NEESA inventory meets all EPA inventory requirements.

3. Federal Inventory Requirements

a. Annual PCB inventories are required by the EPA for all activities which use or store any of the following items:

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- (1) One or more PCB transformers.
- (2) Fifty or more large PCB capacitors.
- (3) Forty-five kg (99.4 lbs.) or more of PCB's in containers.

b. The federal inventory must be completed by 1 July of each year and it must cover the previous calendar year. The NEESA inventory meets these Federal inventory requirements.

c. The spill and inspection information required by EPA must be maintained by the activity and is not part of the NEESA inventory. Enclosure (7) lists the records that must be kept and be available in the event of an inspection. They do not need to be sent to the EPA. Enclosure (8) contains the items which must be included specifically in the EPA summary. Any format may be used to compile information, as long as the records are legible, concise, and accessible for inspectors.

4. Inspection and Servicing Records. A record of inspections and servicing is required to document that each PCB item is inspected and serviced per the Toxic Substance Control Act PCB regulations. See enclosure (11) of this Order for inspection requirements.

5. Spill Reporting

a. If a spill or leak is discovered, a report of the incident, including the extent of contamination and details of the clean-up should be prepared. The form at enclosure (13) is the recommended format for documenting spill or leak response. If the spill discharges more than 10 pounds of PCB's, a Hazardous Substance Release Message must be sent to the appropriate authorities. See enclosure (16) for notification requirements.

b. EPA also requires that all fire-related incidents involving PCB transformers be immediately reported to the National Response Center (NRC), 1-800-424-8802 (see spill response procedures in enclosures (12) and (14)). The NRC should be notified by the On Scene Commander (Director, Facilities Division), who in turn should be notified by activity personnel immediately (usually Electrical Shop, Maintenance Branch, or NREA Branch personnel). A fire-related incident is defined as any incident involving a PCB transformer which involves the generation of sufficient heat and/or pressure to result in the rupture of the PCB transformer and release of PCB's. The following information must be reported:

(1) Type of transformer installation (high or low secondary voltage network; high or low secondary simple radial system, expanded radial system, primary selective system, primary loop system, or secondary selective system; or other systems).

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(2) Cause of failure (e.g., high current fault in primary or secondary, low current fault in secondary.)

6. PCB Storage Area Records

a. Each activity that stores PCB's and PCB items for disposal must maintain storage area records. Storage records must be prepared by 1 July each year and cover the previous calendar year. The storage area records are required to include the following:

(1) Description of items handled at storage area (includes contents of container such as liquids, solids, capacitors, etc.).

(2) Dates when any PCB items are received at storage area and name of sender (activity) if different from activity operating storage area.

(3) Dates when any PCB items are transferred out of storage area. Name, location, and owner/operator of site they were transferred to.

(4) Summary of total weight of PCB's and PCB articles in containers and PCB's in PCB transformers received at storage area, transferred out, remaining in storage as of 31 December of the previous calendar year.

(5) Summary of total number of PCB items not in containers received at storage area, transferred out, remaining in storage as of 31 December of the previous calendar year.

b. A format for the storage area log and summary is provided at enclosure (9). These records must be kept for at least 5 years after the storage is no longer used.

7. Notification Requirements. The PCB regulations require the owner of PCB transformers (Facilities Division) to provide specific information to the fire department that would provide the first response to fires involving PCB transformers, and to the owners of buildings which have .PCB transformers inside of or within 30 meters of that building. CNO has defined the owner of buildings as the personnel responsible for developing the fire evacuation plan for that building. The following list describes the required information:

<u>WHO</u>	<u>WHAT</u>
Fire Department and	A list of all PCB transformers For each transformer, provide:
Mutual Aid Fire department	- Specific location (both the building number and actual location of the transformer)

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- Type of dielectric fluid
- PCB concentration,
- Name and phone number of the person to contact in the event of an emergency.

Building owners
or tenants

For each PCB transformer within 30 meters of the building they occupy, provide the following:

- Specific location of the transformer in/near the building
- Type of dielectric fluid
- Type of transformer installation (ex. 280/120 volt radial).

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SUMMARY OF FEDERAL RECORDKEEPING REQUIREMENTS FOR PCB'S

DOCUMENTATION IS
REQUIRED FOR:

RECORDS MUST BE
MAINTAINED:

Inventory	5 years after closure
Yearly PCB Summary	5 years after closure
Spills	5 years after spill
Storage area logs (disposal)	5 years after closure of storage area
Inspections/Maintenance	3 years after disposal
Heat Transfer Retrofill	5 years after retrofill
Hydraulic System Retrofill	5 years after retrofill
Transformers (INCB*)	
Emergency installation	Complete in 30 days
Reclassification	Complete in 30 days

* INCB: Transformers which are located in or near commercial buildings (less than 30 meters).

STORAGE AREA LOG

Item Identification	Description (e.g. transformer, regulator, container with 26 capacitors)	Number of PCB Items	Weight of PCB fluid (kilograms)	Date Received mo/day/yr	Name of Sender (If different from activity owning storage area)	Type of Storage Re-use Disposal	Date Transferred out of Storage Area mo/day/yr	transferred to (Site name, Owner Name, date rec'd)

1

YEAR END STORAGE AREA SUMMARY

	Received in Storage for Disposal	Transferred Out of Storage Area	In Storage Area as of 31 December
Weight of PCB Liquid (kilograms)			
Weight of PCB Solids (kilograms)			
Number of PCB Items not in Containers			

NUMBER RECEIVED - NUMBER TRANSFERRED OUT = NUMBER IN STORAGE AS OF 31 DECEMBER

NOTE: Regulations do not specifically require that records be kept on PCB items stored for reuse, however, we recommend that records be kept on items stored for reuse to ensure complete record.

ENCLOSURE (9)

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COMPLIANCE CHECKLIST

1. **Purpose.** This checklist has been developed to ensure MCCDC is in compliance with the polychlorinated biphenyl (PCB) regulations in 40 CFR 761. The appropriate portion(s) of the checklist may also be used by any activity that has responsibility for Duties/Task Assignments listed in enclosure (1). Each activity should work with the Natural Resources and Environmental Affairs (NREA) Branch, Facilities Division, to revise this checklist to reflect any stricter state and local regulations.

2. Records

a. Inventory. Can you show that you have completed an inventory of all **PCB'S** and PCB items at your activity?

Yes ___ No ___

b. Inspections

(1) Can you show that you have conducted weekly, quarterly and annual inspections, as required, of all PCB items?

Yes ___ No ___

(2) Do the visual inspection records contain the following information: location, inspector's name, inspection date, date of leak discovery, estimated amount of fluid released, date and description of clean-up, repair or containment?

Yes ___ No ___

(3) Can you show that you retain records of these visual inspections and maintenance for at least three years after disposal of these items?

Yes ___ No ___

Location of documents _____

c. Correspondence. Can you show that you have developed and maintain a file with the following information: correspondence, documents, or other data regarding storage, disposal, permits, or closure between the owner/operator of the facility and any federal, state or local government agency?

Yes ___ No ___

Location of documents _____

3. Annual Report

a. Can you show that you use OPNAV Form 5090.1 when container contents are indicated and PCB articles are identified by type?

Yes ___ No ___

b. Is the annual report complete?

Yes ___ No ___

c. Can you show that you retain the annual report for at least five years after the facility no longer uses or stores **PCB's**?

Yes ___ No ___

Location of documents _____

4. Marking

a. Can you show that you have marked all PCB items containing 50 ppm **PCB's** or greater including transformers (not including **PCB-**contaminated transformers), large, high and low voltage capacitors, containers, and other items and equipment?

Yes ___ No ___

NOTE: Marking requirements are NOT applicable to PCB-contaminated transformers and other PCB-contaminated equipment. However, MCCDC policy is to mark all equipment to assist in identifying untested equipment not on the inventories. All unmarked equipment should be reported to the Head, NREA Branch, Facilities Division.

b. Have you marked all PCB dielectric fluids and **PCB-**contaminated liquids?

Yes ___ No ___

c. Are all PCB marks sufficiently durable to equal or exceed the life of the items they label?

Yes ___ No ___

d. Are marks placed so they can be easily read?
(Place all labels so they can be seen from road side of equipment).

Yes ___ No ___

e. Have you properly marked all transport vehicles and storage areas?

Yes ___ No ___

f. Have you **marked doors** or other means of access to all PCB transformers?

Yes ___ No ___

g. Have you tested and marked all hydraulic and heat transfer equipment?

Yes ___ No ___

5. Management of PCB Transformers

a. Can you show that no PCB transformer, stored or in use, can contaminate food or feed?

Yes ___ No ___

b. Are all PCB transformers (not stored) visually inspected at least every three months?

Yes ___ No ___

c. Can you show that any leaks in PCB transformers are cleaned up and repaired within two days?

Yes ___ No ___

d. Have you identified all of the four following types of transformers that have been banned from commercial buildings or are required to have electrical protection by 1990?

(1) Network PCB transformers with higher (480 volts) secondary voltage.

Yes ___ No ___

(2) Radial PCB transformers.

Yes ___ No ___

(3) Lower secondary voltage PCB transformers (480 volts).

Yes ___ No ___

(4) Radial PCB transformers with higher (480 volts) secondary voltages.

Yes ___ No ___

6. Storage Facilities

a. Have you disposed of, within one year, PCB articles and PCB containers stored for disposal?

Yes ___ No ___

b. Have you marked all storage areas where PCB's and PCB items are stored for disposal?

Yes ___ No ___

c. Are roof and walls of storage facilities adequate to prevent rain water from reaching PCB's and PCB items?

Yes ___ No ___

d. Do storage areas have floors with at least a 6-inch continuous curb creating a containment volume equal to at least the greater of the following?

(1) Twenty-five percent of the total internal volume of all PCB articles or containers stored?

Yes ___ No ___

(2) Twice the internal volume of the largest PCB article or container stored?

Yes ___ No ___

(3) Is each PCB item stored in a drip-pan equal to 100 percent of the fluid volume of the item?

e. Do you have in the containment area any drains, valves, expansion joints, sewer lines or other openings that would permit liquids to flow from the curbed area?

Yes ___ No ___

(1) If yes, what openings? _____

(2) How are these openings protected from PCB spills? _____

f. Do you have floors and curbing constructed of continuous smooth and impervious materials, such as Portland cement or concrete or steel to prevent or minimize penetration of PCB's?

Yes ___ No ___

If yes, what material? _____

g. Is the facility located above the 100-year flood elevation?

Yes ___ No ___

h. Can articles in the storage area be located by the date they entered storage?

Yes ___ No ___

i. Is the date of storage on all PCB articles and PCB containers when they are placed in storage?

Yes ___ No ___

j. Do you check all articles and containers for leaks, at least once every 30 days?

Yes ___ No ___

k. Outside storage. PCB large, high voltage capacitors and PCB-contaminated electrical equipment can be stored on pallets adjacent to the storage facility.

(1) Do you ensure structural integrity and check weekly for leaks?

Yes ___ No ___

(2) Does your storage facility have available space equal to at least 10 percent of the volume of the equipment stored outside?

Yes ___ No ___

1. Temporary Storage

(1) Is temporary storage used only for up to 30 days for nonleaking articles and containers?

Yes ___ No ___

(2) Do you attach notation indicating date removed from service, note PCB content on containers of PCB liquid, and have a Spill Control and Countermeasures Plan for PCB liquids in temporary storage?

Yes ___ No ___

7. Containers

a. Do you use liquid PCB containers that meet the shipping container specification of the Department of Transportation (DOT 5, 5B, 6D overpack, 17E or equivalent)?

Yes ___ No ___

b. If other containers are used, have you reviewed the Occupational Safety and Health Administration Standards (29 CFR 1910.106) to ensure they meet structural safety requirements?

Yes ___ No ___

c. Have you prepared and implemented a Spill Prevention Control and Countermeasure Plan in conjunction with the use of these "other" containers?

Yes ___ No ___

d. Are you keeping records indicating the quantity of PCB's and the date PCB's were added to or removed from these containers?

Yes ___ No ___

(1) Do they include disposition of any PCB's removed?

Yes ___ No ___

(2) Location of records _____

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8. Disposal Procedures

a. Can you show that you dispose of all PCB's in concentrations greater than 50 ppm and all PCB items per 40 CFR 761?

Yes ___ No ___

b. Are you using waste oil containing any detectable concentrations of PCB for road oiling, dust control, pesticide carriers, sealant or rust prevention?

Yes ___ No ___

If yes, where? _____

c. Is disposal all via DRMO? Yes ___ No ___

If not, documents are kept _____

9. Decontamination

a. Do you have written decontamination procedures? Yes ___ No ___

b. Have you decontaminated all movable equipment used in storage areas prior to removal from the facility? Yes ___ No ___

c. Do you decontaminate drums and pallets prior to reuse? Yes ___ No ___

INSPECTION REQUIREMENTS
(DAILY/QUARTERLY/ANNUAL)

1. The Command should perform regular self inspections to ensure compliance with the regulations. In addition, polychlorinated biphenyl (PCB) inspections are an important part of an activity PCB management program as they may be the primary means of discovering a leak or spill from a PCB item. The sooner a leak or spill is discovered, the sooner the problem can be corrected, thus reducing the chance of significant negative impact on human health or the environment. The Toxic Substance Control Act (TSCA) regulations require that certain PCB items and storage areas be visually inspected on a regular basis. The regulations specify the frequency of inspections required for each type of item. These inspection requirements are summarized below. If an item is not listed below, it has no TSCA inspection requirements. Judgement should be used in making a decision to not include an item in an inspection cycle.

2. These inspection requirements range from annual to daily, based on the potential risk to human health and to the environment if a leak or spill should occur. The following explanations are provided for each requirement:

a. Annual inspections (yearly) are required for low risk PCB items, such as PCB transformers which are operating with one of the risk reduction measures shown below. These inspections may take place any time during the calendar year as long as there is a minimum of 180 days between inspections.

(1) PCB transformer has impervious, undrained, secondary containment capacity of at least 100 percent of the total dielectric fluid volume of all transformers so contained.

(2) PCB transformer has been tested and found to contain less than 60,000 ppm PCB's (after at least 3 months of in-service use if the transformer has been serviced for purposes of reducing the PCB concentration).

b. Quarterly inspections are required for PCB transformers with PCB concentration greater than 60,000 ppm, (if tested) or if assumed to be PCB dielectric based on nameplate information, that do not have sufficient secondary containment to meet annual inspection criteria (see explanation above). Quarterly inspections must be performed at least once every 3 months. These inspections must take place anytime during January - March; April - June; July - September; and October - December as long as there is a minimum of 30 days between inspections.

c. Monthly inspections are required for all PCB items in the PCB storage facilities.

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d. Weekly inspections are required for transformers, electro-magnets, switches and voltage regulators with a PCB concentration of 500 ppm or greater that pose an exposure risk to food or feed. (Note: After 1 October 1985, these PCB items are prohibited from use.) Weekly inspections are also required for PCB large high voltage capacitors and PCB-contaminated electrical equipment, temporarily stored outside a PCB storage facility.

e. Daily inspections are required for all leaking transformers until the leak has been repaired and all residue cleaned up. The inspector should verify that the leak is contained and is not contaminating the surrounding area.

3. The regulations require these visual inspections to include investigation for any leak of dielectric fluid on or around the transformer. The extent of the visual inspection will depend on the physical constraints of each transformer installation and should not require an electrical shutdown of the transformer being inspected.

ITEM	*INSPECTION REQUIREMENTS

TRANSFORMERS (in service or in storage for reuse)	

Leaking	Daily
Intact w/500 ppm or greater and w/food or feed risk	Weekly
Intact w/60,000 ppm or greater and without secondary containment	Quarterly
Intact w/60,000 ppm or greater and with secondary containment	Annually
Intact w/500 - 60,000 ppm	Annually*
Intact w/below 500 ppm	None*

STORAGE AREAS	

Items inside storage	Monthly
Items temporarily stored outside storage area	Weekly

CAPACITORS, CIRCUIT BREAKERS, RECLOSERS, AND ELECTRIC CABLE

None

ELECTROMAGNETS, SWITCHES AND VOLTAGE REGULATORS

>500 ppm

Prohibited

Others

None

*Inspection requirements may be more, but not less restrictive. It is recommended that older equipment be inspected more often.

4. Inspector Qualifications. These inspections may be performed by any activity personnel who are trained in PCB inspection procedures and the proper PCB spill (or leak) reporting actions. Inspectors may be electrical technicians, maintenance control foremen, environmental coordinators, contractors, base inspectors, etc.

5. Inspection Log. The inspector must keep formal records of the inspections and servicing in order to document that each PCB item is inspected and serviced per the TSCA PCB regulations. The records must include the following information:

- a. Name and title of inspector.
- b. Location and identification of PCB item.
- c. Date of inspection (and date of leak or spill discovery if different from normally scheduled inspection).
- d. Location of leak or spill.
- e. Estimate of amount of PCB liquid released from the leak or spill.
- f. Date and description of all containment, cleanup, repair or replacement measures taken in response to the leak or spill.
- g. Results of containment.

Examples of daily, quarterly, annual and storage area inspection log sheets follow. MCCDC policy is that all PCB items (including those in the 50 - 499 ppm PCB range) will be inspected at least annually, and that all inspections will be documented. Natural Resources and Environmental Affairs Branch, Facilities Division will keep copies of all inspections in the PCB files.

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PCB Transformer Visual Inspection Log

Facility _____ City _____ State _____
 Transformer Location _____ Manufacturer _____ Serial Number _____
 Dielectric Type _____ Dielectric Weight (kg) _____

Date*	Leakage		Amount of Fluid Leaked	Location of Leak(s)	Corrective/Containment Actions and Dates	Inspector Name
	no	yes**				

* Quarterly visual inspections normally required. Annual visual inspections required if transformer has secondary containment for 100% of the dielectric fluid or if the transformer contains less than 60,000 ppm PCBs. See 40 C.F.R. Section 761.30 (a)(1)(ix), (x), (xi) and (xiii).
 ** If fluid is running off or about to run off the unit initiate cleanup within 48 hours. Contain leak and conduct daily inspections

PCB INSPECTION AND SERVICING LOG FORMAT

Item Location _____

Item Identification _____

Item **Description** _____

DATE	INSPECTOR'S NAME	Check Each, + or - *									SUMMARY OF INSPECTION/SERVICE: Description of inspections and servicing. If leaks or spills are observed attach Spill/Leak Report Form.	IF OVER 10 LBS, SPILL REPORT FILED ?
		BUSHINGS	GUAGES	VALVES	FINS	INSPECTION PORTS	TAP CHANGES	SPILL EQUIPMENT AVAILABLE	ARE COMBUSTIBLE MATERIALS WITHIN 5 M			

+ Indicates good condition; - Indicates a deficiency

SPILL PREVENTION, CONTROL, AND COUNTERMEASURES

1. There are two types of emergencies associated with polychlorinated biphenyl (PCB) items: leaks or spills, and fires involving PCB electrical equipment. This enclosure covers the impact of these emergencies and the proper prevention and contingency procedures. Prevention procedures are those procedures and the associated equipment set up to prevent the spill or fire from occurring. Contingency procedures refer to the response to the spill or fire after it has happened. In both these cases, spills and fires, it is preferable that they never occur. However, if an emergency does occur, it is essential that the response plan formulated in MCCDCO P6240.4 is followed and that all personnel involved in the emergency know exactly how to respond. Additional, PCB specific, information on spill response can be found in NEESA PCB Management Plan of Oct 89.

a. PCB Leak Response. The Environmental Protection Agency (EPA) defines a "leak" to be any instance in which a PCB item has any PCB's on any portion of its external surface. If a PCB item is found to have a "leak" it must be cleaned up or contained and repaired as soon as possible. The regulations require that the work be initiated (not completed) within 48 hours of discovery. The leaking item must be inspected daily until the leak has been repaired and cleaned up to ensure that the leak is contained so that it does not contaminate the surrounding area. (Use the daily inspection form provided in enclosure (11)). Containment of the leak can be any method which prevents the leak from spreading, such as buckets, drip-pans, plastic bags full of sorbent, etc. The cleanup should be performed as specified in the relevant section of this enclosure.

b. PCB Spills. PCB spills are a regulated hazardous substance as defined in the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Regulation, 40 CFR 302. This is because PCB's are moderately toxic to humans and tend to bioaccumulate in the environment. PCB's are very persistent and once they are in the environment, they remain for an extremely long period of time. If PCB's are spilled into the environment, they get into the food chain and impact on fish, birds, animals and ultimately impact on man. If a spill enters a waterway, the spill may impact humans even more quickly. In this case, the CERCLA Regulations and the Clean Water Act regulations, 40 CFR 112 require that proper notification and clean-up procedures be followed.

c. Spill Prevention Plan. Spill prevention measures for MCCDC are part of MCCDCO P6240.4. PCB spill prevention measures are only required by federal law for permanent PCB storage if the PCB (greater than 50 ppm PCB) containers used are over 55 gallons each; or for areas where PCB-contaminated liquid is stored in a temporary storage area. EPA does not require spill prevention equipment (berms, dikes,

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etc.) on in-service PCB equipment. MCCDC requires that all out-of-service transformers stored for disposal be stored at building 2191, in containment pans. Those transformers stored for reuse must be less than 50 ppm PCB and must be staged on a pallet in an approved storage area.

d. Spill Contingency Plan. Because very few spill prevention measures have been implemented for any activities PCB equipment, we must be prepared to handle spill emergencies. A PCB awareness program has been conducted which includes the following:

- (1) Identify locations of potential PCB spills (e.g., building 2191 and warehouse 701).
- (2) Prepare a spill contingency plan for those areas.
- (3) Prepare and maintain PCB spill kits.
- (4) Train personnel in how to avoid such PCB spills and the proper response if one should occur.
- (5) Regularly inspect PCB items and areas where PCB items are stored.

The location of possible PCB spills, the quantity of PCB's that may be spilled and the most probable directions of flow can be determined from the Command PCB inventory. A complete PCB equipment inventory has been provided to the Fire Department and the Occupational Health/Industrial Hygiene Offices to be considered in their portion of the response plans.

e. Emergency Spill Response Procedures

(1) When a PCB spill occurs, immediate action must be taken to provide for evacuation, first aid, notification of authorities, containment and decontamination. The PCB Spill Report at enclosure (13) is provided to ensure all required information is retained. Those who work with PCB's or who work near PCB equipment should be adequately trained to react quickly and correctly in the event of a PCB emergency. An important part of spill response training is familiarity with the Spill Contingency Plan. General emergency spill response procedures are provided here.

(a) Immediate Actions

1 Turn off all electrical power to any equipment involved in the spill. This also means any nearby equipment that could potentially cause a spark that might start a fire.

2 Determine if personnel are injured or contaminated.

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3 Notify all appropriate personnel and activities (e.g., the On-the-Scene Spill Coordinator, Fire Department, Public Safety, Provost Marshall's Office, Natural Resources and Environmental Affairs Branch, Maintenance Branch, etc.).

4 In the event of a PCB fire, the appropriate authority must immediately report the incident to the National Response Center at 1-800-424-8802.

(b) Injured or Contaminated Personnel. Coordinate all actions with medical personnel.

1 Put on the appropriate personal protective equipment (PPE) and remove injured personnel to a safe location, upwind from the spill. (See enclosure (18) for additional information on PPE.)

2 Obtain medical assistance for injured or seriously contaminated personnel. Do not leave injured or incapacitated personnel alone.

3 Remove contaminated clothing from the victim or rescuer. Immediately wipe off any traces of oil from skin. Wash affected areas of body with waterless soap. After wiping off waterless soap, shower with soap and water. Administer additional first aid, if needed. Flush contaminated eyes for 15 minutes with clean water.

(c) Containment and Control

1 Use appropriate PPE. Details of PPE can be found in the Spill Contingency Plan or enclosure (18).

2 Prevent further leakage, if deemed safe, by performing one or more of the following tasks:

a Overpack the container or transformer.

b Apply temporary seal to the leak using epoxy or a fiberglass patch kit.

c Close master valves or petcocks, if necessary.

d Position a container (e.g., a bucket) to catch the leaking material.

e Reposition the container or transformer, using a crane if necessary. Care must be taken to prevent the contamination of the crane with PCB's.

f Spread absorbent on any spilled oil.

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g If rain is imminent, use a weighted-down polyethylene or plastic tarpaulin to cover the spill area.

(d) Site Security. Secure the spill site by roping off the visible spill area plus a three-foot buffer region. Post warning signs. If necessary, obtain assistance from your security or fire personnel.

(2) If a spill is in danger of entering navigable waterways, assistance may be obtained by contacting local Coast Guard stations or the Coast Guard district office National Response Team at 1-800-442-8802; however, it is not required that activities do so. Specific notification requirements are provided in enclosure (16).

(3) Detailed PCB spill cleanup instructions are at enclosure (14) of this Order. Cleanup concentration levels are provided in enclosure (15).

ENCLOSURE (12)

SPILL REPORT FORM
SPILL OR **LEAK** FORMAT

Spill location: _____

Date/Time of spill (if known): _____

Date/Time spill discovered: _____

How discovered: _____

Source of spill (describe): _____

PCB concentration in PPM (if known): _____

Estimated quantity of fluid spilled (e.g., dielectric) or leaked (gallons): _____

Estimated quantity of PCB (constituent) spilled (see App. L of NEESA PCB Management Plan of **Oct** 89): _____ pounds PCB

If quantity PCB constituent spilled exceeds 10 pounds (RQ) Hazardous Substance Release Message is required - See App. G of NEESA PCB Management Plan of **Oct** 89.

If quantity of PCB constituent spilled does not exceed 10 pounds, complete the following:

Description of area/objects affected: _____

Personnel contact/special environmental concerns (describe): _____

Description of containment/clean-up procedure: _____

Date and time clean-up complete (must be within 48 hrs for leaks)

_____ Date

_____ Time

SPILL CLEANUP POLICY

1. Backaround

a. When handling polychlorinated biphenyl (PCB) spills, fires, or leaks, naval activities must be in compliance with federal, state and Navy regulations. This enclosure contains a summary of the federal regulatory requirements and cleanup procedures which apply to PCB emergency situations.

b. The Toxic Substance Control Act (TSCA) governs the handling and spill cleanup of PCB's. The requirements established by TSCA are implemented by the Environmental Protection Agency (EPA's) PCB Spill Cleanup Policy (40 CFR 761. subpart G). This policy includes testing, sampling, cleanup, and reporting requirements for spills involving items with PCB concentrations of 50 ppm or more. The policy does not apply to spills which occurred prior to May 4, 1987; such spills require site-by-site evaluation.

2. Detailed Spill Cleanup Instructions. After steps have been taken to remove the immediate danger caused by a PCB spill, cleanup can begin. It is important that the PCB decontamination is done thoroughly and properly. All cleanup procedures require appropriate protective clothing and proper ventilation. (Refer to enclosure (18) for protective equipment requirements). All personnel who come into contact with PCB's must have a medical examination to verify and document that no adverse medical effects have been caused by exposure to PCB's.

DO NOT WORE ALONE.

a. Step 1. Absorption and Initial Removal of PCB's

(1) On solid surfaces (concrete, asphalt, metal) place appropriate absorbent materials (sand, sawdust, absorbent clay, etc.) over spilled PCB's.

(2) Work the absorbent into the spill using a broom, if necessary, to force the absorbent into close contact with the spilled PCB.

(3) Collect all spent absorbent material and equipment used and place into a properly labeled leakproof container.

(4) For spills on soil, remove contaminated soil from the spill area until the PCB concentration in the region is less than or equal to 10 ppm PCB's. Place this soil into properly labeled, leak-proof drums for disposal. Replace contaminated soil with clean soil which contains less than 1 ppm PCB's. (ppm must be determined by lab test).

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(5) For small waterbodies (e.g., drainage ditches), pump all water from the affected areas and remove all sediment that is contaminated with PCB's. Remaining soil should have a PCB concentration less than 1 ppm PCB's. Properly label and package liquids and solids for disposal. See NEESA PCB Management Plan of Oct 89 or contact the Natural Resources and Environmental Affairs (NREA) Branch, Facilities Division, for proper labeling and packaging procedures.

b. Step 2. Solvent Decontamination: Porous surfaces (e.g., wood, soil, etc.) cannot be adequately decontaminated and must be removed, properly disposed of, and replaced with new materials. Nonporous surfaces (e.g., sealed portland concrete, metal surfaces, etc.) should either be removed or decontaminated as outlined below.

(1) After cleaning up bulk PCB material, spread an appropriate solvent (e.g., kerosene, xylene, toluene, trichloroethane, trichlorobenzene, power cleaner 155) evenly over the spill area, using a stainless steel sprayer or by light sprinkling. Apply solvents in sparing amounts.

(2) Use a broom or scrub brush to work the solvent into the surface.

(3) Wipe up all solvent with rags or other absorbent material.

(4) Remove contaminated rags and absorbent material using a broom or shovel.

(5) Repeat the cleanup process at least once. EPA requires that for low concentration spills which involve less than one pound of pure PCB's, all contaminated surfaces must be washed and rinsed at least two times. For all other spill situations, the cleanup process must be repeated until the required concentration level has been reached. Concentration levels must be verified by standard wipe tests. See Enclosure (15) for required cleanup concentration levels.

(6) Collect all spent decontaminants, absorbents, protective clothing, and gloves and place them in labeled, leakproof containers for proper disposal. All items should be turned in to the NREA Branch, Facilities Division.

(7) Tools, vehicles, equipment, and other nonporous objects may be decontaminated by applying solvent with a brush or by dipping objects into solvent. However, it is recommended that all expendable contaminated items be disposed of and replaced.

(8) All tools and surfaces must be thoroughly rinsed using a sparing amount of clean water. All water used in rinsing must be

collected and placed in a labeled, leakproof container for proper disposal.

c. **Step 3. Personnel Decontamination:** Employees who are unaware of the presence of **PCB's** may attempt to clean up a spill without using the proper personal equipment, thereby causing contamination of clothing and skin. If this occurs, decontamination must take place immediately to remove any PCB oil or dielectric fluid from the skin. The decontamination procedure is shown below.

- (1) Immediately wipe off any traces of oil from skin.
- (2) Remove clothing as soon as possible.
- (3) Wash skin with waterless soap. (Rags or towels must be collected and placed in proper containment for disposal.)
- (4) Shower with soap and water.

All personnel who have or may have come into direct contact with any PCB oil or dielectric fluid should be placed in a medical surveillance program. This program should include an initial checkup, as soon as possible after exposure, and physical examinations at least annually. In general, employees who work in an area where **PCB's** are used or who work in cleanup crews should have a **preplacement** or pre-cleanup physical to establish a medical baseline.

d. **Step 4. Sample Collection**

- (1) Collect representative samples of all affected areas (soil, water, solid surfaces, etc.) and analyze for PCB content. If the spill was caused **by fire** or high pressure, samples also need to be tested for dioxins, and furans.
- (2) Perform standard wipe tests on all affected solid surfaces. Guidance on performing standard wipe tests is provided in NEESA PCB Management Plan of **Oct** 89.
- (3) **All** sampling must be documented. See enclosure (6) for recordkeeping requirements.
- (4) Laboratory services for sampling and testing have been contracted out. Contact the Head, NREA Branch, Facilities Division, for guidance and assistance in performing samples correctly.

The procedures described above are only the preliminary steps to complete PCB decontamination. For more extensive instructions and guidance in follow-up actions, contact: Naval Facilities Engineering Command or Naval Energy **Environmental** Support Activity.

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3. PCB Fire-Related Emergency

a. When a PCB transformer is involved in a fire-related incident, the **PCB's** in the dielectric fluid can volatilize and form dioxins and furans, compounds which are approximately 10,000 times more toxic than **PCB's**. All such incidents must be immediately reported to the National Response Center (1-800-424-8802). Be prepared to provide the following information:

(1) The type of PCB transformer (e.g., high or low secondary voltage network or radial transformer);

(2) The cause of the fire-related incident (e.g., high or low current fault), if known.

(3) Additional information necessary for proper documentation.

b. For PCB fire-related incidents, immediate measures must be taken to contain and control any potential releases of **PCB's** or dioxins into water bodies. These measures include, but are not limited to:

(1) Block all floor drains in the vicinity of the transformer.

(2) Contain water run-off.

(3) See "Detailed Spill Cleanup Instructions" in paragraph 2 of this Order.

(4) Control and treat any water used in subsequent cleanup operations.

c. When responding to PCB emergencies, it is imperative that cleanup crews take special precautions to prevent additional contamination to the environment. If a fire occurs inside a building, do not vent PCB smoke to the outside; doing so will cause widespread contamination. When using machinery (e.g., cranes, trucks, etc.) for **cleanup**, **do** everything possible to avoid contaminating equipment. Otherwise, machinery will have to be decontaminated or disposed.

4. Spill Reporting Requirements. The On-Scene Spill Coordinator is responsible for notifying the appropriate authorities when a PCB spill occurs. Enclosure (16) identifies reporting requirements for different spill situations. PCB spills must be reported per OPNAVINST 5090.1 and MCCDCO **P6240.4**. The proper spill reporting requirements and message format are provided in NEESA PCB Management Plan of **Oct** 89.

5. PCB Spill Cleanup Requirements. EPA has set different cleanup requirements, depending on spill location and the concentration of PCB's in the spilled fluid. Refer to enclosure (15) for required cleanup concentration levels.

6. Spill Cleanup Documentation. The following items must be included in PCB spill decontamination records. The records must be maintained for five years:

a. Identification of the spill source (e.g., transformer, capacitor, oil switch, etc.)

b. Time and date of occurrence (actual or estimated).

c. Date and time that cleanup is completed.

d. If cleanup is delayed by an emergency or adverse weather, document cause of delay, duration of the delay, and time the delay occurred.

e. Brief description of spill location.

f. Pre-cleanup sampling data and a brief description of the sampling method.

g. Brief description of the solid surfaces cleaned and the cleaning method used.

h. Approximate depth of soil excavation and the amount of soil removed.

1. Post-cleanup verification sampling data.

j. A certification statement signed by the responsible party stating that the cleanup standards have been met and that the recorded information is true to the best of his/her knowledge.

Note: While not required for EPA compliance, the following information would be useful if maintained in the records:

k. Estimated cost of cleanup by man-hours, dollars or both.

l. Equipment manufacturer's name and address.

m. Type of fluid spilled (e.g., dielectric, mineral oil, etc.)

n. Quantity of PCB's spilled. (This quantity can be estimated using the procedure contained in Appendix L of NEESA PCB Management Plan of Oct 89).

o. Lab analysis of samples.

ENCLOSURE (14)

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7. **Sampling** Reaquirements. For all high-concentration spills and for low-concentration spills which involve more than 1 pound of pure PCB, spill cleanup must be verified using the EPA sampling requirements specified in 40 CFR, Part 761.130.

ENCLOSURE (14)

PCB SPILL CLEANUP CONCENTRATION LEVELS

<u>SPILL SITUATION</u>	<u>CONCENTRATION LEVELS</u>
1. Solid surfaces in electrical substations*.	100 ug per 100 sq. cm.
2. Restricted access, low-contact* , indoor, non-impervious surfaces.	100 ug per 100 sq. cm., if encapsulated.**
3. Restricted access, low-contact* , outdoor, surfaces.	100 ug per 100 sq. cm.
4. Nonrestricted access, low-contact*, outdoor, nonimpervious surfaces.	100 ug per 100 sq. cm.
5. Solid surfaces that are not listed above.	10 ug per 100 sq. cm. if encapsulated.**
6. Outdoor electrical substation* soil.	25 ppm PCB's or 50 ppm, if a label*** is visibly displayed.
7. Restricted access* area	25 ppm PCB's .
8. Nonrestricted access* area soil.	10 ppm PCB's with minimum excavation depth of 10 in.
9. Surface waters, sewers, grazing lands, vegetable gardens, drinking water.	Site-by-site requirements will be imposed by the regional authority.

* Term is defined in enclosure (1) of this Order.

** Permission to encapsulate a low concentration spill must be obtained from the Environmental Protection Agency Regional Administrator.

*** "**Label**" in this case means any sign or placard that identifies the area as a PCB contaminated area.

PCB SPILL NOTIFICATION

<u>PCB SPILL SITUATION</u>	<u>NOTIFY</u>	<u>TIME LIMIT**</u>
1. PCB concentration 50 ppm or greater, affecting: a. surface waters, sewers b. drinking water supplies c. grazing lands, vegetable gardens.	EPA NAVFACENGCOM HQMC	24 hours
2. Ten pounds or more of pure PCB's .	EPA NRC NAVFACENGCOM HQMC	24 hours
3. High concentration* spills. Low concentration spills involving more than one pound of pure PCB's .	EPA NRC NAVFACENGCOM HQMC	24 hours (48 hours, for transformers)
4. PCB Fire-related incident*	NRC	Immediately

* Terms are defined **in enclosure** (1) of this Order. Acronyms are explained below:

EPA = Environmental Protection Agency Regional Office
(Office of Pesticides and Toxic Substances Branch)
HQMC = Headquarters Marine Corps (LFL)
NAVFACENGCOM = Naval Facilities Engineering Command
NRC = National **Response** Center (1-800-424-8802)

** This is the maximum time allowed for notification of the authorities and initiation of cleanup. See enclosures (12), (14), and (15) for spill contingency and cleanup instructions and cleanup concentration levels.

TRAINING REQUIREMENTS

1. Polychlorinated Biphenyl (PCB) Training and Education

a. Training and education of employees in safe working practices is the key to reducing and/or eliminating exposure to PCB's. Therefore, each activity whose employees come in contact with PCB's shall initiate an educational program which will ensure that these employees have knowledge of: job hazards, proper maintenance and cleanup methods, and proper use of protective clothing and equipment. Annual review sessions should be conducted and all training will be recorded in the individuals training record. There are no known commercially available training courses on PCB handling and safety. Information and assistance are available from the Base Safety Manager, Occupational Health Specialist or Industrial Hygienist.

b. Training shall include, as a minimum:

(1) Inform all new and present employees working with PCB's of the hazards; relevant symptoms and effects of overexposure to PCB's; and precautions to be observed for safe use and handling of PCB's. (Occupational Safety and Health Administration's "Worker Right To Know.")

(2) Proper use of protective clothing and equipment whenever the potential for exposure to PCB's may exist. This should include the fact that PCB's will penetrate protective clothing if they are in contact with it for extended periods.

(3) Use, fitting, care, and maintenance of respirators. Location of self-contained breathing apparatus if maintained by others.

(4) General description of the medical monitoring program and its advantages for the employees.

(5) Proper standard operating procedures including instruction in the labeling, handling, transporting, and storing of PCB's, and cleanup of spills and leaks.

(6) Explain emergency procedures for PCB spills and fires; periodic drills should be conducted.

c. PCB training can be presented to employees in any convenient manner. It can be presented all at once or in segments. One mechanism is to present the information during the weekly (or monthly) safety meetings. Presentations can be made by any person qualified to present the topic.

d. Accurate records of the PCB training received by employees will be kept in the employee's file and with PCB program files.

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e. Assistance in developing a PCB training program can be requested from the following:

- (1) Base Safety Manager.
- (2) Occupational Health.
- (3) Industrial Hygiene.
- (4) Fire Department.
- (5) Natural Resources and Environmental Affairs Branch,
Facilities Division.

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amounts of contaminants may be transferred in removing outer garments. All disposable clothing should be placed in approved containers and disposed of according to EPA disposal procedures.

5. Respiratory Protection

a. To prevent inhalation of PCB's, each work situation (normal and emergency) must be evaluated to determine if the concentration of PCB's in the air may exceed the exposure limits. In normal situations, the PCB's in dielectric fluid will not vaporize in sufficient quantities to exceed the limits (including servicing and most spills or leaks). When fire fighting, or the concentration is unknown, it is best to use a self-contained breathing apparatus with full face-piece, operated in pressure-demand mode.

b. The use of respiratory protection for those involved in cleanup operations requires that a respiratory protection program be instituted. The respiratory protection program should include training of workers regarding the proper use, fit testing, inspection, maintenance, and cleaning of respirators. Personnel required to wear respiratory protection shall be trained annually by the Base Safety Manager.

c. Where a risk of exposure to airborne contaminants exists, such as when visible quantities of soot are to be removed, workers should wear a self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode. Alternatively, a combination supplied air respirator, with full facepiece, operated in pressure-demand or other positive pressure mode and equipped with auxiliary positive pressure self-contained air supply can be used. When cleanup operations have advanced to a point where airborne PCB's or other contaminants can no longer be detected, air-purifying full facepiece respirators are no longer necessary. However, always check with your Industrial Hygienist or Base Safety Manager before going to less protection.