

SCOPE & DEFINITIONS

This chapter contains criteria to control and abate threats to human health and the environment from the handling, use, storage, and disposal of polychlorinated biphenyls (PCBs). These criteria include specific requirements for most uses of PCBs, including (but not limited to) transformers, capacitors, heat transfer systems, hydraulic systems, electromagnets, switches and voltage regulators, circuit breakers, reclosers, and cables.

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

In or Near Commercial Buildings – Within the interior of, on the roof of, attached to the exterior wall of, in the parking area serving, or within 30 meters of a non-industrial, non-substation building.

Incinerator – An engineered device using controlled flame combustion to thermally degrade PCBs and PCB items. Examples include rotary kilns, liquid injection incinerators, cement kilns, and high temperature boilers.

Leak or Leaking – Any instance in which a PCB article, PCB container, or PCB equipment has any PCBs on any portion of its external surface.

Mark – The descriptive name, instructions, cautions, or other information applied to PCBs and PCB items, or other objects subject to this FGS.

Marked – PCB items and PCB storage areas and transport vehicles marked by applying a legible mark by painting, fixation of an adhesive label, or by any other method that meets these criteria.

Non-PCB Transformers – Any transformer that contains less than 50 ppm PCB.

PCB – Any mixture that contains one or more of the following substances in a total content greater than 0.005 percent by weight (50 ppm):

- Polychlorinated biphenyls
- Polychlorinated triphenyls
- Monomethyl-tetrachloro-diphenyl methane
- Monomethyl-dichloro-diphenyl methane
- Monomethyl-dibromo-diphenyl methane

PCB Article – Any manufactured article, other than a PCB container, that contains PCBs and whose surface(s) has been in direct contact with PCB. This includes capacitors, transformers, electric motors, pumps, and pipes.

PCB Article Container – 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.

PCB Container – Any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB articles, and whose surface(s) has been in direct contact with PCBs.

PCB-Contaminated Electrical Equipment – Any electrical equipment including (but not limited to) transformers, capacitors, circuit breakers, reclosers, voltage regulators, switches, electromagnets, and cable that contain 50 ppm or greater PCB, but less than 500 ppm PCB.

PCB Equipment – Any manufactured item, other than a PCB container or a PCB article container, which contains a PCB article or other PCB equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures.

PCB Item – Any PCB article, PCB article container, PCB container, or PCB equipment that deliberately or unintentionally contains or has as a part of it any PCB, or PCBs at a concentration of 50 ppm or greater.

PCB Large High Voltage Capacitor – A capacitor that contains 1.36 kg (3 lbs) or more of dielectric fluid and which operates at 2,000 volts alternating current (a.c.) or direct current (d.c.) or above.

PCB Large Low Voltage Capacitor – A capacitor that contains 1.36 kg (3 lbs) or more of dielectric fluid and which operates below 2,000 volts (a.c. or d.c.).

PCB Transformer – Any transformer that contains 500 ppm PCB or greater.

Restricted Access Area – Areas where access by unauthorized personnel is controlled by fences, other man-made structures, or naturally-occurring barriers such as mountains, cliffs, or rough terrain.

Substantial Contact Area – An area that is subject to public access on a routine basis or which could result in substantial dermal contact by employees.

CRITERIA

C14.1 GENERAL

C14.1.1 The installation spill contingency plan will address PCB items, including temporary storage items. Chapter 18 (Spill Prevention & Response Planning) provides criteria on how to prepare these plans.

C14.1.2 Notification of PCB spills will follow the procedures in C18.4. Spills of PCB liquids of unknown concentrations or concentrations of 50 ppm or greater will be responded to immediately upon discovery and cleaned up in accordance with the following:

- Surfaces that are located in substantial contact areas will be cleaned to 10 micrograms (μg) per 100 square centimeters (cm^2).
- Surfaces in all other contact areas will be cleaned to 100 μg per 100 cm^2 .
- Contaminated soil located in restricted access areas will be removed until the soil tests no higher than 25 ppm PCBs and will be backfilled with clean soil containing less than 1 ppm PCBs. Restricted access areas in which PCB spills have been cleaned up shall have annotated on installation real property records the level of PCBs remaining in the soil, including the extent, date, and type of sampling and a reference to any reports documenting the site conditions.
- Contaminated soil located in unrestricted access areas will be removed to a minimum depth of 10 inches or until the soil tests no higher than 10 ppm PCBs, whichever is deeper, and will be backfilled with clean soil containing less than 1 ppm PCBs.
- Contaminated soil, PCB waste, and decontamination waste removed from the spill site will be disposed of in accordance with Chapter 6.

C14.1.3 All PCB transformers, PCB large high voltage capacitors, PCB containers, and certain PCB items containing PCBs at concentrations of 50 ppm or greater (i.e., electric motors using PCB coolants, hydraulic systems using PCB hydraulic fluid, and heat transfer systems using PCBs), as well as any PCB article containers used to store the preceding items, must be prominently marked in English and Greek. The marking must identify the item as containing PCBs, warn against improper disposal and handling, and provide a phone number in case of spills or if questions arise about disposal. This marking criteria also applies to rooms, vaults, and storage areas containing PCB transformers or storing PCBs or PCB items for disposal. In addition, the following PCB items must be marked at the time of the items' removal from use if not already marked: PCB large low voltage capacitors and equipment containing a PCB transformer or PCB large high voltage capacitor.

C14.1.4 Each installation having PCB items will maintain a written inventory that includes a current list by type of all PCB items in use and all PCB items placed into storage for disposal or disposed of for that year. For PCB items placed into storage for disposal or disposed of, the inventory will include the following information:

- Item description
- Origin of the item
- Quantity/concentration of PCB, including physical and chemical characteristics
- Date of shipment (for disposal)
- Method and location of disposal

Installations will submit the inventory of PCB items that have been disposed of in the prior year to the Greek Representative by February 28 of each year.

All inventory records should be maintained for a period of time at least 3 years after the last item on the list is disposed of.

C14.1.5 Disposal of PCB items will only be through the servicing DRMO in accordance with DoD 4160.21-M, or criterion C14.5.

C14.1.6 All periodic inspections as required in this chapter will be documented at the installation. Records of inspections and maintenance history will be maintained for 3 years after disposal of the transformer.

C14.2 PCB TRANSFORMERS (500 PPM PCB OR GREATER)

C14.2.1 PCB transformers that are in use or in storage for reuse will not be used in any application that poses a risk of contamination to food or feed.

C14.2.2 All PCB transformers, including those in storage for reuse, will be registered with the servicing fire department.

C14.2.3 PCB transformers in use in or near commercial buildings or located in sidewalk vaults will be equipped with electrical protection to minimize transformer failure that would result in the release of PCBs.

C14.2.4 Operable PCB transformers removed and stored for reuse will only be returned to their original application and location and will not be used at another location unless there is no practical alternative; and any such alternative use will not exceed 1 year.

C14.2.5 PCB transformers will be managed as follows:

C14.2.5.1 Servicing of PCB transformers installed after 30 June 1986 with PCB fluids is prohibited. Transformers installed on or before 30 June 1986 and classified as PCB-contaminated electrical equipment will only be serviced with dielectric fluid containing less than 100 ppm PCB; these transformers may be used until the end of their effective service life. PCB transformers removed from service (other than those temporarily stored for reuse in accordance with C14.2.4) will be disposed of in accordance with C14.5.

C14.2.5.2 Any servicing of PCB transformers requiring removal of the transformer coil is prohibited.

C14.2.5.3 Dielectric fluids containing 100 ppm or greater will not be reused. PCB fluids containing less than 100 ppm and removed during servicing will be captured and either reused as dielectric fluid (in PCB transformers installed on or before

30 June 1986, in accordance with C14.2.5.1) or disposed of in accordance with C14.1.5 and C14.5.

C14.2.5.4 Dielectric fluid from a PCB transformer will not be mixed with the dielectric fluid from PCB-contaminated electrical equipment.

C14.2.6 All in-service PCB transformers (greater than 500 ppm) will be inspected at least every 3 months except that PCB transformers with impervious, undrained secondary containment capacity of 100 percent of dielectric fluid or PCB transformers tested and found to contain less than 60,000 ppm PCBs will be inspected at least every 12 months.

C14.2.7 If any PCB transformer is involved in a fire such that it was subjected to heat and/or pressure sufficient to result in violent or nonviolent rupture, the installation will take measures to control water runoff, such as blocking floor drains. Runoff water will be characterized and disposed in accordance with the installation's spill plan.

C14.2.8 Replace leaking PCB transformers within 48 hours or as soon as possible. Leaking PCB transformers will be inspected daily until replaced. Leaking PCB fluid will be containerized.

C14.2.9 All transformers will be considered and treated as PCB transformers unless information to the contrary exists.

C14.3 OTHER PCB ITEMS

C14.3.1 Electromagnets, switches, and voltage regulators that may contain PCBs at any concentration will be managed as follows:

- PCB-contaminated electrical equipment (including but not limited to electromagnets, switches, and voltage regulators) installed on or before 30 June 1986 will only be serviced with dielectric fluid containing less than 100 ppm PCB; these items may be used until the end of their effective service life
- PCB equipment installed after 30 June 1986 will only be serviced with non-PCB fluid
- Servicing any electromagnet, switch, or voltage regulator installed on or before 30 June 1986 with a PCB concentration of 100 ppm or greater which requires the removal and rework of the internal components is prohibited
- PCBs removed during servicing will be captured and either reused as dielectric fluid (in PCB equipment installed on or before 30 June 1986) or disposed of in accordance with C14.5
- Dielectric fluids containing 100 ppm or greater will not be reused

- PCB-contaminated electrical equipment (including but not limited to electromagnets, switches, and voltage regulators) removed from service will be disposed of in accordance with C14.5

C14.3.2 Capacitors containing PCBs at any concentration must be managed as follows:

- Use and storage for reuse of PCB large high-voltage capacitors and PCB large low-voltage capacitors that pose an exposure risk to food or feed is prohibited.
- Use of PCB large high-voltage and PCB large low-voltage capacitors is prohibited unless the capacitor is used within a restricted-access electrical substation or in a contained and restricted-access indoor installation. The indoor installation will not have public access and will have an adequate roof, walls, and floor to contain any release of PCBs.

C14.3.3 Any PCB item removed from service will be marked with the date it is removed from service and the inventory in C14.1.4 will be updated accordingly.

C14.4 STORAGE PENDING DISPOSAL

Installations that intend to store PCB items prior to disposal must submit a permit application to the Greek representative, who may submit the application to the local Prefect. The permit application must include information about the storage facility and operations. In addition, a report on the volume of PCB waste stored in the previous year must be submitted annually to the Greek Representative, who may submit the report to the local Prefect.

Installations will comply with the following storage criteria unless more protective requirements are established in their site-specific PCB storage permit:

C14.4.1 In addition to the labeling requirements in C14.1.3, PCBs and PCB items at concentrations 50 ppm or greater that are to be stored before disposal will be labeled in accordance with Chapter 6. The items will be stored in a facility that will assure the containment of PCBs, including:

- Roofs and walls of storage buildings that exclude rainfall
- A containment berm, at least 6 inches high, sufficient to contain twice the internal volume of the largest PCB article or 25 percent of the total internal volume of all PCB articles or containers stored, whichever is greater
- Drains, valves, floor drains, expansion joints, sewer lines, or other openings constructed to prevent any release from the bermed area
- Continuous, smooth, and impervious flooring material
- To the maximum extent possible, a new PCB storage area will be located to minimize the risk of release due to seismic activity, floods, or other natural events. For facilities

located where they may face such risks, the installation spill prevention and control plan will address the risk

C14.4.2 The following items may be stored temporarily in an area, subject to weekly inspection, that does not comply with the above requirements for up to 30 days from the date of removal from service:

- Non-leaking PCB items, marked to indicate whether it is a PCB article or PCB equipment
- Leaking PCB articles and PCB equipment placed in a non-leaking PCB container that contains sufficient absorbent material to absorb fluid contained on the PCB article or equipment
- PCB containers in which non-liquid PCBs have been placed
- PCB containers in which PCBs at a concentration between 50-499 ppm have been placed, and containers marked to indicate there is less than 500 ppm PC

C14.4.3 Non-leaking and structurally-undamaged large high-voltage PCB capacitors and PCB-contaminated electric equipment that have not been drained of free-flowing dielectric fluid may be stored on pallets, or raised platforms, next to a storage area meeting C14.4 criteria if they are inspected weekly.

C14.4.4 All other PCB storage areas will be inspected at least monthly.

C14.4.5 Containers used for the storage of PCBs will be at least as secure as those required for their transport for disposal by the servicing DRMO.

C14.4.6 PCB waste must be segregated during storage.

C14.4.7 In addition to the labeling required in C14.1.3, PCB waste must be adequately labeled in accordance with Chapter 6.

C14.5 DISPOSAL

C14.5.1 Installations that generate PCB waste of 50 ppm or greater PCB will maintain an audit trail for the wastes at least as stringent as that required under the criteria in Chapter 6. Installations shall dispose of PCB items either:

- Through the servicing DRMO in accordance with DoD 4160.21-M, or
- In country in accordance with the following paragraphs and Chapter 6 after obtaining concurrence from the EEA via the Component chain of command

C14.5.2 PCB-contaminated items and fluids will only be disposed of in an incinerator with 99.9 percent combustion efficiency.

C14.5.3 Where PCB fluids, items, or articles are disposed of in a Greek incinerator, the incinerator must hold a valid Greek operating permit. The following procedures will be followed unless more protective requirements are established in the incinerator facility's operating permit:

- Combustion criteria shall maintain the introduced liquids for a 2-second dwell time at 1,100 °C and 6 percent excess oxygen in the stack gas in accordance with the incineration requirements established in Chapter 6
- Combustion efficiency, measured by the ratio of the concentration of carbon dioxide to the total concentration of both carbon dioxide and carbon monoxide, will be maintained at least 99.9 percent
- The rate and quantity of PCBs which are fed to the combustion system shall be measured and recorded at regular intervals not greater than 15 minutes
- The temperatures of the incineration process shall be continuously measured and recorded
- The flow of PCBs to the incinerator shall stop automatically if temperature criteria are not met
- Monitoring is conducted sufficient to determine that an incinerator to be used for disposal the first time will operate within the criteria above
- Continuous monitoring is conducted during incineration of PCBs for oxygen and carbon monoxide and periodic monitoring for carbon dioxide

C14.5.4 Retrogrades of PCB Items. DoD-generated PCB items manufactured in the U.S. will be returned to CONUS via DRMS for delivery to a permitted disposal facility if Greek or third country disposal is not possible, is prohibited, or will not be managed in an environmentally sound manner. Ensure that all PCB items and equipment are marked in accordance with the criteria in C14.1.3.

C14.6 ELIMINATION OF PCB PRODUCTS

C14.6.1 Installations shall minimize the use of PCBs and PCB items without degrading mission performance.

C14.6.2 Installations shall not purchase or otherwise take control of PCBs or PCB items for use.

C14.6.3 All procurement of transformers or any other equipment containing dielectric or hydraulic fluid shall be accompanied by a manufacturer's certification that the equipment contains no detectable PCBs (less than 2 ppm) at the time of shipment.

C14.6.4 Such newly procured transformers and equipment shall have permanent labels affixed stating they are PCB-free (no detectable PCBs).

ADMINISTRATIVE ITEMS

1. Installations will submit the inventory of PCB items that have been disposed of in the prior year to the Greek Representative by February 28 of each year.
2. Installations that intend to store PCB items prior to disposal must submit a permit application to the Greek representative, who may submit the application to the local Prefect. The permit application must include information about the storage facility and operations. In addition, a report must be submitted annually to the local Prefect on the volume of PCB waste stored in the previous year.