NASA Ames Research Center
Ames Environmental Procedural Requirements

Chapter 9 - Polychlorinated Biphenyl Management

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9.1 Applicability

This instruction is applicable to all civil servant and contractor employees, and tenant and NASA partner personnel at Ames Research Center (Ames), Moffett Federal Airfield (MFA), and Crows Landing Flight Facility.

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9.2 Purpose

This chapter establishes the minimum requirements for an Ames Polychlorinated Biphenyl (PCB) management program to protect human health and the environment and comply with applicable Federal, state, and local regulations.

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9.3 Policy

It is the policy of Ames Research Center to:

1. Comply with all pertinent statutory and regulatory requirements and Executive Orders related to PCB management. Ames recognizes and complies with applicable Federal, state, and local regulations.
2. Consult about the best techniques and methods to manage PCBs with Federal, state, and local agencies, as appropriate, including:
    - U.S. Environmental Protection Agency (EPA)
    - California Department of Toxic Substances Control (DTSC)
    - Santa Clara County Health Department (SCCHD)
    - Stanislaus County Health Department (SCHD)
3. 3. Promote employee awareness of PCB management through training and active information dissemination.

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9.4 Authority

All relevant Federal, state, and local laws and regulations pertaining to the management of PCBs including, but not limited to:

1. Toxic Substances Control Act, (PL 94-469) Section 6(e)
2. 40 CFR 761-Polychlorinated Biphenyls Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
3. 40 CFR 350-372-Emergency Planning and Community Right-to-Know (EPCRA) regulatory requirements relating to PCBs
4. Executive Order 12088, amended by Executive Order 12580, Federal Compliance with Pollution Control Standards
5. Executive Order 12856 of August 3, 1993, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements
6. NASA Policy Directive 8800.16, NASA Environmental Management
7. Environmental Excellence for the Twenty-First Century, NASA Strategy Document
8. Ames Policy Directive 8800.4, Ames Environmental Programs
9. 22 CCR 66268.110ÑTreatment Standards for PCB Wastes

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9.5 Responsibilities

9.5.1 Environmental Services Office, Code QE (Environmental Office)

1. Identify laws and regulations to which Ames must adhere.
2. Develop Ames policy to implement the identified laws and regulations.
3. Provide oversight and direction.
4. Provide consultation, services, and support.
5. Sign Hazardous Waste Manifests, as required, in the event that PCB-contaminated material or waste is shipped offsite for disposal.
6. Conduct quarterly PCB transformer inspections.
7. Provide necessary PCB training.
8. Provide required reports to regulatory agencies.
9. Provide for the disposal of PCB equipment and waste.
10. Respond to spills of PCBs.
11. Serve as technical point of contact for regulatory agency inspections.
12. Prepare annual document logs.

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9.5.2 Users of PCB-Containing or -Contaminated Equipment

1. Conduct operations in compliance with all applicable regulations, requirements, and permit conditions.
2. Participate and provide input in order to complete plans and reports on time.
3. Provide access for inspections, assessments, and audits by the Environmental Office

and regulatory agencies.
4. Implement corrective actions, if required.
5. Attend training, as required.
6. Maintain training records and provide copies of any offsite PCB training to the Environmental Office.
7. Maintain operations in accordance with the Building Emergency Action Plan (BEAP).
8. Inform the Environmental Office of changes in operations affecting storage and use of PCBs.
9. Promptly report spills, leaks, or other releases of PCBs to the Environmental Office.

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9.5.3 Facilities Engineering (Code FEF)

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9.5.4 Facilities Maintenance (Code JFP)

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9.5.5 Line Management and Contracting Officers Technical Representatives

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9.5.6 Aeronautical Facilities Engineering Branch (Code FOF)

[redacted]

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9.6 Definitions

9.6.1 Annual Document Log/Report

A detailed report prepared annually by the Environmental Office and maintained at Ames that tracks the PCB equipment onsite, and also covers PCB waste handling, inspections, etc.

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9.6.2 Combustible

A material with a flashpoint at or above 100 degrees F (Unified Fire Code).

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9.6.3 PCB Article

Any manufactured article, other than a PCB Container, that contains PCBs and whose surface(s) has been in direct contact with PCBs. Examples include transformers, capacitors, electric motors, pumps, and pipes.

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9.6.4 PCB Contaminated

A substance with a PCB concentration greater than or equal to 50 parts per million, and less than 500 parts per million of 40 CFR 761.

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9.6.5 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.

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9.6.6 PCB Containing

A PCB concentration greater than or equal to 500 parts per million of 40 CFR 761.

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9.6.7 PCB Inspections

Quarterly inspections by the Environmental Office of all PCB-Containing and -Contaminated transformers. Each transformer is inspected for the following:

1. Leaks.
2. Presence of storm drains.
3. Presence of combustible materials within five (5) meters.
4. Appropriate labeling.
5. Whether the area around the transformer is locked.
6. Secondary containment.
7. Date.
8. Inspector's name.

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9.6.8 Polychlorinated Biphenyl (PCB)

A biphenyl molecule that has been chlorinated to varying degrees and that belongs to a family of organic compounds known as chlorinated hydrocarbons. PCBs have a heavy oil-like consistency, a high boiling point, a high degree of chemical stability, low flammability, and low electrical conductivity. PCBs and PCB byproducts are highly toxic and persistent. They have been found to be teratogenic and carcinogenic. PCBs are known to cause chronic reproductive effects, gastric disorders, and skin lesions, such as chloracne.

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9.6.9 Large Capacitor

A capacitor that contains 1.36 kg (3 lb) or more of dielectric fluid.

9.6.10 Prohibited Activities

The following is a list of prohibited activities as they apply to PCBs. Any questions concerning this list should be directed to the Environmental Office.

1. No persons may use any PCB, regardless of concentration, in any manner

other than in a totally enclosed system. An example of a totally enclosed system is nonleaking electrical equipment.
2. No persons may manufacture PCBs for use within the United States.
3. No persons may process or distribute in commerce any PCB, or any PCB item, regardless of concentration, for use within the United States or for export from the United States without a specific exemption.

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9.6.11 Retrofill

To remove PCB or PCB-Contaminated dielectric fluid and to replace it with non-PCB dielectric fluid.

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9.6.12 Small Capacitor

A capacitor that contains less than 1.36 kg (3 lb) of dielectric fluid.

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9.6.13 Standards

The numerical decontamination levels set forth in Subpart G of 40 CFR 761.

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9.6.14 Storage Facility

A facility designated to store PCB-Containing and -Contaminated waste, or other materials. Any such facility must meet the following minimum standards:

1. Adequate roof and walls to prevent rainwater from reaching the stored PCBs and PCB items.
2. An adequate floor that has continuous curbing with a minimum 6-inch-high curb. The floor and curbing must provide a containment volume equal to at least two times the internal volume of the largest PCB Article or PCB Container stored therein or 25 percent of the total internal volume of all PCB Articles or PCB Containers stored therein, whichever is greater.
3. No drain valves, floor drains, expansion joints, sewer lines, or other openings that would permit liquids to flow from the curbed area.
4. Floors and curbing must be constructed of continuous, smooth, and impervious materials.
5. Not be located at a site that is below the 100-year flood-water elevation.

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9.7 Affected Operations

[redacted]

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9.8 General Management Requirements

PCB-containing or -contaminated equipment must be managed appropriately. The following are general PCB management requirements:

1. PCB-containing and -contaminated transformers must be inspected quarterly by the Environmental Office.
2. Combustible materials must not be stored within 5 meters of a PCB-containing or -contaminated transformer.
3. All PCB-containing and -contaminated equipment, and enclosures which house them, must be appropriately labeled.
4. Any leak in a PCB-containing or -contaminated piece of equipment must be reported immediately to the Environmental Office.
5. Releases must be cleaned up immediately by trained personnel, and all releases must be documented and reported, as applicable.

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9.9 Specific Management Requirements

9.9.1 Labeling

In accordance with Federal regulations, the following must be labeled with label approved by U.S. Environmental Protection Agency:

1. All PCB-containing equipment-
2. All means of access to PCB Transformers other than grates or manhole covers, and
3. Specific PCB-Contaminated equipment:
    - PCB-contaminated containers
    - Electric motors using PCB-contaminated hydraulic fluid, and
    - Heat transfer systems (other than transformers) that use PCB-contaminated fluids.

Other PCB-contaminated equipment, such as PCB-Contaminated transformers, should be appropriately labeled as such. See Appendix A for examples of PCB-containing and PCB-Contaminated labels.

The PCB-Containing label shall contain the following information:

1. Identification of either PCB-containing or PCB-contaminated material.
2. The PCB concentration, as determined by sampling.
3. PCB-containing material requires that the phone number for the U.S. Coast Guard National Response Center [redacted] be provided.
4. Name and phone number of contact person.

Labels for PCB-containing and PCB-contaminated equipment are available from the Environmental Office or designee.

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9.9.2 Spill Cleanup, Fire Protection, and Personal Protective Equipment

1. A spill of PCB-containing or PCB-contaminated materials shall be cleaned up only by personnel familiar with the hazards of the material and trained in chemical emergency response. Any spill or release of PCB-contaminated or PCB-containing material shall be reported to the Environmental Office.
2. All spills must be recorded on a spill cleanup log or a similar document.
3. When a spill has been cleaned up, the resulting material must be managed as a hazardous waste. Refer to your BEAP or Chapter 15, Emergency Response, of this handbook for instructions on hazardous materials spills or other releases and Chapter 4, Hazardous Waste Management, for instructions on hazardous waste management.

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9.9.3 Inspections

1. All PCB-containing and -contaminated transformers must be inspected quarterly by the Environmental Office. PCB transformer inspections must be documented. An example inspection form has been included in Appendix B.
2. PCB transformer inspections must include, but are not limited to, the following questions:
   - Is the transformer leaking?
   - Is the transformer secondarily contained?
   - Are storm drains present near the transformer?
   - Are combustibles stored within 5 meters of the transformer?
   - Is the transformer enclosure locked?
   - What is the date?
   - What is the inspector's name?
   - Is there proper labeling?

Other items may be added, and the checklist may be customized according to the operation.

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9.9.4 Training Requirements

All personnel who use or store PCB-contaminated or PCB-containing materials must receive training in the safe use, handling, and proper storage methods specific to the materials and hazards associated with their normal work. Personnel must also receive training on how to read and understand MSDS and how to respond to a hazardous materials spill.

For specific training requirements and regulatory references, refer to Chapter 7, of this handbook, Training.

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9.9.5 Disposal Requirements

1. Any material or piece of equipment, that contains PCBs in a concentration of five (5) parts per million (ppm) or greater must be disposed of as a hazardous waste. Contact the Environmental Office, or its designee, for information concerning proper disposal. Also, contact the Environmental Office if it is unclear whether the material or equipment may contain PCBs.
2. Dilution is not a legal method to reduce the PCB concentration below the regulatory limit. No provision specifying a PCB concentration may be avoided as a result of any dilution.
3. Mixing a PCB waste with another waste stream is also unacceptable. Any PCB waste that is mixed with either a Resource Conservation and Recovery Act (RCRA), radiation, or other waste must be disposed of according to all applicable regulations.

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9.10 Metrics

a. Percent of PCB and PCB-contaminated transformers inspected quarterly

   Goal: 100%

b. Percent of inspection discrepancies forwarded to appropriate user within one hour for leaks and 24 hours for other discrepancies.

   Goal: 100%

c. Percent of PCB Annual Document Logs completed by July 1.

   Goal: 100%

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9.10 Sources of Additional Information or Assistance

1. Environmental Services Office [redacted]
2. Environmental Office WWW Home Page at http://dq.arc.nasa.gov

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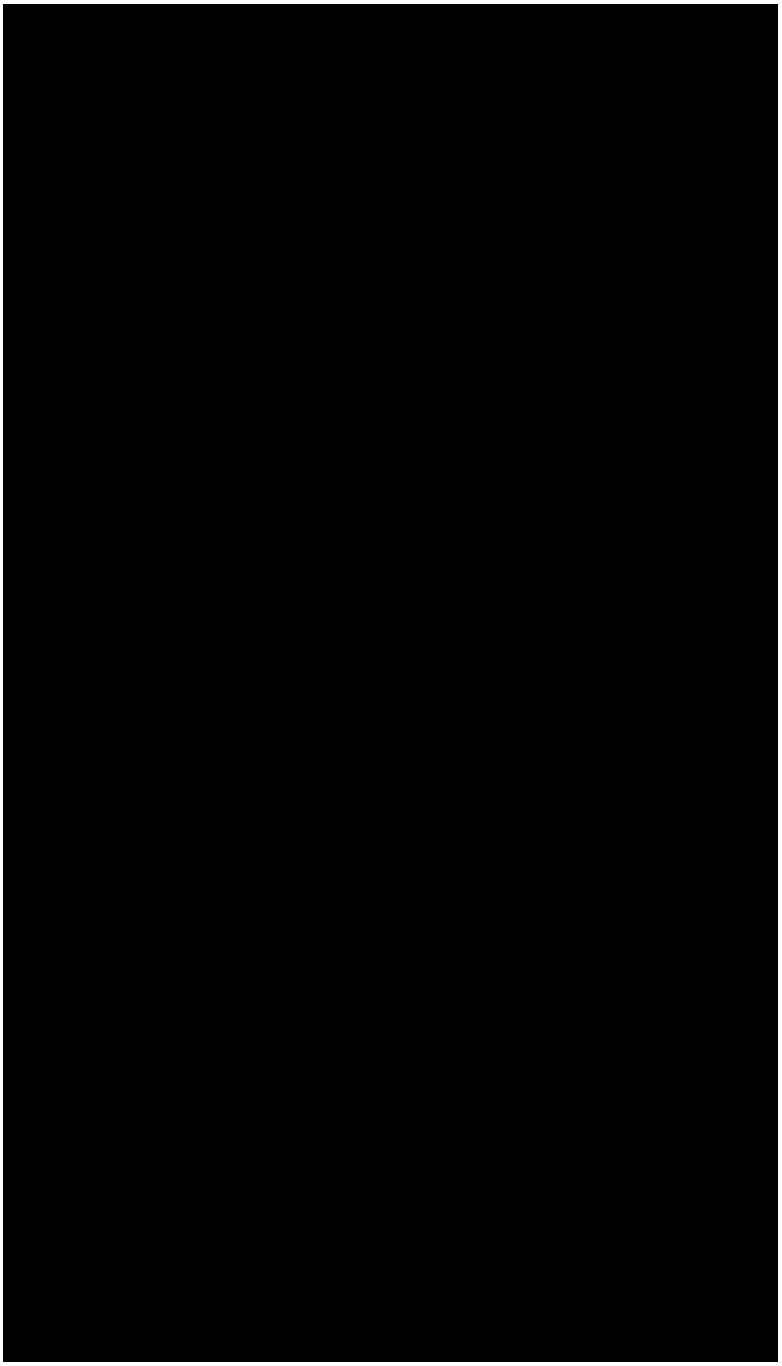
9.12 Appendices

9.12.1 Appendix A. Example of PCB-Containing and PCB-Contaminated Labels



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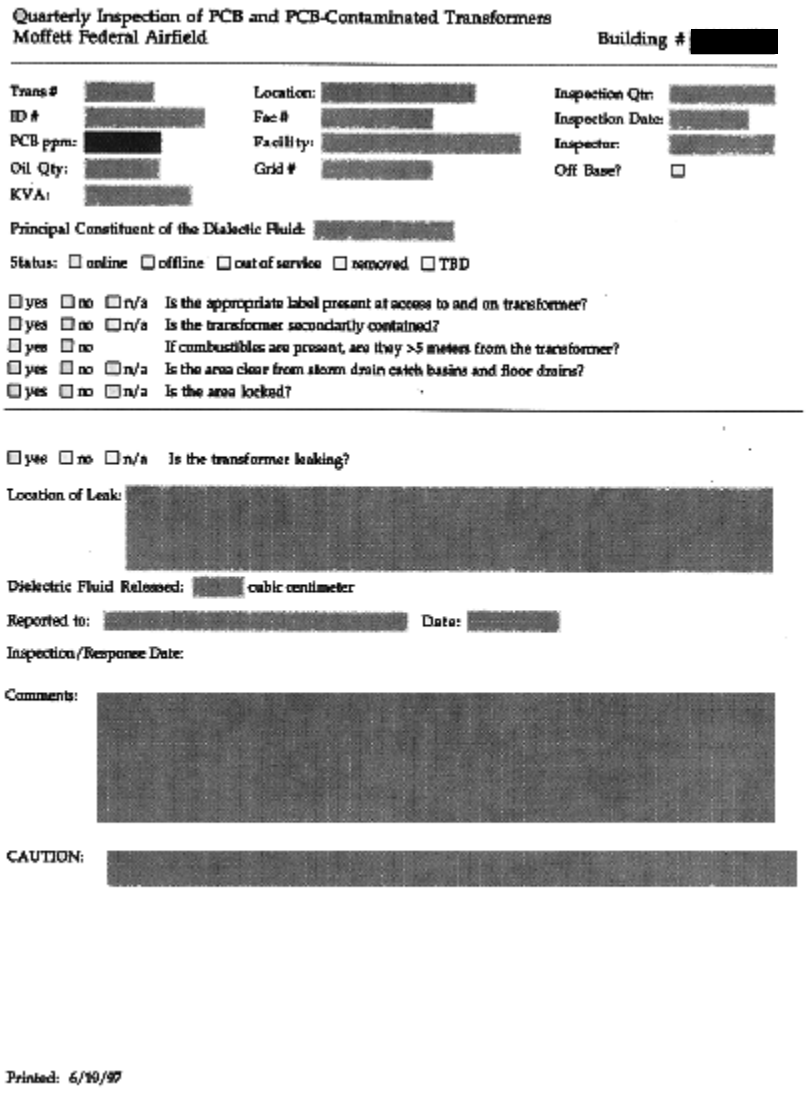
9.12.2 Appendix B. Example of PCB Transformer Inspection Form



Quarterly Inspection of PCB and PCB-Contaminated Transformers
Moffett Federal Airfield

Building #

Trans #
ID #
PCB ppm:
Oil Qty:
KVA:

Location:
Fac #
Facility:
Grid #

Inspection Qtr:
Inspection Date:
Inspector:
Off Base? ☐

Principal Constituent of the Dialectic Fluid:

Status: ☐ online ☐ offline ☐ out of service ☐ removed ☐ TBD

☐ yes ☐ no ☐ n/a Is the appropriate label present at access to and on transformer?
☐ yes ☐ no ☐ n/a Is the transformer secondarily contained?
☐ yes ☐ no If combustibles are present, are they >5 meters from the transformer?
☐ yes ☐ no ☐ n/a Is the area clear from storm drain catch basins and floor drains?
☐ yes ☐ no ☐ n/a Is the area locked?

☐ yes ☐ no ☐ n/a Is the transformer leaking?

Location of Leak:

Dielectric Fluid Released: cubic centimeter

Reported to: Date:

Inspection/Response Date:

Comments:

CAUTION:

Printed: 6/19/97

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END OF DOCUMENT