

PART 1 GENERAL**1.1 SECTION INCLUDES**

- .1 Procedures and materials required for the safe handling, management and elimination of polychlorinated biphenyl (PCB) containing equipment and material.
- .2 Location and description of equipment:
 - .1 Building in which PCB-containing material is located: Confederation Building located at 229 Wellington Street in Ottawa ON.
 - .2 Precise location of PCB-containing equipment: three-phase Pioneer Electric transformer located in the transformer room; transformer serial no. T-4591-1.
 - .3 Estimated quantity of dielectric fluid: 267 L
 - .4 Power equipment currently under load: yes.
 - .5 Spill containment features in place at site: none.
 - .6 Fire detection systems in place at site: none.

1.2 REFERENCES

- .1 American Board of Industrial Hygiene (ABIH)
- .2 Canadian Council of Ministers of the Environment (CCME)
 - .1 PN1205-1995, PCB Transformer Decontamination: Standards and Protocols.
- .3 Department of Justice Canada (Jus)/CEPA SOR/92-507-SOR/2000-102, Storage of PCB Material Regulations
 - .1 Canadian Environmental Protection Act, 1999 (CEPA).
- .4 Environment Canada (EC)
 - .1 Manual for Spills of Hazardous Materials-1985.
- .5 Transport Canada (TC)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .6 Chlorobiphenyl Regulations (SOR/91-152; Amended SOR/2000-102)
 - .1 Regulations Respecting Mobile System for the Destruction and Treatment of Chlorobiphenyls that are Operated by or Under Contract with Federal Institutions (SOR/90-5; amended SOR/93-231 and SOR/2000-105).
 - .2 Regulations Respecting the Storage of Material Containing Chlorobiphenyls (PCBs) SOR/92-507, Amended SOR/2000-102).
 - .3 Regulations Respecting the Import and Export of Hazardous Wastes (SOR/92-637; Amended 94-459; SOR 94-684; SOR/2000-103).
 - .4 Waste Management - PCBs, R.R.O. Regulation 362/90.
 - .5 Mobile PCB Destruction Facilities, R.R.O. Regulation 352/90.

- .6 Regulation 347, General Waste Management, as Amended.

1.3 SUBMITTALS

- .1 Provide submittals in accordance with applicable sections.
- .2 Prior to starting work, Contractor performing work of this section to provide:
 - .1 Workplace Safety and Insurance Board Clearance Certificate.
 - .2 Company Health and Safety Policy.
 - .3 Certificate of Approval for Transportation of PCB Waste and Location of Destruction Facility.
 - .4 WHMIS Training Certificates for Personnel.
 - .5 Material Safety Data Sheets for chemicals or material to be used.

1.4 QUALITY ASSURANCE

- .1 Instruct personnel on risks related to PCB exposure, respirator use, decontamination and applicable Federal, Provincial and Municipal Regulations.
- .2 Obtain services of industrial hygienist certified by American Board of Industrial Hygiene to certify training, review and approve PCB removal plan, including determination of need for personnel protective equipment (PPE) in performing PCB removal work.
- .3 Complete work so that at no time do PCB's contaminate building site and environment.

1.5 SUPERVISION

- .1 Provide on-site a supervisor, with authority to oversee health and safety, transformer remediation methods, scheduling, labour and equipment requirements.
- .2 One supervisor for every 10 workers is required.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Place materials defined as hazardous or toxic in designated containers.
- .2 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.
- .3 Disposal of PCB waste generated by removal activities must comply with Federal, Provincial, and Municipal regulations.
 - .1 Dispose of PCB waste in leak proof drums.
 - .2 Containers must be labelled with appropriate warning labels.
- .4 Create manifests describing and listing waste created and transport containers by approved means to licensed facility for storage.
 - .1 For each bulk load of PCBs: identity PCB waste, earliest date of removal from service for disposal, and weight in kilograms of the PCB waste.
 - .2 For each PCB Article Container or PCB Container: unique identifying number, type of PCB waste (i.e., soil, debris, liquid), earliest date of removal from service for disposal, and weight in kilograms of PCB waste contained.

PART 2 PRODUCTS**2.1 STORAGE CONTAINERS**

- .1 Exterior containers:
 - .1 Structurally-sound and weather-sealed to hold PCB solids, PCB light ballasts, drained PCB containers or drained PCB equipment.
- .2 PCB liquid storage.
 - .1 Drums and containers:
 - .1 Designed with sufficient durability and strength to prevent PCB solids liquids from being released into environment, affected by weather, or contaminated by external sources.
 - .2 Steel, other material approved by Departmental Representative.
 - .2 Drums:
 - .1 Capacity no greater than 205 litres.
 - .2 Steel of minimum 1.2 mm for solids 1.52 mm for liquids.
 - .3 Ensure removable steel lid securely attached and complete with PCB-resistant gasket for solids closed-head double-bung steel drum.
 - .4 Paint or treat interior and exterior to prevent rusting.
 - .3 Drum Liners:
 - .1 0.15 mm thick clear polyethylene bag, 914 mm x 1524 mm, with opening at 914 mm end.

2.2 EMERGENCY RESPONSE EQUIPMENT AND SYSTEMS

- .1 Work site clean-up materials:
 - .1 Ensure availability at all time of sorbent or solvents, for clean-up of liquid or solids.
 - .2 Ensure availability at all times of inert absorbent in sufficient quantity to contain minor leakage.
 - .1 Place in bottom of each container holding PCB equipment or fluorescent lighting ballasts.
- .2 Respirators: Certified by the National Institute of Occupational Safety and Health (NIOSH) or other testing agency acceptable to the Ministry of Labour.
 - .1 Use approved full-face organic vapour cartridge respirator for exposure to hot PCB.
 - .2 Vapour concentration less than or equal to 5 mg/m³.
 - .1 Supplied-air respirator with full face piece, helmet or hood.
 - .2 Self-contained breathing apparatus with full face piece.

- .3 Vapour concentration greater than 5 mg/m³ or unknown concentrations.
 - .1 Self-contained breathing apparatus with full face piece operated in positive pressure mode.
 - .2 Type C supplied-air respirator with full face piece operated in positive pressure of continuous flow mode and auxiliary self-contained breathing apparatus operated in positive pressure mode.

2.3 WARNING SIGNS AND LABELS

- .1 Label containers of equipment, and drained containers containing chlorobiphenyls in concentration exceeding 1% with non-serialized, black and white, "ATTENTION PCB" label, measuring 150 x 150 mm, as approved by Departmental Representative in accordance with Manual of Spills of Hazardous Materials.
- .2 Label containers of PCB material and drained containers of PCB material with chlorobiphenyl concentration exceeding 50 parts per million by weight with non-serialized, Warning Label for PCB-Contaminated Equipment measuring 150 x 150 mm as approved by Departmental Representative in accordance with Manual of Spills of Hazardous Materials.
- .3 Maintain signs and labels in clear and legible condition.

PART 3 EXECUTION

3.1 COORDINATION

- .1 Ensure that the transformer is accessible and fully de-energized.
- .2 Submit schedule to owner representative regarding all decontamination and removal activities.

3.2 HANDLING TRANSFORMERS

- .1 Decontamination of PCB transformer and vicinity:
 - .1 Drain dielectric fluid from transformer.
 - .2 Flush transformer with solvent repeatedly until target maximal concentrations are achieved. Recover and store all liquids. Treat as PCB-containing liquids.
 - .3 Drain transformer, switches, and regulators of free flowing liquid prior to transportation. Place drained liquids in DOT certified drums. Drums to contain not more than 190 L of oil.
 - .4 Clean floor using chemical absorbent techniques.
 - .5 Send all recovered fluids to approved incinerator for destruction.
 - .6 Transport transformer carcass to decontamination facility.
- .2 Maximum allowable PCB concentrations:
 - .1 Dielectric fluid concentration.
 - .1 Mineral oil transformers:
 - .1 Decontaminate by retrofilling, on-line chemical treatment.

- .2 PCB fluid concentration no greater than 50 ppm verified by 90-day test.
 - .2 Askarel transformers:
 - .1 Decontaminate by series retrofilling, in-situ processing.
 - .2 PCB fluid concentration no greater than 50 ppm verified by 90-day test.
 - .3 PCB fluid concentration no greater than 50 ppm.
 - .4 Porous materials:
 - .1 Considered PCB waste unless shown otherwise.
 - .2 Separated and stored, destroyed by methods approved for PCB waste.
- .3 Recycling of Transformers:
 - .1 Dielectric fluid concentration.
 - .1 PCB fluid concentration no greater than 5 ppm verified by 90-day test in accordance with the PCB Waste Storage Regulations 21/89.
 - .2 PCB fluid concentration no greater than 50 ppm verified by 90-day test in accordance with the PCB Waste Storage Regulations 21/89.
 - .2 Surface contamination:
 - .1 Solvent cleaned:
 - .1 10 ug/100 cm².
 - .2 Shredded and incinerated:
 - .1 Less than 0.5 ppm by weight.
 - .2 10 ug/100 cm².
 - .3 Porous materials:
 - .1 Considered PCB waste unless proven otherwise.
- .4 Landfilling of Transformers:
 - .1 Residual solvents in transformer shall have PCB concentration no greater than 50 ppm before draining.

3.3 HANDLING LIQUID CHLOROBIPHENYL

- .1 As liquid chlorobiphenyl contains 54% chlorine, use impervious clothing (nitrile), gloves, face shields 200 mm minimum and other appropriate protective clothing necessary to prevent skin contact. Do not use natural rubber, neoprene, or polyvinyl chloride (PVC).
- .2 Place contaminated clothing in closed containers for storage. Dispose of contaminated clothing in same manner as PCBs.
- .3 Ensure that contaminated non-pervious clothing is removed promptly and not reworn until cleaned.
- .4 Wear splash-proof safety goggles where liquid chlorobiphenyl (54% chlorine) may contact eyes.

3.4 EMERGENCY RESPONSE

.1 General:

- .1 Immediately report to Departmental Representative PCB spills on ground or in water, PCB spills in drip pans, or PCB leaks.
- .2 Rope off area around edges of PCB leak or spill and post "PCB Spill Authorized Personnel Only" caution sign. Immediately transfer leaking items to drip pan or other container.
- .3 Initiate cleanup of spills as soon as possible, but no later than 48 hours of its discovery. If misting, elevated temperatures or open flames are present, or if spill is situated in confined space, notify Departmental Representative. Mop up liquid with rags or other conventional absorbent. Properly contained and dispose of spent absorbent as solid PCB waste.
- .4 Workers to evacuate site. When leaving, shut down water in use. Only personnel trained in use of, and wearing SCUBA apparatus, will be allowed to re-enter site.
- .5 Do not return to site until Owner's representative and Ministry of the Environment representatives have declared the area safe for re-entry.

.2 Spill, leak, and disposal procedures:

- .1 Permit access to only those wearing protective equipment and clothing.
- .2 Call local fire department or PCB Emergency Response Team.
- .3 Inform owner representative.
- .4 Avoid contact and inhalation.
- .5 Remove ignition sources.
- .6 Ventilate areas of spill or leak.
- .7 Stop or reduce discharge if possible without risk.
- .8 Collect spilled material for reclamation.
- .9 Do not flush to sewer.
- .10 Use only inert sawdust vermiculite dry sand earth absorbents.
- .11 Wipe contaminated area with rags and kerosine fuel oil or 1,1,1-trichloroethane (chlorothene VG solvent). Do not use acetone or toluene.
- .12 Notify environmental authorities to determine disposal and clean-up procedures.

.3 Respirators:

- .1 Use when chlorobiphenyl concentrations are above permissible exposure levels.
- .2 Use when entering tanks or closed vessels.
- .3 Use in emergency situations.

.4 Permissible exposure limit.

- .1 0.5 milligram of chlorobiphenyl (54% chlorine) per cubic metre of air, averaged over 8 hours, 1.0 microgram of chlorobiphenyl (54% chlorine) per cubic metre of air up to 10 hours/day.

3.5 SITE SANITATION REQUIREMENTS

- .1 Promptly wash liquid-contaminated skin with soap or mild detergent and water.
- .2 Prohibit eating and smoking in areas where liquid chlorobiphenyl (54% chlorine) is handled, processed or stored.
- .3 Wash hands thoroughly with soap or mild detergent and water after handling liquid chlorobiphenyl (54% chlorine).

3.6 FIELD QUALITY CONTROL

- .1 Inspect storage site monthly and repair or replace, if necessary, PCB equipment, floors, drains, drainage systems, fire prevention apparatus, personnel protection equipment, security fences and materials used for clean-up at site.
- .2 Immediately repair or replace drum, container or equipment found to be leaking PCBs.
- .3 Immediately clean up contaminated area.
- .4 Ensure controlled access to storage site to prevent entry by unauthorized persons.

END OF SECTION