

CASE STUDY: PCB SURFACE CONTAMINATION/REMEDIATION

Project Description: Condominium Basement Transformer Room

Scope of Services: AET was contracted by a property manager to evaluate suspect PCB surface contamination/staining on the concrete floors associated with three operating transformers in the basement of a condominium complex. Reportedly these transformers had been drained and retrofilled in 1992. However, no test results regarding the PCB content after the retrofill process was available for review. The transformer entry door and transformers themselves remain affixed with PCB labels.

AET's Investigative Approach/Sampling/Decision-Making:

1. **Visual Inspection:** Evidence of a sticky, oil-like staining was noted on the floor and equipment surfaces near each of the three transformers.
2. **Surface Wipe Sampling:** A total of 4 wipe samples using hexane impregnated sterile gauze pads were collected. Only 1 transformer was identified with PCB surface contamination exceeding 10 ug/100cm², the criteria designated as clean for unrestricted access on indoor solid surfaces.

AET's Experience: PCBs were widely used as a fire retardant in the dielectric and coolant fluids in transformers manufactured between 1929 and 1977. In 1979, EPA's TCSA Regulations 40 CFR Part 761 banned/prohibited the manufacture, use, storage and disposal of PCBs and PCB items. This ban was due to PCB's long term persistence/accumulation in the environment, slow elimination from the human body and its link to cancer. PCBs are readily absorbed through the skin.

This regulation established controls based on specific concentrations of PCBs in the transformers. A PCB transformer contains >500 ppm PCBs and must be identified, labeled and registered with the EPA. PCB transformers must also be visibly inspected/documented quarterly for signs of leaks. Implementation of periodic inspections and appropriate maintenance of PCB equipment reduce potential PCB leaks before they become more costly spills. The threat of fire in or near a PCB transformer is a major concern due to the formation/release of dibenzofuran and dibenzodioxin.

A PCB contaminated transformer contains between 49 and 500 ppm PCBs. Transformers containing <50 ppm PCBs are not regulated. The nameplate on the transformers contain the trade name of the dielectric fluid, the approximate weight in pounds and the amount of fluid in gallons. To verify PCB content the fluid must be tested. Equipment manufactured after 1979 should not contain PCBs.

CONCLUSION/REMEDIATION:

All affected surfaces (including areas 3 feet beyond staining) were double washed and rinsed with an approved solvent. The concrete floor surface was not excavated, but was painted/sealed with two contrasting layers of paint to be able to visually identify any breakdown in this barrier. There were no floor drains in the affected areas.

When you need professional industrial hygiene advice email Alan Sutherland, CIH, CHMM at a.sutherland@aetinc.biz or call 610-891-0114. We provide nationwide services; phone consultations are free. Check out the full range of environmental contracting/consulting services on our website www.aetinc.biz.

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