



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

Mr. Robert J. Fensterheim
Manager
PCB Program
Chemical Manufacturers Association
2501 M Street, N.W.
Washington, D.C. 20037

Dear Mr. Fensterheim:

This is in response to your August 29, 1985 letter requesting clarification of the terms commercial building and industrial building as they appear in the July 17, 1985 PCB Transformer Fires Final Rule (50 FR 29170).

As you well know, in the October 11, 1984 PCB Transformer Fires Proposed Rule, EPA proposed additional conditions on the use of PCB Transformers. The determination to propose additional restrictions on the use of PCB Transformers was based on an evaluation of the risks posed by PCB Transformer fires (and the costs and benefits of control measures to reduce those risks). EPA used an office building setting to generically evaluate the fire-related risks posed by the continued use of PCB Transformers in locations in or near buildings.

Extensive comments filed by organizations such as the American Paper Institute (API), the Chemical Manufacturers Association (CMA), and the National Electrical Manufacturers Association (NEMA) during the public comment period on the proposed rule suggested that electrical transformers used in buildings where products are manufactured, processed or stored are both operated in a fundamentally different manner than electrical transformers used in or near buildings such as office buildings, and present lower risks in the event of a fire (by virtue of the fact that fewer people are generally present in industrial facilities compared to commercial buildings and that on-site fire brigades are trained in responding to hazardous chemical fires and spills). Thus, in the Final Rule, EPA evaluated the fire-related risks posed by the use of PCB Transformers in industrial use buildings separately from the fire-related risks posed by the use of PCB Transformers in or near commercial buildings, such as office buildings.

In evaluating the nature and magnitude of fire-related risks posed by the use of PCB Transformers in buildings used directly in the manufacture, processing or storage of products (hereafter, industrial buildings) versus commercial buildings, EPA identified several important distinctions which appeared to set transformers used in industrial buildings (hereafter, industrial transformers), as a class or group, apart from commercial building transformers. First, according to API, industrial transformers "...benefit from a variety of electrical and fire safety protective measures..." and "are designed and protected in a fundamentally different fashion from power distribution systems which serve downtown commercial office buildings. Virtually all industrial PCB Transformers have simple, direct paths from power source to load, are energized on only the primary side of the circuit and, accordingly, are unlikely to experience electrical arcing...". Indeed, several comments on the proposed rule suggest that on the order of 98% of industrial PCB Transformers are of a radial configuration.

Second, according to API comments, the majority of industrial transformers are ". . . readily visible to paper facility workers during the routine conduct of their work". Thus, according to API comments, ". . . transformer or switchgear faults would be readily observable as would conditions which could create a fire in the vicinity of these transformers. "CMA comments provide further support to this:" . . . Transformers owned and maintained by the chemical industry are typically in or near the immediate vicinity of chemical manufacturing process operations"

Third, according to API comments, ". . . auxiliary disconnect switches are installed in forest industry transformer circuits, which reduces the risk associated with electrical malfunction or fire once they occur". CMA comments confirm this: ". . . special protective controls such as over-current and differential relays and pressure sensitive devices are commonly used in the chemical industry". CMA further advises that "Transformers experiencing abnormal conditions are quickly deenergized, minimizing damage and reducing the frequency and severity of such incidents".

Fourth, according to API comments, ". . . the population at risk in the event of a PCB Transformer fire-related incident is far less than the thousands of people who may be exposed to a fire in public high-rise office buildings such as those in Binghamton and San Francisco. Those persons likely to be present at a pulp and paper facility during such an incident are facility personnel who are aware of the precautions necessary in the workplace environment. Finally, according to API comments, ". . . Pulp and paper facilities have trained fire brigades which are familiar with the operation of these facilities and can respond to a fire within minutes."

In excluding industrial buildings from the requirements for phaseout and enhanced electrical protection, EPA recognized that its decision was based on an evaluation of "typical" industrial buildings, and that some industrial buildings probably did not meet all of the criteria listed earlier (and that transformers located in these facilities, therefore, presented higher fire-related risks than those present in the typical industrial building). Similarly, EPA recognized that its decision to require the removal of high secondary voltage network transformers and the enhanced electrical protection of other transformers in or near commercial buildings was based on its evaluation of "typical" commercial buildings, and that some commercial building transformers could potentially meet the criteria listed above for "industrial" transformers (and, therefore, would present lower fire-related risks than the typical commercial building transformer).

In situations where an industrial site includes separate buildings dedicated to different functions, i.e., where each building on the site is designed and used primarily for a single purpose, the transformers located in or near buildings such as office facilities and research and development laboratories (within the boundaries of an industrial site) must be considered "commercial" buildings. The record to the rulemaking does support the fact that EPA considered and continues to consider transformers located in or near industrially-owned office buildings distinct from industrially-owned manufacturing/storage buildings. In the January 15, 1985 public hearing, EPA inquired of Mr. Ralph Grotelueschen of Deere and Company what percentage of the 152 PCB Transformers owned by Deere and Company were located in Deere industrial facilities versus in Deere office buildings. Incidentally, Mr. Grotelueschen responded that most of the PCB Transformers would be in manufacturing facilities and that about 10 would be in primarily office facilities.

Further, the preamble to the PCB Transformer Fires Final Rule addresses this issue specifically by indicating that ". . . Commercial buildings are defined as non industrial (non substation) buildings which are generally or typically accessible to both members of the general public and employees. These buildings include . . . offices (e.g., general business offices (including those located on industrial sites) . . . (emphasis added)". (50 FR 29196).

In situations where a building is clearly designed and used for dual purposes, i.e., where several floors and/or a significant amount of building square footage is dedicated to purposes other than product manufacture or storage, the transformer located in or near the building must be evaluated relative to the factors listed above to determine whether it more closely meets the definition of a transformer located in or near a commercial building versus in or near an industrial building.

EPA weights the following factors heavily in making a determination whether a transformer located in or near a dual purpose building is "industrial" or "commercial":

(1) transformer configuration (radial versus network and high versus low secondary voltage); (2) location (areas which are visible by employees during the routine conduct of their work versus areas isolated from employees); (3) level of electrical protection (the use of special protective measures such as current-limiting fuses, pressure sensitive devices, and differential relays versus the limited or non existent use of special protective measures); (4) ease of deenergization (on-site disconnect equipment versus the lack of on-site control of the equipment); and (5) the level of knowledge on the part of people who may be potentially exposed about the risks posed.

In situations where a building is designed and principally used for the manufacture or storage of products but contains a few offices and/or a small research and development or quality control laboratory, the transformer located in or near such a building is considered to be an industrial transformer.

According to CMA comments, nearly all transformers used in the chemical industry are configured in a radial fashion, rather than in spot networks, and electrical experts within the industry have reported to CMA that all systems of which they are aware are radial. CMA comments do indicate that transformers employed in some few chemical plants are supplied by utilities as part of a spot network. CMA survey data from 1981 on the number of PCB Transformers in use in the chemical industry indicate that there are 4,733 PCB Transformers in use. Assuming that 98% of these transformers are radial units, only 95 of these transformers would be expected to be configured in a network fashion and, according to CMA comments, these PCB Transformers are supplied by utilities. Of the remaining (radial) transformers, CMA and API comments indicate that these transformers are typically equipped with special protective devices and on-site disconnect equipment to insure rapid deenergization in the event of a PCB Transformer fire.

If there are very few network transformers used by the chemical industry and those which are used are utility-owned, I see little impact on the chemical industry of the Agency's position that high secondary voltage network PCB Transformers located in or near commercial buildings on industrial sites be removed by October 1990.

Similarly, if the radial transformers used by the chemical industry are typically equipped with special protective devices and on-site disconnect equipment, I see little impact on the chemical industry of the Agency's position that radial PCB Transformers located in or near commercial buildings on industrial sites be equipped with enhanced electrical protection. The enhanced electrical protection requirements in

the rule involve the installation of current limiting fuses (or equivalent technology) on commercial transformers which lack such protection and the installation of low current fault protection on high secondary voltage radial PCB Transformers.

Sincerely,

A handwritten signature in cursive script, appearing to read "Suzanne Rudzinski".

Suzanne Rudzinski, Chief
Chemical Regulation Branch