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**PCB PRESENCE IN TRANSFORMER OIL
& INDUSTRY SERVICES DIVISIONS POLICY**

Information available at this time indicates there is an industry concern that transformer oil may contain minute quantities of PCB. The sampling to date indicates various levels of PCB content in some oil storage facilities, handling equipment, in oil supplied by the oil industry, and in some transformers now in service. Not all locations or transformers in service show PCB content, but sufficient numbers are known, and therefore, warrant immediate revision of procedures.

PCB's in transformer oil is not confined to Westinghouse. Evidence indicates it is spread throughout the industry and involves some customer oil inventories as well as some of our own. No one knows how long it has existed. A logical guess would be for several years. The Industry Services Divisions are taking immediate action to properly dispose of its oil containing PCB and to restore our storage and handling equipment to levels as nearly undetectable as practicable.

No single law, state or federal, covers the whole subject, and it is therefore necessary to look at the situation not only in light of current statutes, but of pending and anticipated legislation. At present, there are no nationally established standards for allowable levels of PCB's in oil for closed electrical systems.

Specifically, four states have current laws covering specific use of PCB and materials containing PCB. These are Indiana, Michigan, Minnesota, and Connecticut. A review of these State Laws is attached. Nearly all states have laws relating to disposition of "hazardous materials" and these have been interpreted to ~~include~~ ^{include} PCB by some states. Of particular importance are the laws relating to contamination

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of natural waterways by PCB. These are especially stringent. Materials known to contain any PCB must not be permitted to enter any public sewer, drains, streams, lakes, or otherwise contaminate any water system.

Industry Services Divisions feel that it is our obligation to make these facts known to our customers. Our policy is to reduce our own oil systems and inventories to the lowest practical level of PCB and observe all precautions to maintain that condition.

It is a customer decision as to what is done with his equipment when the presence of PCB is detected in his equipment. It is our intention to use a 10 ppm break point which does not discount the possibility that at some future time, such contamination may come under regulations governing handling and disposal as askarel. We should make no warranty or implication, written or oral, that assumes any liability in this event, and specific disclaimers are advisable if customers' written orders or other communications seek such warranty.

Reference to State and Federal Laws, as contained herein, is for our use and direction. Our customers have the responsibility to determine for themselves what laws and regulations apply.

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POLICY PERTAINING TO ASKAREL FILLED APPARATUS

I. The purpose of the following policy is to establish a good faith effort to conform to present and anticipated future laws and regulations - and to continue to render service on askarel-filled apparatus. If you are contacted by customers or sales and it appears that the service required is contrary to this policy, contact the Divisions Marketing Manager or Engineering Manager at Greentree for a review of the services requested and recommendations on procedures to be followed.

- A. Do not accept orders for handling askarel in the field. This includes additions or extractions of the fluid, including sampling. Customers should be requested to take their own samples.
- B. Askarel-filled equipment will only be accepted for in-plant repairs at the following eight (8) plants:

Philadelphia
Birmingham

Houston
Chicago

Phoenix
Emeryville

Glassport
Portland

- C. Stock Askarel --

Only the eight (8) plants listed above are authorized to hold askarel on their premises. Storage facilities at these plants are to be in specially selected facilities with sealed floors. Curbing is to surround the storage area.

Records are to be kept of incoming and outgoing shipments and scrap disposal.

II. Instructions on disposition and control of askarel have been in effect for several years. Specific information is contained in (W) "Instructions for Handling Inerteen Insulating Fluid P.D.S. 54201CM and Installation and Maintenance of Inerteen Transformers" issued in 1971 and revised June, 1976. A copy is enclosed following this page.

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- STORAGE FACILITIES -
PROCEDURES FOR REMOVING OR REDUCING PCB
CONTENT IN OIL STORAGE FACILITIES

Purpose

To reduce the PCB level in all new and used oil handling facilities to an acceptable level. At this time, the objective is a level no greater than 10 ppm with the ultimate goal being "undetectable" PCB content.

Scope

The work includes the removal and disposition of oil presently stored or its dilution with new "clean" oil, whichever is necessary to achieve a PCB content no greater than 10 ppm.

Procedures

Due to the nature and physical location of many storage tanks and their individual PCB content, no one procedure is suited to all of them.

In some instances, it will be necessary to dispose of large volumes of oil and may require the contracting for outside services for cleanup.

Others with relatively low PCB content and small volumes may be diluted with an abundance of new, clean oil to levels lower than 10 ppm.

1. (a) Pump out and dispose of all oil containing PCB where - (1) ppm level and total volume of new oil prevents reduction to below 10 ppm by dilution with new, clean oil; (2) used oil, not included as stock material, exceeds 10 ppm (it's not wise to invest in new oil to dilute used oil); (3) scrap oil exceeds 10 ppm.

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For identification purposes, we identify new oil tanks as "A" tanks; used, clean, reusable oil tanks as "B"; scrap oil tanks as "C"; fuel oil tanks as "D". Other tanks can be designated as "E".

- (b) Each plant facility will be reviewed separately. Based on the PCB content, decisions should be made on the desirability of reducing the ppm of PCB by dilution before resorting to disposing of the liquid by scrapping. This means that no oil will be placed in a "C" tank for scrap until other, more economically acceptable means of sale or disposition have been investigated.

2. Tanks having had high PCB levels and with manholes.

- (a) Gain access to tanks when possible. Wipe out any remaining oil.
- (b) Wash down walls of tanks with spray nozzles and squeegees using new oil or mineral spirits as a cleaner. Operators must wear protective clothing and use approved air line breathing apparatus.
- (c) Depending on complexity of piping to each tank, it may be necessary to pressurize with air to remove all oil. The piping is disconnected from the tank and a circulating loop formed by connecting hoses in and out from the tanker. The lines are filled with oil and flushed by circulation. This procedure is repeated with new oil several times. Each cycle should last about 10 minutes or more. Oil from each cycle is scrapped with contaminated waste oil.

- (d) When tanks and lines have been cleaned and emptied of oil, new oil is pumped through the lines in the same manner as the flushing oil. This oil is also scrapped as it will have picked up residual oil.
 - (e) Filters, check valve clappers, and other items should be removed from the system prior to flushing. These items should be cleaned in new oil several times, dried, and reinstalled. New filters are installed and the piping reconnected.
 - (f) Future quantities of assumed clean oil and/or scrap oil is pumped into the respective tanks only after it is determined to be free of PCB.
3. Tanks having had high PCB levels but without manholes and/or buried underground.
- (a) Services of outside contractors should be sought to determine feasibility of cleaning with a spray nozzle probe or lance that could be introduced through a vent or filled pipe opening. Spraying new, clean oil under high pressure will suffice to flush the walls of the tank. The accumulation of material at the bottom is pumped out and scrapped. Repeating the procedure several times may be sufficient to reduce the PCB to a very low level. The lower the residual volume in the tank after pumping ceases, the more satisfactory the PCB level will be once the tank is refilled with clean, new oil.

(b) The piping and valves associated with buried tanks are cleaned and flushed as in the applicable paragraphs under 2 above.

4. All apparatus such as pumps, hoses, filters, filter presses, pans, drums, etc., known to be contaminated (by reason of their use with material in contaminated tanks), is either (a) disposed of as contaminated solid waste, or (b) thoroughly cleaned in an approved manner.

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PRECAUTIONS TO PREVENT CONTAMINATION
OF CLEAN OIL HANDLING & STORAGE FACILITIES

I. Oil or Askarel Handling Equipment

1. All pumps, filters, and hoses used for askarel are to be clearly marked and only used for askarel (for the eight designated askarel plants).
2. All oil handling equipment is to be checked for contamination. If contamination is found, it will be cleaned and flushed according to recommended procedures.

II. Storage Tanks & Piping Systems

1. All new and used oil tanks ("A" & "B") containing oil above 10 ppm will be considered as containing unsatisfactory material. It shall be disposed of as scrap material or diluted according to existing procedures and regulations to achieve a maximum level of 10 ppm. This level is subject to constant review and may be lowered in the future.
2. All new and used oil tanks ("A" & "B") containing oil less than 10 ppm may be used, but it is recommended that "A" tanks not be filled with new oil until bare minimum levels are reached. Eventually the oil in inventory should be clean or at very low ppm levels. Used oil should not be put into "B" tanks when higher than 10 ppm of PCB.
3. All tanks and piping under Items 1 and 2 above will be flushed and cleaned following recommended procedures. At the end of the cleaning, a sample shall be checked for verification of cleanliness.

4. All scrap oil tanks ("C") must be repeatedly tested and those containing material above 10 ppm will be considered unusable and shall be disposed of according to existing procedures and regulations. If less than 10 ppm, it may be disposed of in normal manner.
5. Based on the number of tanks at any location, various means for storage separation may be used. It is our objective to eventually reach and maintain a condition where all oil stored for use is "clean" oil.
6. A sample will be taken from each compartment of the tanker on incoming shipments of new bulk oil. The sample should be analyzed for PCB content. If possible, the incoming oil should be stored in a separate tank until the analysis is determined to be free of PCB.

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REPAIR PROCEDURES FOR OIL-FILLED APPARATUS

Samples of oil will be taken from all units received. Samples are to be taken from T. C. compartments as well as main tanks. When a unit is received, less oil, obtain samples from residual material available at bottom. Minimum amount for a test is 4 ounces. This requirement applies to oil-filled breakers or other devices containing transformer oil as well.

It is our policy that no work be done on any unit until test results are known. If possible to obtain samples in advance, waiting time could be reduced.

In emergency situations work may be started by considering the oil contains PCB. Any oil removed under these conditions should not be placed in plant storage tanks. All solid materials removed from the unit must be handled as outlined under contaminated transformer repair procedures until test results are known.

Procedures when Oil Tests show PCB Content above 10 ppm

The customer will be advised of the test results and of our policy to consider oil over 10 ppm as normally unacceptable. He should be advised that we have the following to offer:

1. We proceed to repair the transformer as required and return as a unit containing some PCB in oil. Under such conditions, we will advise the customer of our final test showing ppm for PCB content.

2. If the unit is to be completely rewound, our opinion at this time indicates we may be able to sufficiently clean the reusable parts, and by refilling with clean oil, reduce the PCB content to approximately 10 ppm. At this time, we can give no assurance that this result will be obtained or that the customer's unit will not be considered a PCB product. Until we have proven techniques, this can be offered only on a best effort basis -- no warrantee to eliminate PCB is implied

There are currently no restrictions on owning or operating a transformer, considered a closed system, containing PCB or oil containing PCB. The only requirement is that the maintenance or ultimate disposition of the unit must be in accordance with regulations for handling and disposal of PCB. In addition, several jurisdictions may require labeling, record keeping, and reports.

There are economic considerations to be evaluated concerning these procedures:

1. Repair procedures must be monitored and controlled to avoid contaminating any "clean" units being repaired. All rags, sawdust, and waste material must be scrapped and become part of the total PCB containing material disposition.
2. Oil used for processing or for final test must now be considered as containing PCB. It would obviously be desirable to use customer's oil or leave the oil used for test in the unit.
3. The expense to restore the facility to a "clean" status, if necessary to do so, should be evaluated. This would include the dry out equipment, pumps, hoses, tanks, vacuum system, and oil handling equipment.

Review of State Laws

INDIANA

- Section 3** (a) A person shall not sell or manufacture for sale in Indiana the compound PCB.
- (b) Effective July 1, 1977 - A person may not sell a product if it contains concentrations of PCB's greater than 250,000 ppm.
- (c) Effective January 1, 1978 - A person may not sell a product if it contains concentrations of PCB's of 1,000 ppm or more.
- (d) Effective January 1, 1979 - A person may not sell a product if it contains concentrations of 100 ppm or more of PCB's except:
- (1) The Board may determine a lower concentration for a particular product or,
 - (2) If a Federal concentration is lower than Federal concentration will control.
- (e) Notwithstanding Paragraphs a - d, a person may sell PCB's or a product which contains PCB's if it is to be used in a closed system as a dielectric pursuant to rules promulgated by the Board to insure the public health, safety, and welfare.
- (f) An exemption may be obtained notwithstanding Paragraphs a - d in accordance with the provisions of Section 4.

- Section 5** Effective July 1, 1977 - A person shall not use an item, product, or material in the state which contains a concentration of 100 ppm or more of PCB's unless:
- (1) He files a written notice of intention to use and,
 - (2) He files an annual report detailing the total amount of PCB used.

** Covers only newly enacted State legislation specifically on PCB's.
NOTE: General legislation covering disposition of "hazardous" materials exists in almost every state and has been interpreted to apply to PCB's by some states.

- Section 6 Effective July 1, 1977 - Products which contain concentrations of 100 ppm or more of PCB's must be labeled.
- Section 7 Effective July 1, 1977 - A person shall not dispose of PCB's or products which contain PCB's in concentrations of 100 ppm or more except in conformance with rules to be established by the Board.

***MICHIGAN**

- Section 3 (a) A person may not sell or manufacture for sale in Michigan the compound PCB.
- (b) Effective July 1, 1976 - A person may not sell a product if it contains concentrations of PCB's greater than 250,000 ppm.
- (c) Effective January 1, 1977 - A person may not sell a product if it contains concentrations of PCB's of 1,000 ppm or more.
- (d) Effective January 1, 1978 - A person may not sell a product if it contains concentrations of 100 ppm or more of PCB's except:
- (1) The Board may determine a lower concentration for a particular product or,
 - (2) If a Federal concentration is lower, then Federal concentration will control
- (e) Notwithstanding Paragraphs 1 - 4, a person may sell PCB's or a product which contains PCB's if it is to be used in a closed system as a dielectric pursuant to rules promulgated by the Board to insure the public health, safety, and welfare.
- (f) An exemption may be obtained notwithstanding Section 1 - 4 in accordance with the provisions of Section 4.
- Section 5 The Board after hearing may provide for coverage of additional similar compounds.
- Section 6 Effective July 1, 1976 - A person may not use an item or product with a concentration of PCB's of 100 ppm or more unless:
- (a) He files a notice of intent to use and,
 - (b) He files an annual report of PCB used.

*In accordance with the Constitution of Michigan, an act does not become effective until ninety (90) days after the end of the Legislative Session unless the Legislature specifically provides that the Act is of immediate importance. Since this provision was not complied with in the Michigan PCB legislation, this legislation does not become effective until April 1, 1977.

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- Section 7** Effective July 1, 1976 - A person may not manufacture or sell a product which contains a concentration of 100 ppm or more PCB's unless the product is labeled as containing PCB's with such other information as may be required by rule of the Board. In addition, the manufacturer must file a notice of intent to sell and file an annual report.
- Section 8** Effective July 1, 1976 - A person shall not dispose of solid or liquid waste from the use of PCB or a product or material which contains or has contained a concentration of 100 ppm or more of PCB except in conformance with rules promulgated by the Board.

MINNESOTA

- Section 2 (a)** Effective January 1, 1978 - No person shall use, sell, purchase, or manufacture PCB or products containing PCB without an exemption certificate. If there is no reasonable alternative or substitute for the PCB that is reasonably available, the director may grant the certificate of exemption.
- (b)** Effective January 1, 1977 - No person shall add to a product or material the compound PCB unless the product is conspicuous labeled as containing PCB.
- (c)** Rules for exemptions are to be promulgated for July 1, 1977.

CONNECTICUT

- Section 2 (a)** Effective July 1, 1976 - No person shall manufacture the compound PCB and no person shall sell the compound PCB without registration with the director.
- (b)** Effective July 1, 1977 - No person shall use the compound PCB in the manufacture of a product or offer for sale a product with the compound PCB except in accordance with Section 3.
- Section 3 (a)** A product or material containing the compound PCB may be manufactured for sale, sold for use, or used if the compound PCB is in a closed system and labeled in accordance with the American National Standards Institute standards.
- (b)** A product may be sold in the state if the concentrations of PCB's in it are only incidental amounts and if they were not the result of exposure to the compound PCB without taking reasonable measures to prevent contamination

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- (c) Additional exemptions for other products may be granted in accordance with Section 4.

Section 5 No person or municipality shall dispose of the compound PCB or any item, product, or material containing PCB unless such disposal is in accordance with a properly issued permit.

In addition to the above enacted laws, the states of Illinois and New York have pending Bills which would limit or control the use of PCB's in those states.

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