

Monsanto

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DATE : September 20, 1976

CC:

SUBJECT : ASKAREL TRANSFORMERS

REFERENCE :

TO : See Attached Distribution

The ever increasing controversy and proposed stricter regulations concerning PCB's has hastened the day of elimination of askarel as a transformer insulating fluid. The attached announcement by Westinghouse is only the first of expected similar pronouncements by others in the industry. Askarel is also supplied under trade names Pyranol, Inerteen and Clorextol.

This continuing pressure against the use of PCB's has prompted CED's Environmental Control Group and Electrical Utilities Design Group to seek acceptable alternates. In the coming months we expect further clarification and definition of the laws which are being formulated and proposed to control the use and disposal of PCB's. CED strongly recommends no immediate action be taken to change out or modify existing askarel filled transformers until regulations are firmly established and alternates can be carefully evaluated.

It should also be recognized that electrical capacitors contain askarel as an insulation fluid and will come under the same restraints and cautions we are discussing for transformers. In any event it is essential that all losses of askarel fluids (PCB's) be contained and properly disposed of - i.e. special high temperature incineration. Disposal of all askarel fluids (PCB's) should be cleared through your company Environmental Control Manager.

The loss of askarel transformers will have an impact on the design of Monsanto's future expansions. Our design options will be more limited because of this point in time, there is no totally acceptable replacement for the askarel transformer. The immediate phasing out of askarel will most certainly accelerate efforts to find one or more replacements, but development, testing and acceptance of substances will take time. In the meantime, Monsanto must continue to install substations that are safe for our people and processes, have a high degree of reliability and will meet the legal requirements of the National Electrical Code and OSHA.

For new installation designs, CED is considering some or all of the following ways of meeting this problem:

1. Use of oil filled transformers by proper location of substations. This has always been a prime design technique, even when askarel transformers were available.

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2. Use of oil filled transformers with water deluge or other fire protection systems. This method has the potential to be an acceptable substitute for some of our present askarel applications. The large motor-captive transformer type installation would be an application of this method.
3. Use of dry type (air cooled) transformers. This type of installation has been used in the past for indoor unit type substations on a limited scale by Monsanto. Maintenance of good cooling characteristics can be a problem in dusty or dirty locations. Reliability of dry type transformers has been less than liquid type in the industry although Monsanto's experience has been good. Modern design dry types are available with higher BIL's and sealed insulation systems, but at a large premium cost over oil filled types.
4. Use of oil filled transformers in vaults. This practice has limited applications in our plants because of access, flexibility and economic limitations.
5. Gas filled unit substation transformers have come into limited use in the last few years, usually where light weight is an installation requirement. Monsanto does not have any experience with this type. The major disadvantages are high cost and need for absolute integrity in the sealing of the transformer tank. Any leak requires the tripping off of the transformer to prevent failure.

Several new self-extinguishing fluids are being proposed as replacement insulating liquids for askarel at this time. Two such fluids are silicone and highly refined paraffinic mineral oils. Neither of these fluids have legal OK for replacement in askarel installations, but are being tested and evaluated by industry. We will follow the development of these and other liquids as developed for application when legally, technically and economically feasible.

CED would like to solicit comments, concerns or problems your plant has regarding this situation for our guidance. Inputs from your safety and environmental people would also be welcome. The environmental section of CED and the Safety Section of the Facilities and Planning Staff are working closely with us on this problem.

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