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C107

November 18, 1971

TO ALL MEMBERS OF THE SPECIAL WORKING GROUPS TO PREPARE PRELIMINARY RECOMMENDATIONS FOR THE CAPACITOR AND TRANSFORMER SUBCOMMITTEES, OF THE ANSI COMMITTEE, C107, ON USE AND DISPOSAL OF ASKAREL AND ASKAREL-SOAKED MATERIALS

WORKING GROUP ON TRANSFORMERS
Messrs: E.L. Raab, GE Co. - CHAIRMAN
D.M. Crabtree, Dept. of the Army
W.S. Grogan, Allis-Chalmers → his father lives in Bellaville
F.R. Lengefeld, Union Electric
W.C. Reinhardt, Central Moloney
A.L. Rickley, Doble Engineering
T.K. Sloat, Westinghouse
P.G. Benignus, Monsanto - EX OFFICIO
W.P. Papageorge, Monsanto - EX OFFICIO

WORKING GROUP ON CAPACITORS
Messrs: Dr. A. Pozefsky, GE Co. - CHAIRMAN
N.R. Clark, Universal Mfg. Co.
E.G. Hammer, McGraw-Edison
J.F. Kuzela, Sangamo Electric
R.D. McClain, Westinghouse
E.M. Moore, Electric Utilities
(Person to be named by EEI)
P.G. Benignus, Monsanto - EX OFFICIO
W.P. Papageorge, Monsanto - EX OFFICIO

SUBJECT: AGENDA FOR THE WEDNESDAY, DECEMBER 15, 1971 MEETINGS

Gentlemen:

As you were notified by telephone on the subject, and confirmed by wire, the meetings will convene at 10:00 A.M. to 5:00 P.M. at the O'Hare Inn, near the airport in Chicago, Ill.

The purpose of the meetings is to consider, in depth, the following part of the scope and objectives of ANSI C107, in particular and, (1) specifically delineate the areas that should be considered for national standardization and/or implementation and, (2) initiate steps to draft recommendations for consideration by the Capacitor and Transformer Subcommittees:

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" Procedures and guides for safe use, maintenance and disposal of askarel and askarel-soaked materials used in electrical equipment."

As indicated on the telephone, pursuant with the action taken at the September 14, 1971 meeting of ANSI C107, the Chairman appointed a Steering Committee to "- - - serve as advisor and otherwise assist him in the performance of his office in the interim between meetings of ANSI C107." The membership of the Steering Committee is covered in ATTACHMENT #1.

The Chairman met with the Steering Committee on October 11, 1971 and the Capacitor and Transformer Subcommittees and the special Working Groups were appointed. In view of the nearness of the first meeting of the Working Groups, each member was contacted by telephone; and, by carbon copy of this letter to the full membership of ANSI C107, the members of the Subcommittees are hereby being notified of their appointment to these Groups. (Subcommittee membership is also included in ATTACHMENT #1).

As also indicated on the telephone, the format for the December 15, 1971 meetings is as follows:

1. Brief session on the items of information listed in ATTACHMENT #2. (Both Working Groups).

   Members are URGED to review ATTACHMENT #2 in advance of the meeting and be prepared to discuss any questions at the meeting.

2. Each Working Group will meet separately for the balance of the morning and join together for luncheon.

3. Each Working Group will continue with their separate meetings until approximately 3:30 P.M., when they will again meet together to review progress jointly.

A review of available publications and projects under way relating to mineral oil or askarel, resulted in the following:

1. AIEE No. 76 (December 1958) - Proposed Guide for Maintenance of Transformer Askarel (copy enclosed for both Working Groups).

   Mr. E. L. Raab, Chairman of the Transformer Working Group will distribute copies of the latest draft revision to bring this publication up-to-date.

2. IEEE #64 (March 1969) - IEEE Guide for Acceptance and Maintenance of Insulating Oil in Equipment (copy enclosed for both Working Groups).

3. Doble Engineering Company's Guide for Maintenance of Transformer Askarel - (copies to be distributed to both Working Groups at the meetings).

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4. IEEE Project #P423 (authorized in March 1970) - Specification of New Askarel.

5. IEEE Project #P424 (authorized in March 1971) - Detection of Gases in Oil-Immersed Transformers.

6. ANSI C57 Terminology on Oil (ATTACHMENT #3).

For your further information, the Chairman of each Working Group plans to supplement this letter with a formal agenda for each meeting.

Sincerely yours,

A. M. Salazar, Secretary
ANSI C107

AMS:dk
Enc.
Attachments
CC: All Other Members of ANSI C107 Committee
J.C. Rissinger
C.K. Poarch, EEI Staff
J.J. Kark, NEMA Staff
Sava Sherr, IEEE Staff
M.A. Pisciotta, ANSI Staff

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STEERING COMMITTEE OF ANSI C107

CHAIRMAN: P. G. Benignus
Monsanto Company

N. R. Clark
Universal Manufacturing Company

Dr. E. M. Moore
Electrical Utilities Company

H. Johnson
Environmental Protection Agency

E. L. Raab
General Electric Company

F. R. Lengefeld
Union Electric Co.

W. C. Reinhardt
Central Moloney Transformer Division

TRANSFORMER (TR) AND CAPACITOR (C) SUBCOMMITTEES

CBMA

N. R. Clark Universal Manufacturing Company	C
Dr. A. Pozefsky - CHAIRMAN General Electric Company	C

EEI

F. R. Lengefeld Union Electric	TR & C

IEEE

E. L. Raab - CHAIRMAN	TR & C

NEMA

W. S. Grogan Allis-Chalmers Corporation	TR
E. G. Hammer McGraw-Edison Power Systems Division	C
J. F. Kuzela Sangamo Electric Company	C
R. D. McClain Westinghouse Electric Corporation	C
W. C. Reinhardt Central Moloney Transformer Division	TR
H. R. Rowe McGraw-Edison Power Systems	C
T. K. Sloat Westinghouse Electric Corporation	TR

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ATTACHMENT #1

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TR AND C SUBCOMMITTEES (Cont'd)

GOVERNMENT

D. M. Crabtree Department of the Army	TR
H. Johnson Environmental Protection Agency	TR & C
Dr. John Leutritz, Jr. Rural Electrification Administration Department of Agriculture	TR & C
W. R. Nicholas Tennessee Valley Authority	TR & C
A. A. Thue Department of the Army	TR

INDIVIDUALS

P. G. Benignus Monsanto Company	TR & C
C. W. Hart Rollins-Purle Inc.	TR & C
A. O. Hauser Electrical Utilities Company	C
Dr. E. M. Moore Electrical Utilities Company	C
W. P. Papageorge Monsanto Company	TR & C
A. L. Rickley Doble Engineering Company	TR
G. P. Taggart Chem-Trol Pollution Services Inc.	TR & C

ATTACHMENT #1

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PCBs - The Electrical Industry

Steering Committee - ANSI - C107
St. Louis, Mo. 11/11/71

Pertinent comments relative to PCBs for use by the electrical industry and for consideration by the sub-committees on capacitors and transformers, include:

1. The electrical industry has no suitable fire-resistant dielectric fluid replacement for PCBs, polychlorinated biphenyls used in the askarel class of transformers and capacitors.

2. Because of this essential need and as the capacitors and transformers are hermetically sealed, Monsanto continues to supply selected PCB fluids for use only in this particular electrical apparatus and only as "make-up" fluid (no new systems) in a few carefully regulated closed system heat transfer applications.

3. Because the higher chlorinated PCBs persist in the environment, Monsanto has removed essentially all of the penta and hexachlorobiphenyl compounds from capacitor askarel. The new product used exclusively is called Aroclor 1016. Also the hexachlorobiphenyl compounds have been removed from use in the askarel type transformer fluids.

4. Strict and effective steps have been taken to avoid introduction of PCBs into the environment at Monsanto's plants and by

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EXHIBIT 2

the facilities used where askarel type transformers and capacitors are made.

5. By discontinuing sale of PCBs for non-electrical applications, about 75 percent of the more persistent types have been removed from commerce.

6. The posture of the FDA includes:

   a) "We reject the need and in fact the feasibility as some have proposed for an outright ban on the substances. Although the use of PCBs requires control, an outright ban is not feasible and would not be in the best interest of the consumer."

   b) "All available evidence indicates that PCBs (in terms of acute toxicity) are classifiable as being of moderate toxicity." It was noted that PCBs are less toxic than DDT which is one of the safest pesticides to humans in acute toxicity terms.

7. When fed orally to standard test animals PCBs were found essentially non-toxic.

8. FDA guide lines for maximum levels of PCB allowed in food products are:

Fish	5 ppm
Chickens	5 ppm
Milk	0.2 ppm
Eggs	0.5 ppm
Catfish meal	0.3 ppm

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9. Prolonged exposure of PCB liquid or vapor to the skin should be avoided to prevent possibility of chloroacne.

10. Prolonged exposure to vapors from hot PCBs should be avoided to prevent possible damage to the liver and kidney. 0.5 to 1.0 mg per cubic meter of air has been determined to be the maximum safe level of exposure during an 8 hour work day.

11. There is no evidence from extensive animal studies that PCBs are carcinogenic.

12. When PCBs are decomposed by an electric arc the gas formed is virtually entirely hydrogen chloride. If phosgene gas is formed at all, the amount is barely discernable.

13. Steps taken and judgements made to dispose of scrap PCB materials from the electrical industry include:

    a) Monsanto and others provide special high temperature incineration and gas scrubber facilities to completely destroy scrap PCB fluids. The scrap fluid may be sent to Monsanto Co., Sauget, Ill., attention supervisor Dept. A246 for incineration at 3 cents per pound.

    b) All Monsanto PCB product labels carry this message which is also being placed onto askarel transformers.

    c) It is the concensus that it is not feasible to collect and incinerate failed capacitors, at this time. They should be buried in a land-fill remote from lakes, streams or other sources of water.

    The incineration equipment already designed to take the place of land-fills has been demonstrated fully capable

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of destroying the smaller capacitors as used for fluorescent ballast and motor-run purposes in air conditioners, etc. This equipment is also capable of destroying the impregnated paper and plastic film core structures removed from the larger power capacitors.

It is foreseen that eventually this type equipment will come into use to replace many land-fills, Until such time the faied capacitors should be buried in land-fills.

d) The solubility of PCBs in water is extremely low, in the range of 50 to 200 parts per billion, and the concensus is that PCB fluids do not migrate when buried in the soil.

e) Solid scrap transformer insulation including coils and cores should be drained free from PCBs followed by flushing or solvent extraction, using such solvents as perchloroethylene, or trichloroethylene employed in vapor degreasing. The scrap fluid mixtures should then be incinerated under conditions similar to those provided by Monsanto to destroy the PCBs.

P. G. Benignus
11/10/71

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ATTACHMENT 2

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ANSI C57 TERMINOLOGY ON OIL

The The term "oil" includes the following insulating and cooling liquids:

1. Uninhibited Oil - Uninhibited oil is mineral transformer oil to which no symthetic oxidation inhibitor has been added.

2. Inhibited Oil - Inhibited oil is mineral transformer oil to which a synthetic oxidation inhibitor has been added.

3. Askarel - Askarel is a synthetic nonflammable insulating liquid which, when decomposed by an electric arc, evolves only nonexplosive gaseous mixtures.

ATTACHMENT #3

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