Monsanto

FROM (NAME & LOCATION) J. J. Zeman -- B2SK

DATE January 22, 1976 cc:

SUBJECT V-10. Retrofit Opportunity

REFERENCE

TO : R. G. Potter

As part of the PCB Task Force planning exercise, we considered the possible opportunity of undertaking a program to retrofit askarel containing transformers. This was a natural item to consider as part of our planning. After due consideration, the Task Force has decided and will recommend that Monsanto not enter into such a program.

The reasons for this are that such a program would greatly increase Monsanto's liability and exposure to PCB contamination in the environment. Also, part of the transformer retrofit would be the re-rating of the transformer and the issuing of a new warranty. This obviously has to be the responsibility of the transformer manufacturer.

The only area we have decided Monsanto should enter would be to supply the fluids used for retrofitting. We also have decided and recommended that we not be involved in the incineration of askarel fluids. This was decided because it would require large quantities of PCB containing materials being handled within a Monsanto site, which would make it difficult for Monsanto to meet any forthcoming PCB discharge standards.

Obviously this does not preclude some other technology for destruction of PCB's, only that technology that we now possess for incineration. Also, in the case of incineration it may require building a unit much larger than the one we now have at Krummrich and on the surface this does not look like a business Monsanto should be involved in.

In the area of developing fluids for transformer retrofitting, we should be very careful not to dilute our R&D manpower and detract from our replacement programs or our own internal decontamination requirements. Such a development effort should evolve from our own program for internal decontamination.

Unless you advise otherwise, we are proceeding with our planning accordingly. Attached for your information is a document we used for analyzing the retrofitting matter.

J. J. Zeman

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Attachment

DSW 217686

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PCB PLANNING TASK FORCE

TRANSFORMER FLUID RETROFIT OPPORTUNITY

There are some one hundred thousand askarel transformers in place in the United States containing a total of about three hundred million pounds of PCB base fluid. These transformers are valued at an estimated one billion dollars. Seventy percent of them are less than ten years old. Top up for these transformers represents about one million pounds per year of fluid. Replacement over ten years would represent a demand of thirty million pounds per year of dielectric fluid plus whatever flushing medium is needed.

If there is some broad national program to drain the PCB base fluids out of these transformers, and if Monsanto has a PCB replacement fluid program for new transformers, what should Monsanto's role be regarding the retrofit opportunity?

1. No participation;
2. Sell fluid to transformer manufacturers;
3. Sell fluid to transformer users;
4. Dispose of the PCB's if they are drained;
5. Involve in a service of retrofit?

These and other postures are possible. The following outlines the issues to be resolved to answer this question.

Product

1. Do we have a proved, environmentally qualified transformer fluid? Accepted as fire resistant by FM?

2. Is it compatible with askarel transformer (design insulation, sealants, etc.)? Some or all transformer models?

3. Is it suitable for top up in askarel transformers?

4. If not, is it suitable after a reasonable drain and flush procedure?

5. What would the flush fluid be?

6. How does our fluid compare to potential competition?

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Market Volume and Timing

1. Where are these (domestic) transformers? Type, size, user, location, age, fluid fill.

2. What is the total quantity of askarel in them?

3. What volume of fluid would be needed for top up or flush and replace? When?

4. What pressures or legislation are state and federal agencies likely to impose?

Procedure

1. Will transformer users have to dispose of their askarel because of a law or because of unavailability of a compatible top up fluid?

2. Will replacement fluids allow top up; or drain, flush and fill?

3. If top up, who supplies the fluid and instructions for retrofit to the transformer user:

   - transformer manufacturers (including Allis Chalmers and others who once made them),
   - fluid manufacturer or
   - service companies.

4. If drain, flush and replace, who performs the service?

5. What roles do the transformer manufacturers want to play?

Incineration

1. What incineration load will result? Volume, timing, storage.

2. What incineration capacity is needed in what locations? What is available (Monsanto, G.E., others)? How will capacity be increased sufficiently?

Manufacturing

1. How will we manufacture/purchase the needed volumes of flushing and replacement fluids?

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Law

1. Who is responsible for performance of each transformer retrofitted?

2. Who will be responsible for PCB entering the ecology during draining, flushing, transportation, storage and incineration of askarels?

Public Relations

1. What would be the risks to Monsanto's image if we were to handle and transport PCB's and concentrate volumes at incineration sites?

Economics

1. Sales of fluids for retrofit programs?

   Profit opportunity.

   New capital required.