MONSANTO

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Subject : Microbial Degradation of PCBs-
New Technologies

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As you may be aware, we have closely monitored published reports of new technologies for microbially degrading PCBs in the environment, particularly soils and sediments, for the past decade.

No significantly new technologies have surfaced that have any imminent potential for practical application [*e.g.* cleanup of Hudson River sediments, Superfund sites (old landfills, plant sites, etc.)].

Most of the progress is being made in the mass media, *i.e.* highly published reports of small steps of scientific "progress". Although we wish it were so, the scientific breakthroughs necessary to discover and produce microbes that will degrade PCBs at a reasonable rate have not been attained.

The Wall St. Journal article (November 9, 1988) is part of GE's effort to convince regulators that it is not necessary to dredge PCBs to achieve very low contaminant levels and that nature will eventually take its course and solve the problem. The Michigan State University studies are part of those done by Steve Hamilton's (GE) consultant, Tiedje, based upon work GE has initiated on Hudson River samples. Attached is a more recent New York Times (November 19, 1988) article disagreeing with GE's premise.

We have been in discussion with two different groups in the past forty-five days who would "like to do something" related to environmental cleanup of PCBs via microbial degradation. They have asked Monsanto for contributions up to $1M to start, to support such projects. At this time we do not know of any approach that merits that level of funding that looks even mildly practical and have recommended to Jim Senger that we follow all these programs and perhaps in the future provide seed money (*e.g.* university grants in the $50k range) for promising ideas.

You most probably are not aware that old MIC spent on the order of $150K± annually for three to five years in the late '70s at several good universities including MIT and NYU on similar research. However, the projects were not successful.

We believe that microbial remediation will gain importance in the future, but for now especially for chlorinated aromatic compounds such as PCBs, it's an idea whose time has not yet come.

We would be happy to discuss this subject in detail if you have further questions.

J. H. Craddock

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att.

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