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BCC: P. G. BENIGNUS
D. A. OLSON

July 8, 1970

Mr. F. O. Jenkins
Vice President, Materials
Sprague Electric Company
North Adams, Massachusetts 01247

Dear Mr. Jenkins:

I was fortunately able to visit your Brown St. Plant on June 17 with Randall Graham. I personally found the discussion informative and interesting and I was most favorably impressed with the concern and interest expressed by your management personnel. We discussed briefly some of the points raised in your letter dated June 11. I will try in this letter to be more specific.

Biodegradability - Biodegradation studies conducted in our research laboratories in St. Louis, Missouri and in Ruabon, Wales using media consisting of local river waters or activated sludges acclimated to biphenyl give direct evidence that the lower chlorinated biphenyls are affected. There is some evidence that chlorine position on the biphenyl configuration does influence the degree of distruction by the microorganisms. I have enclosed a tabulation from our Ruabon laboratory which attempts to show this difference. We do not have formal information regarding the effect of sunlight or other natural influences on Aroclors. Experience gained over many years indicates Aroclors are highly stable under all known conditions present in the environment.

Toxicity - There is ample evidence from many laboratories that certain species of birds which are at the top of the marine food chain cannot reproduce properly when PCB's are present in their diets. The U. S. Fisheries laboratory at Gulfbreeze, Florida conducted a study which indicated that juvenile brown shrimp did not survive in water containing 5 parts per billion of PCB. Attached are copies of reports on these studies.

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Monsanto has sponsored some studies on laboratory rats and dogs. A summary of the results to date is attached.

Disposal - The preferred method for disposal is high temperature incineration. I suspect there are several commercial burners on the market which will perform well. I personally witnessed burning tests at the John Zink Company's unit in Tulsa, Oklahoma. Temperatures must exceed 1600°F to assure that complete destruction is achieved. Lower temperatures would only vaporize the Aroclors and create atmospheric pollution or, worse yet, would form, by partial oxidation, materials which could be highly toxic (e.g. furans and dioxins). With incineration HCl is formed which must be scrubbed from the stack gas and neutralized before disposal. We are planning for an initial installation in one of our plants later this year. As a service to our customers who may not have access to other incinerators, we have offered to accept scrap Aroclor for immediate storage and eventual incineration. Tentatively, Monsanto will charge 3¢ per pound of returned material. This charge does not include freight or container costs and will be reviewed when final incineration costs are established. Material which is returned for disposal should be addressed to Monsanto Company, W. G. Krummrich Plant, Sauget, Illinois, Attention: Supervisor Department 245.

Solids contaminated with Aroclors present a bigger challenge. As yet, we have not tested an incinerator with these materials. Until we get more information the best we can advise is safe burial in an authorized, properly operated land fill located away from any water systems.

We have laboratory work underway on other forms of destruction. As yet no economically feasible approach has been found.

Analytical Methodology - I have attached copies of Monsanto's analytical procedures for the determination of PCB's in water, soil, air and biological samples. We are interested in comparing our methods with those devised by other laboratories. Any comments your laboratory may have would be welcome and appreciated.

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I hope that the above information is useful to you. If I can be of further service, please let me know.

Sincerely,

W. B. Papageorge
Manager
Environmental Control

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cc: Mr. H. Davis
Sprague Electric

G. R. Graham

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