TITLE: Responses of Lactating Dairy Cows to Polychlorinated Biphenyls

OSURF PROJECT NO.: 715618/763767

TECHNICAL PROGRESS REPORT NO.: 7

REPORTING PERIOD: March 1, 1985 through May 31, 1985

SUBMITTED BY: Ohio State University, Ohio Agricultural Research and Development Center

PRINCIPAL INVESTIGATOR: L. B. Willett

DATE SUBMITTED: June 3, 1985

A. Description of Overall Progress.

General. During this experimental period, the project was continued following the protocol identified as PCB-F and PCB-C. The highlight of this period was the completion of all animal phases of this study.

Animals. Two parturitions occurred during this reporting period and are summarized in Table 1. These parturitions were normal and without complications. Gentle assistance was provided for the delivery of twin female calves to 2975. This assistance was routine and, thus, the parturition cannot be considered as dystocia. Three necropsies were conducted during this experimental period. On March 12, 1985, the scheduled necropsy of PCB dosed cow 2979 and her calf M2918 occurred. The results of the gross and histological examination of organs and tissues of these animals showed no signs of chemical toxicity. The carcasses of these animals were packed in drums and shipped to Rollins, Inc. for incineration. The third necropsy occurred on May 16, 1985. This was an unscheduled necropsy of cow 2975. This necropsy was deemed advisable by the principal investigator since this cow had reoccurring episodes of fever and unthriftiness of which the etiology was unknown. Gross examination of organs revealed that this cow was suffering from pericarditis and also emphysema, possibly from a previous pneumonia. Histological examination of organs has not yet been completed.

Laboratory Work. Analysis of the PCB content of feces, blood plasma, and subcutaneous fat from samples collected during the PCB-C study period has been in progress. Organs collected during the necropsies of PCB dosed cows and their offspring have been sectioned and evaluated by light



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microscopy. The methodologies used for cytochrome P450 assay of biopsied liver tissue have been brought back on line and are being verified for accuracy and repeatability. Portions of the health and productivity records from the first lactation of study (PCB-R) have been summarized and were reported on March 19, 1985 at the Society of Toxicology meeting in San Diego, California.

Table 1. Parturitions occurring during this reporting period

| Date | Cow No. | Calf No. | Calf Sex | Comment |
|---|---|---|---|---|
| 3/25/85 | 2978 | 3134 | Female | Unassisted |
| 4/03/85 | 2975 | 3143 | Female | Both Manual |
| | | 3144 | Female | Assistance |

B. Current Problems:

Currently, this project is relatively free of problems and is progressing on a timely basis.

C. Work During the Next Reporting Period.

With the completion of all animal phases of the study, emphasis will be placed on laboratory analyses and data summarization during the next reporting period. Hopefully, the cytochrome P450 analyses will be complete, along with the majority of the residue analytical work. As portions of the data become complete, they will be summarized and appropriate statistical analyses conducted. A portion of the results will be presented at the American Society of Animal Sciences meeting in Athens, Georgia, during the week of August 15-19, 1985. An abstract of that presentation was included with Technical Progress Report No. 6.

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