WALK THROUGH SURVEY

Monsanto Company
Polychlorinated Biphenyl Operations
W.G. Krummrich Plant
Sauget, Illinois

SURVEY DATE
November 22, 1974

SURVEY CONDUCTED AND REPORT WRITTEN BY
James H. Jones

DATE OF REPORT
February 6, 1975

Environmental Investigations Branch
Division of Field Studies and Clinical Investigations
National Institute for Occupational Safety and Health
Cincinnati, Ohio

MONS 093718

PLACE VISITED:	Monsanto Company Sauget, Illinois
DATE OF VISIT:	November 22, 1974
PERSONS MAKING VISIT:	NIOSH DFSCI James H. Jones Dave Bayliss Richard Lemen Region VII Ralph J. Bicknell CDC Dr. Clark Heath Dr. Renatta Kimbrough
PERSONS CONTACTED:	Mr. William C. Engman, Section Engineer, Krummerich Plant Mr. Art Leisy, Manufacturing Superintendent, Krummerich Plant Dr. Emmet Kelley, Medical Director Dr. Elmer Wheeler, Chief, Environmental Program Dr. George Levinskas, Toxicologist Mr. George Bratt, Manufacturing Superintendent Mr. Bill Papageorge, Product Development Mr. Guy Forth, Engineering Mr. Gary Johnson, Foreman, PCB Area
PURPOSE OF VISIT:	To observe the manufacture of polychlorinated biphenyls.

INTRODUCTION AND DESCRIPTION OF PLANT

Due to findings in recent years of possible harmful effects of polychlorinated biphenyls (PCB's), the Division of Field Studies and Clinical Investigations of the National Institute for Occupational Safety and Health (NIOSH) decided to look at facilities manufacturing PCB's. The main purpose is to determine if a population exists for which it would be feasible to conduct a retrospective mortality study.

On November 22, 1974, James Jones, Richard Lemen, Dave Bayliss and Ralph Bicknell met with CDC and Monsanto officials at Monsanto World Headquarters in St. Louis, Missouri. Results of recent CDC toxicological work showing the possibility of PCB being a carcinogen were discussed. Later, James Jones and Ralph Bicknell conducted a walk-through survey of the PCB production area at Monsanto's W.G. Krummrich plant in Sauget, Illinois. This plant is the only manufacturer of PCB's in the United States at the present time.

Other products produced at this plant include: sulfuric acid, benzene and benzene derivatives (primarily chlorinated and nitrated derivatives), rubber chemicals (antioxidants, etc.), ACL (activated chlorine), and phosphorus products.

PCB's have been produced at the plant since approximately 1929. Production reached a peak in 1970 when Monsanto voluntarily began restricting sales of PCB's to those uses in closed systems. Since 1971 the domestic uses of PCB's have been restricted to transformer oils and capacitor fluids. The PCB area is operated 24 hours a day with some operations 5 days a week and some 7 days a week.

The entire workforce of this plant is approximately 1300 persons with 15 to 20 of those persons being involved with PCB production. Production workers are members of the International Chemical Workers Local 12.

MEDICAL, INDUSTRIAL HYGIENE AND SAFETY PROGRAMS

This facility has an inplant dispensary with nurses on duty 24 hours a day and a physician present days. Pre-employment physical examinations are required of each employee. Periodic examinations are also required of employees involved in certain operations.

The safety department consists of a director and 3 assistants. Six people assigned to environmental problems work in conjunction with the safety department. Safety information is disseminated through safety committees in the various areas and monthly safety meetings. There is a safety review of new projects before they are started. Personal protection programs include use of safety glasses, safety shoes, and hardhats in operations areas.

Industrial hygiene activities are carried out by the safety and environmental groups with assistance from corporate level industrial hygienists.

DESCRIPTION OF THE PROCESS

Two products are made in the PCB area; Arochlor 1016 and Arochlor 1254. Both processes begin with biphenyl shipped in by tank cars from Monsanto's Anniston, Alabama plant. The biphenyl is first transferred to a storage tank and from there to either the 1016 or 1254 chlorinators. The product from the 1254 chlorinators is sent to storage and then shipped out in tank cars or drums. The output from the 1016 chlorinators is put in intermediate storage and then sent to a distillation column. From there it goes to storage and then is shipped out.

This is theoretically a closed process except for sampling ports where operators take various samples for specific gravity, purity, etc. Several of these sampling ports leaked and had plastic buckets underneath to catch the leaks. The process is outdoors, so very low concentrations of PCB would be expected. The water effluent is continually tested and concentrations of PCB in the effluent were generally a few parts per billion.

SUMMARY

From the observations made during this visit it would appear that PCB concentrations in air would be very low. The operators spend approximately 50% of their time in a control room which should have even lower concentrations. Employee turnover in the PCB area has been low. Plant personnel estimated that only 100 persons had been involved directly with PCB production since its beginning at the plant. However, an additional group who are likely to have been exposed are the plant maintenance people who repair and maintain production equipment. Because of the small number of people exposed and the small likelihood of production expansion I believe it would be of marginal usefullness to do further studies of this process.

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