H. Beagen

PROGRESS REPORT

TECHNICAL SERVICES DEPT. – W. G. KRUMMRICH PLANT

JOB NO.	REPORT NO.	DATE
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• TO RECEIVE DETAIL SECTION

TITLE: WATER POLLUTION: AROCLOR CONTROL

Wildlife

PERSONNEL: M. Pierle (C. F. Buckley)

PROBLEM: To determine source and quantity of Aroclor losses to the sewer.

SUMMARY

Aroclor losses are confined to Departments 238, 217, 218, 243, 245, 246, 258, 270, 273, and 275. Department 245 is now hauling 3600-4800 gallons/year of spent aroclor to the Monsanto landfill. The remaining major source of aroclor in the sewer is Department 246. From yield losses it is estimated that these losses total 40,000 #/yr. to the sewer. A project with estimated cost of $10,000 is presently being developed to minimize the Department 246 losses.

Water and mud samples are being taken to determine both the actual plant losses and the effect of W.G.K.'s outfall on the aroclor levels in the Mississippi River.

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BACKGROUND:

The outbreak of adverse publicity toward the use of chlorinated hydrocarbon insecticides has caused the W.G.K. plant to study the losses of polychlorinated biphenyl (aroclor) from the plant. Recent studies have indicated that PCB materials act similar to the insecticides in that they are resistant to biological breakdown in the environment, and therefore, they tend to concentrate in animals such as birds or fish.

The object of this report is to summarize preliminary information on the sources and quantities of aroclor material in the W.G.K. plant effluent.

DETAILS:

A. Sources

1. Each manufacturing department was surveyed to determine whether or not aroclor could be present in its effluent. The use of aroclor is confined to Departments 238, 243, 245, 258, 270, 273, and 275.

2. Aroclor has also been detected in the catch pot systems in Department 218 and 217. This is contained in the HCl off-gas from Department 246.

3. The manufacturing department, 246, has aroclor in its effluent. This is readily visible in the department's trench sewers.

B. Quantity

1. Although aroclor is used in the above stated departments, only two departments (245, 238) have to completely change out their system on a routine basis.

   Department 245 uses 600 gallons every 1 1/2 - 2 months, and Department 238 uses about 2,000 gallons/year. Other department losses are from vapor losses due to tank breathing and leaks from pump packing.

2. The amount of aroclor in the HCl off-gas system is believed to be minor since it is infrequently found in the 217 and 218 catch pots.

3. Based on yield losses, Department 246 losses are estimated at 40,000#/yr.

B. Quantity (continued)

4. General

The following sampling program has been developed to quantify the losses from the W.G.K. plant and to determine the effects in the Mississippi River.

Liquid Samples

1. Plant outfall - one weekly composite sample.
2. One weekly composite sample representing effluent from Department 246.

Mud Samples

1. Sample from primary treatment plant sludge.
2. 0.5 miles upstream of outfall.
3. 200 feet below outfall.
4. 1.0 miles below outfall.

All of above are taken once per month.

To date, due to work priority, analytical results are not available. Samples will continue to be collected.

C. Control Measures

1. Dept. 245 - The aroclor which previously had been sewered is now being hauled to the Monsanto landfill. This amounts to a plant reduction of 3600 to 4800 gallons per year.

2. Dept. 238 - This material has and will continue to be disposed of at the landfill.

3. A project is presently being developed for Dept. 246 as part of a general paving project which should minimize aroclor losses. It involves the construction of settling chambers in trench sewers which will act as collection basins for the aroclor. The material will be removed by either a steam jet pump or a sump pump if it is needed. The estimated cost for aroclor loss control is $10,000.

CONCLUSIONS:

1. The major sources of aroclor in the plant effluent is Department 246.

2. Laboratory results are not yet available to actually quantify total plant or Department 246 losses.

3. A project to minimize Department 246 losses is being developed. Estimated cost is $10,000.

FUTURE WORK:

1. Continue supplying samples to the laboratory.

2. Improve monitoring system in Department 246.

3. Report on analytical results when obtained.

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