Monsanto

FROM NAME & LOCATION: P. B. Hodges - General Offices

DATE: May 12, 1969

SUBJECT: AROCLORS CLEAN-UP FROM PLANT EFFLUENTS

REFERENCE:

TO : Mr. W. A. Kuhn (4)

C-O-N-F-I-D-E-N-T-I-A-L

cc Messrs.
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At your request (and for your transmittal to appropriate members of the Business Group), I have summarized information on actions, plans and problems at Anniston and at W. G. Krummrich to avoid sewering aroclors into natural waters. The information was obtained from Messrs. W. F. Taffee (Anniston) and C. F. Buckley (W. G. Krummrich).

I. Analyses of Waste and Natural Water Samples

A. General

We have generally taken the position that, before any expensive projects are undertaken to halt sewering of aroclors, we should know what levels exist in the receiving waters. In other words, we need to define problems, if any, resulting from loss of aroclors in the plant effluents. This work is, of course, dependent on development of analytical techniques and implementation of these techniques in the plants (or arrangements to have the samples analyzed in a single laboratory).

General status of this work is that Dr. Tucker has developed the necessary techniques (ahead of schedule) and has analyzed one lot of samples from Anniston and will soon have completed analyses of several samples from W. G. Krummrich. Transmission of analytical methods to the plants is expected during mid-May. However, problems of manpower priority exist at both plants and, in addition, there is a problem of equipment priority at Anniston. As soon as the laboratory techniques are received and studied by the plants, we need to determine priority of the aroclors testing program in relation to other work and to move to obtain the necessary manpower and equipment. EDC of study phase - June 1, 1969 (both plants). We will then move to clarify problems of priority (EDC - June 15, 1969).

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B. Problems at W. G. Krummrich

The necessary electron-capture equipment is available but only one licensed operator is available. He has a full schedule of other work laid out for the near future, so priorities must be established.

C. Problems at Anniston

Electron capture equipment exists at Anniston but it has never been used. Considerable developmental work is necessary, therefore, for someone to familiarize himself with this equipment and then to work out the technique for PCB content. Another problem is that of equipment priority because the chromatograph, with which the electron capture is used, is occupied full time on other high priority work.

II. Work to Minimize Losses at W. G. Krummrich

In absence of analytical techniques for actual measurement, a qualitative study of loss sources has been made. The only substantial source (that of occasional sewering of the Therminol from P_2S_5 production) was immediately stopped and instructions have been issued throughout the plant that no aroclor is to be sewered intentionally.

A. Notes on Aroclors Production Department

1. With the recent years improvements in chlorinator off-gas cooling plus Brink mist eliminators, there is no longer any free aroclor in the HCl off-gas which comes out in catch pots (at one time this was considerable). The catch pots never require draining.

2. The only sewered source of loss of significance is from leaks, spills, pump packing glands, etc. Supervision has moved to minimize these sources, but no positive protection exists. As policy on any new construction (as being planned for the aroclor storage tank farm and car loading operation), sumps will be provided to capture any spillage. However, no action is presently planned to sump the production area. This will depend on need as evidenced by sampling of our plant outfall and the Mississippi River.

3. The only discharge to atmosphere is from packaging, T/C loading and spillage (particularly on to steam traced lines). No changes are planned. The air stream from the blow tanks is being

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drowned to sewer (this sewered stream will be tested eventually, but is believed to be insignificant).

B. Other Possible Sources

1. Tank car washing - infrequent, but significant (up to 200 gallons). Warehouse department personnel are studying alternates - no major project is anticipated but minor changes should virtually eliminate any significant loss.

2. Miscellaneous Therminol Systems -- no intentional sewering is now made; however, accidental losses can occur. No projects are contemplated at this time, but these systems must receive high operating and maintenance priority to minimize accidental losses.

3. HCl off-gas vapor losses (including spent carbon from HCl treatment) -- these are believed to be very small but will be measured when analytical techniques are available. Waste water samples are being collected intermittently now for later analysis.

III. Work to Minimize Losses at Anniston

A. Definition of Problems

1. External to plant -- that a problem exists at Anniston is evident because "free" globules of aroclors can be seen in Snow Creek. We do not know what problem exists in Choccolocco Creek and the Coosa River. By July 1, 1969, we will determine the limit of visual evidence of aroclors downstream in Snow Creek.

Between this "point of last visible evidence" and the mouth of Snow Creek, two sets of mud and water samples for soluble losses will be collected with EDC of analyses targeted for August 1, 1969.

Two sets of mud and water samples will be taken in Choccolocco Creek -- one about 1/4 mile below the Snow Creek mouth, the other about 5 - 10 river miles further downstream. EDC of analyses August 1, 1969.

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Further testing will depend on results from the above sampling. Plans will be made by August 15, 1969.

2. Internal plant problems -- here is schedule for measurements and controls inside plant:

   a. Identification of possible sources -- done.

   b. Audit (measurement) of loss sources - EDC July 1, 1969.

   c. Recommendations for means to reduce losses to limit of solubility - EDC August 1, 1969.

   d. Definition of requirements and rough costs to reduce as in (c) above - EDC October 1, 1969.

   e. Establish continuous monitoring station on Choccolocco Creek (for aroclors and PNP and Parathion) - EDC June 1, 1970.

   The above schedule is dependent on obtaining necessary manpower and equipment for the analytical work. As mentioned before, there is no experience with the electron capture equipment and the chromatograph is utilized full time. To adequately conduct an investigation and continued monitoring program will likely necessitate addition of a chemist plus purchase of a $10,000 chromatograph. This problem will be defined by June 1, 1969, with recommendations by June 15, 1969.

B. Work to Reduce Sewering

1. Aroclors in HCl -- a catch tank has been installed in the vapor line near the HCl absorber. The aroclors captured are now being hauled to landfill. A coalescer is being installed to capture aroclor globules in the crude muriatic acid. This aroclor will be taken to land fill.

2. Therminol Systems -- no known losses were found from these systems. Spent aroclor from the P_2S_5 operations has been drummed for hauling to land fill for at least the past several years.

3. Aroclor production department -- an audit of losses is under way. No aroclors are sewered intentionally -- losses are of mechanical nature. Need for a sump system will be defined by the audit and a project(s) will be submitted if justified.

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4. Losses to atmosphere -- there are no process losses to atmosphere except for tank car loading, etc. A closed loop loading system is planned for about 1970-1971 (objective is reduction of contamination of aroclor).

5. Tank car cleaning -- this is not a problem at Anniston. No heels are drained to the sewer.

Comments from recipients of this letter are invited.

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