MONSANTO - ANNISTON

PR&D WORK PLAN

(Revised)

cc:

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DATE: May 11, 1971

SUBJECT: Aroclor Pollution Study

DEPARTMENT: 916.07

JUSTIFICATION: Pollution Abatement

COST:

Estimated Per Diem PR&D Cost	$ 100
Experimental Expense	$11,000
PR&D Cost to Date in 1971	$10,000

BACKGROUND: The work plan issued 1/11/71 had the following objectives:

1. To determine the operational parameters at which the solid and Aroclor concentrations are reduced to minimum (0-20 ppm solids and 10 ppb Aroclor) by flocculation-clarification.

2. To demonstrate Aroclor removal by adsorption on some adsorbent less expensive than carbon and flocculation to remove the adsorbent. At the time this work plan was issued, the solids in the plant effluent ranged from 100-1,000 ppm. The solids level, however, has been averaging approximately 50 ppm during this study due to the manner in which the neutralization pit is being operated. As a result, the bentonite clay concentration has been increased to provide the surface area that was originally provided by the solids inherently present in the stream.

Various combinations of flow and clay concentrations have been utilized to produce effluent with an average of 50 ppb Aroclor from influent water generally containing 100-200 ppb Aroclor. Therefore, in an effort to realize the desired effluent quality (20 ppm solids and 10 ppb Aroclor) with a clarification type process, powdered carbon will be evaluated as an adsorbent.

EXPERIMENTAL: I. Evaluate Aroclor removal by flocculation with a locally available clay at the following conditions:

EXPERIMENTAL: (cont'd.)

1. Clay concentrations of 120 ppm, 5 gpm flow, 1.5 ppm polyelectrolyte concentration

2. Clay concentration of 480 ppm, 2.5 gpm flow, 1.5 ppm polyelectrolyte concentration

Estimated Mandays 10

EDC 5/26/71

II. Optimize the following conditions for removing Aroclor by adsorption on powdered carbon:

1. Flow rate

2. Carbon usage

Estimated Mandays 15

EDC 6/17/71

III. Optimize the flow conditions for removing solids from the plant stream by flocculations.

Estimated Mandays 5

EDC 6/24/71

IV. Issue PR&D report by 6/30/71.

SAFETY: The HCl and H_3PO_4 in the plant effluent are normally neutralized in the limestone pit. Occasionally, there is some residual acidity which should be guarded against. Any area exposed to the waste water should be washed thoroughly with copious amounts of water. This will also remove any Aroclor present.

The flocculating agents (Betz polymer 1170 and American Colloid's SPV bentonite clay) are neither flammable, corrosive nor toxic. Hence their handling requires no particular precautionary measures.

An operation manual containing all safety procedures will be issued to personnel operating the clarification unit.

Ishmeal Ransaw

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