Monsanto

CORPORATE ENGINEERING DEPARTMENT

Monsanto Company
800 N. Lindbergh Boulevard
St. Louis, Missouri 63166
Phone: (314) 694-1000

September 19, 1977

Mr. W. R. Seeman
Hydroscience, Inc.
9041 Executive Park Drive
Knoxville, Tennessee 37919

Dear Bill:

I have received a report from Messrs Boucher, Chalekode and McCombs which describes the problems experienced during the second test burn at Dow-Midland on 8/30 thru 9/1/77. There are several aspects of this test that generate concerns not only about the accuracy of the collected data, but also the validity of any conclusions resulting therefrom.

As you know, the purpose in conducting the two test burns at Dow's incinerator was to collect data from the burning of Monsanto's waste. This data would be used to custom design an incinerator for Monsanto that would achieve the specified performance in the most economical manner. We feel that the achievement of these objectives warranted our underwriting the cost of these tests which will cost, I am sure, more than $100k. We are now concerned that the collected data is not only invalid, but that its analysis will lead to a grossly overdesigned incinerator.

It is disappointing to us that Dow has not provided the facilities at their Midland incinerator to accommodate the testing of customer material and enhance the collection of valid data. The investment of a part of the technology fee Monsanto is paying in improved testing facilities would certainly seem warranted.

The testing problems and our associated concerns are as follows:

<u>Dilution of Stack Effluent</u>

Immediately before the start of the second test burn, Hydroscience, in attempting to reconcile a difference between CO data collected in the stack and upstream of the ID fan, identified an uncontrolled source of dilution air in the stack. The source was an unused incinerator that shares the same stack with the testing unit.

0583602

TOWOLDMON0059390

Subsequent investigation revealed that a slide gate damper, in the closed position, allowed a constant, non-controlled flow of air through the incinerator. Dow/Hydroscience chose not to seal off this source of air but instead relocated the test sampling point from the agreed upon location, 100 ft. stack elevation, to immediately upstream of the ID fan. This problem prohibits any correlation of effluent analysis and stack exit opacity and color. It invalidates the correlation of NO_x data obtained in the first test burn and visual observations of stack opacity and color which permitted Monsanto to agree to a higher NO_x level in the stack effluent, 350 ppm vs the specified 100 ppm.

Stripping Organics From Scrubber Water

Water is used in the incinerator to cool the incinerator gases and to collect and remove particulates. In the Midland incinerator the source of this water is the Midland plant's primary aqueous waste treatment plant. Results of the first test burn indicated an unexpectedly high total hydrocarbon level in the stack effluent. These results would not allow Hydroscience to agree to meet the specified 100 ppm in the stack effluent or even to estimate the performance that their design would achieve. It was later hypothesized that the hot incinerator gases were stripping organics from the organic containing primary aqueous waste treatment plant effluent. During the second test burn, 2 of the 9 tests were conducted using raw, filtered river water. Initial indications are that lower total hydrocarbon levels were achieved. This data will have to be interpreted for the wastes tested in the first test burn.

Malfunctioning Burner

It was necessary in the conduction of the second test burn to burn fuel oil in the secondary combustion chamber. The burner design either did not permit continuous burning, or the burner malfunctioned with the result that the incinerator gas included large amounts of unburned hydrocarbons. These hydrocarbons were collected along with the particulates and we can foresee a difficult if not impossible task of separating the two so that an accurate particulate analysis can be made.

Please review the effects of these problems and, in the discussion of the second test burn results scheduled for the last week in September, address the expressed concerns and demonstrate the analytical methods and procedures which will allow the raw sampling data to be interpreted in a valid, meaningful manner.

Sincerely,

M H McClurken

M. H. McClurken

bcc: J. F. Giblin - F3EB
R. M. Kountz - F4WA
W. A. Schneider - F4ED
W. L. Smull - 1740
G. L. Wade - F4EB

MHM/sjs

0583603