

INTEROFFICE COMMUNICATION

Ponca City, Oklahoma
March 18, 1970

TO: Mr. L. N. Vernon

SUBJECT: RESEARCH AND PED OBJECTIVES FOR VCM PLANT SHUTDOWN

We understand that the Vinyl Chloride Plant will shut down for a turnaround early in April. The oxychlorination reactors will be recharged with new catalyst at that time. Much valuable data can be gathered during the shutdown to further analyze and monitor the reactor operation.

Toward this end, we are listing below data we hope to gather with explanations as to why this information will be valuable. We realize that plant operations will take precedence over our work, but we do not feel that any interruption of these operations will accrue from our activity.

1. Reactor Pulse Testing Prior to Turnaround

Prior to the shut down, reactor pulse testing should be performed. These tests should be similar to the tests of November 20th, 1969. There are three primary reasons for performing these tests. They are:

- a. SIMØXY Program Development
- b. Estimation of Degree of Catalyst Deactivation at Point of Turnaround
- c. Data Accumulation on System for Future Use

2. Reactor Operating Information Prior to Shutdown

Obtain all pertinent operating information on the system prior to turnaround. This should include reactor temperature profiles, traveling thermocouple profiles, and steam drum information. This information will provide a bench mark for future oxy turnarounds as well as give indications of catalyst deactivation.

A comparison of control board indicated temperature profiles with traveling thermocouple profiles will indicate the accuracy and reliability of operator information.

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3. Photographs of Tops and Bottoms of All Reactors

After reactor heads have been removed, take color photographs of the top of both heads of each reactor. These photos of the Raschig rings on the heads will indicate possible channeling of reactants. They also will show the amount of dusting that has occurred in the reactors.

4. Dust Samples from Reactor Heads

Collect samples of dust from the heads of each reactor. Special attention should be given the R-301 top sample. Analysis of the catalyst dust will show the degree of catalyst fracturing due to coking. The R-301 sample will show whether reactant impurities in the reactant feed streams are accumulating in R-301. These impurities may be aiding deactivation in this reactor by clogging catalyst pores.

5. Pressure Drop Data

Obtain pressure drop information on catalyst tubes and on experimental catalyst tubes. These tests should be conducted on a set of tubes located radially from the center of the reactor. The data will show tube plugging characteristics and reactant channeling tendencies. A comparison of experimental with normal catalyst tubes will indicate the relative degree of dusting in each of the catalyst types.

6. Unloading of Catalyst Tubes

Unload one outer and one inner catalyst tube from each reactor. Collect and label these samples.

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7. Unloading Experimental Catalyst Tubes

Unload experimental catalyst tubes from each reactor. Collect and label these samples. At least two tubes must be sampled as two different types of experimental catalyst were installed in the reactors.

8. Obtain HCl Column Wash Sample

If the HCl column is to be washed during the turnaround, obtain a sample of the first portion of the exiting wash solution. A comparison of this wash solution with the solution obtained at the last turnaround may yield corrosion information on the column.

9. Check Furnace Decoking

Assuming furnace is to be decoked, check on the cracking furnace - ~~steam decoking suggestion.~~
coke deposition ratio? Higher furnace temps.

10. Provide for Transport of Samples

Package and label all samples and provide for their rapid and safe shipment to Ponca City for analysis.

11. Preliminary Catalysis Analysis in Ponca City

Analyze by high temperature, high resolution mass spectroscopy the samples as soon as possible. Compare these catalyst analyses with analyses of catalyst from the last catalyst turnaround.

12. Further Catalyst Analyses

Analyze all catalyst samples by the previous means and methods with special attention to carbon microscopy.

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13. Data Analyses and Presentation

Collect and compare all data from this catalyst to that of the last turnaround. This is to show the effect of the altered operation conditions.

It is our understanding that this catalyst change is not being forced by deactivated catalyst but is dictated by other turnaround considerations and shipping-production commitments. This must be kept in mind in the analysis of the catalyst data.

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