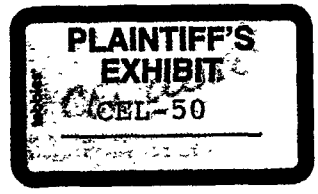
CELANESE CHEMICAL COMPANY
Chemcel Plant
Bishop, Texas



To: C. W. Harrison

From: W. H. Meyer WHM-177-78 June 30, 1978

Third Quarter 1978 Work Plans
Laboratory

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Third Quarter 1978 Work Plans
Laboratory

Attached are the third quarter 1978 work plans for the Laboratory. The schedules cover work plans for each chemist in the Special Problems Area, the Analytical Section work plans, and the Quality Assurance work plans. It should be noted that product quality problems, low unit efficiencies and other unit problems will reduce time spent on cost reduction (development) projects.

Additional progress should be possible as new chemists come on board in third quarter.

W. H. Meyer

WHM/as
Attached Report

004136

AREAS I AND IV

Group Leader - G. D. Boyd

Methanol Oxidation, Formaldehyde Blending
J. D. Presley

Objective	Plans
Raw Materials Savings (Reduce Catalyst Usuage)	1. Sample for Iron in the air across MO-II and MO-III air filters in the third quarter and issue a report in the fourth quarter. Completion of this Objective will be dependent upon time needed for Unit Support. 2. Continue MO Catalyst Screening study as needed and samples are available. 3. MO Catalyst Reuse - Issue report finalizing Lab evaluation of catalyst washing by end of third quarter.
Energy Conservation	1. MS II Crude to MO - Issue report for first Plant Trial early in third quarter and plan for second Plant Trial with modifications to prevent first trial problems.
Raw Materials Savings (Increase Unit Efficiency)	1. Reduce Methylal Formation in MO Distillation Column - Issue recommendations for Plant Trial and conduct trial during third quarter if feasible.

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Objective	Plans
	2. MO Efficiency Improvements with Trace Amounts of Halogenated Hydrocarbons - Begin Lab study of AMR effect and issue Status Report by end of third quarter. Completion of this Objective will be dependent on amount of time needed for Unit Support. 3. Conduct a brief study in MO-I and determine possible efficiency improvements. A report will be co-authored with Process Engineering. Completion of this Objective is wholly dependent on the run duration of MO-I.
MOB	Maintain daily contact with MO Units and Blending Unit and provide Technical support as needed.
MOB	Follow-up on recommendation to install Metalose Assition system down-stream of anion beds as required.

Utilities, BOD
S. G. Smith, G. R. Stasney

Objective	Plans
Support Unit Expansion (Cost Reduction)	Anaerobic-Aerobic Laboratory Pilot Study - Study operation and feasibility of two-stage anaerobic-aerobic treatment of Bishop effluent. Plans are to: 1. increase loading to the Lab Anaerobic Unit to 0.5 pounds COD/ft^3/day,

004138

Objective	Plans
	2. line out the Unit on feed including Oxo effluent stream and Nylon waste water, and 3. begin sludge settling ability tests for clarifier design studies, by end of third quarter; 4. follow-up on installation of Process controller, 5. review preliminary objectives with Process Engineering and modify as needed.
Support Unit Expansion (Cost Reduction)	Aerobic Treatment of Bishop Nylon Unit Effluent - Determine the aerobic treatability of Nylon effluent at various Food/Biomass ratios. Determine if increased loadings of Aerobic system with Nylon waste water (loadings higher than projected) are possible. Complete by middle of third quarter and issue report.
MOB	Maintain contact with BOD Unit and provide technical support as needed. Make Plant tour of Vernon to study their anaerobic system. Attend Process design meeting on anaerobic filter in Pampa during the third quarter.

OSHA Monitoring
J. M. Jackson

Objective	Plans
Define Employee Exposure to Benzene	Complete area and personnel monitoring in MO-IV, and Maintenance. Report data by end of third quarter.

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Objective	Plans
Define Employee Exposure to Formaldehyde	Complete establishing Formaldehyde Exposure Zone in the To I and SH I area to define employee exposure areas early in quarter. Complete transfer of Plastics monitoring to Plastics Company Environmental Health Chemist. Emphasize Formaldehyde monitoring to provide information for SOCMA study.
Define Employee Exposure to Asbestos	Monitor Maintenance employees during insulation removal as required.
Define Base Case Employee Exposure	Continue work on Phase I and Phase II monitoring.

AREA III

Group Leader - H. H. Thigpen

1,3-Butylene Glycol
L. Mayerle, R. G. Hilbrich

Objective	Plans
Energy Conservation	Conduct a plant test of base steam 1,3-BG product rather than vapor side-stream after necessary unit modifications are complete. Late third quarter completion.
Cost Reduction	Recover BG from V-778 residue. Begin evaluation of potential recovery schemes in middle third quarter.

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Objective	Plans
Energy Conservation	Provide analytical support as needed for the Process Engineering Project to replace steam jets with vacuum pumps. Late in third quarter.
MOB	Maintain frequent contact with unit and provide technical support as needed.
MOB	Evaluate feasibility of burning V-778, V-747 residues along with T-225 OH and T-202 OH in boilers and make recommendations.

Pentaerythritol

R. G. Hilbrich, L. Mayerle

Objective	Plans
Cost Reduction	Remove crystallization inhibitors from "A: Crystallizer feed or T-286 residue to increase efficiency of the "A" Crystallization step. Begin Laboratory work in late June or early July. Project may carry over into fourth quarter.
Energy Conservation	Support Process Engineering project to recover energy from "A" evaporator steam jet. Begin work in mid-third quarter to develop a process to clean up the resulting condensate and/or identify where it can be used without clean up.

Objective	Plans
MOB	Complete particulates sampling during Tech production to provide data for the air emissions survey.
MOB	Maintain frequent contact with units to provide technical support as needed.
Energy Conservation	Develop data for an economic evaluation of the proposed Tech. Center TMP purification systems to indicate if full scale piloting is justified. Final documentation by August 1, 1978.
Raw Materials Savings	Reduce Formaldehyde losses in the TMP reaction system. Continue spot determinations of the Methanol production in the reactors. Determine cause(s) if Methanol production is higher than normal.
MOB	Maintain contact with unit to provide technical support as needed.

Diacetone Alcohol
M. E. Harris

Objective	Plans
DAA Raw Materials Savings	Provide analytical coverage for the next plant run using Goodyear Acetone scheduled for late June or early July. Document results along with a comparison of Dow vs Goodyear Acetone by August 1, 1978.

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Objective	Plans
DAA Raw Material Savings	Reduce Acetone losses to Mesityl Oxide by adding water to the reactor feed the first few days after catalyst regeneration. Schedule Plant trial late in third quarter or early fourth quarter.
MOB	Identify an unknown component recently discovered in DAA product at relatively high levels. Determine how to control its production in the unit. Complete by September 15, 1978.
MOB	Maintain frequent contact with unit and provide technical support as needed.

Esters, Methylal Paraform Formcels®

M. E. Harris, R. G. Hilbrich

Objective	Plans
Cost Reduction	Provide a method of automatically controlling reflux on the acetate reactor column (T-268) by correlating conductivity of the overhead water phase with acid content. Issue final report in July.
Cost Reduction	Assist in obtaining microprocesser control of the Ester Unit by providing

004143

Objective	Plans
	laboratory cross check of the unit analyzer as required.
Cost Reduction	Test the Formaldehyde made from MS Crude for suitability as Paraform feedstock. If unsuitable, assist in determining the source and identity of the contaminants responsible. Issue final report in early July.
Energy Conservation	Sufficiently define the alternate n-Butyl Acetate Process to allow a reasonably accurate estimate of the economic potential. Issue report in early July.
Energy Conservation	Assist as needed in the second attempt to start up the new Ester Unit Reactor Column (T-343). Provide vapor, liquid equilibrium data to indicate the proper operating composition ranges in the reaction kettle. Complete documentation by August 1, 1978.
MOB	Maintain frequent contact with the units and provide technical support as needed.

AREA II

Senior Chemists - F. R. Dow and A. J. Bacon

Methanol Synthesis II
F. R. Dow

Objective	Plans
MOB (Support MS II Turnaround)	Provide analytical support for Lurgi GL-122 oxidation, ICI-51-2 reduction and/or process analyzer back-up. Provide technical support as needed.
MOB (Cost Reduction)	Continue the non-routine monitoring of incoming natural gas for composition, BTU and sulfur concentration.
MOB (Crude Methanol composition and Purification Tower Profiles)	Profile A and B train purification towers for component distribution after MS II turnaround. The data will help determine optimum flows for side-stream drawoffs.
MOB	Maintain daily contract with the unit and provide technical support as needed.

Oxo, Butanol, Propanol
A. J. Bacon

Objective	Plans
MOB	Support Oxo shutdown. Document Run IV Rh Accounting.

Objective	Plans
MOB (Cost Reduction)	Continue support of CRC and Tech Center analytical work on Oxo reactor accountability.
Raw Materials Savings (Cost Reduction)	Purchase equipment for and begin activity testing on Oxo catalyst hydrocarbon extraction phases. File RFPA on this work.
Raw Materials Savings (Cost Reduction)	Carry out a heavy ends balance through Butyraldehyde purification. Pursue efficiency loss ideas in this area with Process Engineering.
MOB (Raw Materials Savings)	Support MEA reclaimer and inhibitor studies. Support BuOH material balance.
MOB	Maintain daily contact with the units and provide technical support as needed.

MAINTENANCE OF TECHNOLOGY

Staff Chemist - B. C. Kerr

Objective	Plans
Maintenance of Technology	1. Continue program for abstracting technical reports and preparation of abstract cards. 2. Complete survey of abstract card users for suggestions concerning methods for improving the Maintenance of Technology program at Chemcel.

Objective	Plans
MOB (Provide statistically accurate operations data to support Unit standard operating procedures.)	1. Issue report on statistical data obtained for Oxo Butyraldehyde Unit operations. 2. Compile the necessary data for a statistical evaluation of Butanol Unit operations.
MOB (Cost Reduction)	Provide technical support, as a Staff Chemist, as needed.

Note: Depending upon the nature of suggestions and criticisms received during survey of the Maintenance of Technology program, it may be necessary to devote time to designing and implementing changes in the present system.

ANALYTICAL SECTION

Group Leader - A. G. McGehee

Objective	Plans
MOB (Cost Reduction-Support of Lab Projects)	1. Continue analytical support of Laboratory Pilot Anerobic/aerobic studies and Rhodium Loss Accountability Program. 2. Implement method change on TMP moisture analysis to direct titration procedure (new Metrohm KF apparatus has facilities for handling solids) and develop precision data.

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Objective	
	3. Determine viable solution to problem analysis of Iron (ppm) in Caustic Treated Formcel.® Determine reliable chemical method technique or determine reliable accurate AA method of analysis.
MOB (Support Plant Operations)	Continue Group readiness and ability to contribute to day to day trouble shooting of Plant process and quality problems. Continue communication efforts through Unit Chemists.
MOB (Review QC Organization)	Investigate/evaluate various methods of assumption of routine. Descriptive write-up by 8-78 and initiate trial 1 in late third quarter.
MOB (TDWR-EPA Compliance)	Complete and implement revised and expanded EPA Quality Control Program in third quarter. Includes 10% spike and duplicate samples plus record keeping.
Safety	1. Continue emphasis on Laboratory safety and attendance at general Safety Meetings. 2. Coordinate Vent Hood upgrading with Engineering. Estimated start in third quarter with completion in 30 days.
MOB (Maintain Analytical Technology)	1. Continue in process review and update of Chemcel GC methods. Twelve methods are under review. Expect to

Objective	Plans
	complete four by end of third quarter. 2. Complete precision data work on heavy metals by AA. 3. Provide manpower as needed to Ditch and BOD outfall correlation study (TOC, COD, TOD). Expect completion by end of third quarter with report issued.
MOB (Training)	Continue Job rotation and cross section training with one rotation scheduled for 9-78 and one cross training scheduled for 7-78.
MOB (Support Labs Effective Service to Plant)	Support Plastics move to their new Lab. Complete investigation and make final recommendations on Lab GC computer by 9-30-78. This includes letter of rational.

QUALITY ASSURANCE

H. A. Ducote

Objective	Plans
MOB (Maintain Quality of Plant Products)	Maintain ≤0.15% legitiamte complaints during third quarter.

Objective	Plans
MOB (Cost Reduction)	Review quality control procedures on at least 4 products and make recommendations by end of third quarter.
MOB (Cost Reduction)	Review quality control organization and make recommendations for improvement by end of third quarter.

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