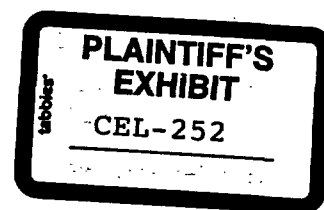


CELANESE CHEMICAL COMPANY  
Chemcel Plant  
Bishop, Texas



To: C. W. Harrison

From: W. H. Meyer

WHM-178-78

July 3, 1978

Laboratory Department Summary

June, 1978

DISTRIBUTION

Chemical

P. E. Hime  
G. D. Boyd  
J. Chervenka  
T. N. Dowdy  
H. A. Ducote  
K. G. Gallimore  
R. S. Hahn  
M. D. Harvey  
J. M. Hodges  
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B. C. Kerr  
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D. E. Lockwood  
Dr. C. E. Loeffler  
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W. W. Massey  
A. G. McGehee  
J. T. McMahon  
R. A. Mickelson  
J. C. Rubiano  
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G. R. Scholz  
W. L. Sharp  
H. H. Thigpen  
O. Towery  
J. L. Trumbley  
P. J. Volpe

Plastics

J. L. Merian  
A. C. Abshier  
C. A. Amond  
W. C. Beyer  
R. L. Bunkley  
E. Munoz  
K. A. Rose  
C. S. Schmaltz

CCCTC

G. J. Fisher  
W. E. Heinz  
Dr. C. C. Hobbs  
W. J. Humphrey  
W. T. McNair  
Dr. D. R. Napier  
W. E. Taylor  
Central Files (2)

|                 |                  |
|-----------------|------------------|
| J. N. Gann      | Bay City         |
| J. W. Dunn      | Clear Lake       |
| J. M. Ramey     | New York         |
| T. Golson       | New York         |
| S. C. Mah       | New York         |
| J. E. Sanborn   | Bayport Terminal |
| W. H. Tuke      | Pampa            |
| F. B. McAndrews | Summit           |
| Dr. F. Zitomer  | Summit           |

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CELANESE CHEMICAL COMPANY  
Chemcel Plant  
Bishop, Texas

To: C. W. Harrison

From: W. H. Meyer

WHM-178-78

July 3, 1978

Laboratory Department Summary  
June, 1978

The Bishop Plant Laboratory activities during June are attached. Section I contains a summary of the Analytical Group activities with a table of analytical statistics. Section II contains a Quality Assurance Summary and a table listing shipments, quality waivers, quality complaints and sample shipping statistics. Section III describes the status of Special Problems Group projects by Unit Chemist assignment. A table listing the priorities, justifications and estimated completion dates of current Special Problems projects is also included in Section III.

  
W. H. Meyer

WHM/as  
Attached Report

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I. ANALYTICAL GROUPCOMPETITIVE EVALUATIONS

None this month.

Methanol Oxidation (MO) - Formaldehyde (HCHO)

Extra analytical monitoring of the Methocel inhibitor addition to sales grade HCHO continues. Levels this month ranged from 0 - 15 ppm (target 10 ppm). A post anion resin bed addition facility for the HCHO Blending Unit has been recommended (JDP-26-78). Hopefully this would solve addition, mixing and sampling related problems.

Polyol Area - Trimethylolpropane (TMP), Pentaerythritol (PE)

Analytical assistance is being provided for a loss minimization study of TMP losses from V-759 OH. HCHO and MeOH levels are being determined around T-206 Res, V-759 Vent Condensate and PE A-Evaporator vent. The study continues.

Utilities - BOD

A 90 day cooperative study has been undertaken by the Utilities, Analyzer Maintenance, and Laboratory Departments for the purpose of evaluation of the dependability of the Total Carbon Analyzer alarm system on the Plant front ditch (001 outfall). Mr. L. K. Arthur will coordinate the Laboratory portions of this study. Additionally, a comprehensive Unit Method of Analysis for Total Organic Carbon (TOC) will be developed for use around the BOD Unit by Operations personnel.

Plant effluent streams fed to the BOD Unit are being monitored for ppm Sodium to determine the sources of inorganic Carbon in the Unit. Monitoring is expected to continue for 2 weeks.

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The expanded Laboratory Quality Control program on analysis of EPA and TDWR regulated outfalls is approximately 75% complete. The delay beyond the expected July 1 startup is due to the press of other higher priority water related work. Revised implementation date is August 1.

General - The Perkin Elmer Atomic Absorption instrument was down for one and one-half days this month. The service call resulted in the replacement of an IC Board and related electronics. The instrument is operating properly now.

### Analytical Statistics

#### Sample Count

|                    | <u>June</u>  | <u>June<br/>YTD</u> | <u>Previous<br/>YTD</u> |
|--------------------|--------------|---------------------|-------------------------|
| Chemical Section   | 5,370        | 27,912              | 29,838                  |
| Instrument Section | <u>2,925</u> | <u>15,500</u>       | <u>13,667</u>           |
| Total              | 8,295        | 43,412              | 43,505                  |

#### Technician Overtime

|                    |          |            |            |
|--------------------|----------|------------|------------|
| Chemical Section   | 58       | 658        | 459        |
| Instrument Section | <u>7</u> | <u>127</u> | <u>454</u> |
| Total              | 65       | 785        | 913        |

## II. QUALITY ASSURANCE

Customer Complaints Due to Quality - Tom Golson reported a complaint from Cone Solvents at Memphis, Tenn. The customer reported a color buildup in DAA product 5-22-78 in tank trailer G-1194. The color was in their inventory and not the trailer. Retain sample of this shipment and the previous shipment (3-21-78) showed a color build (25-75) in shelf storage which is typical of DAA stored in clear bottles. It is believed that the customer does not store DAA under refrigeration or lower than ambient temperatures which could have contributed to their color problem.

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CELX 2263 loaded with 50% Formaldehyde arrived at the Newark terminal with high color (30) and high Iron (1.6 ppm). A check on the retain sample confirmed that the product when loaded met all sales specs. This problem indicates a car liner failure. Latest information is this product was shipped on waiver to an outside customer. Valid complaint.

Mr. John Fleming, located at the Celanese Coatings Co. plant at Louisville, reported that CELX 2056 Cpt A, loaded with DAA, was not passing the water miscibility test and had a low initial boiling point indicating the presence of light ends. He requested NYQA to return the car to Bishop. A confirming teletype 6-27-78 reported t/c was on the way back. A quart sample of DAA from the car is being sent by the Coatings Company for Bishop's analysis and comparison to the contents of the returned tank car. Analysis of the retain of the car confirms that the car was loaded with spec material.

New York Quality Assurance reported that 2 tank cars, CELX 13205 and CELX 51212 with 50% Formaldehyde arrived at Rock Hill, S. C., with high color (30). Both cars shipped 6-13-78 from Bishop with spec product (<5) which was confirmed by analysis of the retains. Jim Sanborn reported the product will be blended off at Rockhill. This complaint suggests more tank car liner failures.

Quality Waivers and Shipments Delayed Due to Quality - Three lots of Pure PE, Lots no. 148, 149, and 150, 7,950 x 50 lb. Bags were made with low Mono PE (97.7 to 97.9). These three lots were approved by Ed Radziewicz, NYQA, for shipment to Sherwin Williams who is capable of using this material in Alkyd resin production. This material is to be shipped to Traylek Warehouse and segregated for shipment to Sherwin Williams only. We still have 950 x 50 # bags of Pure PE from Lot 150 P3 which are in Export Bags and are being held until a outlet can be found. Quality Assurance in N.Y. states that these cannot be shipped export.

A waiver was granted by T. H. Golson for shipment of 900 x 50 # bags of Course Paraform Powder to David Mud and Chemical, Great Bend, Kansas. The concentration was above 95% where sales spec for this product is 92 to 94% Formaldehyde.

A waiver was also granted by N.Y., with D. J. Foley approval, to ship 800 x 50 # bags of Paraform flake to Grant Chemical, Irene, La. The Formaldehyde content was 89.6 to 90.0%. Approval to ship the balance of this lot to oil field accounts was granted.

Production Quality - The Metalose stabilizer in production Formaldehyde has ranged from <1 ppm to a high of 14.5 ppm during June.

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After the Gulf Adhesive's complaint last month on the foaming of 50% Formaldehyde which they received, 4 retains of 50% tank cars shipped to them in May were pulled and analyzed for the stabilizer content. The range was from 2.5 to 6.2 ppm. A report from New York on 6-16-78 indicated that all four cars were acceptable to Gulf Adhesives without problems. Tank cars involved in this review were as follows:

|           |               |
|-----------|---------------|
| CELX 1049 | Shipped 5-2   |
| CELX 1211 | Shipped 5-9   |
| CELX 1323 | Shipped 5-26  |
| CELX 2260 | Shipped 5-29. |

The in-line Formaldehyde blender continues to give problems. Blend problems during the month were as follows:

|          |   |                  |
|----------|---|------------------|
| 37% HCHO | - | 7 Blends missed  |
| 44% HCHO | - | 3 Blends missed  |
| 50% HCHO | - | 8 Blends missed. |

It was reported again that inhibited blends are made with settings from 0.5% to 2.0% below the expected Methanol concentration in order to complete the blend.

Tom Golson has requested that Chemcel consider supplying Tretolite with 37% uninhibited, Unstabilized Formaldehyde. In his letter, THG-209-78, he reports that the initial requirements would be two tank trucks per month. They would like to start consumption in late July or early August. We are waiting for answers to our questions of how much is no stabilizer and no inhibitor since anion exchange will probably leach out stabilizer even if we don't add any. We have also questioned if the customer wants no antifoam.

PE - Last month we received notice from P.T. Henderson at Cleveland that Ashland was shipping 471 bags of Tech PE back to the Bishop plant because of fines content. The product was received in early June and the material has been recovered by rerun.

Sodium Formate - Mr. Bob Johnson, Assistant Manager of Manufacturing at Virginia Chemical visited the Bishop Plant and Laboratory to discuss sampling and analysis of Sodium Formate solutions (59% Sodium Formate) which we ship to their Leeds, S. C. and Alabama facilities. Discussions were with Hub Thigpen, H. A. Ducote and with Brian Hanson. Mr. Johnson was convinced that everything here was in good shape and he is returning to do more investigating at their receiving sites. We agreed to send some samples from our analytical work to the Virginia Chemical laboratory

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located across the road from the Chemcel Plant, to cross check analyses. We have previous data on PE AML to show both labs are in agreement.

1,3 Butylene Glycol - Received a special request from Jim Stafford at the Newark terminal requesting an odor panel evaluation on one drum numbered 38. This drum was one out of 60+ drums loaded and shipped to Warner-Lambert who complained again of an Acrylate type odor. The customer used all of the drums except this one. Bishop Lab results on this one drum (#38) indicated a typical lo odor (0.9) product. A GC analysis showed a purity of 99.74 and no unusual impurities. This data was reported to Jim Stafford by phone on 6-14-78.

Paraform Flake - Samples of Paraflake lumps were returned to Chemcel from the Nalco Chemical Co. in Houston. Bob Gengelback at Houston sales arranged for the lumps to be sent to Bishop for analysis. These samples were ground, analyzed, and reported in HAD-60-78. Only the iron content was found to be off test as compared to sales specification.

The quality of current production paraform flake is of uniform size and color with little or no lumpy particles observed this month.

Formcels® - We are still showing a color (not off test) in Butyl Formcel and not in Methyl Formcel.

At the request of T. H. Golson of New York Quality Assurance a sample of Methyl Formcel was sent to the CCCTC for an analysis by GC - Mass Spec. Dow Chemical Company has questioned the Formaldehyde concentration of our Methyl Formcel reporting values in the range of 51%. Dr. Sadler reported that the analyses are complete and a report will be issued soon.

Specification Reviews - The following customer specifications have been reviewed and reported to New York Quality Assurance Office:

| <u>Product</u> | <u>Customer</u>       | <u>Specs Status</u> |
|----------------|-----------------------|---------------------|
| Methanol       | Lehigh Valley ChemCo. | Not Acceptable      |
| Methanol       | Petrolia's Mexicana   | Acceptable          |
| n-Butanol      | Dow Chemical, U.S.A.  | Acceptable          |
| PE - Pure      | Texaco, Inc.          | Acceptable          |

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## Sample Shipping and Quality Assurance Statistics

Statistics For June 1978

| <u>Sample Shipping</u> | <u>Month</u> | <u>YTD</u> | <u>Previous YTD</u> |
|------------------------|--------------|------------|---------------------|
| Domestic               | 77           | 383        | 675                 |
| Export                 | 3            | 20         | 68                  |
| Plastics               | 4            | 27         | 53                  |
| Other                  | 26           | 86         | 686                 |
| Total                  | 110          | 516        | 1,482               |

Quality Assurance Statistics

|                                          | <u>Month</u> | <u>YTD</u> | <u>Previous YTD</u> |
|------------------------------------------|--------------|------------|---------------------|
| Shipments (NO.of Orders)                 | 739          | 4,459      | 5,270               |
| Delayed                                  | -            | 16         | 21                  |
| Waviers <u>Internal</u>                  | -            | 2          | -                   |
| External                                 | 3            | 9          | 22                  |
| Complaints (Total)                       | 4            | 21         | 33                  |
| Complaints (Legitimate)                  | 1            | 10         | 10                  |
| Complaints (Non-Legitimate)              | 1            | 5          | 21                  |
| Complaints - Outstanding<br>(Unresolved) | 2            | 6          | -                   |

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III. SPECIAL PROBLEMS GROUPMethanol Oxidation, Formaldehyde Blending  
J. D. Presley

MO Efficiency Increase With Trace Amounts Of Halogenated Hydrocarbons - No progress due to priorities.

No Catalyst Reuse - No progress due to priorities.

MS II Crude To MO - Report is holding pending completion of additional analytical work.

Reduce Methylal Formation in MO Distillation Columns - No progress due to priorities.

MO Unit Support - Work on the MS Sidestreams to MO has been completed and a report issued JDP-27-78.

Work on Matthey-Bishop Silver Catalyst and Plant Trial has been completed and a report issued, JDP-28-78.

MO-II was brought on line after a brief shut down to repair cooling water leaks in the air inlet precooler. After running only a short period the reactors were displaying unusually high temperatures. A Laboratory analytical AMR check showed an acceptable 2% difference from the control room indicator. The high reactor temperatures were believed to be caused by heavy catalyst contamination.

MO-I was started up this month to help relieve inventory shortages. Lab analytical AMR check on start-up showed an acceptable 1% discrepancy from the control room indicator. The feed Methanol was found to contain about 7% water raising the true AMR from 0.85 to 0.92.

In order to define sources of efficiency losses in the MO Units, Process Engineering is conducting Material Balances. The Lab is providing analytical support.

Blending Unit Support - A letter has been issued recommending moving the Metalose Addition system from V-692 to some position after the Anion beds (See JDP-26-78) in order to relieve plugging and pressure drop problems.

A report recommending charging the screens in the Blending Unit shakers from 100 mesh to 60 mesh is in progress. This change will facilitate the back-washing procedure used in the regeneration cycle of the anion beds.

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

Purchase Specification Update - No progress due to priorities.

BOD Unit Analytical Methods Manual - No progress due to priorities.

Anaerobic Testing of Chemical Wastes - Complete replacement of startup solution with equalization basin as anaerobic filter feed was achieved on 6-16-78 (forty-four days after the initial 1% live feed introduction to the filter). Chemical loading has been gradually increased from 0.15 to 0.20 lb COD/ft<sup>3</sup>/day. Chemical removal has decreased from roughly 85% to 70%, kinetic removal from 80% to 65%, since the increase in loading. Formaldehyde concentration in the equalization basin feed has varied from 2700 to 4500 ppm; Formaldehyde in the filter outfall has increased from <5 ppm to 60-70 ppm since elimination of startup solution feed. Loading is currently being held at the 0.2 lb. COD/ft<sup>3</sup>/day level.

The aerobic polishing section of the anaerobic-aerobic pilot study was set up on 6-15-78. This section includes a 55 gallon aerobic tank and a separate clarifier. The unit has been charged with bacteria from the Plant BOD unit and is being fed anaerobic filter outfall. Mechanical aspects of this section are still being worked out.

Aerobic Treatment of Nylon Wastewater - Nylon wastewater and normal BOD unit feed were fed to two laboratory aeration tanks for several weeks at a food to biomass (F/M) ratio of 0.4 - 0.5. No adverse effects on the activity of the bacteria was observed. The nylon tank has shown a very slight foaming over the BOD fed control. Effects of increasing F/M ratios is being studied. The two tanks are experiencing an upset due to low air flow to the aerators which causes low dissolved oxygen levels in the tanks.

BOD Unit Support - High COD outfall samples were examined for the presence of refractory compounds. No appreciable amounts of Trioxane or Formaldehyde were detected in several samples from the end of May. A refractory compound was detected in outfall sample of 6-13-78 by L. Mayerle and K. Parker and identified by CCCTC to be Hexamethylenetetramine, (HMTA). HMTA (produced by the reaction of Formaldehyde and Ammonium hydroxide) appears to be made where ammonia is added in-line to equalization basin feed (0.2 - 0.4% HCHO). Analytical data (by L. Mayerle) show approximately 100 - 300 ppm HMTA in outfall samples, which would account for roughly 150 - 400 ppm COD. In an attempt to reduce HMTA make, the Ammonia nutrient is

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now being added directly into the aeration basins. Outfall samples are being analyzed for HMTA by Kathryn Parker for several turnovers of the basins. A report will be issued.

Frequent alarms for high total Carbon at the front ditch analyzer are sometimes caused by high inorganic Carbon from BOD outfall stream. High Sodium levels in the BOD feed to the unit result in high inorganic Carbon (Carbonate, Bicarbonate) in the outfall. The waste streams going to BOD and the equalization basin are being analyzed daily for Sodium to determine the major contributors of  $\text{Na}^+$ .

OSHA Monitoring  
J. M. Jackson

The Personnel 8 hr TWA Benzene survey in SH I/TO I and SH II/TO II is complete. A summary of the results is being documented. One Personnel 8 hr TWA required follow-up monitoring. Formaldehyde monitoring has been limited to the SH I/TO I area in the Plastic Company. Exposure zones are being defined to establish employee exposure in the work area. The CEA 555 Formaldehyde instrument is being used for the area samples.

Employee exposure to Formaldehyde requiring follow-up monitoring in May has been completed. Three action forms were issued in the SH I/TO I area during June. These forms were issued on the Gauger and Operator Helper. Work continues in order to determine if the job description (duties performed) or employee technique should be evaluated for corrective measures.

Tile from the Main Office Building ceiling sent to the Technical Center for asbestos analysis showed none present. A report will be issued when Technical Center data is received.

A transfer of Plastics Company OSHA, EPA, and TACB monitoring responsibilities was completed June 1, 1978, A. R. Hancock is now performing those duties.

Esters, Methylal, Paraform, Formcel<sup>®</sup> Products  
M. E. Harris, R. G. Hilbrich

Acetate Unit Support - Laboratory studies of the Acetate unit reactor column (T-268) are nearly complete. Laboratory simulations of the kettle have indicated that pressures of up to 10 psi, which is the operating pressure of the reactor, have only small, insignificant effects on the component volatilities. The Laboratory simulations, in conjunction with unit data taken in June during a normal Butyl Acetate run, should provide

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useful information for the next start-up of T-343. A report is in progress.

New n-Butyl Acetate Process - A full report has been written on the progress of the project to date. It should issue in July. Laboratory work has been discontinued until manpower limitations and priorities permit. Recently, work has been delayed by Laboratory studies designed to gain insight into the problems encountered in the attempted start-up of the new Acetate Unit reactor column (T-343).

Diacetone Alcohol  
M. E. Harris

Problems Related to Goodyear Acetone - The Lab is following the current DAA run using Goodyear acetone with analytical support. A report will be issued when all data is complete.

1,3-Butylene Glycol  
L. Mayerle, K. Parker

1,3-BG Unit Support - The titration curve for T-223 feed with 20% NaOH was generated to determine the optimum control point for the pH of T-223 residue. It was recommended that the pH of T-223 residue be maintained between 7.5 and 10.0 (LM-38-78).

Samples of V-778 feed, overhead, and residue were collected once-per-shift for four days and analyzed to provide data for a material balance around V-778. A letter will be issued in July.

Trimethylolpropane  
L. Mayerle

TMP Unit Support - TMP Concentrator (V-759) vents have been resampled to resolve a discrepancy between TMP and NaFo concentrations in the vent streams from previous analyses (LM-36-78). The ratio of TMP to NaFo found in the vent streams were greater than that which could be accounted for by entrainment. Analyses have been completed on V-759 OH (8" stack) vent, V-759/T-206 OH (10" stack) vent, and V-759 Vent Condensate Drain (LM-39-78).

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Alternate TMP Purification Scheme - Increased 2-Ethylhexanol into the bottom of the extractor failed to show significant improvement in separations. The present equipment seems to be operating at ~10% efficiency based on actual distribution coefficients. Stirring rates will be increased in an attempt to improve the efficiency of the equipment in the next run (early July). Higher stirring rates in early runs resulted in unsatisfactory phase separation but have not been tested at the most recent run conditions.

Potential for Increased Reactor Cooling - Methanol production across the TMP reactors has remained low (~0.10 - 0.20  $\Delta$  weight-percent MeOH). Data will continue to be collected every two weeks at normal operating conditions.

TMP Unit Analytical Methods Manual - The Sodium ion electrode has been delivered. The final method for determining Sodium Formate concentrations in T-204 residue and V-747 residue will be developed as time permits.

Pentaerylthritol  
L. Mayerle

PE Unit Support - Data on the pH of PE AML from August 22, 1977 through February 28, 1978 was sent to Virginia Chemical Industries at their request (LM-37-78).

Titration curves were generated for use in determining the cost of using Formic Acid instead of Sulfuric Acid for the hydrolysis of PE Linear Formals in the Acid Digester in order to obtain zero sulphates in PE AML. A letter written with Process Engineering is in review.

A sample of "A" Evaporator vent was collected and analyzed to determine the non-aqueous components of the vent stream. The results will be used in Laboratory work associated with proposals for heat recovery from PE "A" Evaporator vent. Total Carbon was found to be less than 0.1% in the vent stream. The data will also be used in a reevaluation of air emissions from "A" Evaporator vent.

PE Unit Analytical Methods Manual - The Sodium ion electrode has been delivered. The final method for determining Sodium Formate concentrations in "A" dissolve tank will be developed as time permits.

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Methanol Synthesis  
F. R. Dow

Fuel Gas Quality - Analysis of incoming natural gas shows Exxon and Channel Gas contains ~0.6 mole % air. Houston Pipeline natural gas was the best quality of the three with <0.1 mole % air and 0.05 mole % C<sub>6</sub>+ Hydrocarbons. A report will be issued detailing the composition of the three suppliers.

MS-II Analytical Support - Analytical procedures and standards have been prepared to support the MS-II Turnaround. Emphasis has been placed on accuracy for the oxidation and reduction of the Lurgi converter catalyst.

Several samples of Crude Methanol will be analyzed for impurities during the last week of operation with the Lurgi GL-122 converter catalyst. The data will be obtained to document end of run impurities.

Oxo, ProOH, BuOH Unit Support  
A. J. Bacon

Rhodium Accountability - Unaccounted for Rhodium losses have declined to near zero over the last several weeks at Oxo's reduced rates. Approximately 28 lbs of Rh are presently unaccounted for with ~14 additional lbs lost in T-210 residue.

Preparations for drum sampling during shut down are underway. A final run #4 accounting report is planned by August.

Reactor Accountability/Stability - Samples sent to C.R.C. only just arrived, so no progress can be reported this month.

Work on Rh/TPP balance through purification is now complete. Over the sampling period, the Rhodium balance was again acceptable. The TPP balance was also good. The TPP lost in heavy ends matched daily addition rates once the T-210 Res. flow rate was corrected. A report is in progress.

Unit Support - Preparations are being made for the up-coming shutdown.

Analysis of TPP supplies were begun when Bay City reported finding off test M&T material. Ten lots from our warehouse have been sampled. First indications are that three lots are somewhat high in Chloride (20 ppm

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vs 10 spec), but all else looks good. Packing apparently occurs in all drums.

A series of SBHB (T-133 Res) samples were analyzed to support Process work (AZS).

Work was begun on a balance of Aldol heavy ends through BuH purification.

In support of the BuH high pressure vent expander project, data was obtained for three vapor/liquid K value calculations. Points included -76°C at 0 psig, -8°C at 76 psig, and 0°C at 60 psig. A report is in progress.

Start-up assistance was given the Bay City plant for several days prior to their compressor problems.

Process Technology  
B. C. Kerr

Technical Report Abstracting - Preparation of technical report abstracts is current. Abstract cards were issued during the last week in June which will bring card files up to current status.

Statistical Data for Oxo Butyraldehyde Unit Operations - A report giving statistical data for Oxo Butyraldehyde Unit Operations is being typed and should be issued by July 3, 1978. The data in the report are based upon unit operations during the month of February, 1978.

Review of Process Technology Retrieval System Use - Preliminary results of my survey of users of the Process Technology Retrieval System indicate that:

1. Retrieval system is used most frequently by new employees in the Technical Department.
2. Experienced employees have a tendency to go directly to letter files or to authors for information.
3. A need still exists for some system of direct reference to specific types of production problems.
4. A need exists for a review of the mechanics of the retrieval system for the benefit of new employees.

It is planned to review the mechanics of the retrieval system with each group in Process Engineering. Modifications of the present system will be studied.

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## Current Special Problems Projects

| Project                                                                        | Chemist         | Priority | Justification                                                 | Estimated Completion Date   |
|--------------------------------------------------------------------------------|-----------------|----------|---------------------------------------------------------------|-----------------------------|
| MO Efficiency Improvements with Trace Amounts of Halogenated Hydrocarbons      | Presley         | 2        | Raw Material Savings                                          | August, 1978                |
| MO Catalyst Screening                                                          |                 | 2        | To Establish Alternate Suppliers And Improve Catalyst Quality | Continuing                  |
| MO Catalyst Reuse                                                              |                 | 2        | Reduce Silver Inventory                                       | Undertermined               |
| MS-II Crude To MO                                                              |                 | 1        | Steam Savings                                                 | Undertermined               |
| Reduce Methylal Formation in MO Distillation Columns                           | ↘               | 1        | Raw Material Savings                                          | Plant testing by June, 1978 |
| Purchase Specifications Update                                                 | Smith           | 2        | Maintenance of Business                                       | Undertermined               |
| BOD Analytical Methods Manual                                                  |                 | 2        | Maintenance of Business                                       | Undertermined               |
| Anaerobic Testing of Chemical Waste Streams                                    |                 | 1        | To Test Anaerobic Process As Alternate BOD Expansion          | January 1, 1979             |
| Aerobic Treatment of Nylon Wastewater Effluent                                 | ↘               | 1        | To Test Treatability of Nylon Waste in Bishop BOD Unit        | August 1, 1979              |
| OSHA Monitoring                                                                | Jackson         | 1        | Ensure Employee Health and Safety OSHA OSHA Compliance        |                             |
| Paraform, Formcel <sup>R</sup> Products, Esters Unit Analytical Methods Manual | Hilbrich Harris | 2        | Maintenance of Business                                       | August 1, 1978              |

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## Current Special Problems Projects

| Project                                              | Chemist  | Priority | Justification                   | Estimated Completion Date |
|------------------------------------------------------|----------|----------|---------------------------------|---------------------------|
| Alternate n-Butyl Acetate Process                    | Hilbrich | 1        | Steam Savings                   | July 1, 1978              |
| Establish Potential of Increased TMP Reactor Cooling | Mayerle  | 2        | Raw Material Savings            | Continuing                |
| Alternate TMP Purification Scheme                    |          | 1        | Energy and Raw Material Savings | August 1, 1978            |
| TMP Unit Analytical Methods Manual                   |          | 2        | Maintenance of Business         | August 1, 1978            |
| PE Unit Air Emissions Survey                         |          | 1        | Provide Emissions Data          | July 15, 1978             |
| PE Unit Analytical Methods Manual                    | ↘        | 1        | Maintenance of Business         | August 1, 1978            |
| Fuel Gas Quality                                     | Dow      | 1        | Improve Fuel Gas Accountability | Continuing                |
| MS-II Turnaround Support                             |          | 1        | Process Analyzer Back-up        | August 1, 1978            |
| MS-II Analytical Support                             | ↘        | 1        | Maintenance of Business         | Continuing                |
| Oxo, Butanol, Propanol Support                       | Bacon    | 1        | Maintenance of Business         | Continuing                |
| Reactor Stability/Accountability                     | ↘        | 1        | Improve Reactor Control         | Continuing                |

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## Current Special Problems Projects

| Project            | Chemist | Priority | Justification                            | Estimated Completion Date |
|--------------------|---------|----------|------------------------------------------|---------------------------|
| Rhodium Accounting | Bacon   | 1        | Maintenance of Business And Cost Savings | Continuing                |
|                    |         |          |                                          |                           |
|                    |         |          |                                          |                           |
|                    |         |          |                                          |                           |
|                    |         |          |                                          |                           |
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