

# Monsanto

## Anniston Plant

### TECHNICAL SERVICES DEPARTMENT

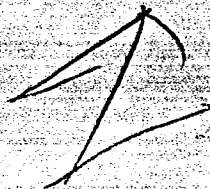
### MONTHLY REPORT

Anniston

C. K. Eastman  
A. G. Hill  
L. C. Lahman  
J. C. Landwehr  
G. W. Miller  
W. B. Papageorge  
W. F. Taffee  
H. L. Williams

Summary

August, 1969

Cost Improvement Results

Month

Est. Act.

Target

% of Target

\$57,877

\$66,285

87.3%

YTD

\$361,080

\$372,285

97.0%

General Offices

H. S. Bergen  
C. Carder  
Danna (5)  
P. B. Hodges  
D. B. Hosmer (2)  
W. A. Kuhn  
W. R. Robirds  
N. L. Sample  
J. E. Smith  
J. A. Stephens  
R. J. Stratmeyer  
H. S. Trail

Organic Division

Sandvik belt arrived late August for testing with Solid Aroclor Montars handling in September.

A designed experiment was run on the Biphenyl tubular unit to better describe the process variables and their relationship.

Process Analysis

Correlations (99.9% confidence) have been found between PNCB usage and reactor pressure, temperature and caustic concentration when these variables are combined into a calculated parameter,  $\Delta T$ , which is the difference between the reactor temperature and the boiling point of the reactor mass. From these correlations several combinations of variables will be defined and tested to restore standard PNCB usage for a potential \$10,000 per month savings over present levels.

OTHER LOCATIONS

A. H. Forsten -  
Alvin, Texas  
  
D. W. Jackson -  
WCK  
  
M. Patrick -  
So. 2nd St.

Agricultural Division

Parathion MIP was completed and reviewed with Director of Manufacturing, Crop Protection Group, on August 29.

Change out of No. 3 chlorinator was completed on August 16, and a 2 hour reduction in batch cycle time has been demonstrated. Productivity gains of \$3250 resulted in August.

DSW 377569

Utilities

Initial results of Biphenyl Cooling Tower Treatment are good and August savings are estimated to be \$600.

Design and Drafting

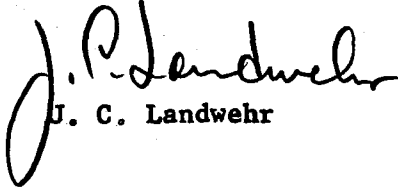
A project to improve the emergency power supply for Parathion (AFE 3305 - \$41.9M) was approved on 7-30-69. All long delivery items have arrived and installation should be completed by September. Pat McGinley of CED contributed to a large degree to the rapid development of this project.

Pollution Control

The HCl neutralization pit was cleaned out in mid-August. Preliminary tests indicate that treatment of sewer acid has improved considerably.

Quality

The Plant Quality Score was 93.7, up 6.1 from July with a YTD score of 88.4 against a 1969 target of 95.0 minimum. P<sub>2</sub>S<sub>5</sub> color, Aroclor 5460 solubility, HB-40 specific gravity show unfavorable trends.

  
J. C. Landwehr

kd

DSW 377570

STLCOPCB4099302

ORGANIC DIVISION  
1969 TSD COST IMPROVEMENT

|                              | ANNUAL | JAN  | FEB  | MAR  | APR  | MAY    | JUN  | JUL  | AUG  | SEP  | OCT  | NOV  | DEC  |
|------------------------------|--------|------|------|------|------|--------|------|------|------|------|------|------|------|
| Sol.Aro. Level               | TAR    |      |      |      | 2250 | 2250   | 2250 | 2250 | 2250 | 2250 | 2250 | 2250 | 2250 |
| Ind. & -Still SpG            | EST    |      |      |      | -    | -      | -    | -    | -    |      |      |      |      |
| AFE 3015                     | ACT    |      |      |      | -    | -      | -    | -    | -    |      |      |      |      |
| Solid Aro.                   | TAR    | 2600 | 2600 | 2600 | 2600 | 2600   | 2600 | 2600 | 2600 | 2600 | -    | -    | -    |
| Lower 5060                   | EST    | 1500 | 5490 | 4890 | 2150 | 4670   | 8000 | 4230 | 7730 |      |      |      |      |
| Soft. Point                  | ACT    | 1500 | 5490 | 4890 | 2150 | 4670   | 8000 | 4230 |      |      |      |      |      |
| Sol.Aro.-Still               | TAR    |      |      |      | 160  | 170    | 160  | 170  | 160  | 170  | 160  | 170  | 160  |
| Coolant temp.                | EST    |      |      |      | -    | -      | -    | -    | -    |      |      |      |      |
| AFE 3015                     | ACT    |      |      |      | -    | -      | -    | -    | -    |      |      |      |      |
| Sol.Aro.-Chlor               | TAR    |      |      |      | 390  | 390    | 390  | 390  | 390  | 390  | 390  | 390  | 390  |
| Batch End                    | EST    |      |      |      | -    | -      | -    | -    | -    |      |      |      |      |
| AFE 3015                     | ACT    |      |      |      | -    | -      | -    | -    | -    |      |      |      |      |
| Sol.Aro. Yield               | TAR    |      |      |      |      | 2750   | 2750 | 2750 | 2750 | 2750 | 2750 | 2750 | 2750 |
| SW/R Composition             | EST    |      |      |      |      | -      | -    | -    | -    |      |      |      |      |
| AFE 3016                     | ACT    |      |      |      |      | -      | -    | -    | -    |      |      |      |      |
| Solid Aro.                   | TAR    |      |      |      |      | 1080   | 1080 | 1080 | 1080 | 1080 | 1080 | 1080 | 1080 |
| Montar 5 Flake               | EST    |      |      |      |      | -      | -    | -    | -    |      |      |      |      |
| AFE 2949                     | ACT    |      |      |      |      | -      | -    | -    | -    |      |      |      |      |
| Sol.Aro.                     | TAR    | 2500 | 2500 | 2500 | 2500 | 2500   | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 |
| Blend 4465                   | EST    | 1690 | 1920 | 1680 | 1490 | 710    | 1180 | 990  | 220  |      |      |      |      |
|                              | ACT    | 1690 | 1920 | 1680 | 1490 | 710    | 1180 | 990  |      |      |      |      |      |
| Sol.Aro.-Verti-              | TAR    | 70   | 80   | 70   | 80   | 70     |      |      |      |      |      |      |      |
| cal Still Cond.              | EST    | 70   | 90   | 90   | 90   | 90     | -    | -    | -    |      |      |      |      |
| AFE 2324                     | ACT    | 70   | 90   | 90   | 90   | 90     | -    | -    | -    |      |      |      |      |
| Sol.Aro.Cl <sub>2</sub>      | TAR    |      |      | 940  | 940  | 950    |      |      |      |      |      |      |      |
| T/C Dock                     | EST    |      |      | 0    | -    | -      |      |      |      |      |      |      |      |
| AFE 2342                     | ACT    |      |      | 0    | -    | -      |      |      |      |      |      |      |      |
| Sol.Aro.-New Cl <sub>2</sub> | TAR    |      |      |      |      |        | 950  | 940  | 950  | 940  | 950  | 940  | 950  |
| Unload - No Delay            | EST    |      |      |      |      | 900    | 2330 | 2050 | 2320 |      |      |      |      |
| CED 1831                     | ACT    |      |      |      |      | 900    | 2330 | 2050 |      |      |      |      |      |
| Solid Aro.-Flake             | TAR    | 3000 | 3000 | 5000 | 5000 | 5000   | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| & Drum                       | EST    | 0    | 0    | 1000 | 2000 | 2000   | 2000 | 3000 | 3000 |      |      |      |      |
| CED 1430                     | ACT    | 0    | 0    | 1000 | 2000 | 2000   | 3000 | 3000 |      |      |      |      |      |
| Liq.Aro.                     | TAR    | 3000 | 3000 | -    | -    | -      | -    | -    | -    | -    | -    | -    | -    |
| 48-53 M #/yr.                | EST    | 0    | 5500 | -    | -    | -      | -    | -    | -    | -    | -    | -    | -    |
| AFE 2545                     | ACT    | 0    | 5500 | -    | -    | -      | -    | -    | -    | -    | -    | -    | -    |
| Liq.Aro.-No.2                | TAR    |      |      |      |      |        |      |      |      |      | 3000 | 3000 |      |
| Still Entrain Sep.           | EST    |      |      |      |      |        |      |      |      |      |      |      |      |
| AFE 3093                     | ACT    |      |      |      |      |        |      |      |      |      |      |      |      |
| Liq.Aro.-Montar              | TAR    |      |      | 1080 | 1080 | 1080   | 1080 | 1080 | 1080 | 1080 | 1080 | 1080 | 1080 |
| Disposal                     | EST    |      |      | 0    | 0    | 0      | 0    | 0    | 0    |      |      |      |      |
| AFE 2952                     | ACT    |      |      | 0    | 0    | 0      | 0    | 0    |      |      |      |      |      |
| Warehouse                    | TAR    | 2000 | 3000 | 3000 | 3000 | 3000   | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| Reduce Manpower              | EST    | 2000 | 2000 | 2000 | 3000 | 3000   | 3000 | 3000 | 3000 |      |      |      |      |
| CEA 1452                     | ACT    | 2000 | 2000 | 2000 | 3000 | 3000   | 3000 | 3000 |      |      |      |      |      |
| Liq.Aro.New                  | TAR    |      |      | 1500 | 1500 | 1500   | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |
| Burners #3 Still             | EST    |      |      | 0    | 0    | 1500   | 3000 | 900  | 0    |      |      |      |      |
|                              | ACT    |      |      | 0    | 0    | 1500   | 3000 | 900  |      |      |      |      |      |
| Biphenyl Relocate            | TAR    | 500  | 500  | 500  | 500  | 500    | 500  | 500  | 500  | 500  | 500  | 500  | 500  |
| No. 1 Preheat                | EST    | 1500 | 0    | 1560 | 1870 | 0      | 0    | 1500 | 0    |      |      |      |      |
| CEA 1892                     | ACT    | 1500 | 0    | 610  | 1870 | 0      | 0    | 1500 |      |      |      |      |      |
| HB-40                        | TAR    | 3000 | 3000 | 3000 | 3000 | 3000   | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| 2nd Autoclave                | EST    | 2230 | 2580 | 0    | 600  | 9000   | 6000 | 5600 | 4200 |      |      |      |      |
| AFE 3102                     | ACT    | 3490 | 2420 | 0    | 600  | 10,400 | 8600 | 7450 |      |      |      |      |      |

DSW 377571

STLCOPCB4099303

ORGANIC DIVISION  
1969 TSD COST IMPROVEMENT

|                                               | ANNUAL | JAN  | FEB  | MAR    | APR   | MAY   | JUN   | JUL    | AUG    | SEP   | OCT   | NOV   | DEC   |
|-----------------------------------------------|--------|------|------|--------|-------|-------|-------|--------|--------|-------|-------|-------|-------|
| BiO Improve<br>Tower Treat.<br>AFE 3155       | TAR    |      |      |        |       | 450   | 450   | 450    | 450    | 450   | 450   | 450   | 450   |
|                                               | EST    |      |      |        |       | 0     | 0     | 0      | 584    |       |       |       |       |
|                                               | ACT    |      |      |        |       | 0     | 0     | 0      |        |       |       |       |       |
| Improve Plt.<br>Power Factor                  | TAR    |      |      |        |       | 900   | 900   | 900    | 900    | 900   | 900   | 900   | 900   |
|                                               | EST    |      |      |        |       | 0     | 500   | 900    | 900    |       |       |       |       |
|                                               | ACT    |      |      |        |       | 0     | 500   | 830    |        |       |       |       |       |
| Central Air<br>System                         | TAR    |      |      |        |       |       |       |        |        | 1000  | 1000  | 1000  | 1000  |
|                                               | EST    |      |      |        |       |       |       |        |        |       |       |       |       |
|                                               | ACT    |      |      |        |       |       |       |        |        |       |       |       |       |
| Optimize Rx Time<br>PNP                       | TAR    |      | 2500 | 2500   | 2500  | 2500  | 2500  | 2500   | 2500   | 2500  | 2500  | 2500  | 2500  |
|                                               | EST    |      | 0    | 3420   | 0     | 0     | 0     | 2940   | 1260   |       |       |       |       |
|                                               | ACT    |      | 0    | 3420   | 0     | 0     | 0     | 2940   |        |       |       |       |       |
| Reduce Mole<br>Ratio NaOH/PNCB<br>PNP         | TAR    |      |      |        | 4000  | 4000  | 4000  | 4000   | 4000   | 4000  | 4000  | 4000  | 4000  |
|                                               | EST    |      |      |        | 0     | 0     | 0     | 0      | 0      |       |       |       |       |
|                                               | ACT    |      |      |        | 0     | 0     | 0     | 0      |        |       |       |       |       |
| New Wash Water<br>Pump - PNP<br>AFE 2998      | TAR    |      |      |        |       | 50    | 50    | 50     | 50     | 50    | 50    | 50    | 50    |
|                                               | EST    |      | 25   | 50     | 50    | 50    | 50    | 50     | 50     |       |       |       |       |
|                                               | ACT    |      | 25   | 50     | 50    | 50    | 50    | 50     |        |       |       |       |       |
| Automatic pH<br>Control<br>PNP                | TAR    |      |      |        |       |       |       |        |        |       | 500   | 500   | 500   |
|                                               | EST    |      |      |        |       |       |       |        |        |       |       |       |       |
|                                               | ACT    |      |      |        |       |       |       |        |        |       |       |       |       |
| HCl Filter<br>Pump                            | TAR    | 330  | 330  | 340    |       |       |       |        |        |       |       |       |       |
|                                               | EST    | 330  | 330  | 340    |       |       |       |        |        |       |       |       |       |
|                                               | ACT    | 330  | 330  | 340    |       |       |       |        |        |       |       |       |       |
| New Blow Tank<br>HCl                          | TAR    | 200  | 200  | 200    | 200   | 200   | 200   |        |        |       |       |       |       |
|                                               | EST    | 200  | 200  | 200    | 200   | 500   | 200   |        |        |       |       |       |       |
|                                               | ACT    | 200  | 200  | 200    | 200   | 200   | 200   |        |        |       |       |       |       |
| 150,000 Gal. -HCl<br>Storage Tank<br>AFE 2468 | TAR    |      |      |        | 1760  | 1760  | 1780  | 1760   | 1760   | 1780  | 1760  | 1760  | 1780  |
|                                               | EST    |      |      |        | -     | 0     | 0     | 2640   | 3290   |       |       |       |       |
|                                               | ACT    |      |      |        | -     | -     | 0     | 2830   |        |       |       |       |       |
| Produce Staley<br>Grade Acid<br>AFE 3076      | TAR    |      |      |        |       |       |       | 780    | 780    | 790   | 780   | 780   | 790   |
|                                               | EST    |      |      |        |       |       |       | -      | -      |       |       |       |       |
|                                               | ACT    |      |      |        |       |       |       | -      |        |       |       |       |       |
| Cl <sub>2</sub> Plt. Shutdown<br>CFA 1831     | TAR    |      |      |        |       |       | 8880  | 8880   | 8880   | 8880  | 8880  | 8880  | 8880  |
|                                               | EST    |      |      |        |       | 8880  | 6655  | 42885  | 19900* |       |       |       |       |
|                                               | ACT    |      |      |        |       | 2230  | 6655  | 42855  |        |       |       |       |       |
| Hg Recover from<br>Residue                    | TAR    | 250  | 250  | 250    | 250   |       |       |        |        |       |       |       |       |
|                                               | EST    | 3910 | 0    | 0      | 0     |       |       |        |        |       |       |       |       |
|                                               | ACT    | 3910 | 0    | 0      | 0     |       |       |        |        |       |       |       |       |
| Hg Wash Tank<br>AFE 2802                      | TAR    | 250  | 250  | 250    | 250   |       |       |        |        |       |       |       |       |
|                                               | EST    | 0    | 0    | 0      | 0     |       |       |        |        |       |       |       |       |
|                                               | ACT    | 0    | 0    | 0      | 0     |       |       |        |        |       |       |       |       |
| Biphenyl<br>Productivity                      | TAR    | 5600 | 5600 | 5600   | 5600  | 5600  | 5600  | 5600   | 5600   | 5600  | 5600  | 5600  | 5600  |
|                                               | EST    | 0    | 9000 | 15,000 | 0     | 0     | 0     | 30780  | 2700   |       |       |       |       |
|                                               | ACT    | 1800 | 5900 | 13,500 | 0     | 0     | 0     | 30780  |        |       |       |       |       |
| Total Organic By<br>Month M \$                | TAR    | 23.3 | 26.8 | 29.3   | 37.5  | 42.3  | 51.1  | 51.6   | 51.6   | 51.6  | 52.7  | 53.5  | 50.6  |
|                                               | EST    |      | 27.1 | 30.2   | 11.5  | 36.3  | 39.35 | 107.4  | 53.84  |       |       |       |       |
|                                               | ACT    | 16.5 | 23.8 | 27.8   | 11.4  | 25.75 | 45.9  | 110.22 |        |       |       |       |       |
| Total Organic<br>YTD M \$                     | TAR    | 23.3 | 50.1 | 79.4   | 116.9 | 159.2 | 210.3 | 261.9  | 313.5  | 365.1 | 417.8 | 471.3 | 521.9 |
|                                               | EST    |      | 46.9 | 78.8   | 79.6  | 115.9 | 144.4 | 258.5  | 315.1  |       |       |       |       |
|                                               | ACT    | 16.5 | 40.3 | 68.1   | 79.5  | 105.2 | 151.1 | 261.2  |        |       |       |       |       |

\* \$22955 adjustment included for May & June

\*\* \$27,780 adjustment included for months  
January thru June.

DSW 377572

STLCOPCB4099304

**AG DIVISION**  
**1969 TSD COST IMPROVEMENT**

|                                                      | ANNUAL | JAN | FEB  | MAR    | APR    | MAY    | JUN    | JUL    | AUG    | SEP   | OCT   | NOV    | DEC    |
|------------------------------------------------------|--------|-----|------|--------|--------|--------|--------|--------|--------|-------|-------|--------|--------|
| Cooling Tower                                        | TAR    |     |      |        | 420    | 420    | 410    | 410    | 420    | 420   | 410   | 420    | 420    |
| Repiping                                             | EST    |     |      |        | 0      | 0      | 0      | 0      | 0      |       |       |        |        |
| AFE 2598                                             | ACT    |     |      |        | 0      | 0      | 0      | 0      |        |       |       |        |        |
| Optimize N <sub>2</sub> & Cl <sub>2</sub> Levels     | TAR    |     |      |        | 6600   | 6700   | 6700   | 6600   | 6700   | 6700  |       |        |        |
|                                                      | EST    |     |      |        | 0      | 0      | 0      | 0      | 0      |       |       |        |        |
|                                                      | ACT    |     |      |        | 0      | 0      | 0      | 0      |        |       |       |        |        |
| Increase Waste Acid Sales                            | TAR    |     |      |        | 400    | 300    | 300    | 400    | 300    | 300   | 400   | 300    | 300    |
|                                                      | EST    |     |      |        | 0      | 0      | 0      | 0      | 0      |       |       |        |        |
|                                                      | ACT    |     |      |        | 0      | 0      | 0      | 0      |        |       |       |        |        |
| Chlorinator R.I.                                     | TAR    |     |      |        |        |        |        | 250    | 250    | 250   | 250   | 250    | 250    |
|                                                      | EST    |     |      |        |        |        |        | 0      | 0      |       |       |        |        |
| AFE 2244                                             | ACT    |     |      |        |        |        |        | 0      |        |       |       |        |        |
| EVOP Condensation Rx.                                | TAR    | 750 | 750  | 500    |        |        |        |        |        |       | 500   | 750    | 750    |
|                                                      | EST    | 0   | 0    | 12,615 |        |        |        |        |        |       |       |        |        |
|                                                      | ACT    | 0   | 0    | 12,615 |        |        |        |        |        |       |       |        |        |
| Cl <sub>2</sub> Unloading                            | TAR    |     |      |        |        |        |        | 5000   | 5000   | 5000  | 2000  | 2000   | 2000   |
|                                                      | EST    |     |      |        |        |        |        | 0      | 0      |       |       |        |        |
| CEA 1831                                             | ACT    |     |      |        |        |        |        | 0      |        |       |       |        |        |
| Recycle Wash Water                                   | TAR    |     |      |        |        |        |        | 290    | 290    | 290   | 290   | 290    | 290    |
|                                                      | EST    |     |      |        |        |        |        | 0      | 0      |       |       |        |        |
| AFE 2960                                             | ACT    |     |      |        |        |        |        | 0      |        |       |       |        |        |
| Parathion Recovery                                   | TAR    |     |      |        |        |        |        |        |        |       | 5800  | 5800   | 5800   |
|                                                      | EST    |     |      |        |        |        |        |        |        |       |       |        |        |
| AFE 2655                                             | ACT    |     |      |        |        |        |        |        |        |       |       |        |        |
| Reduce Acetone Losses                                | TAR    |     |      |        |        |        |        |        |        |       | 4300  | 4300   | 4300   |
|                                                      | EST    |     |      |        |        |        |        |        |        |       |       |        |        |
|                                                      | ACT    |     |      |        |        |        |        |        |        |       |       |        |        |
| Formulations                                         | TAR    |     |      |        | 1600   | 1600   | 1600   | 1600   | 1600   | 1600  |       |        |        |
|                                                      | EST    |     |      |        | 3000   | 6600   | 10,000 | 4570   | 2000   |       |       |        |        |
| AFE 2897                                             | ACT    |     |      |        | 4300   | 10,400 | 9288   | 4570   |        |       |       |        |        |
| Change Cooling H <sub>2</sub> O Item 737             | TAR    |     |      |        | 125    | 125    | 125    | 125    | 125    | 125   | 125   | 125    | 125    |
|                                                      | EST    |     |      |        | 120    | 180    | 155    | 272    | 333    |       |       |        |        |
| AFE 3067                                             | ACT    |     |      |        | 120    | 180    | 171    | 272    |        |       |       |        |        |
| Well H <sub>2</sub> O to Jets                        | TAR    |     |      |        |        |        |        |        |        |       | 500   | 500    | 500    |
|                                                      | EST    |     |      |        |        |        |        |        |        |       |       |        |        |
|                                                      | ACT    |     |      |        |        |        |        |        |        |       |       |        |        |
| Ag. Division by Month                                | TAR    | 750 | 750  | 500    | 9145   | 9145   | 9135   | 14675  | 14685  | 14685 | 14575 | 14485  | 14485  |
|                                                      | EST    |     |      | 12,615 | 3,120  | 6,730  | 10,155 | 4842   | 4033   |       |       |        |        |
|                                                      | ACT    | 0   | 0    | 12,615 | 4,400  | 10,530 | 9459   | 4842   |        |       |       |        |        |
| Ag. Division YTD                                     | TAR    | 750 | 1500 | 2000   | 11145  | 20290  | 29425  | 44100  | 58785  | 73470 | 83805 | 102500 | 117015 |
|                                                      | EST    |     |      | 12,615 | 15,735 | 25,815 | 37,770 | 41,912 | 45,949 |       |       |        |        |
|                                                      | ACT    | 0   | 0    | 12,615 | 17,055 | 27,615 | 37,074 | 41,916 |        |       |       |        |        |
| Ag. Division untargeted-R.M. Charges optimization    | TAR    |     |      |        |        |        |        |        | 0      |       |       |        |        |
|                                                      | EST    |     |      |        |        |        |        |        | 1700   |       |       |        |        |
|                                                      | ACT    |     |      |        |        |        |        |        |        |       |       |        |        |
| Organic Div. Untargeted - HCl Catch Tank & Coalescer | TAR    |     |      |        |        | 0      | 0      | 0      | 0      |       |       |        |        |
|                                                      | EST    |     |      |        |        | 5000   | 6250   | 5960   | 4690   |       |       |        |        |
|                                                      | ACT    |     |      |        |        | 0      | 9350   | 6817   |        |       |       |        |        |

DSW 377573

STLCOPCB4099305

AROCLOR E E. Bowles, C. R. McIlwain, P. D. Kinnear (V. R. Haupt)

|                             |               |                               |
|-----------------------------|---------------|-------------------------------|
| <u>Aroclor Safety Audit</u> | <u>Safety</u> | <u>TSD Objective</u><br>A - 1 |
|-----------------------------|---------------|-------------------------------|

Completed preliminary review of all Aroclor Safety Audit items, either project premises or maintenance repair orders have been issued initiating the completion of these items.

|                    |                               |
|--------------------|-------------------------------|
| <u>Aroclor MIP</u> | <u>TSD Objective</u><br>B - 1 |
|--------------------|-------------------------------|

Preliminary groundwork for the 1970 Aroclor MIP has been started. Product outlook based on the new sales forecast is such that capacity will not be an important factor in this year's MIP. The major items of interest will be operating efficiencies as related to decreasing the unit cost of Aroclors. Department commitment for date of issue of approved plan is November 15th.

|                                                                                  |                                              |                                  |
|----------------------------------------------------------------------------------|----------------------------------------------|----------------------------------|
| <u>Evaluate Quaterphenyl-<br/>Polyphenyl Effects on<br/>Solid Aroclor Yields</u> | <u>1969 Savings</u> \$63,200<br>NFC \$14,000 | <u>TSD Objective</u><br>B - 8(a) |
|----------------------------------------------------------------------------------|----------------------------------------------|----------------------------------|

Operator training on radiation instruments was conducted during August. Waiting for radioactive source for level alarm to be installed before start-up in early September.

|                                               |                                          |                                  |
|-----------------------------------------------|------------------------------------------|----------------------------------|
| <u>Debottleneck Liquid<br/>Aroclor Stills</u> | <u>Yield &amp; Capacity<br/>Increase</u> | <u>TSD Objective</u><br>B - 8(i) |
|-----------------------------------------------|------------------------------------------|----------------------------------|

High Aroclor inventory prevented the field test of Aroclor Tentative Amendment B during the month of August.

|                                                            |                                               |                                  |
|------------------------------------------------------------|-----------------------------------------------|----------------------------------|
| <u>Sandvik Belt Cooler for<br/>Montar 5 Solidification</u> | <u>Solid Aroclor Expansion<br/>Evaluation</u> | <u>TSD Objective</u><br>B - 8(j) |
|------------------------------------------------------------|-----------------------------------------------|----------------------------------|

The stainless steel cooling belt was delivered 3 weeks later than expected. Test runs will begin early in September.

BIPHENYL-SANTOWAX W. G. Niemeyer, D. A. Self (V. R. Haupt)

|                                                                                                 |                              |                                  |
|-------------------------------------------------------------------------------------------------|------------------------------|----------------------------------|
| <u>Debottleneck Biphenyl-<br/>Santowax Distillation<br/>Area to 87.6 M lbs/yr.<br/>Biphenyl</u> | <u>Capacity<br/>Increase</u> | <u>TSD Objective</u><br>B - 7(a) |
|-------------------------------------------------------------------------------------------------|------------------------------|----------------------------------|

Fabrication of spool pieces for installation of by-pass loops around Santowax C flow meters is complete. Installation of by-pass loops will be completed by 9/11/69. A capacity/performance test run will be conducted on the Santowax distillation column after the meters are re-installed and calibrated.

BIPHENYL-SANTOWAX - (Cont'd.)

|                                       |                  |                           |
|---------------------------------------|------------------|---------------------------|
| Low Biphenyl Santowax<br>for FDA 5460 | Sales<br>Support | TSD Objective<br>B - 7(b) |
|---------------------------------------|------------------|---------------------------|

During August, we produced Santowax C with approximately 0.15% biphenyl due to running at a low production rate. To make it routinely year round, increased cooling water capacity is required in the distillation area.

|                                            |                  |                 |
|--------------------------------------------|------------------|-----------------|
| Tank Truck Shipments of<br>Molten Biphenyl | Sales<br>Support | TSD Job No. 824 |
|--------------------------------------------|------------------|-----------------|

TSD has assisted in the conversion of a large biphenyl customer, Chemical Processing of Georgia, from flaked biphenyl in bags to molten biphenyl. Two truck loads were shipped during the last week in August.

|                                                                                                 |        |                 |
|-------------------------------------------------------------------------------------------------|--------|-----------------|
| Prediction and Control of<br>Dust Explosion Potential in<br>Biphenyl Flaker Packaging<br>System | Safety | TSD Job No. 931 |
|-------------------------------------------------------------------------------------------------|--------|-----------------|

Safety review committee has accepted the recommendation to convert the biphenyl bagger from air fluidization to nitrogen fluidization to maintain an inert atmosphere in the hopper. In addition, help will be requested from S&PP on hopper design changes.

|                                                      |                  |                           |
|------------------------------------------------------|------------------|---------------------------|
| Designed Experiment Run on<br>No. 1 Biphenyl Furnace | Process<br>Study | TSD Objective<br>B - 7(e) |
|------------------------------------------------------|------------------|---------------------------|

A designed experiment was conducted on the No. 1 biphenyl furnace from August 4 through August 13. Around-the-clock TSD coverage was provided to record temperature data and supervise sampling. Four blocks of data were collected with 12 trials in each block. The variables studies were: 1. converter outlet temperature, 2. converter pressure, 3. promoter concentration, and 4. per cent biphenyl recycled in benzene feed. The primary purpose of the test run was to determine what set of process conditions would produce the desired product split with minimum quaterphenyl production.

|                                                          |        |                 |
|----------------------------------------------------------|--------|-----------------|
| Install Secondary High Level<br>Alarm on Biphenyl Column | Safety | TSD Job No. 817 |
|----------------------------------------------------------|--------|-----------------|

Complete design package was transmitted to Maintenance for construction on August 25, 1969.

BIPHENYL-SANTOWAX - (Cont'd.)

Install Knockout Tank on  
Santowax Jet Vent

Safety

TSD Job No. 862

Design package will be transmitted to Maintenance by September 12, 1969.

HB-40

J. W. Mattern (V. R. Haupt

HB-40 Control  
Variable Study

Process Study with  
\$10 M Potential Savings

TSD Objective  
B - 12(d)

Collection of base line data has been postponed due to frequent shutdown from high inventory and lack of an adequate, safe sampling port for incoming Santowax R. A plan for catalyst savings is currently being reviewed by Production.

HCl

G. L. Moore, L. O. Chambers, K. G. Hale (A. G. McCarty)

Production of Staley Grade  
Acid - AFE 3076

New Earnings \$288 M  
Potential Savings \$71,000

TSD Objective  
B - 10(c)

Coalescer and catch tank contributed \$4700 savings during August. The coalescing element was changed during the month because of considerable deterioration. Alternate designs are being evaluated with the vendor to increase element life.

Issue HCl MIP

Planning

TSD Objective  
B - 1(b)

Finished draft complete. Plant review scheduled for 9/10/69 with issuance targetted in September.

Reduce High Free Cl<sub>2</sub>  
in Muriatic Acid

Quality

TSD Job No. 950

Air blowing of acid storage tank continues to alleviate high free Cl<sub>2</sub> problem. Plant tests to determine source of free Cl<sub>2</sub> will be scheduled later.

PNP

G. L. Moore, L. O. Chambers, K. G. Hale (A. G. McCarty)

Debottleneck to  
1.8 M

Capacity Savings  
\$27,500

TSD Objective  
B - 9(a)

Letdown time continued good during August. Savings of \$1260 were gained during the month.

Installation of a new filter pump was completed removing a bottleneck to capacity gains by further reactor cycle improvement. However, long cooling cycles have recently developed in the acidifier, and these will be investigated in September.

NIRAN K. G. Hale, D. W. Dudley, T. W. Lawrence, J. L. Gaines, (A. G. McCarty)

|                       |                    |               |
|-----------------------|--------------------|---------------|
| Demonstrate Parathion | Savings \$17,400   | TSD Objective |
| Recovery              | 10-15% Reduced COD | B - 5(a)      |

No change in status. Construction in progress on test facilities

|                  |                  |               |
|------------------|------------------|---------------|
| Acetone Recovery | Savings \$12,900 | TSD Objective |
|                  | 20% Reduced COD  | B - 5(i)      |

Recovery tests on #3 condensation reactor were completed in August. Results have not been evaluated as yet. Initial design and drafting were complete 8/12. Review of design will be complete 9/11. Project will be submitted for approval 9/12. Project transmittal to Maintenance will be 9/19. Construction still slated for fall turn-around.

|                     |                  |               |
|---------------------|------------------|---------------|
| Central Chlorine    |                  | TSD Objective |
| Unloading for Niran | Savings \$21,000 | B - 6(a)      |

Operation of new unloading facilities good except for rate. Rate has not improved over present due to lack of sufficient air pad. Evaluation of new compressor versus rebuilt compressor underway. Evaluation will be complete by 9/15 with EDC dependent upon decision.

|                 |                                  |               |
|-----------------|----------------------------------|---------------|
| Sulfur Recovery | \$271,000/Yr. Net Savings        | TSD Objective |
| from Residue    | 40% Reduction in SO <sub>2</sub> | B - 5(d)      |

C.E.D. is active on summarizing scope and initial estimating. Anniston TSD providing assistance as necessary.

|                                           |                  |               |
|-------------------------------------------|------------------|---------------|
| Optimize Cl <sub>2</sub> & N <sub>2</sub> |                  | TSD Objective |
| Levels                                    | Savings \$40,000 | B - 5         |

Savings of \$6600 were realized during August, when compared to June YTD usages. Methanol and P<sub>2</sub>S<sub>5</sub> yields increased slightly over July. TSD continues to monitor yields and Cl<sub>2</sub> & N<sub>2</sub> level tests.

|                        |                                 |                     |
|------------------------|---------------------------------|---------------------|
| No. 3 Chlorinator Long | Profit New Sales: 25,000/Mo.    | TSD Job No. 927     |
| Cycle Time             | Productivity Savings: 5,000/Mo. | TSD Objective B - 5 |

No. 3 chlorinator changed out 8/11 - 8/16. Operations since 8/16 indicate approximately 2.0 hours reduction in batch cycle time. Productivity savings of \$3250 were obtained in August.

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NIRAN - (Cont'd.)

|                     |                                   |               |
|---------------------|-----------------------------------|---------------|
|                     | Profit New Sales and Productivity |               |
| Improve Chlorinator | Savings \$48,000/Mo. per 0.5 Hour | TSD Objective |
| Cooling System      | Reduction in Chlorination Time    | B - 5(g)      |

Information on boiling refrigerant cooling indicates that heat transfer advantage will be obtained from Freon-21 over the currently used Freon-11. A recommendation for a plant trial of Freon-21 will be submitted after some additional work to optimize the present system.

PROCESS AND QUALITY ANALYSIS J. L. Murphree, Allen Hale (W. B. Dunlap)Process Surveillance

The first semi-annual recalculation of control chart standards has been completed. The results were as follows: 36 improvements, 11 relaxations, and 17 unchanged. This three to one improvement in product quality is consistent with past history of the Quality Control Program.

|                         |                   |                     |
|-------------------------|-------------------|---------------------|
| PNP - Identification of | Potential Savings | TSD Objective C - 3 |
| Critical Variables      | \$60,000          | TSD Job No. 839     |

Correlations (99.9% confidence) have been found between PNCB usage and reactor pressure, temperature and caustic concentration when these variables are combined into a calculated parameter,  $\Delta T$ , which is the difference between the reactor temperature and the boiling point of the reactor mass. From these correlations several combinations of variables will be defined and tested to restore standard PNCB usage for a \$10,000 per month savings over present levels.

|                         |                   |                 |
|-------------------------|-------------------|-----------------|
|                         | Potential Savings |                 |
| Automatic Still Control | \$79,000          | TSD Job No. 964 |

A progress report was written outlining the Phase I approach adopted by the Task Force (Dunlap, Lawrence, Veazey). An AFE is being written. The Parathion MIP prepared by Process Engineering Group I shows a required date of 10/1/70 for a decision on distillation practice. A target of 3/1/70 is realistic for installation of Phase I instrumentation, leaving 6 months for study and modification to meet this deadline.

ENGINEERING DESIGN AND SERVICES

|                                                             |                                       |
|-------------------------------------------------------------|---------------------------------------|
| <u>Mechanical/Electrical/Instrument Design and Drafting</u> | <u>J. C. Price, J. A. Veazey,</u>     |
|                                                             | <u>J. O. House, G. W. Richey.</u>     |
|                                                             | <u>R. V. Carlisle, R. L. Brewster</u> |
|                                                             | <u>J. K. Rennie, J. Childress</u>     |
|                                                             | <u>(W. F. Taffee)</u>                 |

The new emergency generator, for replacement in the Parathion department, has been received. Completion of design and installation is targeted for September.

ENGINEERING DESIGN AND SERVICES - (Cont'd.)

Acetone Recovery - \$12.9/yr. savings and Automatic Still Control - \$79 M/yr. savings received major instrument-electrical attention during August.

Premises were prepared and forwarded for the following projects: Dismantle Santowax OMP Facilities, Dismantle Old Santowax Still, Install Barricades Around Aroclor Heaters.

Review drawings were completed for the following projects:

Reduce Acetone Stripping Pressure - Niran, Install Jet Vent Tank - Santowax (AFE 3052 - \$2.5 M), Biphenyl Pilot Unit (AFE 3297 - \$13 M), Debottleneck Solid Aroclor (AFE pending - \$20 M).

Construction drawings were completed for the following projects:

Biphenyl Column Level Alarm (AFE 3038 - \$3.3 M).

Drafting in progress on the following projects:

Replace Niran Generators (AFE 3305 - \$41.9 M), Install Heat Exchanger in Biphenyl (AFE 3282 - \$1.4 M).

UTILITIES ENGINEERING J. C. Price, M. L. Marcum (W. F. Taffee)

Initial results of Biphenyl Cooling Tower Treatment are good and August savings for this project are estimated to be \$600. Transmittal of this project is scheduled for September. Completed final design of Steam Meters (AFE 2821 - \$12.9 M) and Water Meters (AFE 2984 - \$18.9 M) and forwarded for drafting. Completed review of steam plant operation and collection about 50% of data required for preparation of the Steam Plant MIP.

Plant Improvement G. C. Goodwin (W. F. Taffee)

AFE 3226 - \$9.0 M - Automatic Fail Safe Valves for Niran Raw Material Storage was forwarded for approval. AFE 3293 - \$7.1 M - Upgrade Existing Fire Water System was approved. Design is scheduled for late September.

Design packages were forwarded for: Aroclor Safety Shelter (AFE 3202 - \$1.5 M), Niran Safety Shelter (AFE 3203 - \$1.5 M), Biphenyl Safety Shelter (AFE 3204 - \$1.5 M), HCl Area Drainage (AFE 3221 - \$1.9 M).

POLLUTION CONTROL E. G. Wright (W. F. Taffee)Waste Audits

Aroclor, HCl, Niran  
and PNP

Pollution Abatement

TSD Objective  
F - 3

Report on waste audits in Aroclor and HCl departments was completed and issued during August. Audits in Niran and PNP departments have been completed and report will be prepared during September.

POLLUTION CONTROL - (Cont'd.)

|                               |                              |                               |
|-------------------------------|------------------------------|-------------------------------|
| <u>HCl Neutralization Pit</u> | <u>Production Assistance</u> | <u>TSD Objective</u><br>F - 4 |
|-------------------------------|------------------------------|-------------------------------|

A test run is being conducted on the HCl neutralization pit to determine its capacity and to determine how often it must be cleaned out. Preliminary data indicates with clean and fresh rock and design retention time it will completely neutralize the present average daily loads from the Aroclor department.

Waste Treatment

All wastes were effectively treated during August. Solids sewerage continues to create some problems. Average daily values for Monsanto effluents are as follows.

|           | <u>Average Daily</u> | <u>Specifications</u> |
|-----------|----------------------|-----------------------|
| PNP       | 1.0                  | 5 ppm                 |
| COD       | 122.0                | < 200 ppm             |
| Parathion | .10                  | < 1.0 ppm (Max.)      |
| BOD       | 4.0                  | < 200 ppm             |

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PLANT LABORATORIES      G. W. Miller

PROCESS RESEARCH AND DEVELOPMENT      J. T. Bell

Of the 105 PR&D mandays available in August, 67 were expended on projects listed in the 1969 PR&D Program. In addition, 8 mandays were used in the HB-40 Color Improvement project with the remaining mandays divided between vacations, illness, supervisory, and miscellaneous duties.

|                             |                              |                    |
|-----------------------------|------------------------------|--------------------|
| Blend Scavenger             | Improved Aroclor             |                    |
| <u>Refinement (Aroclor)</u> | <u>Electrical Properties</u> | <u>J. L. Brown</u> |

Active work suspended temporarily by equipment failure. The necessary changes to the refining column are set for 9/15/69, at which time the project will be resumed.

|                |                   |                     |
|----------------|-------------------|---------------------|
| HB-40 Process  | Determine Process |                     |
| <u>Studies</u> | <u>Variables</u>  | <u>W. H. Howard</u> |

Contamination in the laboratory equipment has prevented hydrogenation by a continuous process. Substitution of equipment has reduced but not eliminated the problem. This study is approximately 25 mandays behind the schedule of the project work plan.

|                      |                                 |                    |
|----------------------|---------------------------------|--------------------|
| Biphenyl Tubular     | Obtain Desired                  |                    |
| <u>Pilot Studies</u> | <u>Biphenyl/Terphenyl Ratio</u> | <u>J. L. Brown</u> |

Cost estimates for the proposed Biphenyl Pilot Building currently being prepared by potential contractors are due 9/2/69. Final plans will be completed and issued for construction by 9/8/69.

|                      |                                     |                  |
|----------------------|-------------------------------------|------------------|
| <u>Muriatic Acid</u> | <u>Organics Level Determination</u> | <u>I. Ransaw</u> |
|----------------------|-------------------------------------|------------------|

The laboratory study as defined in the project work plan has been completed. A PR&D report will be issued 9/3/69.

|                     |                                  |                     |
|---------------------|----------------------------------|---------------------|
| Low Color           |                                  |                     |
| <u>Aroclor 5460</u> | <u>Develop Alternate Process</u> | <u>G. L. Arnett</u> |

An alternate process to the sodium treatment of Santowax has been demonstrated. The distillation of Aroclors 5060 and 5460 over a combination of lime and NaOH is effective in reducing color. The optimum levels of the color reducing agents have been determined.

|                     |                          |                   |
|---------------------|--------------------------|-------------------|
| HB-40 Color         |                          |                   |
| <u>Improvements</u> | <u>Column Absorption</u> | <u>J. T. Bell</u> |

The identification of HB-40 color bodies by infrared and gas chromatograph techniques have been unsuccessful. A study of various bed lengths has been delayed by a lack of high color starting material.

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STLCOPCB4099313

PLANT LABORATORIES (Cont'd)

PROCESS RESEARCH AND DEVELOPMENT (Cont'd)

Parathion Isomer

Reduction

Increased Yields

G. L. Arnett

A project work plan has been issued with work to resume immediately.

Parathion Condensation

Reaction Studies

Increased Yields

I. Ransaw

A project work plan was issued 8/15/69 to cover the initial phase of the study. Effort is being expended to determine the cause for the low assay parathion that is being produced in the laboratory.

ANALYTICAL AND QUALITY CONTROL

S. O. Kemp

Complaint Report

Quality

None

YTD Quality Complaints/100 Shipments 0.23

Target 0.20

DSW 377582

STLCOPCB4099314

## COMMUNITY RELATIONS, PERSONNEL, RECRUITING, AND DEVELOPMENT

### Personnel

1. G. W. Richey, BSEE from McNeese State, reported to work on August 18 and assumed the position of Electrical-Instrument Engineer I.
2. J. O. House reported for work on August 18 as Senior Design Engineer.

### Development

1. R. V. Carlisle, G. W. Miller, T. W. Lawrence, I. Ransaw, and J. L. Brown attended "Safety Management Seminar" conducted by Liberty Mutual Life Insurance Company at Holiday Inn, August 12-13.
2. J. C. Landwehr participated in Innovation Exchange Program August 7-8 at the Avon Plant.
3. V. R. Haupt visited Goslin Corporation August 8 at which time Aroclor 1268 flaking was demonstrated successfully.
4. All department supervisors attended the workshop sessions at which time Van der Water Associates, Inc. presented the feedback of the recent plant attitude survey.

### Visitors

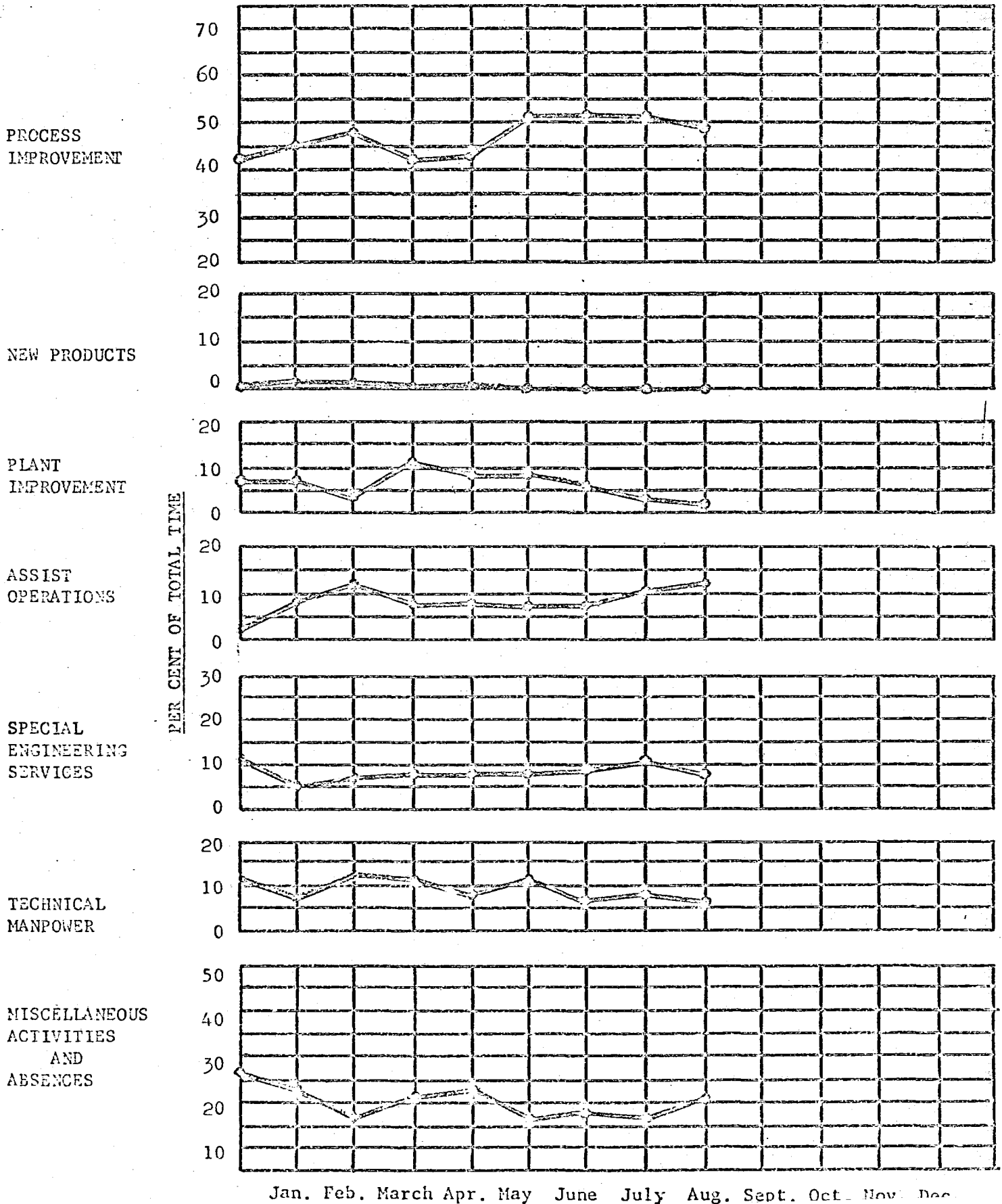
1. Mr. C. A. Beuhler from the W GK Plant visited on August 11 and 12 to obtain information necessary to compile an "L" manual for the Anniston Plant.
2. Gene Stewart of CED visited on August 13 and 14 concerning new HCl tank car loading track.
3. W. R. Robirds visited August 24 at which time the latest revision of the Parathion MIP was reviewed.
4. R. S. Yates visited August 11 and 12 to discuss solid Aroclor expansion.

DSW 377583

STLCOPCB4099315

# DISTRIBUTION OF TIME BY TECHNICAL SERVICE

Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

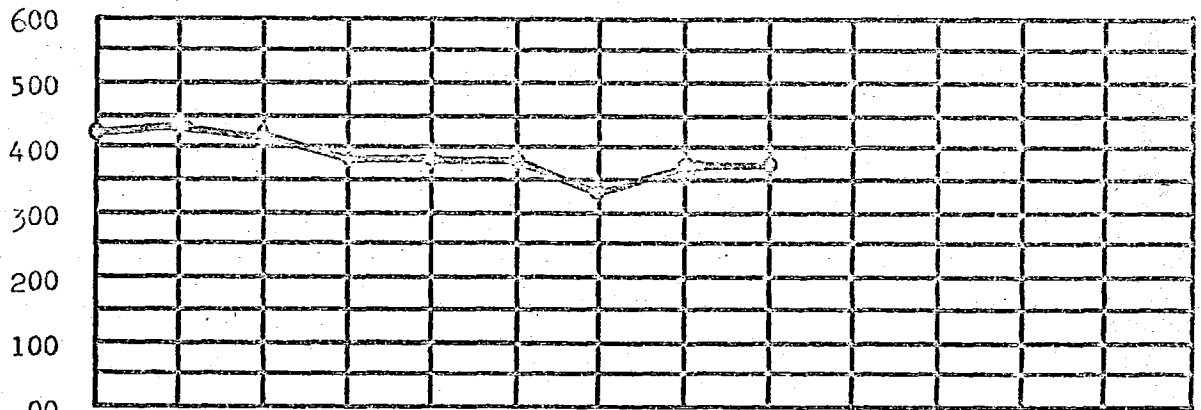


DSW 377584

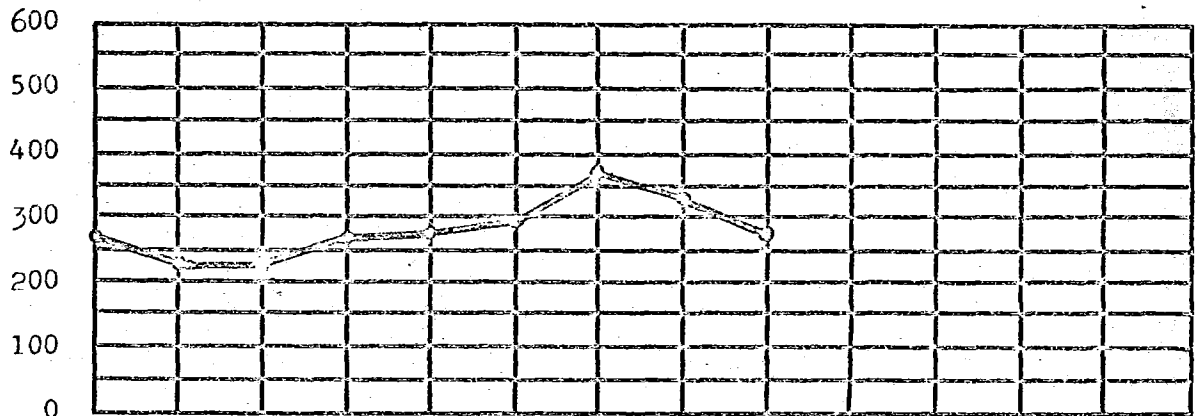
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# TSD PROJECT SUMMARY

IN  
MAINTENANCE  
FOR  
CONSTRUCTION



IN MAINTENANCE  
COMPLETED  
NOT CLOSED

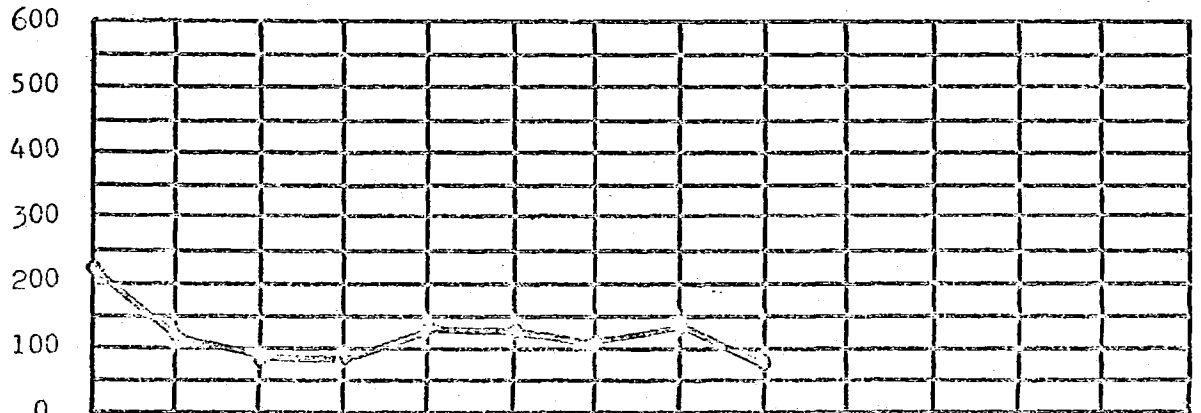


PROJECTS  
SUBMITTED  
FOR  
APPROVAL

(IN THOUSANDS OF DOLLARS)



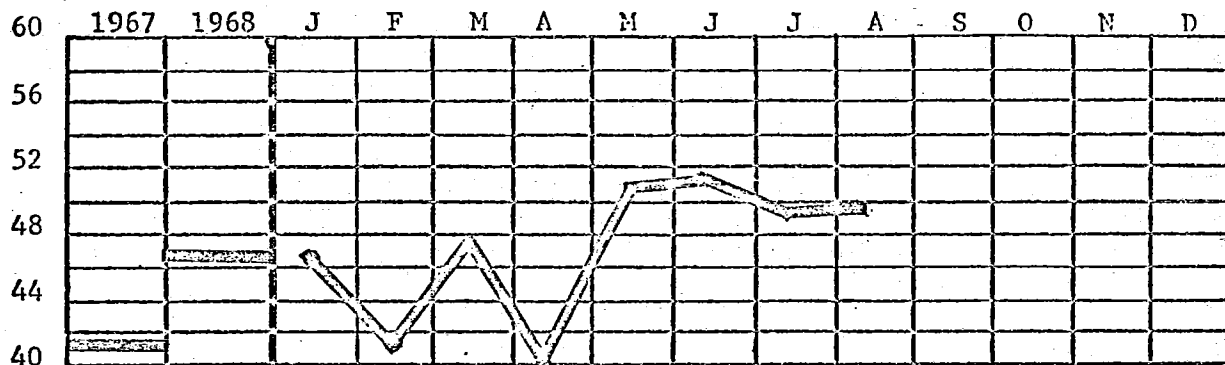
APPROVED  
PROJECTS  
IN TSD



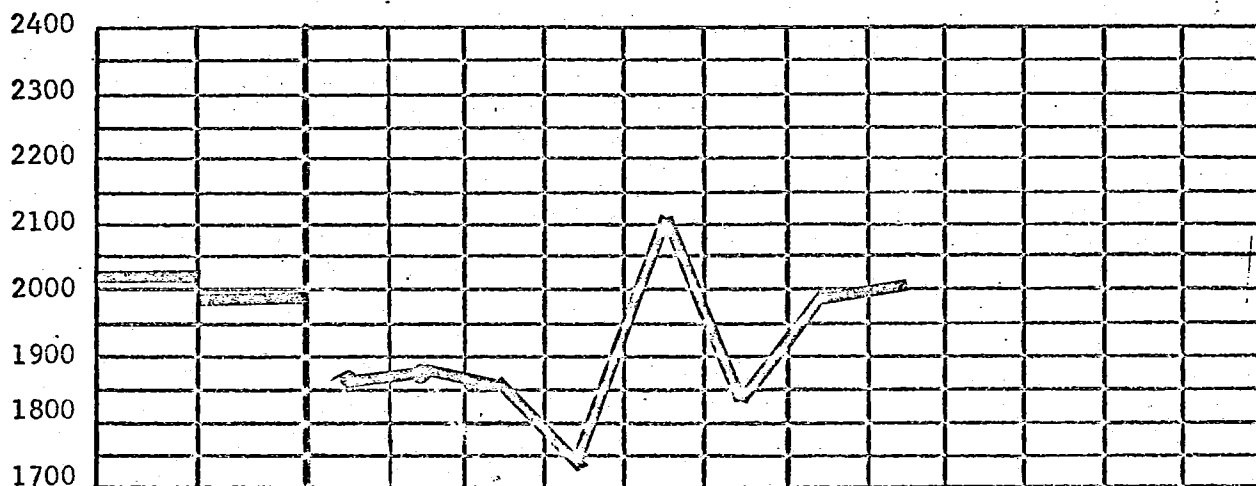
Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan.

# LABORATORY ADMINISTRATION

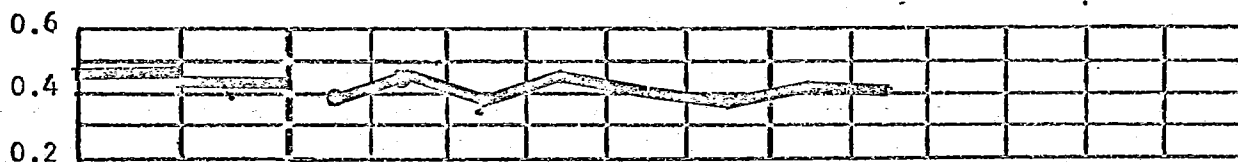
ANALYTICAL  
SAMPLES



ANALYTICAL  
MANPOWER



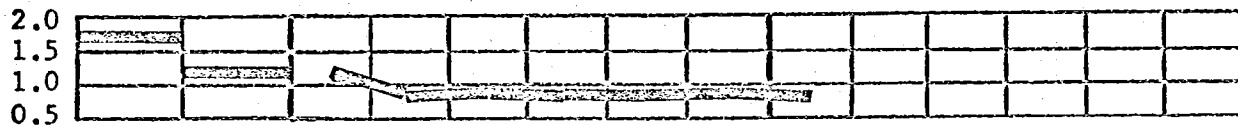
Manpower/sample



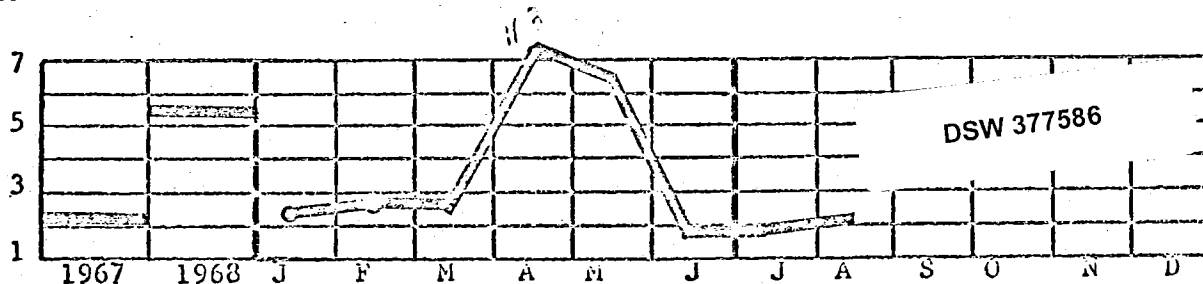
\$/Manhours



% Total Plant  
Operating Cost



Overtime %



DSW 377586