# Monsanto

COMPANY CONFIDENTIAL

## Anniston Plant

# TECHNICAL SERVICES DEPARTMENT

## MONTHLY REPORT

Anniston

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

General Offices

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

OTHER LOCATIONS

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

Summary

May, 1969

Cost Improvement Results

| | Est. Act. | Target | % of Target |
|---|---|---|---|
| Month | $41,580 | $51,445 | 80.8 |
| YTD | $138,215 | $179,490 | 77.0 |

Organic Division

The Santowax R still controls project installation completed last week in May. Test run on revised still system scheduled for 1st week in June.

Long term run to meet FDA approval for chlorinated biphenyl in Solid Aroclor 5460 started and stopped due to affect on biphenyl quality. More detailed test will be run in June.

Chlorine unloading and caustic unloading facilities were started up May 2 and May 21 respectively. The caustic unloading system had no problems while the chlorine unloading has only one problem; automatic shutoff of the empty cars. Modifications are being made to correct.

Purification started up May 2 with unit consistently producing hydrogen at less than 10 ppm CO. HB-40 is operating at record rates using purified hydrogen.

Off-gas catch pot performing successfully after modifications, enabling recovery of water white Muriatic Acid. 70 M lb/day rates have been demonstrated with the elimination of acid sewering formerly required to purge organics.

Agricultural Division

Sulfur Recovery scope development proceeding with Process and Engineering Flow Diagrams and Equipment List in preparation.

DSW 014881

AN-306 REV 11 1 1968

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STLCOPCB4003257

Agricultural Division (Cont'd)

All background data for appropriation grade estimate will be available by July 1.

Design and Drafting

Santowax R still controls successfully started up May 27. Final calibrations targeted by June 1.

Liaison with Surplus Property Disposal and design to flask mercury continues.

Pollution Control

Aroclor and HCl Department waste audits underway.

Quality

The Plant Quality Score was 87.5, up 3.5 from April with YTD score of 90.0 against a target of 95.0 minimum. Strong quality improvements have been made in $P_2S_5$, HB-40, Aroclor 5460. Aroclor 1242 shows a wider spectrum of chlorinated isomers. Free chlorine in Muriatic has risen sharply since chlorine plant shutdown.

The 30-day demonstration of the new PNP reactor depressurization control system is underway. In spite of very high solids no pluggage has occurred. Depressurizing cycles are on target (22 minute average).

J. C. Landwehr

jw

DSW 014882

STLCOPCB4003258

# ORGANIC DIVISION
## 1969 TSD COST IMPROVEMENT

| | | ANNUAL | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sol.Aro. | TAR | | | | | 2250 | 2250 | 2250 | 2250 | 2250 | 2250 | 2250 | 2250 | 2250 |
| LI-Still SpG. | EST | | | | | - | - | | | | | | | |
| AFE 3015 | ACT | | | | | - | - | | | | | | | |
| Sp.Solid Aro. | TAR | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | 2600 | - | - | - |
| Lower 5060 | EST | 1500 | 5490 | 4390 | 2150 | 4670 | | | | | | | | |
| | ACT | 1500 | 5490 | 4890 | 2150 | | | | | | | | | |
| Sol.Aro.-Still | TAR | | | | 160 | 170 | 160 | 170 | 160 | 170 | 160 | 170 | 160 | |
| Coolout temp. | EST | | | | - | - | | | | | | | | |
| AFE 3015 | ACT | | | | | | | | | | | | | |
| Sol.Aro.-Chlorton | TAR | | | | 390 | 390 | 390 | 390 | 390 | 390 | 390 | 390 | 390 | 390 |
| Batch End | EST | | | | - | - | | | | | | | | |
| AFE 3015 | ACT | | | | - | | | | | | | | | |
| SW/R Composition | TAR | | | | | 2750 | 2750 | 2750 | 2750 | 2750 | 2750 | 2750 | 2750 | 2750 |
| | EST | | | | | - | | | | | | | | |
| AFE 3016 | ACT | | | | | | | | | | | | | |
| Solid Aro. | TAR | | | | | 1080 | 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 | 2500 |
| Blend 4465 | EST | 1690 | 1920 | 1680 | 1490 | 710 | | | | | | | | |
| | ACT | 1690 | 1920 | 1680 | 1490 | | | | | | | | | |
| 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 | | | | | | | | | |
| Sol.Aro.$Cl_2$ | TAR | | | 940 | 940 | 950 | | | | | | | | |
| T/C Dock | EST | | | 0 | - | - | | | | | | | | |
| AFE 2342 | ACT | | | 0 | - | - | | | | | | | | |
| $Cl_2$ Plt.Down No | TAR | | | | | | 950 | 940 | 950 | 940 | 950 | 940 | 950 | |
| Unload | EST | | | | | 900 | | | | | | | | |
| CED 1831 | ACT | | | | | | | | | | | | | |
| Solid Aro.-Flake | TAR | 3000 | 3000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| & Drum | EST | 0 | 0 | 1000 | 2000 | 2000 | | | | | | | | |
| CED 1430 | ACT | 0 | 0 | 1000 | 2000 | | | | | | | | | |
| 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 | | | | | | | |
| AFE 2952 | ACT | | | | 0 | 0 | | | | | | | | |
| Warehouse | TAR | 2000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| | EST | 2000 | 2000 | 2000 | 3000 | 3000 | | | | | | | | |
| CEA 1452 | ACT | 2000 | 2000 | 2000 | 3000 | | | | | | | | | |
| Liq.Aro.New | TAR | | | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 |
| Burners #3 Still | EST | | | 0 | 0 | 1500 | | | | | | | | |
| | ACT | | | 0 | 0 | | | | | | | | | |
| Biphenyl Relocate | TAR | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 | 500 |
| No. 1 Preheat | EST | 1500 | 0 | 1560 | 1870 | 0 | | | | | | | | |
| CEA 1892 | ACT | 1500 | 0 | 610 | 1870 | | | | | | | | | |
| HB-40 2 A/C's | TAR | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 | 3000 |
| | EST | 2230 | 2580 | 0 | 600 | 9000 | | | | | | | | |
| AFE 3102 | ACT | 3490 | 2420 | 0 | 600 | | | | | | | | | |

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# ORGANIC DIVISION
## 1969 TSD COST IMPROVEMENT

| | ANNUAL | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BiØ Improve | TAR | | | | | 450 | 450 | 450 | 450 | 450 | 450 | 450 | 450 |
| Tower Treat. | EST | | | | | 0 | | | | | | | |
| AFE 3155 | ACT | | | | | | | | | | | | |
| Improve Plt. | TAR | | | | | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 |
| Power Factor | EST | | | | | 0 | | | | | | | |
| | ACT | | | | | | | | | | | | |
| Central Air | TAR | | | | | | | | | 1000 | 1000 | 1000 | 1000 |
| System | EST | | | | | | | | | | | | |
| | ACT | | | | | | | | | | | | |
| Optimize Rx Time | TAR | | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 |
| | EST | | 0 | 3420 | 0 | 0 | | | | | | | |
| PNP | ACT | | 0 | 3420 | 0 | | | | | | | | |
| Reduce Mole | TAR | | | | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 |
| Ratio NaOH/PNCB | EST | | | | 0 | 0 | | | | | | | |
| PNP | ACT | | | | 0 | | | | | | | | |
| New Wash Water | TAR | | | | | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Pump - PNP | EST | | 25 | 50 | 50 | 50 | | | | | | | |
| AFE 2998 | ACT | | 25 | 50 | 50 | | | | | | | | |
| Automatic pH | TAR | | | | | | | | | | 500 | 500 | 500 |
| Control | EST | | | | | | | | | | | | |
| PNP | ACT | | | | | | | | | | | | |
| HCl Filter | TAR | 330 | 330 | 340 | | | | | | | | | |
| Pump | EST | 330 | 330 | 340 | | | | | | | | | |
| | ACT | 330 | 330 | 340 | | | | | | | | | |
| New Blow Tank | TAR | 200 | 200 | 200 | 200 | 200 | 200 | | | | | | |
| | EST | 200 | 200 | 200 | 200 | 500 | | | | | | | |
| HCl | ACT | 200 | 200 | 200 | 200 | | | | | | | | |
| 150,000 Gal.-HCl | TAR | | | | 1760 | 1760 | 1780 | 1760 | 1760 | 1780 | 1760 | 1760 | 1780 |
| Storage Tank | EST | | | | - | 0 | | | | | | | |
| AFE 2468 | ACT | | | | - | - | | | | | | | |
| Produce Staley | TAR | | | | | | | 780 | 780 | 790 | 780 | 780 | 790 |
| Grade Acid | EST | | | | | | | | | | | | |
| AFE 3076 | ACT | | | | | | | | | | | | |
| $Cl_2$ Plt. Shutdown | TAR | | | | | | 8880 | 8880 | 8880 | 8880 | 8880 | 8880 | 8880 |
| | EST | | | | | 8880 | | | | | | | |
| CEA 1831 | ACT | | | | | | | | | | | | |
| Hg Recover from | TAR | 250 | 250 | 250 | 250 | | | | | | | | |
| Residue | EST | 3910 | 0 | 0 | 0 | | | | | | | | |
| | ACT | 3910 | 0 | 0 | 0 | | | | | | | | |
| Hg Wash Tank | TAR | 250 | 250 | 250 | 250 | | | | | | | | |
| | EST | 0 | 0 | 0 | 0 | | | | | | | | |
| AFE 2802 | ACT | 0 | 0 | 0 | 0 | | | | | | | | |
| Biphenyl | TAR | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 |
| Productivity | EST | 0 | 9000 | 15,000 | 0 | 0 | | | | | | | |
| | ACT | 5150 | 10,800 | 13,500 | 0 | | | | | | | | |
| Total Organic By | 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 |
| Month M $ | EST | | 27.1 | 30.2 | 11.5 | 36.3 | | | | | | | |
| | ACT | 19.8 | 28.7 | 27.3 | 11.4 | | | | | | | | |
| Total Organic | 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 |
| YTD M $ | EST | | 46.9 | 78.8 | 79.6 | 115.9 | | | | | | | |
| | ACT | 19.8 | 48.5 | 68.2 | 79.6 | | | | | | | | |

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STLCOPCB4003260

# AG DIVISION
## 1969 TSD COST IMPROVEMENT

| | ANNUAL | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cooling Tower Repiping AFE 2598 | TAR | | | | 420 | 420 | 410 | 410 | 420 | 420 | 410 | 420 | 420 |
| | EST | | | | 0 | 0 | | | | | | | |
| | ACT | | | | 0 | | | | | | | | |
| Optimize $N_2$ & $Cl_2$ Levels | TAR | | | | 6600 | 6700 | 6700 | 6600 | 6700 | 6700 | | | |
| | EST | | | | 0 | 0 | | | | | | | |
| | ACT | | | | 0 | | | | | | | | |
| Increase Waste Acid Sales | TAR | | | | 400 | 300 | 300 | 400 | 300 | 300 | 400 | 300 | 300 |
| | EST | | | | 0 | 0 | | | | | | | |
| | ACT | | | | 0 | | | | | | | | |
| Chlorinator R.I. | TAR | | | | | | | 250 | 250 | 250 | 250 | 250 | 250 |
| | EST | | | | | | | | | | | | |
| AFE 2244 | ACT | | | | | | | | | | | | |
| EVOP Condensation Rx. | TAR | 750 | 750 | 500 | | | | | | | 500 | 750 | 750 |
| | EST | 0 | 0 | 12,615 | | | | | | | | | |
| | ACT | 0 | 0 | 12,615 | | | | | | | | | |
| $Cl_2$ Unloading | TAR | | | | | | | 5000 | 5000 | 5000 | 2000 | 2000 | 2000 |
| | EST | | | | | | | | | | | | |
| CEA 1831 | ACT | | | | | | | | | | | | |
| Recycle Wash Water AFE 2960 | TAR | | | | | | | 290 | 290 | 290 | 290 | 290 | 290 |
| | EST | | | | | | | | | | | | |
| | ACT | | | | | | | | | | | | |
| 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 | | | | | | | |
| AFE 2897 | ACT | | | | 4300 | | | | | | | | |
| Change Cooling $H_2O$ Item 737 AFE 3067 | TAR | | | | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 | 125 |
| | EST | | | | 120 | 180 | | | | | | | |
| | ACT | | | | 120 | | | | | | | | |
| Well $H_2O$ 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 | | | | | | | |
| | ACT | 0 | 0 | 12,615 | 4,420 | | | | | | | | |
| Ag. Division YTD | TAR | 750 | 1500 | 2000 | 11145 | 20290 | 29425 | 44100 | 58785 | 73470 | 88045 | 102530 | 117015 |
| | EST | | | 12,615 | 15,735 | 23,815 | | | | | | | |
| | ACT | 0 | 0 | 12,615 | 17,035 | | | | | | | | |
| | TAR | | | | | | | | | | | | |
| | EST | | | | | | | | | | | | |
| | ACT | | | | | | | | | | | | |
| Organic Div. Untargeted - HCl Catch Tank | TAR | | | | | 0 | | | | | | | |
| | EST | | | | | 500 | | | | | | | |
| | ACT | | | | | | | | | | | | |

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STLCOPCB4003261

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

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

Still awaiting radioactive materials license before the source for the level alarm can be shipped. Operating personnel will be trained in the use of the instruments during June.

| | | |
|---|---|---|
| Debottleneck Solid Aroclor Chlorinator | 1969 Savings TBE Plus Safety | TSD Objective B - 8 (f) |

Includes installing a back pressure controller on the #9 chlorinator and a larger collection tank. AFE by 6-15. Drafting scheduled for June.

| | | |
|---|---|---|
| Therminol System | Potential Lost Sales | TSD Objective B - 8 (h) |

Project design is complete and equipment has been selected. Have received verbal approval to purchase pump and pump is now on order. Pump delivery is scheduled for six to eight weeks. This project will be installed when the Solid Aroclor expansion is installed.

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

| | | |
|---|---|---|
| Debottleneck Biphenyl Stills to 87.6 M lbs/yr. | Capacity Increase | TSD Objective B - 7 (a) |

During the week of May 26, the capacity of the Santowax reboiler furnace will be increased and instrumentation required to control the Santowax still will be installed. A demonstration test run will be conducted on the biphenyl/ Santowax distillation area during the first week of June.

| | | |
|---|---|---|
| Santowax with low biphenyl content for FDA Solid Aroclor | Quality | TSD Objective B - 7 (a) |

Started long term test during week-end of May 16. Incomplete results were obtained.

The feed composition to the still is now about 65 - 35 (biphenyl-Santowax) compared to 80 - 20 during the initial testing in January, 1969. The June test will establish the minimum biphenyl content of Santowax C with the present feed composition.



STLCOPCB4003262

| No. 1 Furnace Upgrade Liaison (CEA-1892) | Capacity Increase | TSD Objective B - 7 (c) |
|---|---|---|

The plant punch list is essentially complete.

| Improve Santowax R Quality with New Distillation Column | Quality | TSD Objective B - 7 (d) |
|---|---|---|

Installation of instrumentation to control the Santowax distillation column was made on May 27. Calibration of instruments should be complete by May 29. A demonstration test run will be conducted on the Santowax column during the first week in June to determine its capacity and optimum operating conditions.

CHLORINE - HB-40 D. W. Dudley, J. L. Brown (A. G. McCarty)

Chlorine unloading, caustic unloading, and hydrogen purification facilities were successfully started up during May. A problem exists with automatic isolation of empty chlorine cars. System being operated manually until problem is solved.

HCl O. J. Norris, J. M Jones (A. G. McCarty)

| Production of Staley Grade Acid-Project 3076 | New Earnings $28.8 M Potential Savings $71 M | TSD Objective B - 10 (c) |
|---|---|---|

Acid Recovery up significantly (>70,000#/day) when new catch tank is in service and sewer by-pass valve is closed. Experienced problems draining collected organics from tank week-end of 5/10. Modification to steam supply on coils and discharge valve completed 5/16. Draining successfully demonstrated 5/21. Coalescer for Phase II installed along with all required piping. Vendor supplied wrong size heating strips for coalescer dome, maintenance now modifing - completion by 6/15.

| Muriatic Acid Storage | Savings $21,200 | TSD Job No. 497 |
|---|---|---|

Piping completed. Project will be complete upon installation of level indicator. Sewered approximately 140,000# this month because of full storage.

Muriatic Acid MIP

All plant groups have been contacted for contributions, rough draft will be ready for typing 6/6.

Reduce High Free C12 in Muriatic Acid

After extensive KTA, test was made on air sparging HCl gas to absorber. Tests over weekend of 5/24 showed no improvement. Problem has been given top priority.



STLCOPCB4003263

PNP O. J. Norris, J. M. Jones (A. G. McCarty)

| Debottleneck to 1.8 M #/mo | Capacity Savings $27,500 | TSD Objective B - 9 (a) |
|---|---|---|

Reactor process control program in effect and operating as expected. Rate remains below schedule as tests for determining cause of yield loss continue. This month acid and caustic returned to near normal while PNCB remained high. This would seem to indicate loss occuring in reactor. Production has begun to monitor air flow rate. Poor cycles on carbon towers are being investigated by P.A.C. Company.

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

| Demonstrate Parathion Recovery | Savings $17,500 10-15% Reduced COD | TSD Objective B - 5 (a) |
|---|---|---|

Drawings of test facilities were sent out for review 5/21. Project 3245 ($6350 experimental expense) was approved 5/26 to conduct tests. Project premise was published 5/27. Transmittal to maintenance is slated for 6/4.

| Acetone Recovery | Savings $12,900 40-50% COD Reduction | TSD Objective B - 5 (i) |
|---|---|---|

Background data for acetone recovery tests were gathered but test will have to be delayed until approximately 6/9 when a new nozzle for the vacuum jet can be installed. Average of acetone loss from number three condensation reactor is 5.06% or 800 pounds per batch on methyl vs. 3.2% or 500 pounds per batch on ethyl.

| Recycle Wash Water | Savings $3,500 | TSD Objective B - 5 (g) |
|---|---|---|

No change in status.

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

Construction underway on chlorine dock and railroad spurs. Operator training to be conducted in June with probable start-up of late June.



STLCOPCB4003264

NIRAN (Cont'd)

| | | |
|---|---|---|
| Sulfur Recovery From Residue | $271,000/yr. Savings 40% Reduction in $SO_2$ | TSD Objective B - 5 (d) |

Anniston continues work on scope details, equipment selection and engineering flow sheets. Completion of package for estimating purposes is expected by 7/1/69. Quotes on Hastelloy equipment were delayed until early June.

Recent corrosion test indicate S.S. 316 is satisfactory in the wash steps under neutralized conditions. P.R.&D. is checking validity of process under changed conditions. EDC for scheduled P.R.&D. work is 6/15/69.

| | | |
|---|---|---|
| Submerged Pump for Refractive Index Control of Chlorination | Savings $1500 (Potential Automation) | TSD Objective B - 5 (c) |

The Maintenance Engineer's visit to "Taber" was delayed until June. He will at this time discuss design changes for the Refractometer pump with Taber Engineers. Plant tests were stopped when pump seals failed after short service.

| | | |
|---|---|---|
| Optimize $Cl_2$ and $N_2$ Levels | Savings $40,000 | TSD Objective B - 5 ( ) |

Test plans will be issued by 6/6. Plant tests are scheduled to begin when sand blasting is stopped and fume system is started.

| | | |
|---|---|---|
| Methyl-Ethyl Alcohol Cross Contamination | Savings $3200 | TSD Job No. 918 |

Project premise prepared and circulated for approval. Design package and estimate being prepared.

| | | |
|---|---|---|
| Improve Chlorinator Cooling System | Savings $48,000/mon./0.5 hr Reduction in Chlorination Time | TSD Objective B - 5 (g) |

Evaluation has begun on current design and operation. Alternate refrigerants are being considered.

| | | |
|---|---|---|
| Chlorinator Long Cycle Time | Savings $46,000/mo | TSD Job No. 927 |

Number 3 Chlorinator consistently exceeds chlorination time standard by approximately 2 hours/batch. Evaluation of operation has begun.



STLCOPCB4003265

NIRAN (Cont'd)

| Modify $P_2S_5$ Charge Valves | Safety Item | TSD Job. No. 919 |
|---|---|---|

$P_2S_5$ hold-up in charge chutes is listed as contributory to sub-major accident (#5-58) involving eye irritation from $P_2S_5$ dust and $H_2S$ exposure from hydrolyzed $P_2S_5$ during maintenance on Thio Acid reactor. $P_2S_5$ charging system being evaluated for modification of charge valves.

ENGINEERING DESIGN AND SERVICES

| Mechanical/Electrical/Instrument Design and Drafting | J. C. Price, J. A. Veazey, R. V. Carlisle, R. L. Brewer, J. K. Rennie, J. Childress, (W. F. Taffee) |
|---|---|

Instrument and electrical phase of Santowax-R Still Control, (AFE 3016 - $33M) was started up successfully on 5/27/69. Final check-out and calibration targeted for completion by 6/1/69.

A hydrogen sulfide ($H_2S$) monitor has been placed on order (Accident investigation #5-68). Delivery is expected in 90 days. A plant test will be made to determine if the unit is suitable for use in the Niran department.

The design for the Plant Fire Alarm (AFE 2575 - $2.9M) is being revised. The new revision, a combination of Monsanto and Bell Telephone equipment, will provide a better overall system than the one originally planned. Final design transmittal should be made in June.

A safety and security review for the flasking and storage of mercury obtained from the Dismantling and Removal of Chlorine Manufacturing Facilities at Anniston (AFR 3214) was held on 5/15/69.

Revisions and dismantling in Building 28 A to provide desk space for new employees started in mid May. Delivery of partitions and shelving being expedited by Purchasing. Additional desks and chairs required have been received. Improved lighting provided for Pollution Control Engineers' area.

Projects approved during May:

Provide Fire Pump Capacity Check Equipment (AFE 3227 - $4.1M).

Review drawings were completed for the following projects:

Parathion Recovery Test (AFE 3245 - $6.3M)
Alcohol Separation (Niran) (AFE 3256 - $ to be det.)



STLCOPCB4003266

ENGINEERING DESIGN AND SERVICES (Cont'd)

Construction drawings were completed for the following projects:

Alter Therminol System in Solid Aroclor (AFE 2949 - $12M), provide offices for new TSD Personnel (AFE 3212 - $3.6M), Liquid Aroclor still Debottleneck (AFE 3093 - $4.5M), Bi-Ø Cooling Tower Treatment (3155 - $3.6M0, Capacitor Relocation (AFE 3184 - $18.1M [11.1M transferred equipment]), Niran Tank Farm Area Lighting (AFE 3124 - $7M), Bi-Ø Tank Farm Lighting (AFE 3204 - $0.7M), Upgrade Intermediate Dock at Niran (AFE 2934 - $11.3M [3 docks]).

UTILITIES ENGINEERING J. C. Price, L. O. Chambers (W. F. Taffee)

Forwarded revised project premise for use of Well Water @ Niran Jets. Estimated savings were increased from $6000 to $8000 per year. Transmitted design packages for Capacitor Relocation and Improve Biphenyl Cooling Tower Treatment projects. Relocation of the capacitors is to be completed early in June with the savings of $10,800 per year to start in July. Preliminary efficiency studies of the Biphenyl Furnace and Therminol Furnaces in Aroclor, Santowax were completed.

PLANT IMPROVEMENT G. C. Goodwin (W. F. Taffee)

AFE forwarded for approval, paving Duncan Street South (AFE 3243 $1500). Design packages forwarded for alteration to Building 28-A (AFE 3212 - $3600) and drain pad PNP Item 216 (AFE 3222 - $1500) project approved in May, HCl area drainage (AFE 3221 - $1900).

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

| Community and Government Relations | Governmental Relations | TSD Objective F - 2 |
|---|---|---|

The prepared Alabama Air Pollution law, which is backed by the Associated Industries of Alabama, is being criticized by Health Department and Conservationist sources as being an industry-oriented bill. The "Anti's" are also quoting HEW as saying that the bill would not meet their standards.

| Community and Governmental Relations | Complaints | TSD Objective F - 2 |
|---|---|---|

Received two air pollution complaints during May. They were aggravated by the weather, i.e. no wind plus high humidity prevented the dispersion of $SO_2$ fumes.



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POLLUTION CONTROL (Cont'd)

| Waste Audits | Pollution Abatement | TSD Objective F - 3 |
|---|---|---|

Plan outlined in memo to Paul Hodges 5/12/69 being followed and is on schedule. Waste audits in the aroclor and HCl departments were started during May. Visual inspection of Snow Creek for visible "pockets" deposits of liquid aroclor started, with completion by 7/1. Samplers will be installed at two more points in the Aroclor department as soon as repairs are completed on the sewer.

Waste Treatment

All plant wastes were effectively treated during May. However, the Parathion department did have some downtime due to a plugged drain in the north hold tank. Average daily values for Monsanto's effluent are as follows:

| | Average Daily | Specifications |
|---|---|---|
| PNP | 1.0 ppm | 5 ppm |
| COD | 94.9 ppm | ∠200 ppm |
| Parathion | .14 ppm | 1.0 ppm |
| BOD | No Data | ∠200 ppm |

PROCESS AND QUALITY ANALYSIS W. B. Dunlap

Quality

The Plant Quality Score was 87.5, up 3.5 from April with YTD score of 90.0 against a target of 95.0 minimum. Strong quality improvements have been made in $P_2S_5$, HB-40, Aroclor 5460. Aroclor 1242 shows a wider spectrum of chlorinated isomers. Free chlorine in Muriatic has risen sharply since chlorine plant shutdown.

| PNP - Monitor Critical Variables | Potential Savings $60,000 | TSD Objective C - 3 Job 879 |
|---|---|---|

The 30-day demonstration of the new PNP reactor depressurization control system is underway. In spite of very high solids no pluggage has occurred. Depressurizing cycles are on target ( 22 minimum average). Solids have now dropped to normal, without determination of the causes for high level having been made.

Manpower

Lamar Murphree joined the P&QA group May 15th.

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PLANT LABORATORIES G. W. Miller

PROCESS RESEARCH AND DEVELOPMENT J. T. Bell

A laboratory effort of 55 mandays was expended on projects outlined in the 1969 PR&D Program including the expanded study of Sulfur Recovery. The remaining mandays were used for the Hydrogen Purification Unit start-up and on miscellaneous analytical services.

| | | |
|---|---|---|
| p-Nitrophenol | Reduce Cycle Times | W. H. Howard |

The project involving PNP Reactor improvements is on schedule as per the revised work plan issued 5/23/69. The necessity of developing a continuous HB-40 process will postpone the rate studies as planned for the PNP reactor. A PR&D report is to be issued by 6/18/69 covering the entire PNP project started in January. A completion date of 8/1/69 was forecast in the 1969 PR&D Program.

| | | |
|---|---|---|
| Sulfur Recovery | Sulfur Refinement for Reuse | I. Ransaw |

The study has progressed according to the original work plan and is over 80% completed. A work plan revision was published 5/28/69 with the project to be reported by 6/16/69. This investigation has been continued past the original planned completion date of 4/1/69.

| | | |
|---|---|---|
| Blend Scavenger Refinement (Aroclor) | Improved Aroclor Electrical Properties | J. L. Brown |

A work plan was issued on 5/22/69 to cover the study for the up-grading of Aroclor-phenyl glycidyl ether blends via absorptive column treatment. Work is scheduled for completion by 7/3/69.

| | | |
|---|---|---|
| Parathion Isomer Reduction | Improve Yields | G. L. Arnett |

Laboratory studies have been reported in the PR&D report dated 5/6/69. The issuance of a follow-up work plan will be delayed until the preparation of a sales sample of Low Color Aroclor 5460 has been completed. The study of Thio Acid Chlorinator Chlorine Distribution and Temperature Improvements is being combined with this project.

| | | |
|---|---|---|
| Hydrogen Purification Unit Start-up | Purified Hydrogen for HB-40 | J. L. Brown |

Construction and start-up was completed on the target date of 5/1/69 with excellent results. Revisions are scheduled for the week of 6/2/69 to permit the burning of purge Hydrogen in the Biphenyl Tubular Units.



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PLANT LABORATORIES (Cont'd)

ANALYTICAL AND QUALITY CONTROL S. O. Kemp

Aroclor

Analytical equipment for electrical quality measurements on Aroclor will be completed this month.

Complaint Report

Quality

| Number | Material | Customer | Reason |
|---|---|---|---|
| 3-A-69 | Aroclor 1242 | Essex Corp. | Moisture Content |
| 4-A-69 | Montar 5 | Philip Carey Corp. | Particle Size and Solubility |
| 5-A-69 | Aroclor 5460 | Yates Mfg. Co. | Particle Contamination |

YTD Quality Complaints/100 Shipments 0.17 Target 0.20



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## COMMUNITY RELATIONS, PERSONNEL, RECRUITING, AND DEVELOPMENT

### Personnel

1. J. L. Murphree joined TSD as Process Quality and Analysis Technician under W. B. Dunlap.

2. J. C. Landwehr visited the refinery at El Dorado, Arkansas on the Innovation Exchange Program May 14 and 15.

3. O. J. Norris was promoted to Production Supervisor at the Nitro Plant.

4. J. L. Brown was promoted to Research Chemist II effective 6-1-69.

5. J. W. Mattern rejoined the TSD Department on May 15 reporting to V. R. Haupt.

6. O. J. Norris and G. L. Arnett cleaned up a Parathion spill at Edinburg, Texas, week of May 5.

7. G. L. Arnett visited Dr. Scott Tucker in St. Louis, Monday, May 12, to discuss analytical procedure for determination of Aroclor in waste water.

### Development

1. Dr. J. Bruce Duncan of the New Enterprises Division presented a seminar to 25 Anniston Plant personnel covering Monsanto developed instruments for process measurement and control, May 12, 1969.

2. A. G. McCarty, S. O. Kemp, J. C. Price, G. W. Miller and W. F. Taffee attended a refresher course in Coaching and Appraisal Interviews conducted by Mr. Ed Pipkin at the Oxford Holiday Inn, May 27 and 28.

3. G. W. Miller and J. C. Landwehr attended Personnel Management course in St. Louis, May 21 and 22.

4. W. B. Dunlap, D. W. Dudley, C. R. McIlwain and T. W. Lawrence spent week of May 5 at the Holiday Inn attending the "Management Process" course taught by Connie Eastman.

### Visitors

1. J. E. Smith and J. E. Springgate, Plasticizer Business Group, visited May 8 and 9.

2. R. S. Yates from CED visited to discuss the Solid Aroclor expansion, May 14 and 15.



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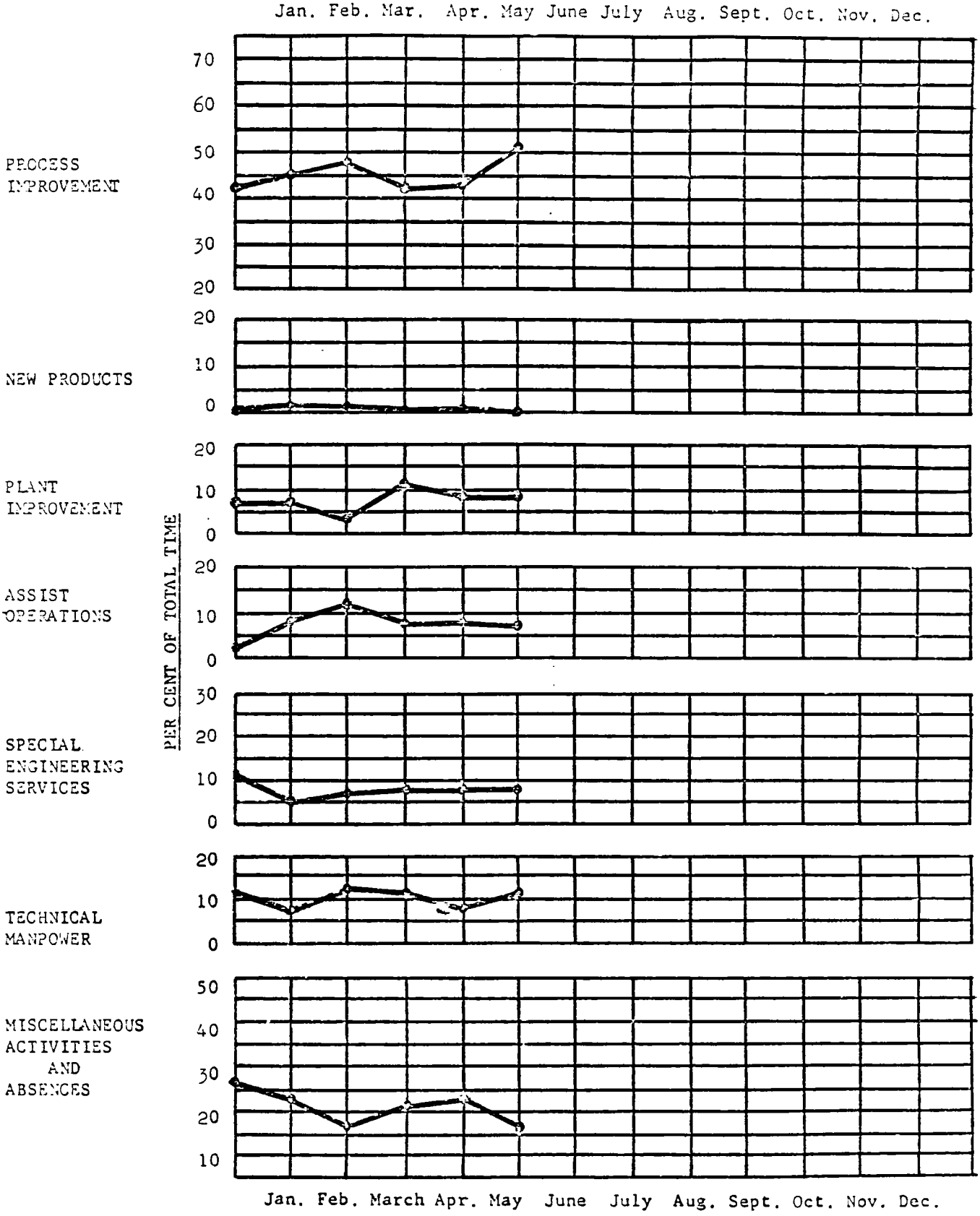
DISTRIBUTION OF TIME BY TECHNICAL SERVICE

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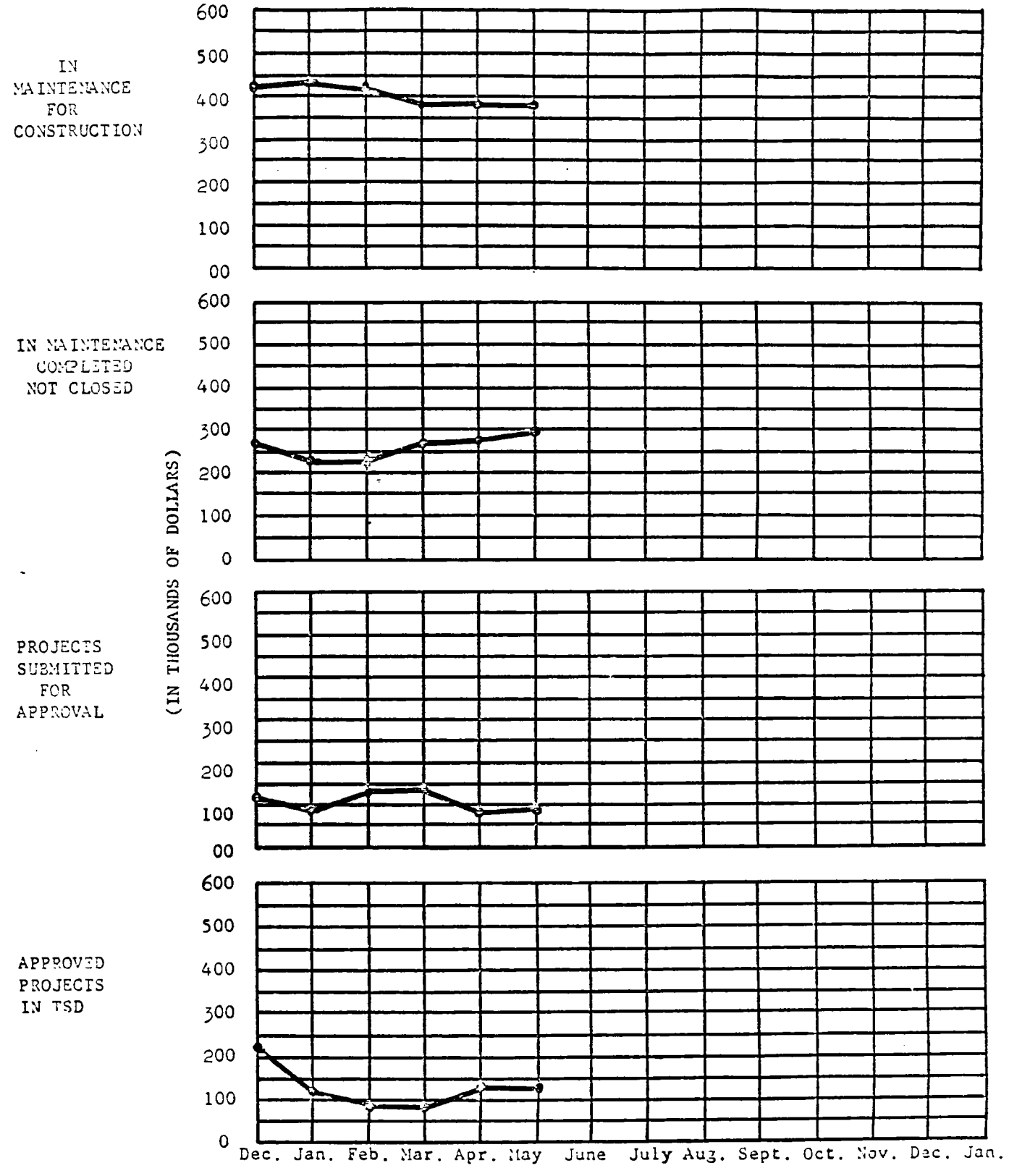
TSD PROJECT SUMMARY

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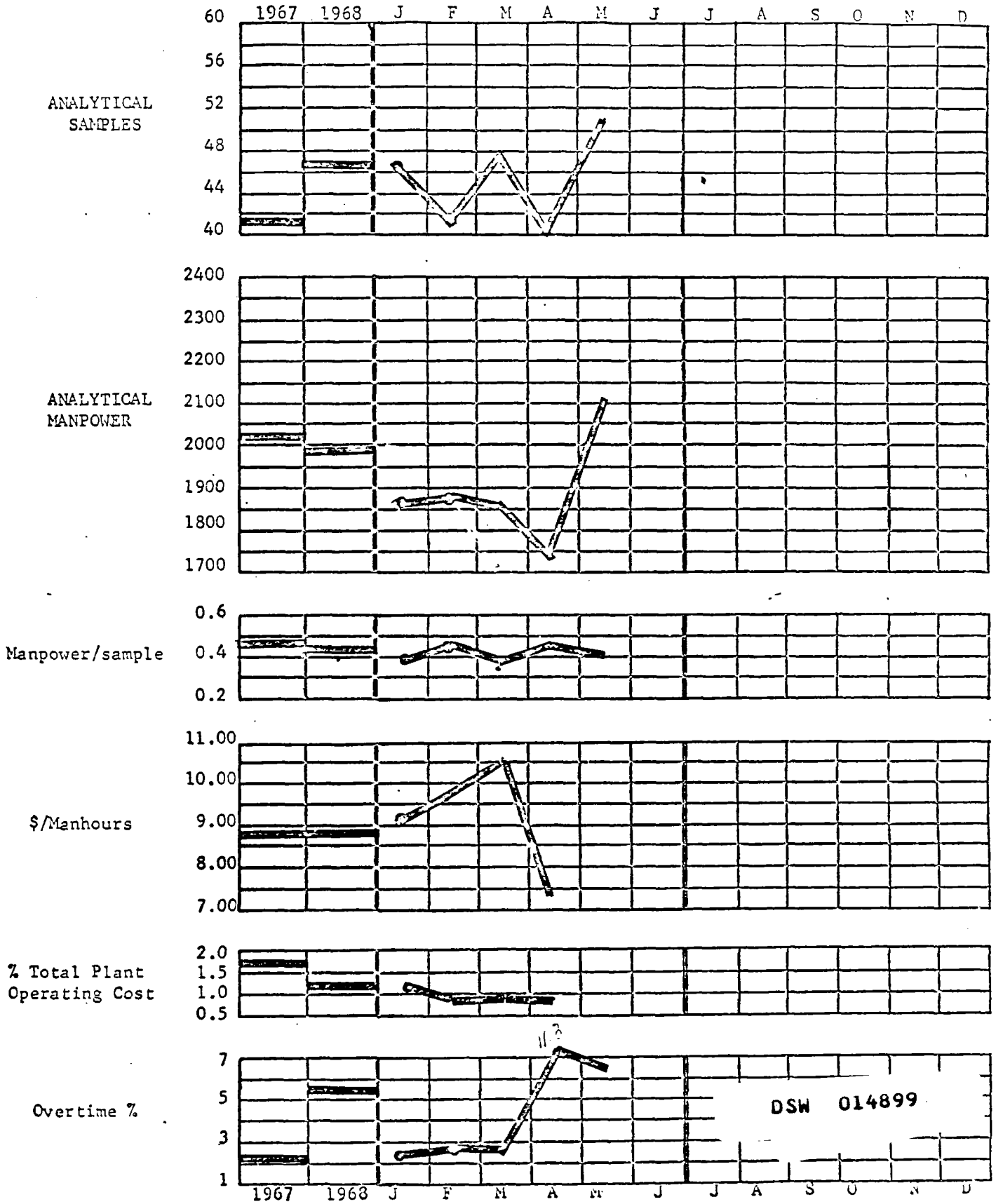
LABORATORY ADMINISTRATION

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