Anniston

C. K. Eastman
W. H. Hunter
A. E. Leisy
G. W. Miller
W. B. Papageorge
W. F. Taffee
H. L. Williams
TSD Engineers

General Offices

J. O. Bright
H. C. Carder
D. Danna (3)
D. E. Cayard
H. O. Hehner
A. Heininger
D. B. Hosmer
R. E. Howard
C. F. Luecke
H. L. Payton
N. L. Sample
A. J. Speziale
J. A. Stephens
R. J. Stratmeyer
H. S. Trail
J. H. Zwemer

South Second St.

C. E. Anagnostopoulos
M. E. Gibbs
H. L. Hubbard
J. F. Quinn
W. R. Richard
J. R. Savage - JFQ

Other Locations

D. B. Edwards - DR
J. W. Graves - Luling
W. R. Kellogg - Nitro
G. F. Knollmeyer - Seattle
J. F. White - Everett
R. F. Wiesenborn - CB
W. J. Wilson - WGK

Monsanto

Anniston Plant

# TECHNICAL SERVICES DEPARTMENT

## MONTHLY REPORT

### Summary

November 1967

Aroclor Porocel Column has successfully treated 651,000 gallons of Aroclor 1242 with the initial bed. Resistivities remain in the 20 M range. Rough draft of Aroclor Manufacturing Plan issued for comments. Plan to be finalized in December.

Approach to meeting 1972 Biphenyl Capacity discussed with TPM, Organic Research, CED and Anniston representatives in St. Louis on 11/16. CED will handle work related to upgrading No. 1 Tube as outlined in TSD report issued in October, with Fourth Quarter 1968 as on stream target. TSD will debottleneck refining system and define improvements needed in a future Tubular Unit installation.

Santowax R Flash Still column design reviewed and scope discussed with CED. Project will be submitted by plant in December. Expediting temperature recorders helped achieve ahead of schedule start-up of Santowax OM distillation.

Terphenyl suppression tests resumed by Organic Research with January completion target for test runs.

Chlorine Manufacturing Improvement Plan rough draft being revised after plant review. Radioactive Mercury Inventory underway. Mr. D. B. Hines has samples for analysis. Project for pneumatic unloading of NaCl approved at plant level and forwarded to TPM. Materials on hand and test program outlined for Sulfur treating cell room floors to reduce atmospheric mercury vapor levels.

E. G. Wright promoted to Pollution Control Engineer and has begun indoctrination program. Position has been vacant since February.

Two major projects, CEA 1430 - Aroclor Expansion and CEA 1452 - Warehouse were approved. Liaison actively underway with some field work planned to start in January.

Waste Heat Recovery unit shut down November 11 due to intolerable Therminol losses in Stack. Entrainment separators on order, one will be installed in December and unit reactivated.

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TOWOLDMON0044347

Progress Report issued covering Methyl Parathion Sulfur recovery to date. Reference data being collected on Niran with testing scheduled to start in December

W. F. Raffee
Assistant Technical Services Supt.

WFT:kd



TOWOLDMON0044348

## MEETINGS

The December Engineering Planning Meeting is scheduled for December 19.

The Technical Services Department Safety meeting for November was conducted by D. W. Dudley on November 9, 1967. His subject was "Eye Protection."

## DETAILS

AROCLOR J. MacPherson, C. R. McIlwain

Job No. 456 - Fixed Bed Refining (Quality)

To date 651,000 gallons of Aroclor 1242 have been treated in the fixed bed refining unit; the initial Bauxite charges continue active with no change in treatment ability.

Job No. 778 - Aroclor Manufacturing Improvement Plan (Long Range Planning)

The rough draft has been typed and issued for comments. A review of the rough draft will be held in December; the plan should be ready for distribution in early January.

Job No. 736 - Quaterphenyl Effects, Solid Aroclors: $400,000 Cost Improvement Incentive

Study continues to be delayed because the following still need to be accomplished:

1. Research approval of OMP based 5460; a test program with customer participation is in progress.
2. Level instrument installed on No. 4 Still Receiver.
3. Flow instrument installed on No. 4 Still circulation line.

BIPHENYL-SANTOWAX L. L. Faulkner

Job No. 744 - Upgrading of #1 Tubular Unit

The recommended Three Phase Expansion Program to meet 1972 Biphenyl requirements was reviewed with Messrs. Carder, Hubbard, and Stevens at General Offices on November 16. CED will handle all work related to upgrading the No. 1 Tube and additional benzene storage. TSD will handle the debottlenecking of the Biphenyl still and study of improvements to be incorporated in a No. 3 Tube. Upgrading of No. 1 Tube is planned to be complete in the Fourth Quarter of 1968.

Job No. 731 - Post Start-Up Assistance To Santowax R Still

A plant review of proposed CED scope raised several alternates which were discussed with CED. A.F.E. to be forwarded in early December.



TOWOLDMON0044349

BIPHENYL-SANTOWAX - continued

Job No. 769 - Install 6" Gas Line To Tubular Area

Verbal approval received for revisions to avoid exposure of gas line to acid saturated soil. (Formal request for approval delayed by urgency of Biphenyl Expansion needs.) A.F E. will be forwarded in early December.

Job No. 412 - Terphenyl Suppression

Work was resumed in November by Organic Research. Data is now being gathered with a target completion of late January for all test runs. Preliminary data indicates Terphenyls are suppressed while higher Polyphenyls increase slightly.

General:

Multi-point temperature recorders for the (2) old Biphenyl Stills were received and installed ahead of schedule. This allowed the Santowax OM run to begin ahead of schedule on November 22.

CHLORINE W. G. Niemeyer, D. W. Dudley

Job No. 411 - Steel Bottom Cells -(Savings Undetermined)

Awaiting review draft of CED report. Anniston TSD work complete.

Job No. 1000 - M.I.P. (Savings Undetermined)

Rough draft complete. Review held on 11/20/67 with Production and Maintenance. Revisions in progress.

Reduce Anniston Chlorine Manufacturing Costs

The results of the Chlorine review meeting held on 10/17 and 10/18 have been written in a report. The pencil copy is now being approved by Maintenance and Production.

Job No. 704 - Cell Room Ventilation - (Plant Improvement)

Materials on hand and test program arranged for sulfur treating floors to reduce mercury levels. Progress report to be published by 1/1/68 with results.

Job No. 46 - Mercury Losses - (Potential Saving $71,000/Year)

Progress report with plant program for reducing mercury losses to be published by 12/15/67. Program consists of six step plan to reduce mercury losses to 0.75 lbs. Hg/Ton $Cl_2$.

Radioactive inventory analysis of cells was made 11/29/67. Results as yet undetermined. Organic Research will conduct analysis on regular basis to accurately define mercury losses and aid in recovery.



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CHLORINE - continued

Job No. 703 - NaCl Unloading - (Savings $7,000/Year)

A.F.E. approved on plant level. Design consists of a modern pneumatic system to replace corroded bucket elevator. Pneumatic unit will decrease maintenance costs and increase unloading reliability.

Job No. 418 - Brine Dechlorination - (Savings $27,500/Year)

TSD assisting in start-up and trouble-shooting for revisions of project. System still not operating as expected.

Job No. 391 - Single Stage Decomposers - (Savings $18,100/Year)

Thirty-Four decomposers have now been converted to single stage. Thirty-two decomposers now have small graphite. Remaining conversions of two decomposers and two graphite changes to be completed by 1/1/68.

HCl K. J. Buturla

Job No. 497 - Muriatic Acid Storage

Safety Review question concerning foundation design to handle acid leaks has been resolved and will be incorporated in existing design. Problems still exist concerning the clearance between the tank and a Chlorine railroad car. Various solutions have been proposed and are being evaluated.

Job No. 746 - HCl Efficiency Studies

Studies to improve recovery efficiency to 95% are continuing. The new butterfly valve was installed the week of November 6. Storage tank level indicates significant improvement in recovery. Samples were taken of the gas and liquid streams of the HCl tails tower on November 16. Preliminary results indicate that the load on the unit greatly affects its efficiency, i.e., when the unit is not receiving large enough load, HCl gas passes through the absorber and is either absorbed in the tails tower or lost to the drowning tower. Tests will continue in December and based on these results, a project to eliminate these losses will be developed.

PNP K. J. Buturla, J. A. Veazey

Job No. 450 - Phase I - PNP Debottlenecking

Problem arose with the control valves installed in the new charge line. Present setup does not close valves fast enough to allow automatic stepping from charge to reactor. It was discovered that an additional airline is needed to eliminate this condition. Work is scheduled for the first week in December.



TOWOLDMON0044351

NIRAN D. C. Malm, O. J. Norris, K. G. Hale

Job No. 600 - Sulfur Recovery - (Annual Savings $400,000 plus a 31% Reduction In $SO_2$ Load To Air)

Progress Report was issued on 11/15 detailing results T/D and plans of the Interim Process to improve chlorinator-still yields. Reference data is now being collected on the Niran operations, with testing scheduled to start in early December.

P R & D work continues on development of a Sulfur Recovery Process. TSD, Production, and Maintenance Personnel will meet with a sales representative of Bird Machine Company on December 4, to discuss selection of a centrifuge for plant testing.

Job No. 712 - Parathion Recovery (Annual Savings $70,000 Plus A 10-15% Reduction in COD Loading)

All major equipment has been ordered. Final Design Safety Review was held on November 30. Target for installation remains March 1968.

Job No. 475 - Fume System (Improved Working Conditions and Reduced Corrosion)

Final Design Safety Review held on November 13. Complete Design Package will be transmitted in early December.

Job No. 339 - Refractometer Pump (Experimental Project)

The Refractometer Pump was not installed during the Niran turnaround as previously reported, and has not been installed T/D. The Refractometer was calibrated at the plant with assistance from the Factory Representative. Refractive Index chlorination control tests will begin on #3 chlorinator as soon as project installation has been completed.

Job No. 792 - Evaluate Malathion Production

Plant analysis of preliminary CED evaluation complete. Time to produce 5 M pounds Malathion estimated @ 2 1/2 months vs. CED estimate of 1 1/2 months. Evaluation report will be issued in December.

QUALITY CONTROL W. B. Dunlap, G. W. Miller, J. MacPherson

The Right First Time Index for November was 98.1 with 10 lots rejected out of 530; 10 out of 478 from the Organic Division. The November Quality Score was 92.6, down 3.4 from October.

Job No. 794 - Aroclor 5460 Color

Correlation of production variables with United Resins "Adhesiveness Test" and a quartz cell required for color scanning have been ordered. Clearance for direct contact with United Resins has been requested.



TOWOLDMON0044352

QUALITY CONTROL - continued

Job 797 - Effect of Still Chain-Feed on Aroclor 1242 Quality

A study has been designed which provides information needed, and also supplies PRD group with base operation data on chlorinators. Execution of the study awaiting installation of a line from #3 blend tank to the treating column.

POLLUTION CONTROL ACTIVITIES E. G. Wright

Started in-plant Pollution control work on 11/20/67 prepared a formal training program and completed two parts of the program. Met with supervisors and foremen to get familiar with plant problems, also met City Treatment Plant Supervisor and toured City Plant. Attended MCA Pollution Control Workshop in Atlanta, 11/9.

One Air Pollution complaint was received in November. The complaint concerned HCl fumes which were emitted approximately three weeks before the complaint was filed. The complaint was discussed with the people making the complaint.

There was one spill in the plant during November. This spill occurred in the PNP plant. The problem was eliminated by piping the PNP contaminated water to the toxic sewer.

MECHANICAL & ELECTRICAL INSTRUMENT DESIGN J. C. Price, J. A. Veazey

Job No. 413 - Winterization of Safety Showers

(Plant Improvement - estimated capital $24,000 Estimated Dismantling Expense $6,000)

Preliminary review of the project resulted in a change from an expense project to a capital project and has held up preparation of justification and AFE until December.

AFE No. 2468 - HCl - Install Safety Devices on HCl Elevator (Plant Improvement. Estimated capital $6300 - Estimated Expense $2200

Issued Progress Report recommending installation of Tubular Conveyor and revised AFE accordingly. Revised AFE was approved 11-20-67 and design of conveyor has started.

AFE No. 2694 - Install Enlarger and Miscellaneous Darkroom Equipment. Plant Improvement - Estimated Capital $3800, Estimated Expense $3900

This project proposes to install equipment to permit in-plant processing of negatives for photo drafting work. Justification is being prepared and AFE is expected to be forwarded for approval in late December or early January.



TOWOLDMON0044353

MECHANICAL & ELECTRICAL INSTRUMENT DESIGN - continued

Job No. 491 - Electrical Bottlenecking - Chlorine Cell House

Provided required electrical data and measurements for rebuilding Cell #7. This cell is to be used as a test cell to improve performance.

AFE No. 2650 - KCl Overflow (Estimated Savings $40,000, Estimated Capital $4000

Transmittal of project is being held up until required information is received from vendors.

AFE No. 1943 - Agitator for North Hold Tank

Transmitted necessary data for relocating pH Recorder cable and providing coupling guards on reducers.

Design, Review, Liaison, Estimating and Procurement assistance was provided in the following areas.

Aroclor

In-line electrical measurements, bagging and flaking.

Biphenyl-Santowax

Multi-point Recorder for Santowax OM Run, Upgrade #1 Tubular Unit, Outside Storage of Santowax, new gas line to Tubular Units.

Chlorine

Brine Dechlorination, Mercury Recovery, Radio System, Salt Pile Inventory, Brine Heat Exchanger Controls, Unloading Spur and Docks.

HCl

Control of Recycle Line to Adsorber, 150,000 Gallon Storage Tank.

Niran

Fume Collection, Parathion Recovery, Refractometer.

Waste Heat Recovery

Demisters for Spray Towers

PNP

Valves on Reactor Charge Line, Tempered $H_2O$ System.

Miscellaneous

$P_2S_5$ Safety Audit, Plant Disaster Control Plank, Blue Track Flag Procedure, Static Power System for Boilers, Plant Loading Docks, Warehouse Liaison.



TOWOLDMON0044354

DRAFTING G. C. Goodwin, R. L. Brewer, E. A. Brown

Completed in November

1. PNP Tempered $H_2O$ Piping
2. Niran Parathion Recovery
3. Aroclor Revise $Cl_2$ Railroad Spur
4. Chlorine Coupling Guards
5. Biphenyl Revise 6" Gas Line
6. Aroclor Liaison with CED on New Warehouse Project
7. Waste Heat Spray Tower Mist Eliminators

Scheduled for December

1. Niran Complete Fume Collection System
2. $P_2S_5$ Fume Removal System
3. Niran Dismantling Old Incinerator
4. Aroclor Drum Washing
5. HCl Storage Tank
6. Plant Fire Alarm System

LIAISON AND PLANT IMPROVEMENT M. E. Twigg, (W. F. Taffee)

CEA 1232 - Utilities

Installation of constant power supply (inverter/battery) system for No. 8 Boiler instruments completed at month's end. Unit will be checked out by CED personnel and put on line in December.

CEA 1430 - Aroclor Expansion

Project approved by Board of Directors November 30. CED design active. Working with CED and Plant to resolve railroad needs, loading docks and car spots required for CEA 1430 and 1452 on shared track, Aroclor blending facility physical requirements and other details. Activity will require essentially full time for next two months in combination with CEA 1452.



TOWOLDMON0044355

LIAISON AND PLANT IMPROVEMENT - continued

CEA 1452 - Warehouse

Project approved by Executive Committee November 20, 1967. Liaison activity concentrating in areas required for January 1968, construction start. These include repair to 36" storm sewer (Anniston Maintenance Department handling), installation of sewage lift station and force main (CED), railroad track and road layout proposals, required parking lot relocations as well as finished floor and grade elevations. Layout studies of Warehouse Office underway by CED.

Building 28

Plastering 50% complete, paneling installation begun, all floors poured ready for final surface at month's end. Contract formally let for air conditioning/heating installation. Lights, drop ceiling and floor covering to be installed in December.

Fire Break

Project ($4550 NFC, $10,500 Total) prepared and submitted to St. Louis for fire break along west fence line to augment project transmitted to Maintenance in October.

Flange Guards

Project ($1200 NFC, $1500 Total) approved in November. Necessary information has been transmitted to Maintenance.

Property Survey

Work initiated to locate property markers formally using local registered surveyor and to erect permanent boundary monuments.

WASTE HEAT RECOVERY J. F. Benson, C. E. Woodward, (W. F. Taffee)

Boiler repairs completed November 1 and Waste Heat Unit started for second time. Runs limited to less than 60% of design gas rate because of Therminol losses in stack. Shutdown November 11, after confirming losses well in excess of limits set is economical or tolerable. Data reviewed with CED and Commercial Development. Yorkmesh Demisters ordered for both towers. First unit left York plant 11/30. We plan to install as soon as it arrives. Second unit will be shipped in mid-December.

First pad received will be installed in water spray tower and unit performance checked at both design gas rates and at rates used in period 11/1 to 11/11. Additional spray nozzles on order to permit manipulation of this variable also.

Mid January is present target for completion of demister tests. Indications will be Therminol losses to stack, carryover from Therminol to water towers and discharge water Therminol content.



TOWOLDMON0044356

ENGINEERING MANPOWER DISTRIBUTION G. C. Goodwin, (W. F. Taffee)

% of Total TSD Time

| Category | November % | Year-to-date Through Nov. | October | Year-to-date Through Oct. |
|---|---|---|---|---|
| 1. Process Improvement | 36.83 | 46.86 | 39.9 | 47.9 |
| 2. New Products | 11.21 | 5.69 | 6.6 | 5.1 |
| 3. Plant Improvement | 4.51 | 6.54 | 9.8 | 6.7 |
| 4. Assist Operations | 1.34 | 2.73 | 3.7 | 2.9 |
| 5. Special Engineering Services | 7.10 | 8.32 | 3.2 | 8.4 |
| 6. Technical Manpower | 10.78 | 8.94 | 11.7 | 8.8 |
| 7. Miscellaneous | 28.24 | 20.90 | 25.1 | 20.2 |

Remarks:

Category 1- Shows net effect of the changes discussed below.

Category 2- Increased because of additional effort on Waste Heat Recovery Project.

Category 3- Reflects greater emphasis on liaison at the expense of Plant Improvement.

Category 4- Increased liaison activity on Aroclor and Warehouse projects accounts for the increase in Category 5.

Category 5- November had 22 potential working days but three official holidays resulting in an increase in Category 7.



TOWOLDMON0044357

PERSONNEL

1. Dr. J. R. Fair conducted a seminar on "Effective Use of Monsanto Specialists" on 11/9/67. He also reviewed Waste Heat Recovery Test unit operations.

2. E. G. Wright attended a Pollution Control Conference in Atlanta, sponsored by the Manufacturing Chemists Association on 11/9/67.

3. Messrs. Harold Hileman and John Buss visited the plant to review Waste Heat Test Operations on 11/6, 7 and 8.

4. Lamar Faulkner reviewed Terphenyl Suppression test results with Organic Research in St. Louis 11/15/67.

5. L. C. Fuhrmeister and L. L. Faulkner attended a Biphenyl Capacity Review meeting in St. Louis 11/16/67.

6. Dr. R. P. Stevens and E. F. Anthony (CED) visited the plant 11/28/67 to discuss Biphenyl work underway by CED.

7. K. J. Buturla attended the Chem Show in New York City 11/27-28.

8. Ten TSD-Laboratory personnel attended a seminar held by D. B. Hines covering Radiotracer Techniques and Organic Research Capabilities 11/30/67.

9. L. C. Fuhrmeister addressed the Chemical Engineering Students at the University of Mississippi and participated in on-campus recruiting interviews 11/8-10, 1967.

10. D. B. Hines visited the plant 11/28-30 to conduct a radio isotope mercury inventory in the DeNora Cell House.

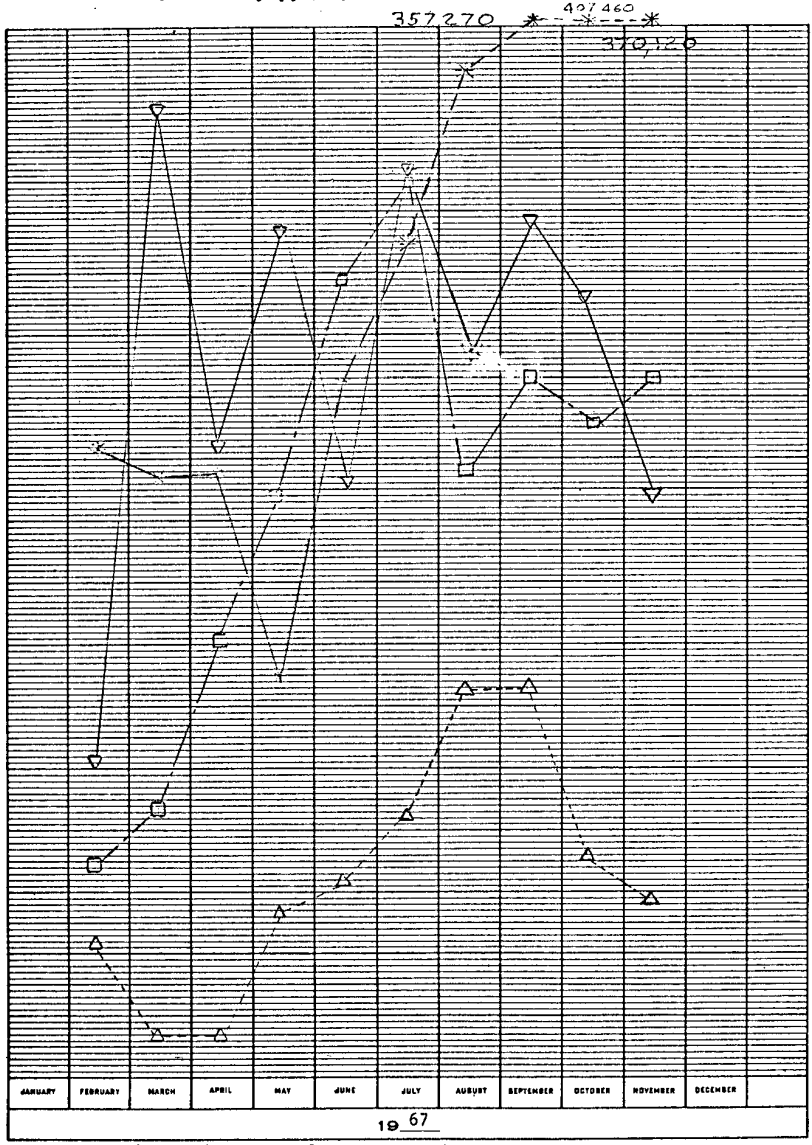
PROMOTION

Mr. L. C. Fuhrmeister has been appointed to the position of Engineering Sales Manager, Electrolysis, in the Inorganic Chemicals Division Engineering Sales Department, effective December 1, 1967.



TOWOLDMON0044358

# TSD PROJECT SUMMARY

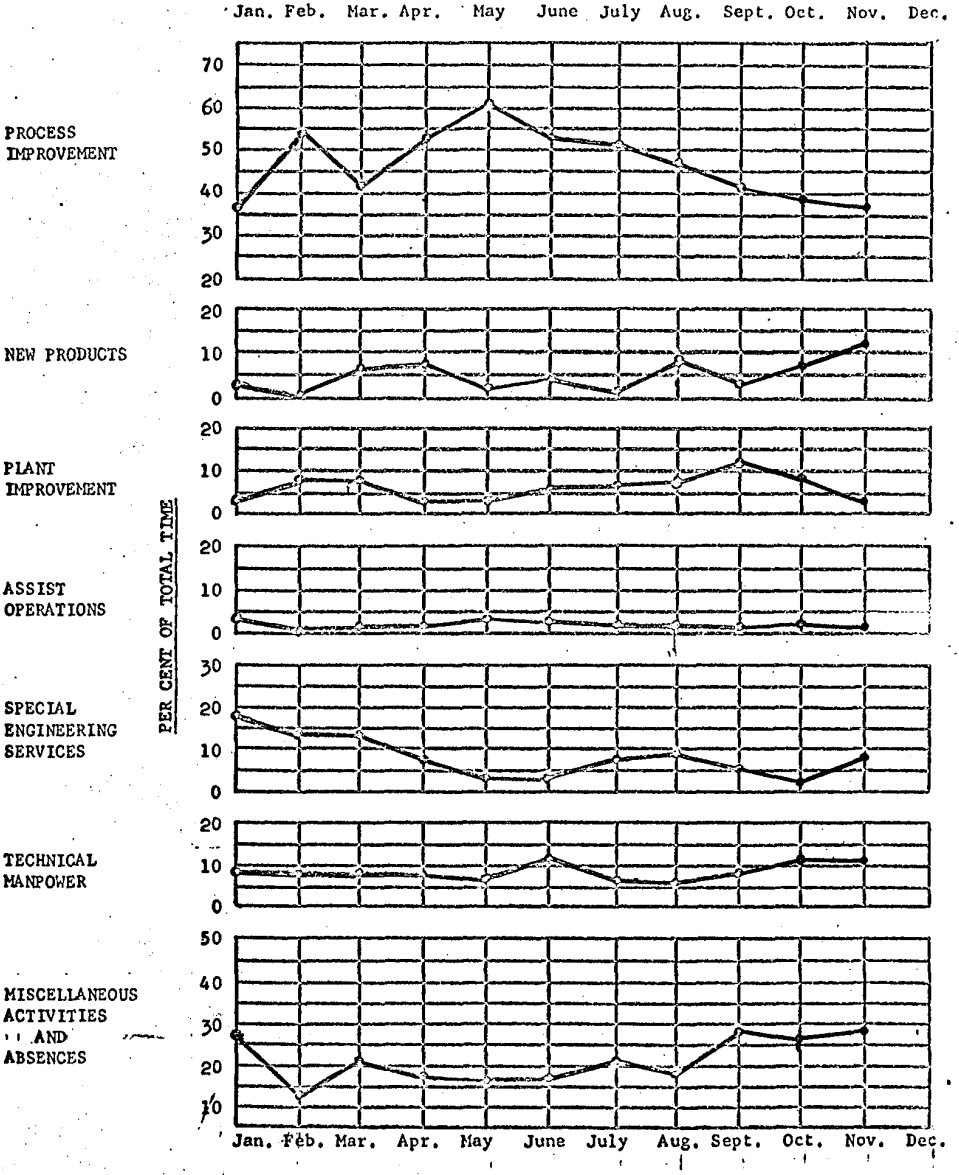



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