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Monsanto

Anniston Plant

TECHNICAL SERVICES DEPARTMENT

MONTHLY REPORT

Summary

August, 1968

Cost Improvement Results For First Eight Months

	Estimated Actual	Target	% of Target
Month	$21,150	$49,955	42.5
YTD	$309,940	$310,570	99.6

Organic Division

Solid Aroclor still level indicator-alarm project approved verbally for $8000 instrumentation. Total NFC $14.9 M - savings $63.2 M.

Two Montar handling projects forwarded for approval in August. NFC $20 M with expected savings of $24.2 M.

Santowax R column project approved verbally for $3500 instrumentation.

Received formal notification of January 1, 1969 target to discontinue manufacture of Chlorine/Caustic at Anniston. May be delayed past January to provide adquate tank car unloading and distribution facilities now in design on CEA-1831.

Staley Grade HCl via activated carbon treatment studied and reported by Pittsburgh Activated Carbon. Laboratory scale recommendations will be tested on plant scale with final recommendations targeted for October.

PNP reactor optimized at 175°C. and 66 minutes. This time represents approximately a 6% decrease in cycle time. Reactor agitator and pressurization of charge tank will be studied in September.

0346350

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TOWOLDMON0044446

Plant tests on experimental Sulfur Recovery unit are underway - scheduled for mid-September completion. Centrifugal separation looks good to date.

Fume Collection System 95% complete with start-up targeted for week of September 16.

Engineering Design and Services

Transmitted design packages for winterization of Niran safety showers, plus several minor ones. Completed pre-startup checkout of instrument and electrical installations on the sulfur recovery pilot plant and the Niran fume collection system. Forwarded project premises for water and sewer system projects.

Utilities Cost Improvement

Project premises have been issued to collect sewered water in PNP and Aroclor departments. NFC $8M with expected savings of $4.2M.

Plant Improvement

Design packages for Niran Storage Tank Dikes, and two minor jobs were transmitted to maintenance.

AFE forwarded covering surfacing, curb and gutter on Fifth and Duncan Streets.

Liaison

Warehouse office complete; flushing of lines and tanks with Aroclor 1242 started by Production. Insulation incomplete because of insulator's strike.

Roof of warehouse complete, siding installation started but going slowly; flakers set. Warehouse section occupancy date will be controlled by siding installation about October 1.

Installation of 300 M gallon Benzene tank started on CEA-1892.

Design of facilities to handle liquid chlorine from tank cars underway on CEA-1831.

Waste Heat Recovery

Progress report covering final phase issued August 21. Unit is being placed in stand by condition for next three months.

Pollution Control

Two atmospheric pollution complaints were received and handled in August.

Malathion waste studies complete. Malathion reduction was 99%(+) in the pilot unit. This indicates that malathion waste can be effectively treated in our waste treatment plant. Final report targeted for September.

0346351

Quality Control

The RFT Index was 98.7 with 8 lots rejected out of 635; 8 out of 540 from the Organic Division. The Quality Score declined to the lowest level of the year, from 96.5 to 92.2, due largely to divergence in liquid Aroclors and Muriatic Acid.

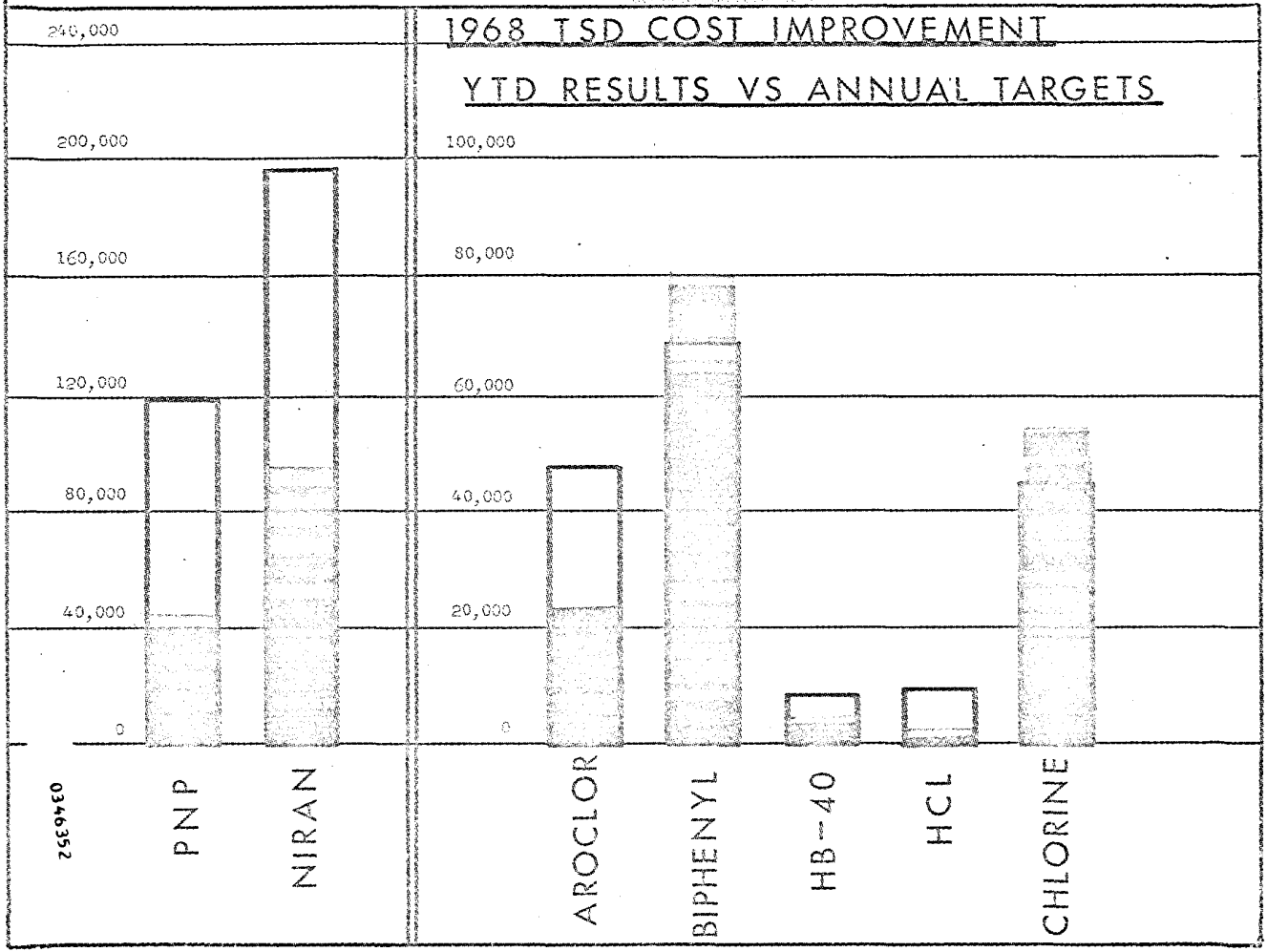
J. C. Landwehr

jkd

TOWOLDMON0044447

1968 TSD COST IMPROVEMENT

YTD RESULTS VS ANNUAL TARGETS



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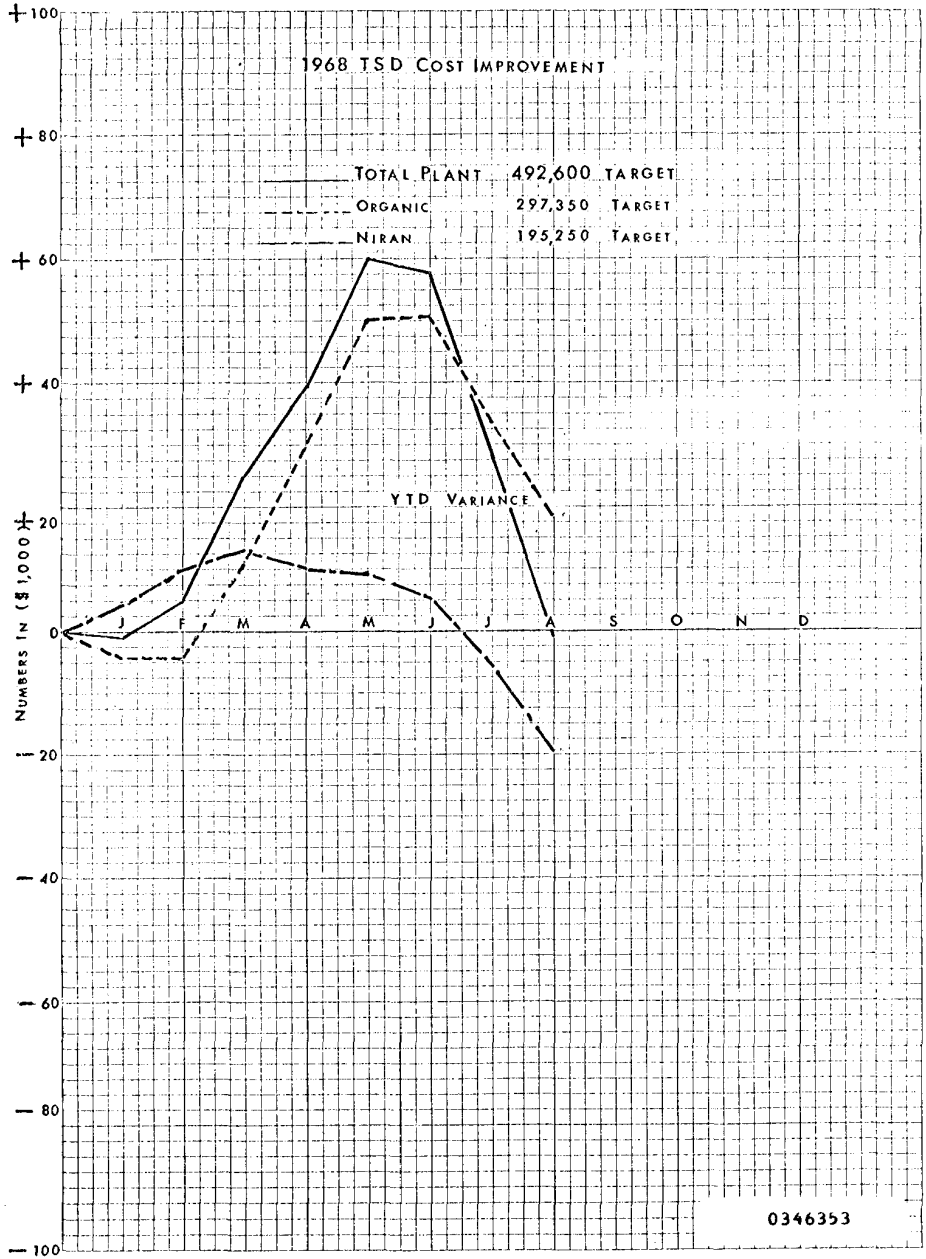
TOWOLDMON0044448



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

Cost Improvement

	Month	YTD	
Target	$16,630	$32,580	*Making solids on liquid system plus unusable liquid still revision
Actual	75*	$25,435	

TSD Objective B-8(a) Evaluate Quaterphenyl-Polyphenyl Effects on Solid Aroclor Yields.

Received verbal approval for $8000 on project 3015 to purchase radiation instruments. Instruments will measure specific gravity on the chlorinator and still receiver and also provide a low level alarm on the still. Total Total project cost will be $14,900 NFC and $900 expense. Savings claimed are $63,200/yr.

TSD Job No. 398 - Liquid Still Revision for Therminol Heating

No. 2 still was converted to Therminol heat supply. Pressure drop problems developed in Therminol system and resulted in unacceptable production rate. The still will be converted back to original heat supply. The main Therminol system containing 22 branches is being analyzed to decide what must be done to improve existing system and take care of future needs.

TSD Objective for 1969 - Montar Handling

AFE 2952 has been issued for approval to provide for pumping of Montars to the Montar pit. NFC is $10M with $13M savings.

AFE 2949 has been issued for approval to provide for flaking Montar 5. NFC is $10M with $11.2M savings.

BIPHENYL-SANTOWAX W. G. Niemeyer, J. W. McGee, (V. R. Haupt)

Cost Improvement

	Month	YTD
Target	$3,550	$30,150
Actual	$4,990	$80,675

TSD Objective B-7(a) Debottleneck Biphenyl Stills to 87.6 $\bar{M}$ Lbs./yr. Biphenyl Rate By 2/69.

This work has been included in CEA-1892. CED and the plant are planning a capacity test run during the week of September 9 to firm up scope in this area.

TSD Objective B-7(c) Provide Assistance (Liaison) to CED As Necessary On Project To Upgrade No. 1 Furnace, CEA-1892.

Field construction is underway. Foundation work is in progress on dike wall for new benzene storage tank and footings and slab for new preheaters.

TOWOLDMON0044450

TSD Objective B-1(a) Revise Biphenyl-Santowax Manufacturing Improvement Plan By

Rough drafts of all sections are complete. Review and revisions are in progress.

Quality

TSD Objective B-7(d) Demonstrate Quality Improvement on Santowax Still via Addition of Eight Tray Column.

Received verbal approval on 8/22/68 to order long delivery equipment and instrumentation ($3500) for proper control of this column. Working with CED on their part of column auxiliaries.

CHLORINE D. W. Dudley, G. L. Moore, (D. C. Malm)

	Month	YTD
Target	$2,625	$33,375
Actual	$715	$55,845

Comment

The Anniston plant was notified on 8/14 of the decision to shut down the Chlorine Plant by 1/1/69, or as soon thereafter as possible. TSD effort is being concentrated on shutdown preparations.

TSD Objective B-6(a) Monitor Mercury Usage by Radioactive Inventory

Thirty-one cells were spiked and samples forwarded to Organic Research for measurement. Determination and publication of results should follow in September.

TSD Objective B-6(b) Develop Program to Reduce Mercury Usage to 0.75 lbs. Hg/Ton Chlorine.

Mercury wash tank was delivered 8/21/68. Maintenance is scheduling installation for September.

TSD Objective B-6(c) Assist in Demonstration of Brine Dechlorination by 4/1/69

No change in status. Demonstration will follow maintenance revisions.

Process

TSD Job No. 328 Titanium Brine Heat Exchanger (Savings $2,500)

Project for reducing steam temperature was transmitted to maintenance for installation 8/14/68.

TOWOLDMON0044451

TSD Job No. 860 Central Chlorine Unloading

Plant goals and objectives for liquid chlorine handling and distribution facilities were defined and transmitted to CED. Final project scope is targeted for 10/15.

TSD Job No. 861 HB-40 Hydrogen Study

Objectives for this job are:

a) Define and report catalyst penalty for using untreated Biphenyl hydrogen at HB-40. Catalyst penalty would be $28,000/yr. plus a 4 M lb./yr. HB-40 capacity losses. The penalty was defined by company standard batches of HB-40 versus batches of HB-40 produced from Biphenyl hydrogen in a laboratory autoclave.

b) Define catalyst poison and propose means of reducing effects. The poison has been defined as carbon monoxide. Carbon monoxide is present in small percentages ranging from 2-10%. A means of reducing the carbon monoxide concentration is presently being tested in the laboratory.

TSD Job No. 854 Chlorine Backflow Prevention - Safety

Project 2955 ($2,500 NFC) was estimated and approved for prevention of chlorine backflow from Aroclor to the chlorine plant. The project is scheduled for final design and drafting in early September.

HCl K. J. Buturla, G. L. Moore, (D. C. Malm)

Cost Improvement

	Month	YTD	
Target	$1,050	$2,350	Failure to meet the month's target caused by hold-up on installing HCl storage tank
Actual	$700	$1,900	

TSD Objective B-10(a) Demonstrate Reduction of Unaccounted HCl Losses to 10% of Total HCl Available.

Recycle line project in maintenance backlog. No action.

TSD Job No. 497 Muriatic Acid Storage

With the shutdown of the chlorine plant, and the installation of a new central tank car unloading facility, chlorine tank cars will no longer be unloaded in the immediate area of the new HCl storage tank. A decision has been made to change drawings and relocate the tank to the original site. Work will begin on the new drawings to construct the tank at the original location about September 1. All construction work will be halted until the design can be prepared. Package transmittal is targeted for October 1, 1968.

TOWOLDMON0044452

TSD Job No. 801 Enable Routine Production of Staley Grade Acid

The study to determine how to produce Staley Grade HCl is continuing. Pittsburgh Activated Carbon Laboratories have completed tests on Anniston HCl and have written a report which indicates our carbon towers should be capable of removing organics. New tests are planned for verification of results in our HCl plant. A coalescing separator filter is also being given consideration in solving the problem. Efficiency and economic evaluations of the alternatives will be made. Final recommendations are targeted for early October.

PNP O. J. Norris, K. J. Buturla, (D. C. Malm)

Cost Improvement

	Month	YTD
Target	$16,500	$95,000
Actual	$6,000	$45,250

TSD Objective B-9(a) Assist in Demonstration of 20 M lbs./yr. Rate

Charge tank pressurization study indicated a 7 minute reduction in reactor cycle time is possible by pressurization and preheating raw materials. A project will be forwarded for approval by 9/10 to make the necessary modification. If successful, this change will increase capacity to 22 M lb./yr. Additional work in September will be aimed at a study of reactor agitation in an effort to improve heat transfer rate and reaction rate.

TSD Objective B-9(b) Increase Reactor Temperature (9/1/Target)

Field tests at 175°C. successfully completed with a 4 minute reduction in reaction time. New reactor rate is now 1.78 M pounds per month based on a 66 minute reaction time. August production (1.66 M) below expected because of unusual repair downtime.

TSD Objective B-9(c) EVOP Study of Molar Ratios NaOH/PNCB

Test program will be outlined with production by 9/10 so that field tests can be started by 9/15.

NIRAN K. G. Hale, O. J. Norris, D. W. Dudley, J. L. Gaines, (D. C. Malm

Cost Improvement

	Month	YTD
Target	$22,175	$115,275
Actual	$8,300	$95,850

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TSD Objective B-5(a) Demonstrate Parathion Recovery ($70,000/yr. Yield. Savings + 10-15% Reduction in COD Loading)

Metal edge filters were removed and cellulose filter test unit installed. Filter tests were begun but were interrupted by feed pump failure - test to resume in early September. August test of cellulose filter lasted two hours with no build up of solids on filters as experienced with metal edge filters.

TOWOLDMON0044453

TSD Objective B-5(c) Demonstrate Solvent Addition to Residue (Interim) Process By 6/1/68 ($59,000/yr. Yield Savings)

Yield savings of $8300 were obtained in August. Phase #3 tests (increase Cl_2 level) were stopped in late August by production. Yield losses of $6000-$8000/month are expected if Cl_2 level is dropped back to 10% average.

TSD Objective B-5(d) Evaluate Sulfur Recovery from Residue by 7/1/68 ($400,000/yr. Savings + 31% Reduction in SO_2 to Air

Experimental recovery tests are approximately 60% complete. Results to date indicate 90% recovery of solids with a dryness of 80-95% solids in cake depending on centrifuge condition. EDC for tests 9/15.

PR&D work on process continues. Completion of process is now expected during 10/68.

TSD Objective B-5(e) Demonstrate Reliability of Submerged Pump for R.I. Control of Chlorination

Temporary replacement of light source installed. Tests will be resumed upon completion of repair work to circulation line.

Safety

TSD Objective A-10 Eliminate High H_2S Pressure in Thio Acid Reactor by Demonstrating Temperature Controlled Alcohol Addition

Trial run completed by production with excellent control results. Alcohol addition time averaged 5 minutes/batch longer than on manual control. A progress report will be issued in November.

TSD Objective F-10 Assist in Demonstration of Fume Collection in Parathion Department

Construction completed 8/29. Water system checkout completed 8/30. Startup will be delayed until old incinerator stack fan bearings have been replaced. Start up now scheduled for week of 9/23.

TSD Job No. 815 Survey Water Savings Potential in Parathion Department

Design of experimental project ($3,700/yr. savings) to re-use water from wash columns at pre-washers will be transmitted by 9/6. Progress report covering survey of water savings potential was issued in early August.

P_2S_5 K. G. Hale, (D. C. Malm)

Cost Improvement

	Month	YTD
Target	0	0
Actual	0	0

0346358

TOWOLDMON0044454

Safety

TSD Objective A-15(a) Provide Design to Reduce Fumes in P_2S_5 Working Areas by 4/1/68 at Surge Tank Vent

Project transmitted to P & S on 8/5/68.

ENGINEERING DESIGN AND SERVICES

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

Highlights

Review drawings were issued for Emergency Escapeway at Niran Foremen's Office, Emergency Escapeway and Reactor Dam at P_2S_5, alterations to wash piping at Niran, safety shelter @ PNP, and slurry valves at Niran. Revised drawings were issued for the Niran Fume Collection System and #9 chlorinator pump and piping. Final drawings were issued and design packages forwarded for Hourly Parking Lot Lighting, Alarm on Fire Water System, Power Distribution Panel for TSD Annex and Niran Safety Showers. Forwarded premises for corrosion protection of 20" City Water Main and Sewer, to collect acidic spring water and HCl loading dock drainage. Assisted in checkout and startup of the Niran sulfur recovery pilot plant and the Niran Fume Collection System. Design, construction and liaison services were provided for sixteen (16) other jobs during the month.

Objectives

There has been no change in status of objectives except as reported below:

TSD Objective A-5 Winterize Safety Showers

Design package for Niran showers (Project 2770) was transmitted to maintenance on 8/15.

TSD Objective A-6 Procedure for Electrical Testing

Forwarded report defining problem and scope. Plan to meet with maintenance to establish responsibilities and work plan in September.

UTILITIES COST IMPROVEMENT J. C. Price, A. I. Hale, L. O. Chambers, (W. F. Taffee)

Evaluation of a preliminary survey conducted in July indicates potential savings of about $200,000/yr. in the cost of utilities for the Anniston plant. Preliminary estimated capital cost to obtain these savings is $325,000.

Progress reports on steam metering, water metering and program plans were forwarded for typing. Forwarded project premises for approval and AFE's for review on re-use of sewered city water at PNP and re-use of sewered tower water at Aroclor. Net savings at these projects will be $4200/yr. AFE's for water meters in Niran and Organic Division steam meters were forwarded for approval. AFE's for Organic Division water meters and a gas meter at Biphenyl were forwarded for review. Started evaluation of treatment for Biphenyl cooling tower to reduce or eliminate scaling of the tempered water cooler.

TOWOLDMON0044455

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

Design packages forwarded to maintenance covering Niran raw material storage tank dikes, upgrading chlorine lunchroom and revision of shipping office. Forwarded AFE's for resurfacing Fifth street east from Cl_2 railway to new warehouse, Duncan street from fifth to sixth streets, and upgrading lights along Fifth street west side of plant.

CED LIAISON V. T. Langdon, (W. F. Taffee)

CEA 1430 - Aroclor Expansion

Training of operators on tank farm completed by L. L. Faulkner. Flushing of system and all other activities in the field will be carried out by Production. Insulator's strike has delayed insulation completion and our ability to handle anything higher than 1248. Flakers set in place, roof and siding of flaker "penthouse" remains to be completed. Approval received for pallet dispenser variance.

CEA 1452 - Warehouse

Installation of roof completed, siding installation progressing slowly. Present prediction is that warehouse will be ready for occupancy by September 23. Construction of Sixth street to serve warehouse and tank truck docks nearing completion. Sprinkler installation underway at months end.

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

Progress report covering experimental observations obtained for Phase III published 8/21. Report contains test results for modified equipment. Special emphasis was made to compare performance of the test unit during periods of 1) normal fluctuation in #8 boiler firing rate and 2) during periods when the firing rate was held constant. Additional results for Brink and Selas Therminol recovery test units also included.

Actions to place the test unit in a stand-by shutdown delayed one week. Equipment and piping drained of Therminol and water inventory. Expect to complete shutdown 9/5.

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

TSD Objective F-3 Establish a Monitoring System for Air Effluents from the Plant

Thirty-six atmospheric samples were collected and analyzed for SO_2 in August. Will begin sampling at a second point as soon as instrument shelter arrives.

TSD Objective F-5 Publish a Newspaper Article to Further Community Understanding of Pollution Abatement Problems.

An article will be published in the plant newsletter during September. A program to invite local political figures and newspapermen in the plant is being worked out with the Plant Manager and the Personnel department.

TOWOLDMON0044456

TSD Objective F-7 Investigate Installing Permanent Monitoring Device on Choccolocco Creek.

Potential sites still being investigated.

TSD Job No. 808 Install Solids Removal Equipment at Waste Treatment.

November 15 is target date set by maintenance for installation.

TSD Job No. 864 Effluent Task Force.

Issued a memo outlining a method for controlled caustic sewering. Also issued recommendations of repairs required to the HCl neutralization pit.

Special Activities

1. Collected samples at Paul Hodges request for Research to begin their investigations of Aroclors in Snow Creek.

Waste Treatment:

All wastes were effectively treated in August. Average values for Monsanto effluent in August are as follows:

	Average Daily	Specifications
PNP	1.0 PPM	<5 PPM
COD	100 PPM	<200 PPM
Parathion	.11 PPM	<1 PPM
BOD	1.0 PPM	<200 PPM

PROCESS AND QUALITY J. P. Chadwick, (W. B. Dunlap)

TSD Objective C-2 Apply Statistical Control to Solid Aroclor Process

The plant experiment designed to verify predictions of the computer study reported in July continues to show a 5-7% improved yield. The test is continuing.

TSD Objective C-6 Correlation of P_2S_5 -Parathion Operations

Still controls were found to outweigh all other variables studied. No prolonged yield changes were revealed which could be expected to relate to upstream units. Work on this phase of the study will be completed in September and a progress report written.

Procress Improvement Plan for PNP

A quality control and process surveillance section was contributed to the Manufacturing Improvement Plan for Paranitrophenol.

TOWOLDMON0044457

COMMUNITY RELATIONS, PERSONNEL, RECRUITING, AND DEVELOPMENT

Development

1. Cliff Woodward attended the ASME/AIChE Joint Heating Transfer Conference held in Philadelphia, Pa., August 12-14; he assisted in a Paper which he coauthored with D. E. Steinmeyer of CED.

Recruiting

1. Lee O. Chambers, Co-Op, was hired August 26. He attends Auburn University.

Visitors

1. Mr. Carl R. Martinson, CED Specialist in "L" Standards for Painting, visited the plant August 30. A special consultation was held with Maintenance and TSD.

2. Mr. Elwood Robinson and Mr. G. Buchannan, Lion Oil El Dorado, visited August 13 to discuss electrical test procedures for insulating fluids.

Public Relations

1. Mr. J. C. Landwehr attended the Associated Industries of Alabama Water Pollution Task Force meeting held at Mobile, Alabama, August 14.

TOWOLDMON0044458

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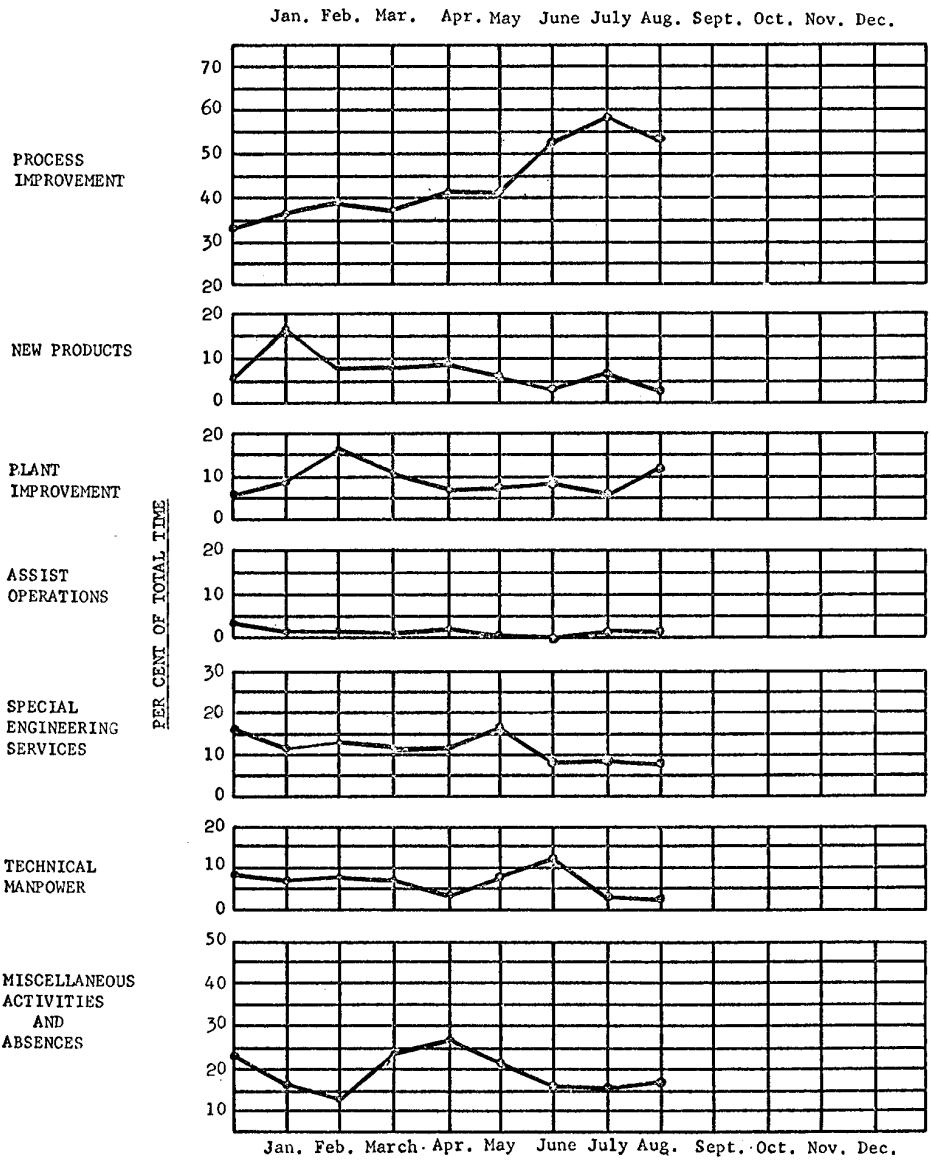

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TOWOLDMON0044459

TSD PROJECT SUMMARY

