

Anniston

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R. J. Strattmeyer
H. S. Trail
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South Second St.

O. DeGarmo
M. E. Gibbs
J. F. Quinn
J. R. Savage - JFC

Other Locations

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J. W. Graves - Luling
W. R. Kellogg - Nitro
G. F. Knollmeyer -
Seattle
J. F. White - Everett
R. F. Wiesenborn - CB
W. J. Wilson - WCK



Anniston Plant

TECHNICAL SERVICES DEPARTMENT

MONTHLY REPORT

Summary

April 1968

Estimated Cost Improvement Results For First 4 Months 13% of Target: \$159,000 vs \$120,000 Target.

Organic Division

Aroclore 5460 yield increase of 6% was related to 20% decrease in Santowax R Polyphenol. A progress report is scheduled for May outlining present status and further process surveillance and improved instrumentation to maximize this increase on a continuing basis. Liquid Aroclore capacity increase to 53 M lbs./yr. (Project 2545) was demonstrated in March and April.

Biphenyl Expansion Project (CEA-1892) received verbal approval for purchase of long delivery equipment. Evaluated new pre-heater design with CED; - need further work on design and coke removal techniques to accomplish any improvement in on-stream time of these units. Biphenyl Still rate can be raised to 71.4 M lb./yr. to match furnace expansion with improvements in tempered water system and reboiler furnace.

Chlorine department has 3 separate TSD jobs to improve Mercury usage by \$30,000/year. (1) Test drums of Brine and floor ditch sludge are being processed by Interstate Concentrating Company, (Kearny, New Jersey) for Mercury Recovery Potential. (2) Plant Pilot Tests are underway to recover Mercury from salts in waste water. (3) A project has been developed to improve carbonation of Brine and reduce Mercury "Butter" formation (Project 2854, \$10,000 NFC, submitted in late April).

HCl project for Staley Grade Acid will be submitted in May based on additional process and lab studies.

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PNP Rate Study Report published. Major bottleneck is reactor let-down cycle. Starting May 6, TSD will gather process data in field to determine cause(s) of let-down problems.

Agricultural Division

Experimental Sulfur Recovery project Design completed. Test operations will not begin in mid-June as scheduled because Project Construction will not be complete until late July. New Target to begin Test Operations is 8/1/68.

Complete installation of Parathion Recovery Separator unit delayed until mid-May. Start up will begin as soon as installation is complete.

Optimization of Methyl PCT yields is in progress and on schedule. Yield savings of \$9,500 (190% of Target) was achieved in April. No residue handling problems have developed to date.

Progress Report published on Study To Eliminate High H₂S Pressure In Thio Acid Reaction. Potential safety hazard can be eliminated by temperature controlling alcohol feed.

Engineering Design and Services

Grading essentially complete and foundation work started for tank farm, Aroclor and Warehouse projects (CEA 1430 & 1452). Layout and flow sheets for flaking, packing and drumming areas not yet firm.

Waste Heat Recovery experimental unit modifications design completed. Project on schedule.

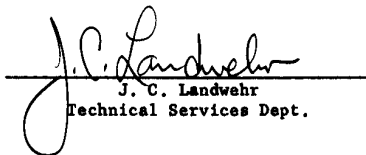
Design and drafting - major emphasis on Sulfur Recovery design. Drawings completed on schedule.

Pollution Control

Contract with Biological Consulting Company completed and signed for Choccolocco creek study in late May. No Air or Water Pollution complaints were received during April, and with the Niran department at record production the Waste Treatment Plant successfully treated all wastes.

Quality Control

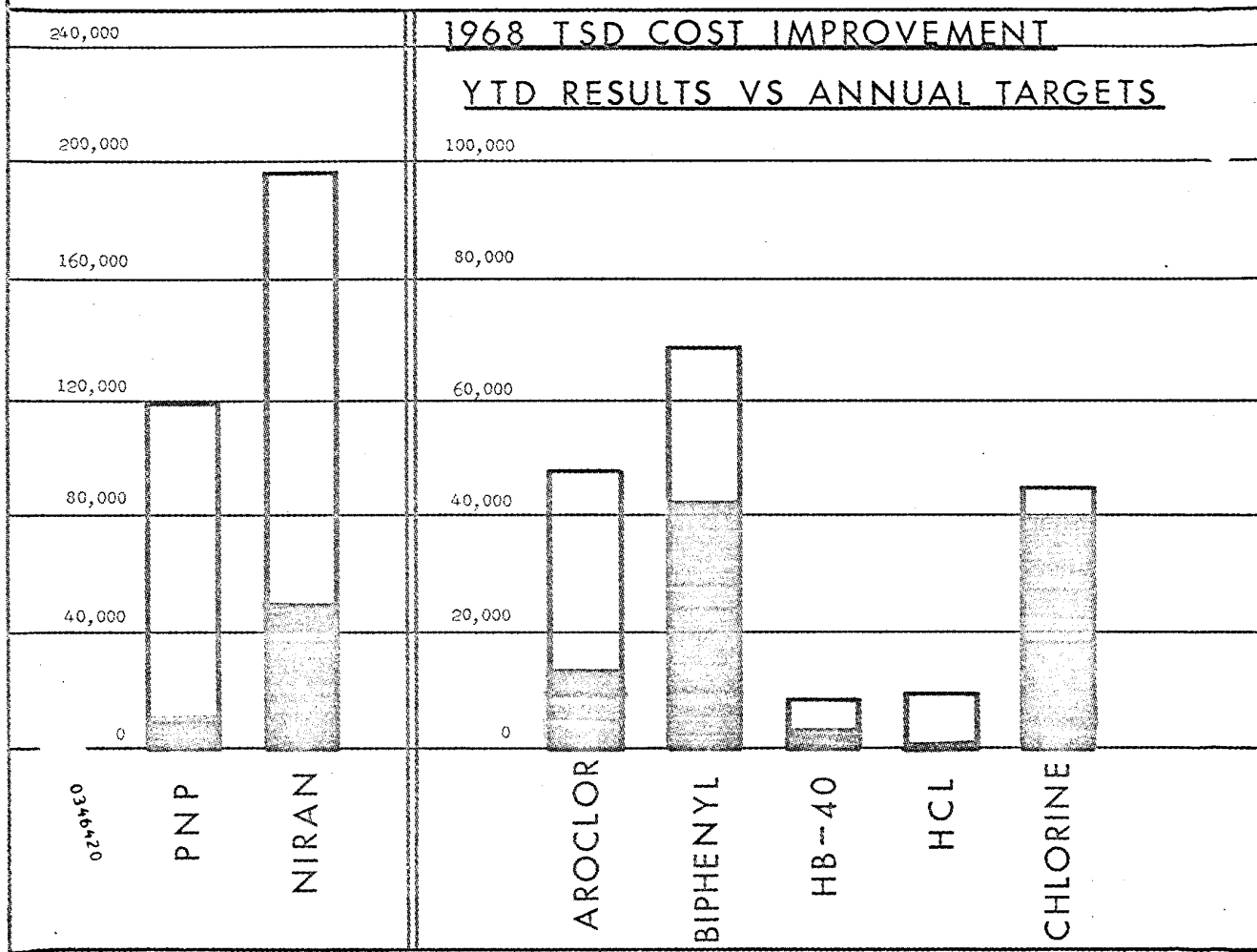
The Right First Time Index for April was 98.0 with 14 lots rejected out of 690; 12 out of 567 from the Organic Division. The April Quality Score was 94.6, down 2.0 from March. A review of long-term trends in Aroclor 1242 revealed a two-month cycle in Thermal Chemical Chlorides during which the process produced for one week at the Division target of 0.1 ppm.


J. C. Landwehr
Technical Services Dept.

JCL:kd

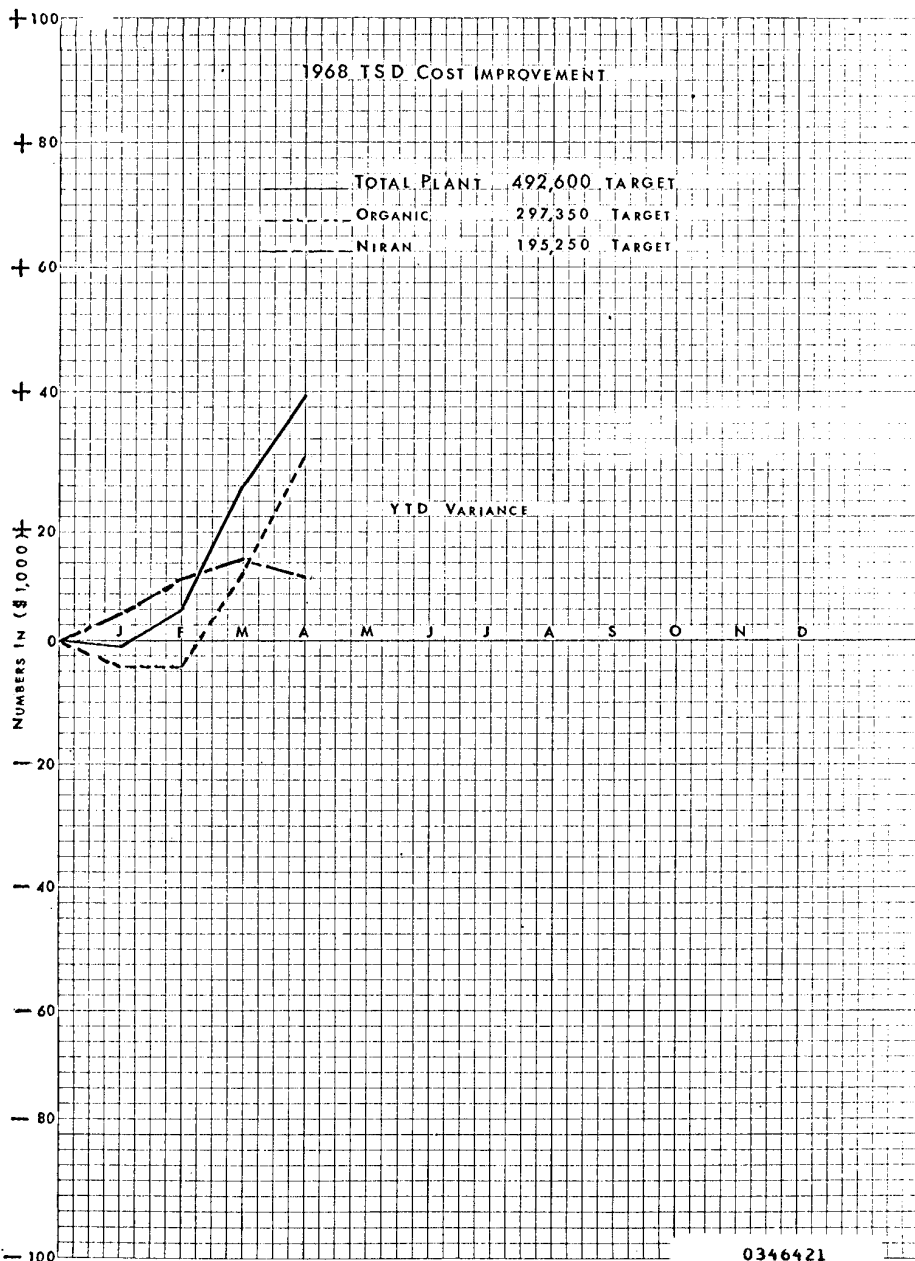
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MADE IN U. S. A.

NO. 340-B DIEZGEN GRAPH PAPER
8 X 8 PER INCH



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AROCLOR - V. R. HauptCost Improvement

	Month	YTD	Comments
Target	-	-	Due to increase in Liquid Aroclor Still capacity before target date.
Actual	\$7,000*	\$13,460	

*Estimated

TSD Objective B-8 (a) Evaluate Quaterphenyl Polyphenyl Effects on Solid Aroclor Yields by 4/1/68

A 6% yield increase in Aroclor 5460 was made in March '68 due to a 20% decrease in polyphenyl content in Santowax R. Lack of proper instrumentation prevented taking full advantage of this improved raw material. April's yield went back down as the Biphenyl Tubular Unit was pushed to meet sales demand for Biphenyl which increases the polyphenyl content of Santowax.

Progress Report will be issued in May.

TSD Objective B-8 (c) Assist in Demonstrating Liquid Aroclor Capacity of 53 lb./yr. Capacity

Enough of Project 2645 has been installed to demonstrate the capacity increase in both March and April '68. Project should be completed in May '68.

TSD Job No. 843: Minor Work

Made Manufacturing Cost estimate Crude Biphenyl or Aroclor 1142 as raw material for Santosafe 300. Cost is \$6.09/cwt from Crude Biphenyl and \$6.21/cwt from Aroclor 1142.

BIPHENYL-SANTOWAX - W. G. Niemeyer, (V. R. Haupt)Cost Improvement

	Month	YTD
Target	\$3,800	\$15,200
Actual (Est.)	\$17,200	\$42,060

TSD Objective B-7 (a)

Provide Plan to Debottleneck Biphenyl
Stillls to 71.4 M lbs./yr. Rate by 4/1/68.

Preliminary still test indicates we can achieve a 71.4 M lb./yr. Biphenyl rate assuming a Biphenyl to polyphenyl split of 75/25. Known problem areas are: (1) color of Santowax R, (2) tempered water cooler, and (3) Biphenyl reboiler furnace.

TSD Objective B-7 (b)

Initiate Plant Tests to Suppress Terphenyl
Formation in Benzene Pyrolysis, Based on
Organic Research Work by 6/1/68.

Received final Research report on Terphenyl Suppression on 4/3/68. Preliminary Plant comments indicate additional research work necessary to study effects of recycle of actual plant streams.

TSD Objective B-7 (c)

Provide Assistance (Liaison) to CED as
Necessary on Project to Up-Grade No. 1
Furnace, CEA-1892.

CED received verbal approval and has ordered long delivery equipment. The Plant has not accepted the revised preheater tubesheet design because of inadequate cleanout techniques. Working with CED to firm up final project scope. Forwarded startup budget estimate to K. A. Kuhn on 4/30/68.

TSD Objective B-1 (a)

Revise Biphenyl-Santowax Manufacturing
Improvement Plan by 5/1/68.

Target date re-set to 6/1. No activity due to liaison work on project to upgrade No. 1 Furnace, CEA-1892.

Safety

Job No. 819 - Improve Montar 9 Pumpout

Received price quotation on proposed larger pumps. Investigated improved mechanical seal. Job delayed due to activity on project to upgrade No. 1 Furnace, CEA-1892.

CHLORINE - D. W. Dudley, J. M. Jones, (D. C. Malm)

Cost Improvement

	<u>Month</u>	<u>YTD</u>
Target	\$3,795	\$22,045
Actual	\$9,725	\$37,300

Comments

TSD Objective B-6 (a)

Monitor Mercury Usage by Radio-Active Inventories.

First Quarter inventory check was made April 2. Central Research to publish results as numbers are available.

TSD Objective B-6 (b)

Develop Program to Reduce Mercury Usage to 0.75 lbs. Hg/Ton Cl₂ by 2/1/68.

Material of construction for acid wash tank changed from Atlac to PVC lined steel. Change was made to wash "butter" with Nitric Acid instead of Muriatic Acid.

TSD Objective B-6 (c)

Assist in Demonstration of Brine Dechlorination by 4/1/68.

Vendor delivery of steam jet nozzle has undergone third date change. Delivery now promised for 5/10/68. Revisions to system to be installed immediately after delivery of nozzle.

Job No. 802 - Brine Treatment - (Savings - \$3,500 B.T.)

\$3,500/Yr. Mercury savings will be realized by installation of a larger Brine Carbonation System. Project 2854, \$10,500 NFC, was submitted for approval in late April. This project will provide for increased CO₂ treatment of Brine, resulting in reduced Mercury Butter formation.

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

Inorganic Division's portion of project (Estimate No. 2496-Rev. #1) still unapproved. Estimate was submitted 2/12/68.

Job No. 783 - KCl Overflow - (Savings - \$0)

Project 2650 for \$4,100 capital will be cancelled. Revision No. 1 has been prepared and forwarded to typing 4/23.

Job No. 826 - Power Losses - (Savings \$3,000 est.)

Attempts were made to meter current "in" and "out" of cell house to determine possible current losses to ground, but Halmar Ammeter failed. Meter to be repaired and test resumed in June.

Job No. 806 - Mercury Still - (Savings - \$10,000 est.)

Test drums of Sludge from the Brine and the floor ditches have been sent to Interstate Concentrating Company of Kearny, New Jersey, for processing to recover Mercury. Results of this test will be used to decide whether or not to sign contract with processor for recovering waste Mercury test. Results will be reported in mid-June.

Job No. 807 - Mercury Recovery From Waste Water - (Savings - \$10,000 est.)

Pilot test underway to determine efficiency of recovering Mercury from Mercury salts in a 5 ppm Hg waste water stream. Waste water, comprised of end box and pump tank overflows, is passed up through a column packed with iron (or zinc). Iron (or zinc) replaces the Mercury in the salt leaving an amalgam of pure Mercury with the iron (or zinc) remaining in the column. The first phase of test program is complete. First phase results will show feasibility and optimum location of the following variables: contact time-flow of Mercury (based on concentration) per unit of packing weight; and the pH range. Second phase of test will be designed to set precisely the pH and contact time. Second phase to be completed by 6/1.

TSD Objective A-18 Design A Program and Timetable to Reduce Mercury Level in Cell House to 0.05 mg Hg/m³ of Air.

Weighted Mercury average for April was .07 mg Hg/m³ of air.

HCl - K. J. Buturla, (V. R. Haupt)

Cost Improvement

	Month	YTD
Target	300	300
Actual	400	400

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

Review drawings for project to install HCl recycle line and increase absorber efficiency until completed. Transmittal of design package scheduled for mid-May.

TSD Objective B-10 (b) Assist in Demonstration of Filter Pump Project by 4/1/68.

Pump installed before deadline. Vapor-

HCl - continued

locking problem eliminated with slight piping modification. TSD will continue to monitor pump downtime.

TSD Objective B-10 (c) Submit AFE for Staley Grade Acid - By 5/15/68.

Based on additional studies and lab results coke scrubber has been re-evaluated. Revised target date for AFE is 5/15/68.

Job No. 497 - Muriatic Acid Storage

Revised drawings completed. Transmittal of design package pending results of Safety Review.

NIRAN - K. G. Hale, (D. C. Malm)

Cost Improvement

	<u>Month</u>	<u>YTD</u>	<u>Comments</u>
Target	\$15,265	\$40,165	Target not achieved because Parathion Recovery Unit not in operation. (Installation 1 1/2 months late).
Actual	\$12,620	\$50,400	

TSD Objective B-5 (a) Demonstrate Parathion Recovery By 5/1/68 (\$70,000/yr. Savings + A 10 - 15% Reduction in COD Loading).

Completion of installation now expected in mid-May. Start-up will begin as soon as installation is complete.

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

Optimization of Methyl PCT yields is in progress. Phase #2 (Optimization of Nitrogen Sparging) targeted to begin 4/29/68. High Sparging at 20 cfm for last 1600 # Cl₂ has been in progress since 3/25/68 with no Residue handling problems.

Phase #3 (Increase Chlorination Level) is targeted to begin in mid-May. \$9,500 yield savings achieved in April.

TSD Objective B-5 (d) Evaluate Sulfur Recovery from Residue Process by 7/1/68 (\$400,000/yr. Savings + A 31% Reduction in SO₂ to Air).

Project Design complete. Final Safety

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and Design Review held 4/25/68. Foundation and equipment grounding drawings transmitted 4/2/68. Complete package will be transmitted to P & S on 5/1/68. Test operations will not begin in mid-June as scheduled because project construction will not be complete until late July. New target date to begin test operations is 8/1/68.

PR&D work continuing on Sulfur Clean-up Techniques. A PR&D Progress Report covering stability tests, liquid-solid separation, solvent wash and solvent recovery was published 4/24/68. Preliminary tests indicate sulfur residue from the Parathion Process can be pumped by a water wash, steam sparge and filtration procedure. After this purification, the sulfur can be recycled to P_2S_5 .

TSD Objective B-5 (e)

Demonstrate Reliability of Submerged Pump for R.E. Control of Chlorination.

Project installation completed 4/12/68. Test schedule set back to late May due to higher priority items.

TSD Objective B-5 (f)

Complete Design for Automatic Blending of Methyl Parathion by 4/1/68.

Schedule for AFE remains 6/1/68.

TSD Objective B-5 (g)

Evaluate Freon Recovery by 3/1/68.

Schedule for Evaluation remains 8/1/68.

Safety -

TSD Objective A-10

Thio Acid Reaction by Demonstrating Temperature Controlled Alcohol Addition

Progress Report with recommendation for a one month field test issued 4/30/68.

TSD Objective A-11

Reduce Personnel Exposure to NaPNP-Acetone-Bicarbonate Slurry by Eliminating Pluggage of Pump Suction Line.

Evaluate experimental slurry pump. New pump has performed satisfactorily, project to capitalize installation will be prepared in May. Production test demonstrated that new pump is not causing plug-up problems in condensation reactor.

New Developments

1. Evaluate formulation of Parathion Blends at Anniston (\$8,500 Savings + \$9,200 New Earnings in 1969)

Completion of minor items on project scheduled for 5/15/68. Factory representative suggested calibration check of meter with water to verify gear ratios are correct. Production schedule will determine when meter can be removed from line and checked. Design for production of Black Methyl has been halted pending decision of product board to go into production.

Piping revisions to debottleneck operations has been scheduled in drafting for 5/1/68.

2. A new Parathion formulation (4#/gal. Methyl) was successfully produced during April. All Parathion formulations are now based on these assay, not the AOAC apparent assay.

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

Cost Improvement

	Month	YTD
Target	\$14,000	\$34,000
Actual	0	9,700

Comments

Target based on producing 1.8 M lb./Mo. Debottlenecking project not demonstrated in Field.

TSD Objective B-9 (a)

Assist in Demonstration of 20 M lbs./yr. Rate

Progress Report on PNP rate study issued for typing 4/26/68. Major bottleneck exists during reactor letdown cycle. TSD will follow operations in the Field and develop recommendations to improve Reactor letdowns by 5/17/68. April production was 1.51M lbs., 0.3 M pounds below Parathion requirements.

TSD Objective B-9 (c)

EVOP Study of Reducing Molar Ratio of NaOH/PNCB - 6/1/68 Target.

Work will be postponed in this area until reactor letdown problems are solved and operation is stabilized. New Target date to begin EVOP study is 9/1/68.

P₂S₅ - K. G. Hale, (D. C. Malm)

Cost Improvements

	Month	YTD	Comments
Target	0	0	
Actual	0	0	

Safety

TSD Objective A-15 (a)

Provide Design to Reduce Fumes
in P₂S₅ Working Areas by 4/1/68
At Surge Tank Vent.

APE approved in March. Drafting
scheduled in May.

TSD Objective A-15 (b)

Provide Design to Reduce Fumes
in Pent House.

Complete. Will be dropped from
future reports.

TSD Objective A-17

Design A Reliable Back-up Reactor
Level Indicator By 10/1/68.

MRO completed connecting existing LIA
Instrument to the Sulfur Feed dip-
pipe purge. Instrument was re-
calibrated for the different dip-
pipe and is operating satisfactorily.
This too is now complete.

ENGINEERING DESIGN AND SERVICES

CED Liaison

CEA 1430 - Aroclor Expansion

Grading essentially complete. Storage tank foundations poured,
tanks to be set in May. Fabrication of tank farm piping started.
Study underway of problems expected in tying in tank farm while
maintaining uninterrupted shipping capability for all containers.

Details of critical flaking, packaging, drumming areas still being
negotiated. Preliminary flow sheets of these areas reviewed and
returned with comments.

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CEA 1452 - Warehouse

Plant Safety Review held 4/30. Recommendations will be implemented in May. Grading 95% complete with only finishing work required. Warehouse office construction started. Hourly parking lot addition paved and in use to allow rail spur to proceed through existing lot. Tie in of rail spur started by L&N Railroad on their main track.

Plant ImprovementLoading/Unloading Docks - C. R. McIlwain, (W. F. Taffee)

Completed evaluation and cost estimate of all loading/unloading facilities in Organic Division departments. Project for \$24,000 NFC, \$22,000 expense prepared covering cost to upgrade these facilities to Monsanto standards.

Project for docks in Inorganic Division departments will be completed in May.

Waste Heat Recovery - C. E. Woodward, (W. F. Taffee)

Progress report was distributed 4/1. A review meeting was held with H. Hileman covering startup and future plans on 4/25 & 26. Work to set process targets for the revised unit underway. Boiler related targets are being updated by John Buss and H. Hileman for review and incorporation in Phase III Scope.

Review drawings for revised unit completed by Engineering Services.

Additional testing was completed to firm operating data for the existing unit. An 11 factor linear regression analysis was run by A. W. Dickenson in an attempt to clarify process information. Results of this analysis will be reviewed in May.

Mechanical/Electrical/Instrument Design - J. C. Price, J. A. Veazey, G. C. Goodwin, R. L. Brewer, (W. F. Taffee)Summary

Major effort of this group was concentrated on the design and drafting for The Sulfur Recovery Pilot Plant and revisions to The Waste Heat Recovery Pilot Plant. Review drawings for Sulfur Recovery were issued on 4/19 and final drawings on 4/30. Review drawings for Waste Heat Recovery completed. Preliminary, final, and/or revised drawings were issued for the HCl Storage Tank, The HCl Recycle Line, #9 Chlorinator Sample Line, Shower Addition To Hourly Locker Room, and Chlorine Department Flow Sheets. AFE 2827 for three (3) P₂S₅ Safety Jobs was approved and design and drafting has been tentatively scheduled for July. AFE 2839, City Water Back Flow Preventer at HCl Drowning Jets, and AFE 2840, Install Platform and Ladder at Niran Foreman's Office, were

Mechanical/Electrical/Instrument Design - continued

forwarded for approval. Consulting and/or liaison and/or drafting services were provided for twelve (12) other jobs during the month.

Objectives

There has been no change in the status of Objectives this month except as reported below:

TSD Objective A-7 Plant Emergency Plan

The The required Portable Loudspeakers and Handlamps have been ordered, AFE's 2873, 2874, & 2875 To Install Emergency Lighting In The Main Office, Service Building and Building 28 were forwarded for approval. Additional tests on existing radio equipment are required. The AFE will be forwarded early in May.

POLLUTION CONTROL - E. G. Wright, (J. C. Landwehr)Summary

Contract with Biological Consulting Company completed and signed for Choccolocco Creek study in late May. No Air or Water Pollution complaints were received during April, and with the Niran department at record production the Waste Treatment plant successfully treated all wastes.

TSD Objective F-6 Continue Annual Program of Biological Survey of Choccolocco Creek.

Contract with Doctors Gunning and Suttkus (Biological Consultants) has been signed. Survey will be conducted in late May.

TSD Objective F-3 Establish a Monitoring System For Air Effluents From The Plant.

Gelman air samplers have been repaired. Ordered an Instrument shelter on 4/6/68. Will begin sampling at least one point as soon as Instrument Shelter arrives and power is provided.

TSD Job #808 - Install Solids Removal Equipment at Waste Treatment

Made arrangements with Maintenance to provide a tie-in on #3 sludge pump which will prevent a shutdown when the equipment is ready to install. Drafting on this project is scheduled for 7/5/68.

TSD Job #816 - Install Adequate Drainage At Soda Ash Slurry Tank

Drafting is scheduled for week of 5/27/68.

TSD Job #707 - Install Trebler Sampler On Marshall Flume

Project has been partially installed - waiting to start up until installation is complete.

Special Activities

1. Met with M. F. Weishaar (C.E.D.) and started sampling program on 36" storm sewer which has been repaired.
2. Compiled and communicated to P. Hodges (General Offices) the Pollution Control Expenditures at Anniston for the past 10 years.
3. Talked on "Waste Treatment" to U. S. Army Chemical School Class on 4/23/68.

PROCESS AND QUALITY CONTROL - W. B. Dunlap

Summary

The Right First Time Index for April was 98.0 with 14 lots rejected out of 690; 12 out of 567 from the Organic Division. The April Quality Score was 94.6, down 2.0 from March. A review of long-term trends in Aroclor 1242 revealed a two-month cycle in Thermal Chemical Chlorides during which the process produced for one week at the Division target of 0.1 ppm.

COMMUNITY RELATIONS-PERSONNEL RECRUITING AND DEVELOPMENT

1. E. G. Wright, G. W. Miller and J. C. Landwehr participated in a program and discussion on management of a chemical plant for thirty officers from the Advanced Chemical School, U. S. Army, Fort McClellan.
2. D. C. Malm made presentation to Ag Division General Manager and Staff on Cost Improvement Progress relating to Parathion production.
3. Jerry Veazey attended ISA Show at Huntsville, Alabama on April 30.
4. G. C. Goodwin of drafting returned to work after recuperation from a minor operation.

Visitors

H. J. Hileman reviewed status on Waste Heat Recovery project April 25 and 26.

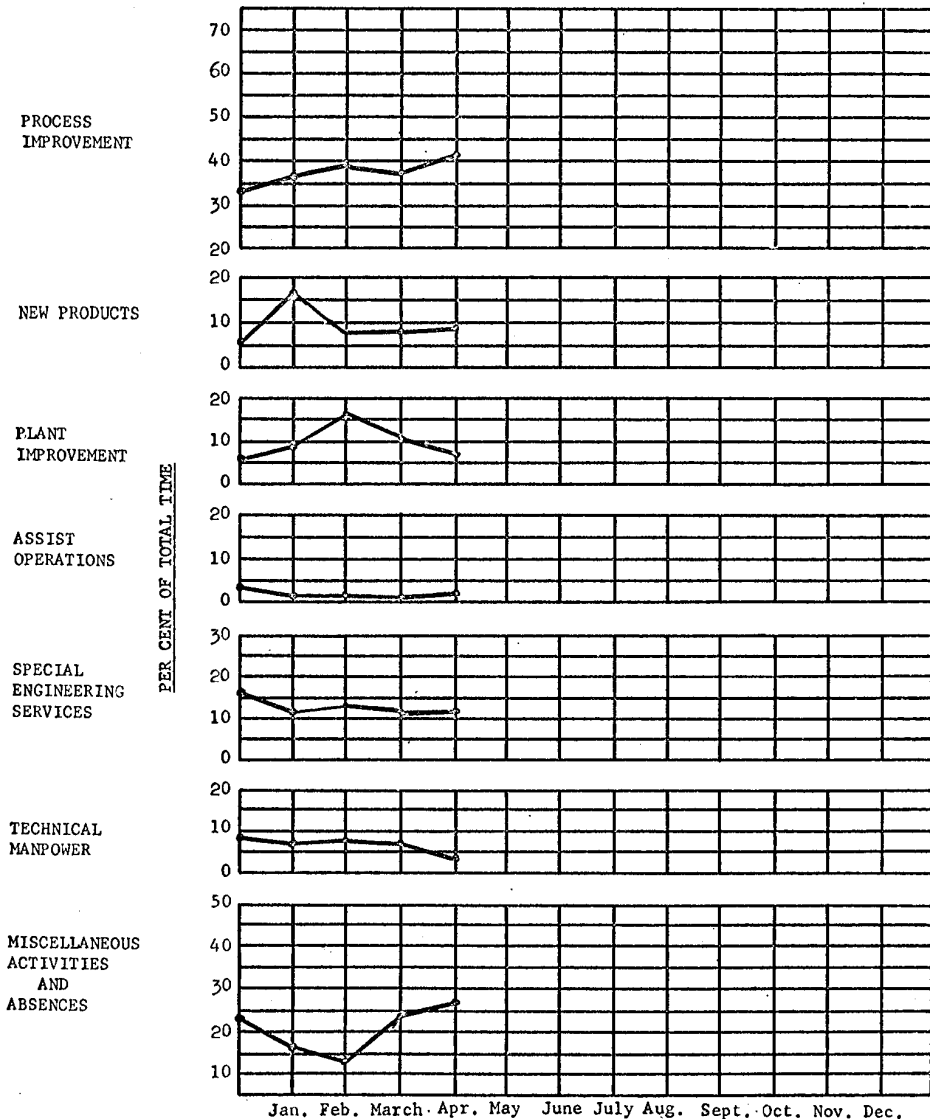
B. B. Hedleston, CED, visited April 30 - May 2 in connection with Warehouse Project, CEA-1452.

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DISTRIBUTION OF TIME BY TECHNICAL SERVICE

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

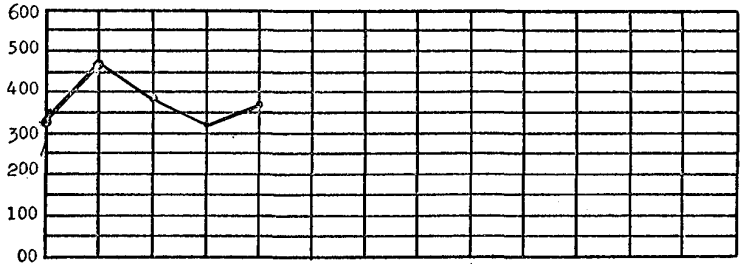


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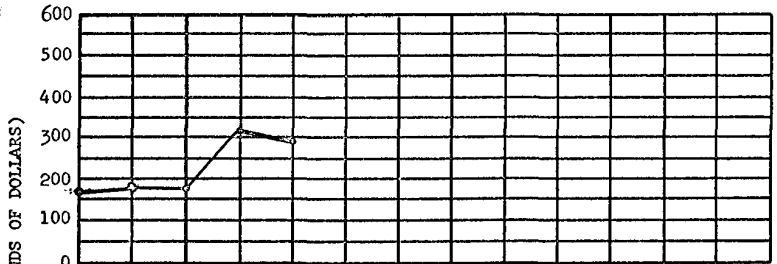
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TSD PROJECT SUMMARY

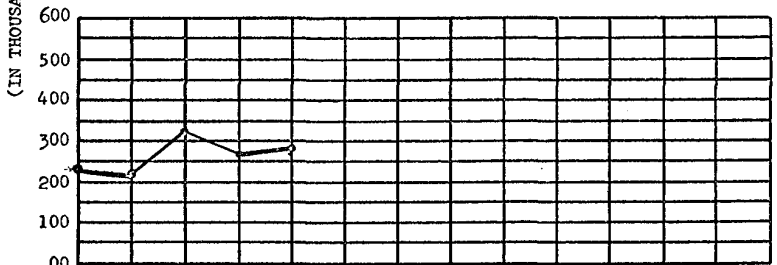
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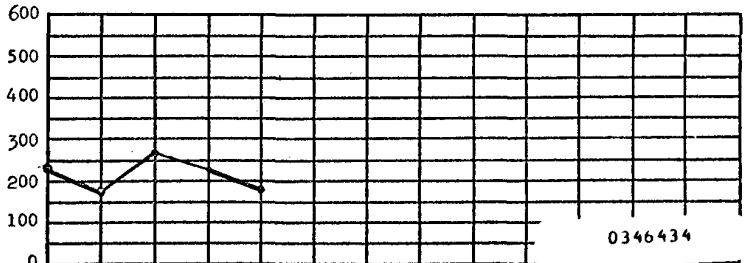
IN MAINTENANCE
COMPLETED
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PROJECTS
SUBMITTED
FOR
APPROVAL



APPROVED
PROJECTS
IN TSD



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