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

September 1967

Bauxite Column for Aroclor 1242 has now treated 479,000 gallons and continues to satisfactorily upgrade the product to meet our new, more stringent quality goals.

The annual capacity of Biphenyl Tubular Unit can be increased to 87.5 M pounds of Biphenyl per year by retubing the first unit to match the number 2 unit. Seventy-thousand dollars are required. The appropriation grade estimate and writeup will be prepared in October. Evaluation of alternate sources of benzene from two suppliers provided one lead which is being investigated further. Information on on flexibility of our present supplier is also being obtained.

The 150,000 gallon HCl Storage Tank project was transmitted to Planning and Scheduling. Bids have been solicited.

Evaluation of steel bottom cells for Chlorine department underway by CED/TSD. Anniston TSD portion to be completed by 10/20. Cell House Ventilation project continues to improve mercury level in house. Study of mercury loss during a shutdown indicates need for further work to define ways of reducing the $13,000 loss indicated on one scheduled shutdown.

Niran Still Residue tests continue with yield improvements being confirmed in plant. Appropriation request ($30,000) forwarded covering Parathion Recovery from wash water via membrane separator. Annual savings of $70,000 are expected in addition to major benefits of reducing load on waste treatment plant by 10%.

Plant Warehouse project being finalized at Division level based on information transmitted in August.

Construction of Waste Heat Recovery facility essentially complete one month ahead of schedule. Mechanical check-out has started. Training planned for week of 10/9.

L. C. Fuhrmeister

L. C. Fuhrmeister

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MEETINGS

Mr. R. J. Stratmeyer will visit the plant 10/4-5.

The next Engineering Planning Meeting is scheduled for 10/24.

Messrs. D. B. Hosmer and H. C. Carder will be at Anniston 10/17-18 to discuss the Chlorine Department.

DETAILS

AROCLOR J. MacPherson, C. R. McIlwain, E. E. Bowles

Job No. 456 - Fixed Bed Refining: (Quality)

To date 479,000 gallons of Aroclor 1242 have been treated in the fixed bed refining unit; the initial Bauxite charge continues active with no change in treatmentability.

Job 716 (AFE 2545 - $221,000 Debottleneck Liquid Aroclor Still System: net savings (B.T.).

Project 2545 proposes to debottleneck the liquid still capacities to 53 M lbs./yr. by the installation of new still receiver pumps and level instruments on the still receivers, blend tanks, and filtrate receivers. Capital required is $17,130. Project completion is expected on about October 16, 1967.

BIPHENYL-SANTOWAX L. L. Faulkner, J. M. Jones

Job 744: Upgrading of #1 Tubular Unit To Equal #2 Efficiency.

Plant review was held on the program to provide facilities for a 100 M per year Biphenyl Plant. Decision made to retube No. 1 furnace to be exactly like No. 2 furnace for an estimated $100,000 ($70,000 NFC). This will expand annual tube capacity to 87.5 M pounds Biphenyl. AFE for retubing will be forwarded by mid-October.

Quotes for #1 Preheaters received September 29, and the order will be placed in early October.

Job 763: Install Sojourn Pot on B Pass of #1 Tubular Unit

Verbal approval was received to order a Sojourn Pot. The project is in Maintenance Planning. No installation date has been established.

Job 769: Install 6" Gas Line To Tubular Area

Project was transmitted to Maintenance & Construction September 6. Bids have been requested. Work will be expedited to complete installation by cold weather.

Job 780: Alternate Benzene Supply

Alternate suppliers for Anniston Benzene are under study. Benzene from two suppliers was analyzed. One supplier has specification grade material and will be further evaluated. Samples were received September 29. Information on flexibility of present supplier (Enjay) also being obtained.

Job 790: Temporary Santowax Storage

With the capacity operation of the biphenyl tubular units, more Santowax will be produced than can be consumed in Solid Aroclor and HB-40.

In-Plant projects were approved for temporary storage of excess Santowax in the outside lake during periods when the storage tanks are full. Equipment was received and cleaning of pit for storage was submitted for quotes. Work should be complete in October.

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

Job #411: (Savings Undetermined) - Steel Bottom Cells

W. G. Kramper of CED visited plant to define responsibilities and objectives of steel bottom cell evaluation. Anniston's portion of evaluation to be complete by 10/20/67. CED Final Report to be issued 11/1/67.

Job #1000: (Savings Undetermined) - MIP

Background complete, work plan defined, rough draft to be issued by 10/6/67. Scope covers five year capacity projection and one year work plan for two Engineers.

Job #704 (Plant Improvement) - Cell Room Ventilation

Velometer tests in cell room indicate thorough air circulation. Cell house is now completely closed. Mercury concentrations continue to improve. Progress report to be issued by 10/5/67, indicating results and recommendations for further improvements.

Job #391: (Annual Savings - $18,000) - Single Stage Decomposers

Revision #1 forwarded to TPM September 9, 1967. Revision covers graphite conversions, wage increases and minor design changes effective since the project was initiated in November 1965. Total appropriation requested now is $28,500 expense compared to $15,940 in the initial project.

Job 46: (Savings Undefined) - Mercury Losses

A. Studies are in progress for reclaiming mercury from various cell house effluent streams.

B. Samples of brines taken during scheduled plant shutdown indicate mercury loss of $13,000 per shutdown. All data was taken on one cell and may not be indicative of the overall performance. Progress report with recommendations to be issued by 11/1/67.

C. Radioactive inventory of mercury postponed until December 1967, because Central Research has pulled off the job due to a higher priority job.

Job #491: (Savings to be Determined) - Debottleneck D. C. System

Study underway with Electrical Engineer to determine power loss in D. C. system. Progress Report will be issued upon completion - EDC 10/13/67.

Job #783: (Annual Saving - $40,000) - KCl Overflow

Design complete; AFE being prepared - EDC 10/2/67. Scope covers mechanical shutoff of dechlorinated brine and an alarm to alert operator.

Job #476: (Annual Savings - $4,000) - H_2SO_4 Heat Exchanger

Investigations indicate present carbon steel exchangers inadequate due to fouling on shell side. A new exchanger of Alloy 20 is recommended. The present schedule calls for the AFE to be completed by year end.

HCl

K. J. Buturla, L. L. Faulkner

Job #497: Muriatic Acid Storage

The design package for the 150,000 gallon HCl storage tank was transmitted to Planning & Scheduling on September 7. Project is now awaiting the return of bids. A safety review is scheduled for the week of October 9.

Job #746: HCl Efficiency Studies

Studies to improve recovery efficiency to 95% are continuing. The new butterfly valve has been received and is scheduled for installation in October. This valve should reduce unaccounted recovery losses. Sample valves were installed September 28. Field tests for the material balance studies will begin the first week of October.

Job #1000: HCl Long Range Plan

The HCl Manufacturing Improvement Plan was reviewed on September 22. Revisions are being incorporated and final plan will be issued the week of October 2. Reviewed plan shows revised Annual Savings of $90,000.

PNP K. J. Buturla, L. L. Faulkner, W. B. Dunlap

Job #450: Phase I - PNP Debottlenecking

Piping revision of the tempered water system was completed September 29. Installation of larger charge line and new pre-mix tank has been scheduled for Fall Niran Turn-around in mid-October.

A correlation study was coordinated between PNP, Parathion departments and the Laboratory to reveal possible causes of high parathion color. Strong associations were found with product of PNP department and with intermediate still operation. New surveillance was provided at key check points to detect future shifts.

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

Job #732: (Annual Savings - $44,000) - Condensation Batch Sequence

Progress Report has been issued detailing preliminary estimate, design, and justification. The project cost will be $168,000 resulting in a return on investment (A.T.) of 4.8% and a payout period of 3.9 years. TSD work has halted pending an evaluation by CED.

Job #600: Sulfur Recovery - (Annual Savings - $400,000 plus a 31% Reduction in SO_2 Load To Air)

Solvent addition to still residue tests continue. The Chlorine charge to the chlorinators was dropped by 50# in order to continue tests and stay in specs. on Cl_2 level and Crude Assay. Substantial yield improvements are evident despite the Chlorine drop - Progress Report will be issued to increase chlorination levels upon completion of lab chlorination and stability studies. A report will be issued summarizing lab work.

Job #712 Parathion Recovery - (Annual Savings - $70,000 plus A 10-15% Reduction in COD Loading)

Appropriation request issued for approval; NFC - $29,665, Expense - $970. A Progress Report detailing the pilot test results, saving and project costs has been issued. Planning for March 1968 on stream date.

Job #774: Full Use of Cooling Tower - (Annual Savings - $8,900)

Project package has been transmitted to Maintenance for Construction.

NIRAN: continued

Job #499: Condensation EVOP - (Annual Savings - $39,000 Plus A 3% Reduction in COD Loading)

The yield figures for September on PNP were 46.84 $\frac{\#PNP}{100\#\ Para}$ which represents a 0.57 #/100 # para improvement over last year. The PCT yield in September was 55.38 #PCT/100# para for a gain of 0.11 #/100#para. These figures represent a net saving of 15 cents/100# para over last year usage. ($3,750/month savings).

The EVOP Program will continue on Niran where yield savings of $7,000/mo. were demonstrated last February.

Job #777: Experimental Slurry Pump - (Safety)

Project has been transmitted to Maintenance for installation of an experimental slurry pump. Pump delivery is estimated at 60 days.

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

AFE 2576: Ejector For NaCl Elevator Pit

(Safety) estimated capital $1500. The Control System for the Eductor was revised during September. The Revised Design Package will be transmitted in October.

Job #397 Modifications To HCl Elevator
(Safety) Estimated Capital $18,000.

Rough draft of Progress Report was prepared. The Progress Report and Revised Estimate will be completed in October.

AFE #2046/2146: Improve Plant Lighting (Plant Improvement) Estimated Capital $1800

Completed design and transmitted design package for improved lighting along Fifth Street.

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

Aroclor

Fixed bed refining and grinder relocation.

Biphenyl-Santowax

Santowax storage in Montar Pit, and fail-safe valves on Biphenyl storage tanks.

Chlorine:

KCl overflow from Sparge Cars, NaCl Unloading, and Brine Dechlorination.

HCl:

150,000 Gallon Storage Tank.

Niran:

Condensation Step Batch Sequencing, Parathion Recovery, Fume Collection System.

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

Completed in September.

1.	Biphenyl	Santowax Line to Pit.
2.	Niran	Parathion Recovery.
3.	Niran	Slurry Pump.
4.	Aroclor	Grinder and Bagger.
5.	Aroclor	#3 Blend Tank to Fixed Bed.
6.	Plant	Safety Shelters.
7.	Plant	Lights on Fifth Street.
8.	Waste Heat	Flow Diagram.
9.	P R & D	In-line cell for Dielectric Measurement.
10.	P R & D	Steam Line to Lab.
11.	HCl	Filter Feed Pump

Scheduled for October

1.	Niran	Fume Collection System.
2.	Niran	Malathion Evaluation.
3.	Aroclor	Revise Cl_2 Railroad Spur.
4.	Aroclor	Drum Washing.
5.	Biphenyl	Re-design Preheat on #1 Unit.
6.	Biphenyl	Retube #1 Unit to be Like #2 Unit.
7.	Plant	Fire Alarm System.
8.	P_2S_5	Eliminate Fumes in Building.

LIAISON AND PLANT IMPROVEMENT — J. W. McGee, W. F. Taffee

CEA 1232 - Utilities

Several changes to be made to No. 8 boiler coincident with Fall Niran turnaround. Contracting of work planned with control exercised by Anniston.

CEA 1430 - Aroclor Expansion

Appointment as Manufacturing Representative made in September. Manufacturing cost standards prepared by V. R. Haupt and J. MacPherson, and forwarded to TPM. Additional backup information provided to Division for Anniston portion of Aroclor Expansion project write-up.

CEA 1452 - Warehouse

Project being written at Division level by Carl Sigler. Return now greater than 10%. Overall project cost being re-studied by CED. W. F. Taffee visited J. F. Queeny Plant 9/12 to discuss warehouse practices and Central Drumming operation.

Building 28

Work started 9/25 on Dispensary-hallway-office project. Dispensary and Safety Engineer temporarily housed in new salaried personnel locker room. Project for replacing worn out air conditioning unit (which must be moved to make room for Storeroom) submitted 9/27. New project includes heating to bring working conditions to accepted modern standard.

Fire Break

Progress Report, with recommendations, issued. Herbicide spraying started, to be completed in October. Dead vegetation removal problem remains. Target date for decision 11/1/67.

Dike Study

Survey and recommendations completed and Progress Report published in September. All dikes will hold 100% of tank contents.

Road Program

Traffic survey results published on schedule.

Railroad Survey

Report delayed. Publication rescheduled for November.

Long Range Utilities

Replacement of 36" storm sewer under study by CED. Present proposal is replacement with asphalt coated corrugated steel drain at cost of slightly under $200,000.

Long range electrical needs understudy by Aaron Williams to develop possible substation locations and sizes.

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

Project is approximately one month ahead of schedule with construction essentially complete at months end. Mechanical checkout underway. Preparation and training for start up accelerated to match early construction completion. Target for start is now 10/16.

Techniques for analytically determining Therminol losses not yet resolved. Necessary laboratory equipment received at months end. Lack of these techniques will not delay start-up but would require calculation of Therminol losses by material balance only.

ENGINEERING MANPOWER DISTRIBUTION

% Of Total TSD Time

Category	September	Year-to-date Through Sept.	August	Year-to-date Through August
1. Process Improvement	41.16	48.86	56.7	49.7
2. New Products	3.97	4.93	9.7	5.1
3. Plant Improvement	11.04	6.42	6.0	5.9
4. Assist Operations	1.34	2.79	3.9	3.0
5. Special Engineering Services	5.07	9.04	9.8	9.5
6. Technical Manpower	9.09	8.41	5.7	8.3
7. Miscellaneous	28.32	19.56	18.2	18.5

Remarks:

Category 1 reflects increase in Categories 3, 6 and 7. Technical Recruiting and housekeeping areas.

Category 2 reflects shift of Warehouse from evaluation to liaison phase.

QUALITY CONTROL AND STATISTICAL ASSISTANCE W. B. Dunlap

The Right First Time Index was 98.7, with 7 lots rejected out of 549; 6 out of 485 from the Organic Division. The September Quality Score was 93.6, down 2.6 from August.

PERSONNEL

1. H. C. Carder visited the Plant 9/13-14.

2. George Crook reviewed recruiting practices with plant personnel at Anniston.

3. W. F. Taffee reviewed warehousing and Central Drumming practices with J. F. Queeny personnel 9/12.

4. G. W. Miller attended the Management Fundamentals Course sponsored by Monsanto at St. Louis, 9/25-29.

5. W. F. Taffee attended the Comprehensive Interview Training Course in St. Louis, 9/18-22.

6. W. G. Kramper visited the plant 9/27-28, to discuss evaluation of steel bottom chlorine cells.

7. W. F. Taffee is participating in the instruction of the Auburn University Chemical Engineering Design Course under an Academic-Industry partnership approach for the fall quarter. This parallels a similar partnership described by Washington University-Monsanto CED at St. Louis, 9/15-16.

8. All TSD personnel attended a review of the new plant Disaster Plan held 9/21.

ADDITIONS	Starting Date
W. G. Niemeyer, Ch.E. - transferred from W.G.K.	9/18.
John Jones, Co-Op returning from Georgia Tech	9/18.

TERMINATIONS	REASON	DATE
J. W. McGee	Co-Op, returning to Auburn University	9/8/67
Clarence Angelette	Summer employe, returned to Instructors position at Jacksonville State University	9/8/67
E. E. Bowles	Summer Student, returning to Auburn	9/15/67
G. L. Moore	Co-Op, returning to Georgia Tech	9/15/67
Robinson Bradley	Summer employe, returning to Auburn	9/15/67
Fred Knickerbocker	Ch.E., resigned to pursue Medical Degree	9/15/67
John Liddle	Chemist; leave of absence to pursue M.S. in Chemistry at Georgia Tech	9/15/67

SAFETY

The September safety meeting for Technical Services was conducted by Ken Hale on "Horse play." The Safety graph "Does Your Accident Show? was also reviewed. The CHASE Committee Chairman reviewed their respective committee responsibilities.