

File Copy

To: R. T. Ferrell

From: J. W. Ware
Date: August 20, 1987

Subject: ABERDEEN MONTHLY PROGRESS REPORT
JULY, 1987

**Interoffice
Communication**

VISTA

There were four first aid cases and one medical treatment case recorded during the month of July. As of July 31, 1987, the plant had operated 2,948 days or 3,803,617 manhours without a lost time injury.

PVC resin production for July was 37.9MM pounds. Mechanical downtime in the reactor areas was due primarily to drilling 400 reactor condenser, changing the agitator seal on 743 and replacement of 300 condenser base gasket. Resin production year-to-date totaled 357.6MM pounds. The VCM efficiency for July was 0.99489 pounds of VCM per pound of PVC produced versus a 1.00208 standard. Year-to-date VCM efficiency is 1.00756.

Compound production for July was 4.8MM pounds. Line I and Line III operated twenty-four days and twenty-three days, respectively, during the month. Line V operated eleven days. All lines were down at the beginning of July to complete outages begun in June to control inventory. Year-to-date compound production was 69.5MM pounds. Quality performance for flexible compounds was 2.1% off-grade of which 100% was due to mill scrap. "BC" production was 1.1%.

Dry blend production was 5.2MM pounds for July and 46.2MM pounds fiscal year-to-date. Production was limited primarily by product changes. Quality performance for the month was 99.7% customer grade.

The plasticizer unit operated twenty-nine days in July to produce 1.9MM pounds. Year-to-date plasticizer production is 18.7MM pounds.

Work has begun on a plant quality manual and an outline was issued for review in July. This manual has been requested by many of our customers. The number of active involvement teams has increased to ten. One laboratory item worthy of note - SPC tracking activities have resulted in a 50% reduction in variability on the inherent viscosity test.

Total energy consumption for July was 112.511 MMM BTUs. The energy consumption per pound of product was 2263 BTUs, resulting in an adjusted CMA reduction of 56.5%. The adjusted CMA reduction for fiscal 1987 year-to-date is 54.7%.

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R. T. Ferrell
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The total plant variable cost variance for July was \$1161.2M unfavorable, resulting from an overall unfavorable price variance of \$1175.7M and a net favorable efficiency variance of \$14.5M. The total fixed cost variance for July was \$48.2M favorable.



J. W. Ware

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SAFETY - K. L. Fogg, J. V. Uptain

<u>Occupational Injuries</u>	<u>July</u>	<u>Fiscal Y.T.D. 1987</u>	<u>Fiscal Y.T.D 1986</u>
First Aid	4	12	13
OSHA Recordable	<u>1</u>	<u>7</u>	<u>7</u>
Total Injuries	5	19	20
Number of Restricted Workday Cases	0	2	3
Number of Lost Workday Cases	0	0	0

Injuries by Department

Vinyl Operations	2	4	5
Compound Operations	0	1	4
Maintenance	1	9	6
Laboratory	1	2	0
Receiving/Warehouse	0	2	1
Office	<u>1</u>	<u>1</u>	<u>4</u>
Totals	5	19	20

Injuries by Type

Cuts and Abrasions	3	10	5
Eye Injuries	1	3	3
Burns	1	2	4
Bruises	0	1	0
Strains/Sprains	0	3	4
Stings	0	0	1
Other	<u>0</u>	<u>0</u>	<u>3</u>
Totals	5	19	20

Non-Occupational Injuries

Lost Workday Cases	0	4	10
Days Lost	12	40	126

Safety Record

Last lost time injury 7/5/79
Days since - 2,948
Manhours since - 3,803,617

On July 5, 1987, the employees of the Aberdeen plant completed eight years with no lost time injury.

Topics for the plant safety meetings during the month included: Pulling Tool Safety, A Review of The BLS Standard, Revised Work Permit System Procedures, Emergency Response Procedures, Accident Investigation and Injury Reporting, and Maintenance Weekly Safety and Job Reviews.

Keith Fogg spoke to 300 members of the Mississippi Manufacturers Association on the subject of community awareness and emergency response.

SAFETY - Continued

A noise survey of the Aberdeen plant was completed in July.

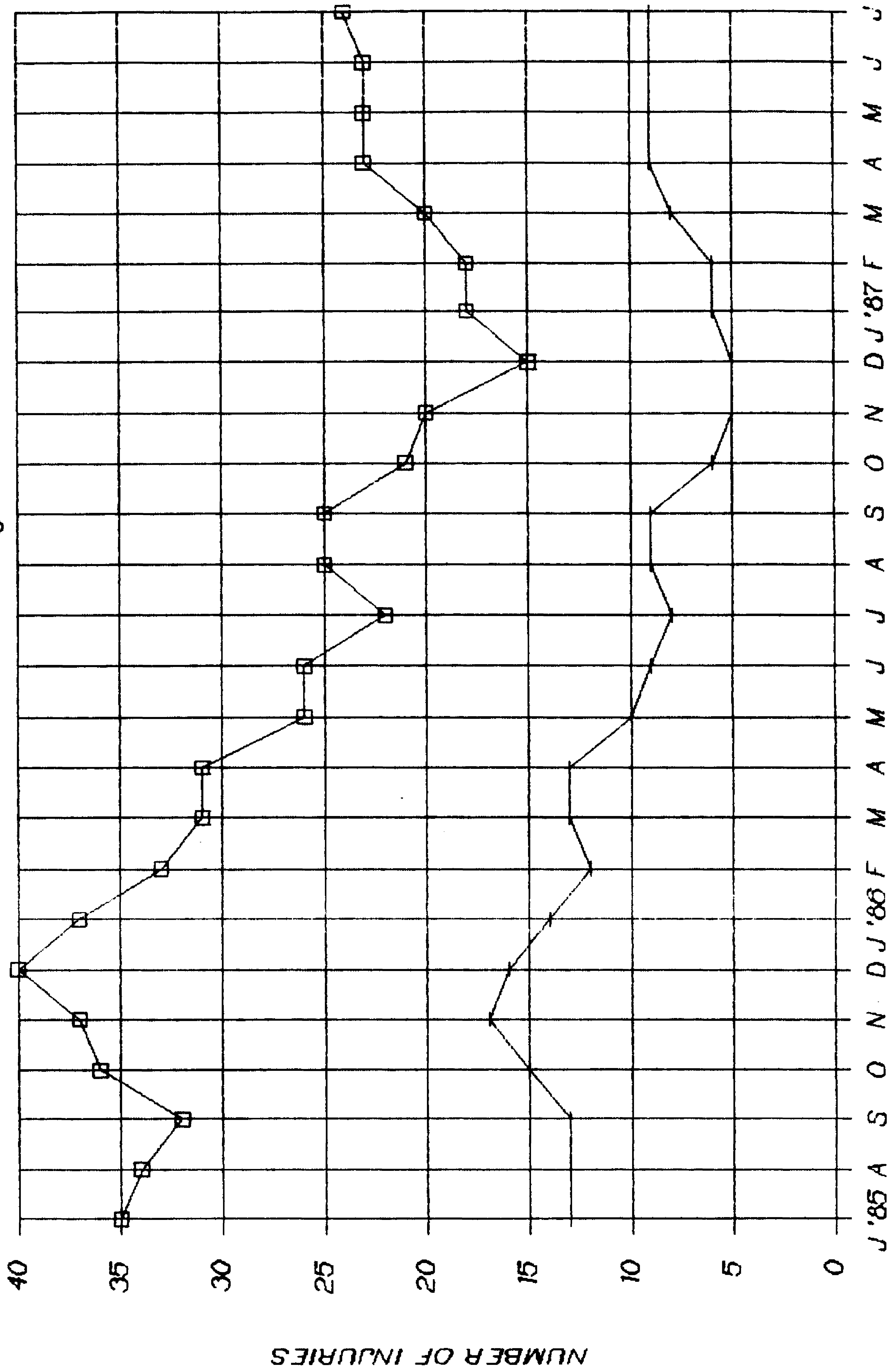
A meeting was held with the Mayor of Aberdeen to discuss the plant/community emergency response plans.

Routine dosimetry results for the month are as follows:

<u>Chemical</u>	<u><</u> <u>Number</u>	<u>PEL</u> <u>Percent</u>	<u>></u> <u>Number</u>	<u>PEL</u> <u>Percent</u>
VCM	77	100.0	0	0.0
Lead	12	100.0	0	0.0
Total Particulates	6	100.0	0	0.0

ABERDEEN CHEMICAL PLANT INJURIES

(Twelve Month Running Totals)



□ TOTAL INJURIES + OSHA RECORDABLE

□ TOTAL INJURIES

QUALITY IMPROVEMENT PROCESS - R. B. Newton

An outline for the plant quality manual was issued for review. The review issue of the manual is scheduled for completion in October. This project has been requested by many of our customers.

A quality audit was conducted by Prestolite during their recent customer visit.

In the laboratory, work continues to improve the precision of the inherent viscosity test. During the month of July, the variability in this test was reduced by 50%. To put this in perspective, the test variability would be equal to 43% of the Hoechst Celanese specification instead of the current value of 87%.

A summary of the team activity is as follows:

Railcar Team - Yard operators have identified possible revenues of \$50,000 per year by reclaiming resin cleaned from railcars. They are now determining what modifications will be required to the existing systems.

Warehouse Team - Warehouse employees have developed several ways to reduce transportation costs between the plant and the Prairie warehouse. Several of the suggestions are already being implemented. Possible savings are \$70,000 per year.

Valve Team - This team is making changes to the valve spare parts inventory based on data they collected. They expect a reduction in reactor downtime for valve maintenance of 50% which translates into about \$40,000 per year.

Material Handling Team - Warehouse employees are looking for more efficient ways to handle special products. They have identified savings of approximately \$15-20,000 per year and are currently developing those ideas.

Safety Recognition Teams - In July, Aberdeen completed eight years without a lost time accident. A team of employees was formed to plan a recognition activity and another team was chosen to decide on an award.

Product Change Team - A team of compound employees is working on ways to improve the process of cleaning compound lines for product changes.

Work Order Team - Revisions were made to improve the work order system and training was provided to the vinyl department. Efforts by this team are continuing.

Bulk Hopper Truck Team - This team is made up of plant Yard and Laboratory personnel and Transportation personnel. They are trying to resolve difficulties currently experienced with scheduling, cleaning and maintenance of hopper trailers.

QUALITY IMPROVEMENT PROCESS - Continued

Air Freight Team - A team of Administrative Services personnel is looking at ways to reduce air freight costs.

Copier Team - Another team of Administrative Services personnel is working on optimizing the number and type of copiers at the plant to reduce costs.

VINYL - P. J. Kober, J. M. EdwardsSafety

The Vinyl and Yard Departments had one injury during the month of July. A Dryer Operator pinched the ends of two fingers while cleaning a centrifuge.

Shift safety meeting topics for the month were Injury Classifications and The Work Order System.

<u>Production</u>	<u>June</u>	<u>Y.T.D.(Fiscal 87)</u>
1. Production, MM Lbs.	37.9	357.6
2. Daily Production Rate, M Lbs./C.D.	1223	1176
3. Total Charges	896	8933
4. Charges, Reactor Batches/C.D.	28.9	29.4
5. Reactor Stream Factor	90.4	90.8
6. Dryer Rate, Average Lbs./Hr.	9585	9877
7. Dryer Stream Factor	66.5	62.5
8. Accounting Days	31	304

Vinyl Department production for July was 37.9MM pounds.

Reactors

The reactor stream factor for July was 90.4%. Downtime in the reactor area occurred as follows:

- 1) Operational Downtime: Accounted for 65.1% of the total downtime and was due to reactor recovery scheduling conflicts, downtime due to rinsing the chem wash tank, waiting on particle size information before charging, lines plugging, reactor manway O-ring failures, power failures and bad weather.
- 2) Maintenance Service Downtime: Accounted for no downtime because the cleaning of the reactor AMS injection ports and inert vent lines was accomplished while the reactors were normally down for other reasons.
- 3) Maintenance Repair/Revision Downtime: Accounted for 34.9% of the total downtime and was due to drilling D-400 reactor condenser, changing the agitator seal on 743, replacing miscellaneous reactor valves, 745 reactor agitator amperage indication calibration, changing D-300 condenser base gasket and replacing D-400 condenser rinse nozzle.

Dryers

The dryer stream factor for July was 66.5%. Downtime in the dryer area occurred as follows:

- 1) Reactor Limited Production: Accounted for 90.4% of the total downtime. Dryers were shut down when possible for energy conservation.

VINYL - ContinuedDryers - Continued

- 2) Operational Downtime: Accounted for 7.5% of the total downtime and was due to centrifuge plugging, burner flameouts, dryer cleaning and transfer activator problems.
- 3) Maintenance Repair/Revision Downtime: Accounted for 2.1% of the total downtime and was due to repairs to #6 dryer drive, changing the socks in #6 dust collector, repairs to #7 dryer air sweep, repairs to #8 explosion door and replacement of #4 dryer star valve.

Product Quality Summary

<u>Resin Type</u>	<u>Prime</u>	<u>"B"</u>	<u>"H"</u>	<u>% of Total Production</u>
5265	1,063,787	-	-	2.8
5305	3,715,430	-	-	9.8
5385	19,909,759	-	-	52.5
5415	11,854,743	-	-	31.3
5425	-	-	-	0.0
5465	-	-	-	0.0
Debox	-	1,263,760	-	3.3
Off-Grade	-	-	-	0.0
Sifter Overflow	-	-	38,800	0.1
Pond Resin	-	-	80,100	0.2
Total	36,543,719	1,263,760	118,900	100.0

Quality performance for July was 99.7% customer grade with 0.3% "H" grade production.

A total of four railcars were shipped as "B" grade during the month which represented 2.8% of the 145 total resin hopper cars shipped.

<u>Load Date</u>	<u>Ship Date</u>	<u>Car No.</u>	<u>Customer</u>	<u>Product</u>	<u>Reason</u>
07/07/87	07/15/87	PLWX 44729	Custom Vinyl, TX	Debox	Quality
07/16/87	07/24/87	PTLX 41592	Silverline, NC	Debox	Quality
06/26/87	07/29/87	PLCX 43729	Vulcan Plast., AL	Debox	Quality
07/19/87	07/31/87	VIPX 45284	Custom Vinyls, TX	Debox	Quality

Monthly Variable Cost Performance

Variable costs for the month were unfavorable at \$1129M resulting from an overall unfavorable price variance of \$1180M and a favorable efficiency variance of \$51.3M. Resin variable cost for the month was 21.209 cents/lb. versus the budgeted 18.119 cents/lb.

The \$1180M unfavorable price variance was primarily attributed to higher than budgeted pricing for VCM, \$1226M, offset by favorable freight pricing of \$16.6M, a favorable natural gas pricing of \$20.0M, and a favorable electricity pricing of \$15.3M.

VINYL - ContinuedMonthly Variable Cost Performance - continued

The \$51.3M favorable efficiency variance can be attributed mainly to the favorable efficiency variance due to VCM, \$40.8M; and water, \$10.3M.

VCM efficiency for the month was 0.99489 lbs. VCM/lb. PVC versus the budgeted 1.00208 lbs. VCM/lb. PVC.

YTD variable cost efficiency variances in the Vinyl Department totaled \$453.6M unfavorable.

Energy Performance/Progress

1. Plant energy performance for July was 2263 BTU/lb.

General

1. Resin raw material in the 0744 account totaled \$323.7M.

COMPOUND - C. W. Turner, J. E. Nickerson

<u>Compound Production</u>	<u>Operating Days</u>	<u>Production (M Pounds)</u>		
		<u>Month</u>	<u>Average Operating Day Rate</u>	<u>Fiscal Y.T.D.</u>
Line I	24	1745	73	23377
Line V	11	459	42	7980
Line III	23	2596	113	38191
Total		4800		69548

Line I operated twenty-four days in July at an average rate of 73M pounds per day. Major items affecting production efficiency were: product changes, 96 hours; quality problems, 9 hours; housekeeping, 9 hours; dicing system problems and maintenance, 8 hours; and power outages, 4 hours. Line I was down for seven days for inventory control.

Line V operated eleven days in July at an average rate of 42M pounds per day. Major items affecting production efficiency were: product changes and startup time, 39 hours; pelletizer problems and maintenance, 15 hours; quality problems and rework time, 16 hours; power outages, 5 hours; twin screw maintenance, 4 hours; and filler system problems and maintenance, 3 hours. Line V was down 4½ normally scheduled days for inventory control.

Line III operated twenty-three days in July at an average rate of 113M pounds per day. Major items affecting production were: product changes, 68 hours; mill and hydrotherm system maintenance, 28 hours; power outages, 6 hours; auto bagger problems and maintenance, 5 hours; and dicing system maintenance, 4 hours. Line III was down eight days for inventory control.

During the inventory control shutdown, several turnaround maintenance jobs were completed including an O-ring change on the Line III mill and remounting of the plant dust collection system blower.

Quality performance for flexible compounds was 2.1% off-grade of which 100% was due to mill scrap. "BC" production was 1.1%.

The raw material requirement for flexible compounds was 1.00445 pounds of raw material per pound of compound versus a 1.01088 standard (YTD is 1.00953).

The variable cost variance for compound was \$89.6M unfavorable with \$27.5M unfavorable due to price and \$62.1M unfavorable due to efficiency. The efficiency variance due to product mix was \$39.6M unfavorable. There were no major compound raw material efficiency variances.

Total compound inventory fell .2MM pounds in July to 7.9MM pounds. The Business Area is seeking additional compound inventory reduction. Additional production curtailment is scheduled next month.

COMPOUND - Continued

<u>Dry Blend</u>	<u>Month</u>	<u>Average Operating-Day Rate</u>	<u>Fiscal Y.T.D.</u>
Production, M Pounds	5212	168	46213
Operating Days	31	-	305

Dry blend operated thirty-one days in July at an average rate of 168M pounds per day. Production included 80172C, 80273G, 90172D, RP-421, RP-203, 186-139, RP-440, RP-203 BGE 322, 269-69, 269-66, 180-31, 269-185, 269-151, 269-192, 269-164, 269-165 and A10-006.

Dry Blend production was hindered by: product changes, 77 hours; delays associated with quality and lab problems and normal Q.C., 28 hours; Welex maintenance, 21 hours; transfer system problems, 14 hours; maintenance to Welex charge valves, 13 hours; TiO_2 system problems and maintenance, 6 hours; and power failures, 4 hours.

Quality performance for the month of July was 99.7% customer grade.

The raw material requirement for dry blend was .99649 pounds of raw material per pound of dry blend versus a standard of 1.00460 (YTD is 1.00836). The unusually low raw material requirement is due to the variances discussed below.

The variable cost variance for dry blend was \$24.0M favorable with \$21.5M favorable due to price and \$2.5M favorable due to efficiency. The efficiency variance due to product mix was \$47.3M unfavorable. The efficiency variance for powdered co-polymers was \$12.6M favorable bringing the cumulative variance for this product to \$13.5M unfavorable. The efficiency variance for TiO_2 was \$24.5M favorable primarily due to correction of past inventory errors which results from the technical difficulties in measuring TiO_2 inventories.

<u>Plasticizer</u>	<u>Month</u>	<u>Average Operating-Day Rate</u>	<u>Fiscal Y.T.D.</u>
Production, M Pounds	1853	64	18721
Operating Days	29	-	302

Plasticizer operated twenty-nine days in July at an average rate of 64M pounds per day. Production included 610P and 108P.

VRP production totaled 23.3M pounds (14.4%).

The raw material requirement for plasticizer was 1.02759 pounds of raw materials per pound of plasticizer versus a 1.10112 standard (Y.T.D. is 1.10041).

The variable cost variance for plasticizer was \$33.5M favorable with \$10.6M favorable due to price and \$22.9M favorable due to efficiency. There were no major plasticizer raw material efficiency variances.

COMPOUND - Continued

Plasticizer Production - continued

The efficiency variance due to product mix was \$.9M favorable.

Quality Improvement

The product-change involvement team has met several times. The first recommendation from the team was for better lighting. Portable lights for use in cleaning and inspecting blenders have been ordered. Second-round SPC training for all operators with focus on involvement teams is scheduled for next month.

Energy

	Usage (BTU/Lb.)	
	<u>Actual</u>	<u>Standard</u>
Compound	2615.3	1783.0
Dry Blend	682.7	730.0
Plasticizer	1729.7	1833.5

MECHANICAL DEPARTMENT - T. F. Lyon

MAINTENANCE - D. A. Miller, G. A. Morgan

Safety

There was one first aid injury to a Maintenance Department employee during July. An electrician received a contusion on a finger when an air lock drive motor shifted while being removed from beneath a dry blend cooling blender.

Vinyl

Three reactor seal changes were made during the month. The 742 seal was changed once and the 743 seal was changed twice. An investigation into premature seal failures in reactor 743 will begin in August.

The 300 reactor condenser base gasket was replaced during the month.

The 400 and 600 condensers were drilled and brushed.

The spare recovery system compressor was rebuilt and installed in the new unit. An inspection of the compressor removed from the new unit revealed irreparable damage due to erosion. Capital funds will be requested to replace the compressor.

A spare recovery system vacuum pump was overhauled.

The annual VCM leak survey was completed.

The fan was replaced and gearbox overhauled for the west cell of #2 cooling tower.

The rinse and chem wash pipe manifold was replaced in the old module due to external corrosion. An inspection of all chem wash piping in the old unit was conducted by GED late in the month. Several sections of piping will require replacement in the near future.

Nine major reactor valves were changed during the month.

The following mechanical seals were changed during July:

- 905 compressor outboard seal
- Old unit KO pot recycle pump
- West old unit hot water charge pump

The insulation on the top head of the new unit hot water charge tank was repaired.

The spare #6 and #7 dryer exhausters were overhauled.

MECHANICAL DEPARTMENT - Continued

Instrumentation and Electrical

The bearings in the old module north chem wash pump motor were replaced.

The pH transmitter in the old module recovery system was replaced.

The #8 dryer Sweco drive motor was replaced due to bearing failure.

The old module dump system camera was replaced.

The agitator seal-lip seal water flow meters were replaced for reactors 743 and 744.

Control room wiring began for the following projects which will be completed during the old module turnaround in August:

- Chem wash automation
- Old unit manual mode
- Remote operated valves

A new cascaded temperature control scheme was installed and started up for D745 reactor.

Three separate power outages were experienced on July 30 and 31. All outages were caused by equipment problems at a TVA substation in West Point, MS. The first two outages were caused by failure of current transformers and the third was caused by load shedding. The load shedding was required because some circuits were off line for repairs. All current transformers of the type which failed have been removed from service at the West Point substation and TVA is revamping related systems to prevent a recurrence.

Compound, Dry Blend and Plasticizer

The Line III fines and streamers system cyclone was repaired.

The Line III mill front roll rotary union was replaced due to leakage.

The west Line III water trough pump was overhauled.

A new coil was installed in the Line III pellet blower aftercooler.

The zone 1 hydrotherm pump was changed twice.

A new style gate valve was installed on the Line V resin scale discharge chute.

The plasticizer reactor overhead condenser piping was overhauled to allow for chemically cleaning without a unit shutdown. The water side of R-3 and R-4 condensers was then cleaned in an effort to reduce alcohol carryover to the process sewer. Four leaking tubes were plugged in R-2 overhead condenser.

MECHANICAL DEPARTMENT - ContinuedCompound, Dry Blend and Plasticizer - continued

The middle compound cooling tower pump motor bearings were replaced.

The Line V zone 1 temperature indicating controller was replaced.

Utilities

A test to determine the effects of neutralizing amine addition on the fluid bed dryer hot water quality was conducted. The existing caustic injection system does not adequately control pH. Preliminary results are encouraging.

The boiler water pre-treatment softener manifold was replaced.

The west pond #5 aerator was replaced with a spare due to gearbox damage.

The refrigeration compressor was replaced on the Frick refrigeration system.

Two sets of hubs and railwheels were replaced on the trackmobile.

A power pole near the boilerhouse was replaced due to lightning damage.

Cleanup of a small leak from a PCB contaminated transformer in substation seven was completed. Permanent leak repairs will be made during the old module shutdown in August.

MECHANICAL ENGINEERING - R. E. PolkAFE F537 - Dry Blend Transfer Lines

Installation is 10% complete and in progress. Completion is scheduled for 11/1.

AFE F786 - Resin Quality Improvement

Design at Litwin is 28% complete and in progress. All major equipment has been requisitioned except the exhaust hood blower. Inline instrument procurement is to be completed by 8/17.

AFE D756 - Reactor Expansion Joints

Installation of joints on reactors D742, D743 and D744 has been completed. Joints for reactors D700 and D745 will be installed during their respective module outages in August and September.

AFE A567 - Rotary Dryer Duct Upgrade Phase II

Design is complete and the ductwork placed on order. Delivery is scheduled for 9/15. Installation is planned for completion by 11/15.

AFE F587 - Laboratory Addition

All major equipment except the hot oil heater has been placed on order. The engineering contract has been awarded and a field trip scheduled for the week of 8/24. Design is scheduled for completion by 11/1. Construction is planned for completion by 1/1.

AFE F537 - Dry Blend Boxing Hopper Binsert

Approval drawings from J&J have been reviewed and approved. Fabrication is in progress and scheduled for completion by 8/15. Installation is planned for completion in September depending on equipment availability.

AFE A657 - Roof Upgrade Phase II

Mechanical pre-work is 90% complete and in progress. The roofing contractor will move into the field the week of 8/17. Completion is planned for 11/1.

AFE - F596 - Chem Wash Automation

Design for the new module is complete. Installation is in progress in the old module and planned for completion by 8/24. Installation in the new module will be coordinated with the turnaround in September.

Construction - C. A. Clark

A total of two construction contracts, ten general service contracts and twenty-eight register tickets were issued during the month of July.

PROCESS ENGINEERING - V. E. Messick

Resin Quality Improvement Project

A. Rigid Resin Permanent Facilities - Phase I and II

Startup and commissioning of the systems was completed. Several 5305 batches were produced in D700 reactor. Some safety and mechanical punchlist items remain.

B. Resin Permanent Facilities - Phase III and IV

Equipment and instrument inquiries continue to be reviewed. A field trip was made by Litwin to determine elevations and underground piping locations for structural design. Location of tie-ins to be made during reactor module outages were identified. Several reviews of the dryer design work were held during the month. Training material for new Modicon programming was prepared for operator training classes. Review of control panel layouts for the suspending agent make-up building and main control room was completed.

Distributed Control System

The project scope was issued for full distributed control of the vinyl area. The project was reviewed on July 28 with input from GED, PED, R&D and the plant. Minor questions remain to be answered and the definitive estimate is being prepared.

Rigid Calendering Resin Team Activities

A meeting on July 7 finalized the 5305 recipe for Hoechst and Klockner trials. PED, R&D, Marketing, Business Area, and the plant participated in this meeting. The trial resin was produced later in the month and shipped to Hoechst and Klockner.

Environmental Audit

F. G. Jeanson participated in the Lake Charles VCM Plant environmental audit.

Water Management Project

Work associated with the project to identify alternative water sources and to define water conservations/recycle items included:

1. Issuing project schedule to PED, R&D and the plant for review.
2. Issuing hydrologist scope of work to PED, R&D and the plant for review.

Atmer Testing of 5415

A test run was conducted during the month on 5415 with Atmer as an antistatic agent. Electrical properties were equivalent to those achieved with dry calcium stearate. Bulk density levels were lower than those experienced during normal production. A test report was issued. Samples were sent to Ponca City for analysis.

PROCESS ENGINEERING - Continued

Southwire IR Problem

Process Engineering participated in discussions and test runs associated with quality problems at Southwire's compounding facilities. Test runs included production of resin with an alternative antistat that enhances electrical properties.

Compound Fusion Team Activity

Activity of the compound fusion team during the month included:

1. Precision testing of the fusion delay test was completed during the month for 38401 and 36451. The test has good precision and was able to distinguish between a series of stock temperatures for each compound.
2. Testing to determine how to affect residence time in the Banbury on Line I was completed during the month. Although cooling water on the Banbury housing, gate and rotors was successful in increasing residence time, operational problems will not allow this method to be used. As a result, residence time will not be a variable in the experimental design.

Plans are to reformulate the design with the knowledge gained through fusion delay testing and residence time experiments, and submit to Operations for scheduling on Line I.

PERSONNEL - R. A. Miller

EMPLOYMENT

Norma R. Springfield, New Hire

PROMOTIONS/TRANSFERS

Paul Kober, from Operations Superintendent-Compound to Operations Superintendent-Vinyl

Chris Turner, from Operations Supervisor-Vinyl to Operations Superintendent-Compound

Dave Hollis, from Operations Superintendent-Vinyl to Director of Plant Quality Development

Theresa A. Beaty, from Steno Clerk-receptionist to Steno Clerk-Maintenance

Rubin Gates, from Yard "B" Operator to Yard "A" Operator

Daniel Loftin, from Lab Trainee to Lab "A" Technician

RETIREMENTS

None

TERMINATIONS

Brenda E. Bowen, employee resigned

Paul Riesenber, employee resigned

TO/FROM LEAVE OF ABSENCE

None

Aberdeen, Mississippi

JULY, 1987
MONTHLY PERSONNEL REPORT

Salaried Employees 76*
Hourly Employees 170
Total Employees 246
Employees (Hourly)
New Employees 0
Terminations 0

Minority Employees # %
Salaried 8 10%
Hourly 66 39%
Total 74 30%

Hourly Min. Hired 0
% Min. Hired 0
Hourly Min. Term. 0
% Min. Term. 0

DEPARTMENTS	PAR	# EMPLOYEES	MIN. EMP.	% MIN.	NEW HIRES	YTD	TERM.	YTD	TURNOVER	YTD
Warehouse	<u>14</u>	<u>16</u>	<u>7</u>	<u>44</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Gen. Plant	<u>16</u>	<u>15</u>	<u>7</u>	<u>47</u>	<u>0</u>	<u>9</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Maintenance	<u>39</u>	<u>38</u>	<u>8</u>	<u>21</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
boratory	<u>22</u>	<u>24</u>	<u>5</u>	<u>21</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Compound	<u>33</u>	<u>40</u>	<u>28</u>	<u>70</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Vinyl	<u>32</u>	<u>32</u>	<u>9</u>	<u>28</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Plasticizer	<u>4</u>	<u>5</u>	<u>2</u>	<u>40</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

Number of Applicants:

Month 0 Year to Date 23

APPLICANT BREAKDOWN:

Minority 0 % Minority 0
Female 0 % Female 0

Hires (Hourly) :

Month 0 Year to Date 9

Terminations (Hourly) :

Month 0 Year to Date 2

Overall Turnover 0

Projected Annual Turnover 2.0%

* Includes 1 temporary employee, one Co-op Engineer and 2 summer Engineers.

OVERTIME AND ABSENTEEISM

Department	Straight Time Hours Worked	Overtime Hours Worked		Overtime as a % Of Straight Time	Absence Hours Lost	Absence as a % of Straight Time	
		Controllable(1)	Non-Controllable(2)			Sickness	Other
WAREHOUSE	2849.75	278.50	36.00	11.04	50	1.68	.07
MAINTENANCE	5489.25	531.75	8.00	9.83	45	.00	.82
LAB	4164.50	389.00	96.25	11.65	65	.86	.70
COMPOUND	7030.00	451.50	48.00	7.11	259	1.36	2.32
VINYL	6866.25	1067.00	180.00	18.16	226	2.97	.32
PLASTICIZER	892.00	67.50	32.00	11.15	12	1.35	.00
UTILITY BOILER	792.00	62.25	24.00	10.89	0	.00	.00
GENERAL PLANT	726.75	.25	---	.03	201	27.52	.14
TOTAL	28810.50	2847.75	424.25	11.36	858	2.07	.91

(1) Controllable Overtime - all overtime excluding overtime due to working regular hours on a holiday and working the sixth day in operations.

(2) Non-Controllable Overtime - that overtime due to working regular hours on a holiday and working regular hours on the sixth day in operations.

ENERGY CONSERVATION - F. G. Jeanson

I. Plant Operations

Total energy consumption for July was 112.511 MMM BTUs. Energy consumption increased to 2263 BTU/lb. from 2251 BTU/lb. in June. An adjusted CMA reduction of 56.5% was obtained for the month. The adjusted CMA reduction for fiscal 1987 is 54.7%.

II. Plant Energy Conservation Program

Maintenance

There were six energy related items completed in July. All six of these items were steam leak repairs.

III. Boiler Operation

<u>Boilers</u>	<u>Combustion Efficiency %</u>	
	<u>July, 1987</u>	<u>July, 1986</u>
No. 1	83.4	83.6
No. 2	(1)	83.6
No. 3	83.2	83.4

Note: (1) Boiler number two was not used during the month.

ENERGY CONSERVATION DATA

	<u>1987</u>	<u>1986</u>
<u>Month</u>	<u>July</u>	<u>July</u>
<u>Production, MM Lbs.</u>		
Resin	37.9	31.7
Dry Blend	5.2	5.0
Compound	4.8	5.4
Plasticizer	1.8	1.3
TOTAL	49.7	43.4
<u>Natural Gas</u>		
Consumption, MSCF	52205	46555
Conversion, BTU/SCF	1020	1020
Energy Consumption, MMM BTU	53.250	47.486
Energy Consumption, BTU/lb.	1071	1094
<u>Electricity</u>		
Consumption, MM KWH	5.9261	5.6446
Conversion, BTU/KWH	10000	10000
Energy Consumption, MMM BTU	59.261	56.446
Energy Consumption, BTU/lb.	1192	1301
<u>Propane</u>		
Consumption, M Gal.	0	0
Conversion, BTU/Gal.	92000	92000
Energy Consumption, MMM BTU	0	0
Energy Consumption, BTU/lb.	0	0
<u>Total</u>		
Energy Consumption, BTU/lb.	2263	2395
Energy Consumption, MMM BTU		
Actual Unadjusted	112.511	103.935
Actual Adjusted	91.240	82.534
1972 Base Period	209.872	180.423
<u>CMA Reduction (%)</u>		
Adjusted	56.5	54.3
Unadjusted	46.4	42.4
Fiscal 1987 Year-to-Date Performance	54.7% Adjusted 45.0% Unadjusted	

ENVIRONMENTAL - R. A. Frohreich

Water

Wastewater discharge parameters were within NPDES limits in July except for a temperature exceedance on outfall 003.

Chronic bioassay testing was conducted in July. No chronic toxicity was found using the embryo-larval survival and teratogenesis test. Chronic toxicity was detected on the 100% plant effluent using the larval survival and growth test.

Waste Management

One truck load of reactor culls was shipped to Sun Polymers.

General

Worked with the Environmental Committee of the Mississippi Manufacturers Association to prepare comments on the proposed Mississippi regulation covering the Community Right-to-Know Act.

TABLE I
WATER COMPLIANCE WITH
NPDES PERMIT PARAMETERS

		Flow	BOD		COD		Sus. Solids		Diss.	NH ₃	pH
		GPM	PPM	LB./DY.	PPM	LB./DY.	PPM	LB./DY.	O ₂	LB./DY.	
Oct. -	Ave.	1010	6	77	26	311	14	165	7.4	2.7	7.6
	Max.	1207	10	120	33	404	23	281	8.0	7.3	8.0
Nov. -	Ave.	1031	15	183	33	406	23	281	8.2	0.1	7.6
	Max.	1075	17	213	42	527	37	464	9.1	0.1	7.8
Dec. -	Ave.	987	23	268	71	846	13	179	7.6	2.0	7.3
	Max.	1350	46	373	110	1284	24	302	8.6	4.7	7.8
Jan. -	Ave.	1062	15	194	53	662	18	231	9.6	2.1	7.7
	Max.	1300	20	310	57	775	28	434	10.3	4.6	7.8
Feb. -	Ave.	858	14	142	42	431	10	99	10.0	4.9	7.7
	Max.	900	26	266	75	766	13	140	10.6	9.3	8.0
Mar. -	Ave.	903	11	119	38	409	19	206	8.8	4.0	7.8
	Max.	970	21	217	50	541	35	362	10.5	7.6	8.3
Apr. -	Ave.	990	8	93	42	505	33	407	9.1	2.5	8.0
	Max.	1177	10	121	56	680	78	986	11.0	6.1	8.3
May -	Ave.	1049	8	104	31	384	8	101	7.7	8.8	8.0
	Max.	1243	11	116	40	515	11	142	7.8	17.8	8.6
June -	Ave.	979	6	71	27	350	14	167	7.0	6.9	7.7
	Max.	1021	8	98	40	480	21	257	7.3	14.2	7.9
July -	Ave.	1150	4	55	45	618	14	194	7.1	1.4	7.9
	Max.	1300	5	66	60	797	26	344	7.4	1.6	8.1
Aug. -	Ave.										
	Max.										
Sept. -	Ave.										
	Max.										

NPDES Permit Limits - December 1 through April 30

Ave.	-	32	431	-	1462	-	674	>	6.0	13	6.0 - 9.0
Max.	-	43	800	-	2713	-	1396			28	

NPDES Permit Limits - May 1 through November 30

Ave.	-	26	357	-	1212	-	674	>	6.0	13	6.0 - 9.0
Max.	-	40	744	-	2523	-	1396			28	

LABORATORY - H. G. ColemanSafetyA. Safety

There was one first aid case for the month, the first in the lab since February, 1985. A development technician suffered an abrasion and contusion when a steel plate used in a steam press fell and hit both legs. The incident was investigated and a new storage location was chosen for the plate. This month's safety meeting featured a BLS presentation by the Safety Department and an explanation of work orders by Maintenance.

B. Customer RelationsCustomer Contacts

AT&T - Harold Coleman met with representatives from AT&T, PRS and the Business Area on July 7 in Ponca City to discuss this customer's compound specification and the proposed Vendor Partnership agreement. Details are being worked out; we are still a couple of months away.

Comm/Scope - Harold Coleman visited this customer on 7/29 to resolve recent quality and service issues. K. E. Walker and C. E. Hoover were also present; the meeting went well.

Dayton Extruded Plastics and Prestolite were hosted in the plant this month. Laboratory presentations were given by Harold Coleman and Richard Williams, respectively.

Requests for Corrective Action

<u>Date</u>	<u>Customer</u>	<u>Product</u>	<u>Reason</u>
7/06	Compression Polymers	RP-421	Weight discrepancy.

Customer Problem Reports

<u>Date</u>	<u>Customer</u>	<u>Product</u>	<u>Reason</u>
7/5-6	Contudel (Mexico)	34501 Gry 546	Color match.
7/23	Tubular Protection	17462 Black	Poor gloss and surface appearance.
7/31	Dayton Extruded Plastics	269-151 WHT 145	Color.

Product Return Notifications

<u>Date</u>	<u>Customer</u>	<u>Product</u>	<u>Amount</u>	<u>Reason</u>
—	Macklanburg-Duncan	15072 Natural	—	Gaseous voids.
—	Flexible Technology	17121 Wt Clr. and CB50	22.5M lbs.	Hard particles and contamination.

LABORATORY - ContinuedB. Customer Relations - continuedProduct Return Notifications - continued

<u>Date</u>	<u>Customer</u>	<u>Product</u>	<u>Amount</u>	<u>Reason</u>
7/21	Cablec	38611 Nat.	5M lbs.	Brittle point failures.
7/20	UTP	Exp. Dry Blend	2.6M lbs.	Off-grade.
		17462 White and Black	4.5M lbs.	Wrong application.
	Comm/Scope	38401 Black	1 Railcar	Rough extrusion.

Waivers Issued

<u>Customer</u>	<u>Product</u>	<u>Reason</u>	<u>No.</u>
Blane Polymers	5415	Viscosity	1 R/C
Hayes Dockside	5265	Bulk Density Range	1 R/C
Nibco	5305	Static Flow	3 H/T
Uniroyal	5305	Static Flow	3 H/T
United Technologies	5415	Particle Size (Microns)	1 H/T

C. Development Lab SummaryRVCN of In-Process Samples

The following is a summary of residual VCM results on in-process samples. None of the reactor daily averages exceeded 400 ppm during the month of July, 1987.

	<u>Reactor Slurries</u>	<u>Dryer</u>		<u>Blend Tanks</u>	
		<u>5265</u>	<u>5305</u>	<u>5265</u>	<u>5305</u>
Number of Samples	899	20	69	22	73
Average ppm, VCM	213	0.73	0.26	6.6	6.6

RVCN of Shipment Samples

The following is a summary of the residual VCM analysis of shipment samples for the month of July, 1987.

<u>Product</u>	<u>5265</u>	<u>5305</u>	<u>5385</u>	<u>5415</u>	<u>5465</u>	<u>Debox</u>	<u>Dry Blend</u>	<u>Pond</u>
No. of Samples	9	95	65	68	0	61	41	0
Average RVCN, ppm	0.10	0.10	0.18	0.10	0	0.16	0.12	0

LABORATORYD. Resin Process Capabilities (CPK) - Regular (Dryer) Samples

	<u>5265</u>	<u>5305</u>	<u>5385</u>	<u>5415</u>
Bulk Density	0.35	0.27*	1.67	0.70
Inherent Viscosity	0.58	0.63	0.36	0.64
"L" Color Value	2.08	6.33	3.89	4.00
"A" Color Value	2.50	4.33	-----	-----
"B" Color Value	1.33	1.17	3.33	4.33
% on Pan (vs. 2% max.)	0.56	4.44	4.11	4.22 (0.89)
% thru 140m	0.74	0.80	1.82	3.07
Drytime	-----	-----	0.67	0.83
Mets IR (vs. 95% of control)	-----	-----	-----	1.36 (1.01)
Hard Particles (% > 10)	-----	-----	1.2	4.3

* No antistat added at dryer.
No 5465 production this month.

E. Compound Quality Summary

	<u>Adjustments</u>		<u>Rejections</u>	
	<u>M Lbs. (%)</u>		<u>M Lbs. (%)</u>	
Hardness	40.8	(0.83)	-	-
Color/Clarity	14.5	(0.29)	20.7	(0.42)
Hard Particles	-	-	30.8	(0.62)
Heat Stability	10.0	(0.20)	2.3	(0.05)
Contamination	-	-	9.5	(0.19)
Dicing	-	-	22.1	(0.45)
Cross Contamination	-	-	20.8	(0.42)
Mets IR (1201)	-	-	9.0	(0.18)
Total	65.3	(1.32)	115.2	(2.33)

F. Dry Blend Quality Summary

	<u>Rejections</u>	
	<u>M Lbs.</u>	<u>(%)</u>
Long Stability	5.0	(0.10)
Fusion Torque	3.6	(0.07)
Color	11.3	(0.22)
Total	19.9	(0.38)

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LABORATORY - Continued

G. Quality Development Items

1. Changes were made on the I.V. test that have reduced its variability. Fines were removed from the standard and each solution was tested in quadruplicate rather than triplicate. The three sigma control limits are currently +/- 0.008.
2. Our control resin was switched from 5385 to 5415, lot 04169, because we exhausted our supply of the former.
3. The initial REACT (REsin ANalytical Capability Team) meeting was held in Oklahoma City this month. The team will be addressing intersite differences in methods and results (accuracy and precision).

H. Miscellaneous

1. TCLP testing continued this month. Experimental 5265, lab-dried 5305, Oklahoma City 5385, and reactor culls were analyzed.
2. Our Brabender extruder was commissioned for rigid (5305) blown films. The equipment worked well in analyzing 5305 produced for Klockner.
3. Brian Harrison worked on our blue-white dry blend colorant:
 - approved trial order of Americhem's extra strength 5404-T1.
 - investigated DEP color problems; cause was a bad lot of Americhem's B/W colorant.
4. Color matches were performed by Brian Harrison for:
 - Kaf-Tech using new concentrates from Wilson-Fiberfil.
 - Conducel, brown and ivory colors using existing concentrates.
5. A run of RP-203 BGE 322 for Aluminum Products was analyzed by Brian Harrison. Wide variations in TiO_2 and $CaCO_2$ levels were found.

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SHIPMENTS BY PRODUCT - M LBS.

July 1987

FISCAL
YEAR-TO-DATE

RESIN	30,621	274,079
PLASTICIZER	665	7,226
DRYBLEND	5,032	46,731
COMPOUND	5,251	70,203
TOTAL	41,569	398,239

NUMBER OF SHIPMENTS BY MODE:

	RAILCAR	VISTA BULK	TRUCK VAN	TRAILER ON A FLAT CAR	COMMON CARRIER	CUSTOMER PICK-UP	CONTAINER	TOTAL
RESIN-Bulk	134	48				98		280
Package			5		6	2		13
Export	4	2						6
PLAST.-Bulk	3	4						7
Package					1	1		2
DRYBLEND-Bulk	25	4				9		38
Package			6	2	2	2		12
Export								
COMPOUND-Bulk	12	2						14
Package			33		33	33		99
Export					3		2	5
TOTAL JULY	178	60	44	2	45	145	2	476
OCTOBER	116	41	51	2	52	160		422
NOVEMBER	146	64	39	2	64	135		450
DECEMBER	133	46	29	1	48	133		390
JANUARY	193	68	44	3	89	147		544
FEBRUARY	154	50	45	3	56	143		451
MARCH	181	60	56		64	129	3	493
APRIL	150	53	46	4	44	140	1	438
MAY	162	60	44		54	139		459
JUNE	165	60	49	6	41	152		473

ENERGY USAGE

A

46 3290

3 YEARS BY MONTHS X 100 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

BTU/LB.

3500

3000

2500

2000

1500

Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. 19 85
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. 19 86
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. 19 87

Monthly

12-Month Moving Avg.

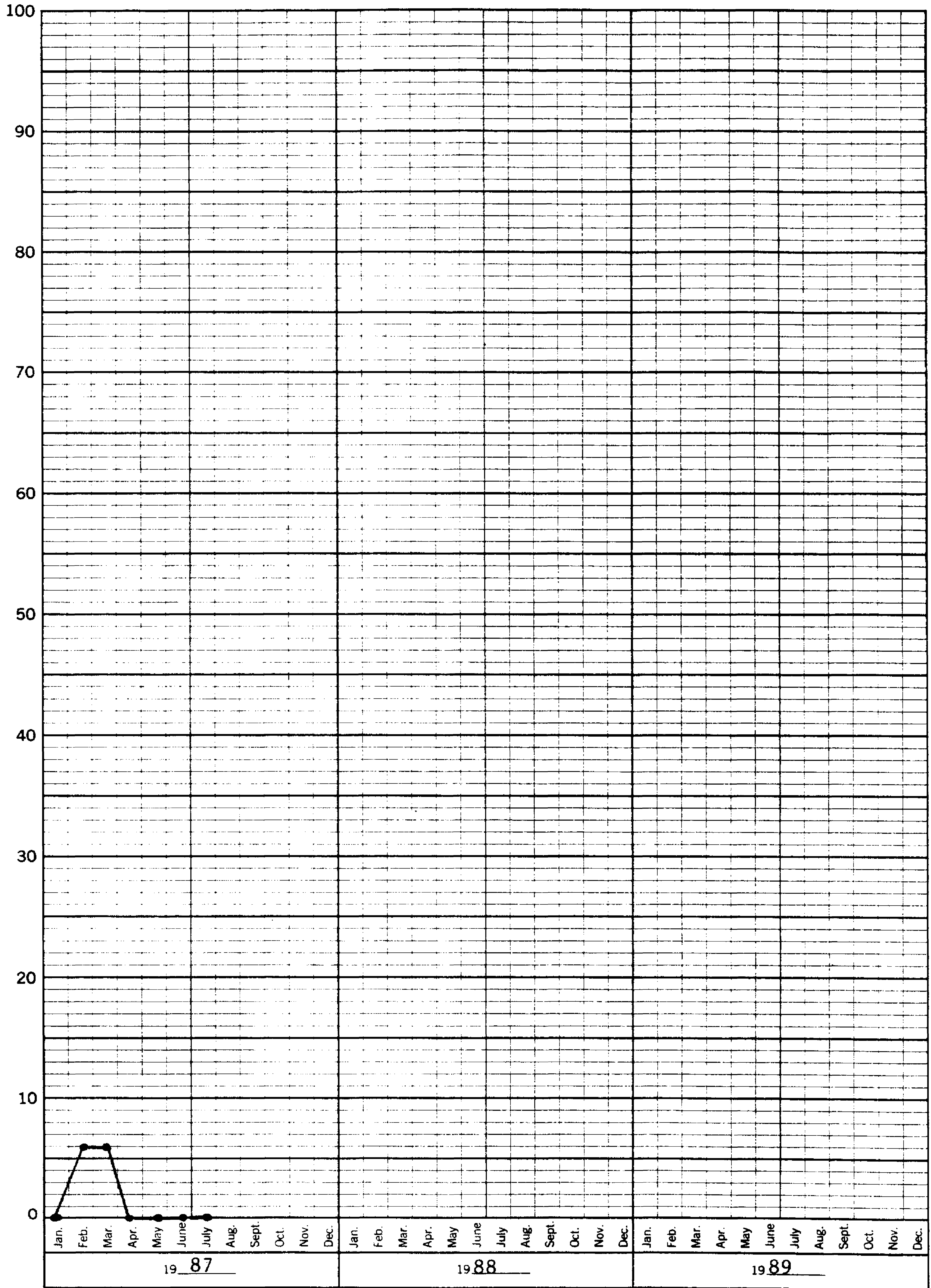
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MONTHLY HOURLY TURNOVER

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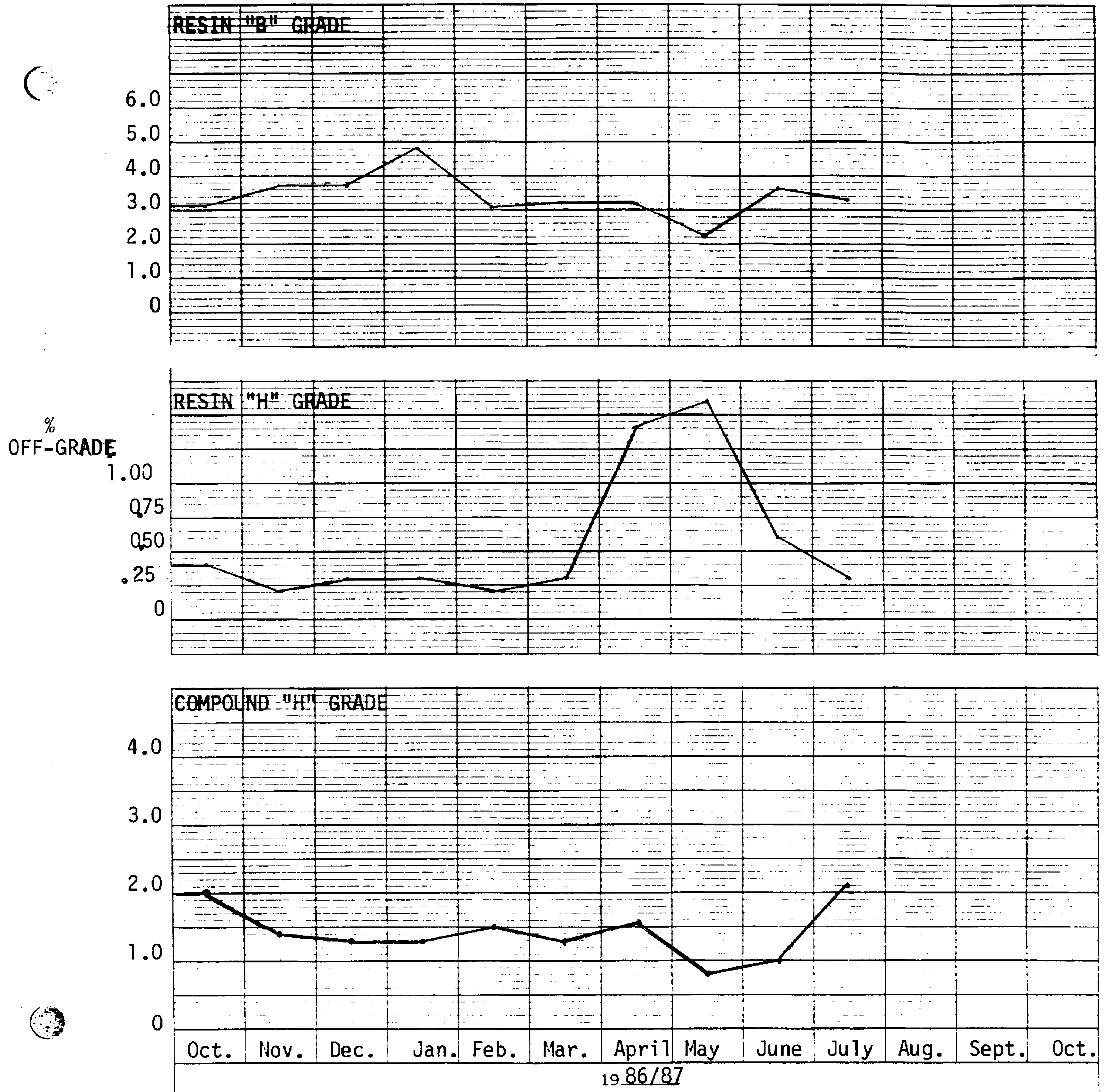
46 3290

3 YEARS BY MONTHS X 100 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.



ABERDEEN PLANT QUALITY PERFORMANCE

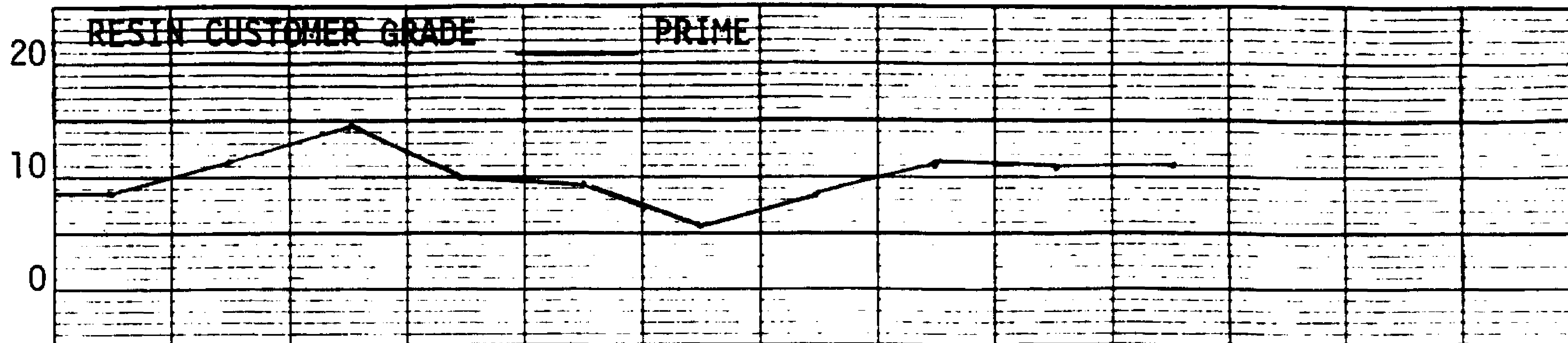
10/01/86 - 09/30/87



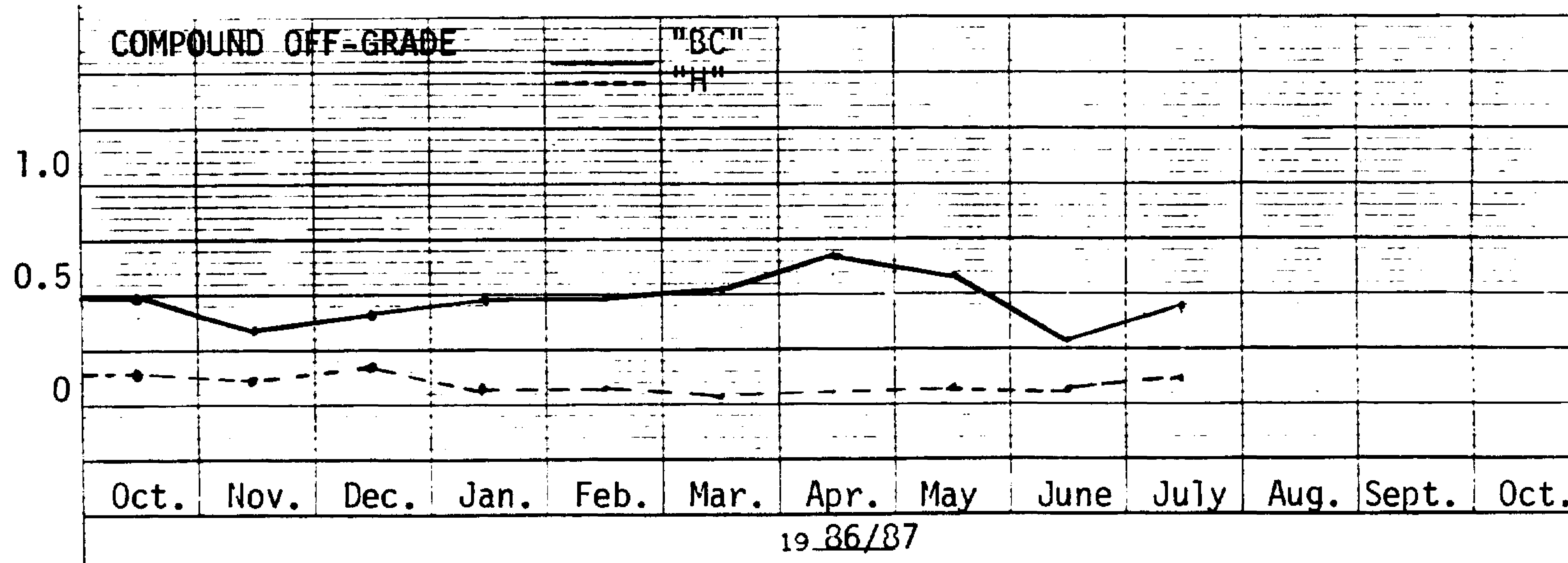
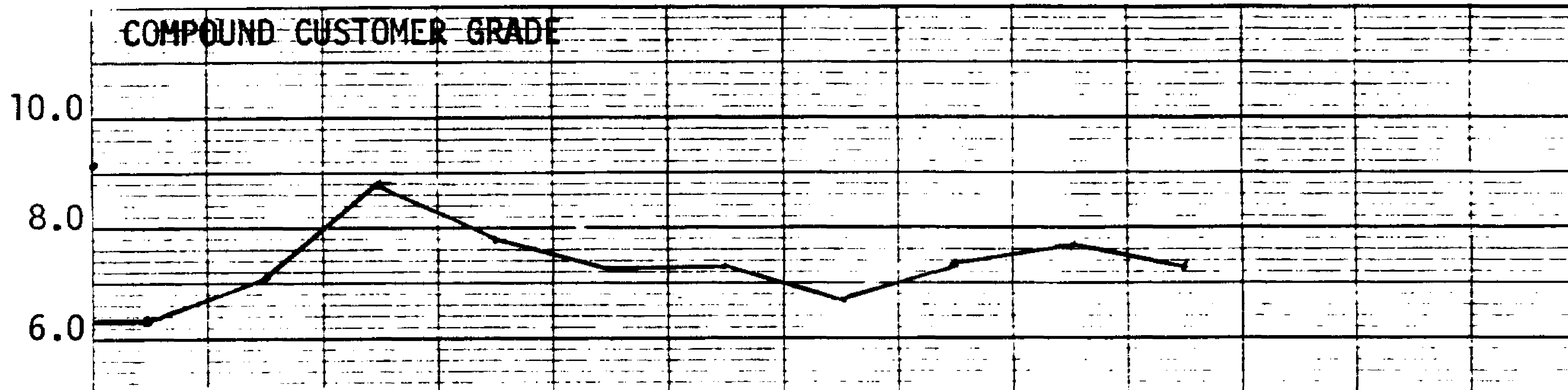
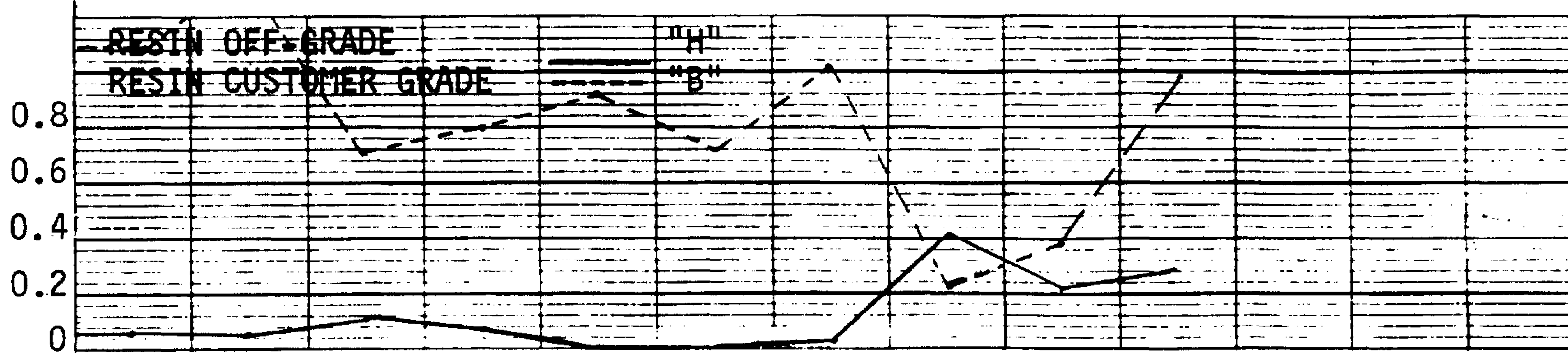
ABERDEEN PLANT INVENTORIES

10/01/86 - 09/30/87

MM
POUNDS
PRIME



(1.4)



19 86/87

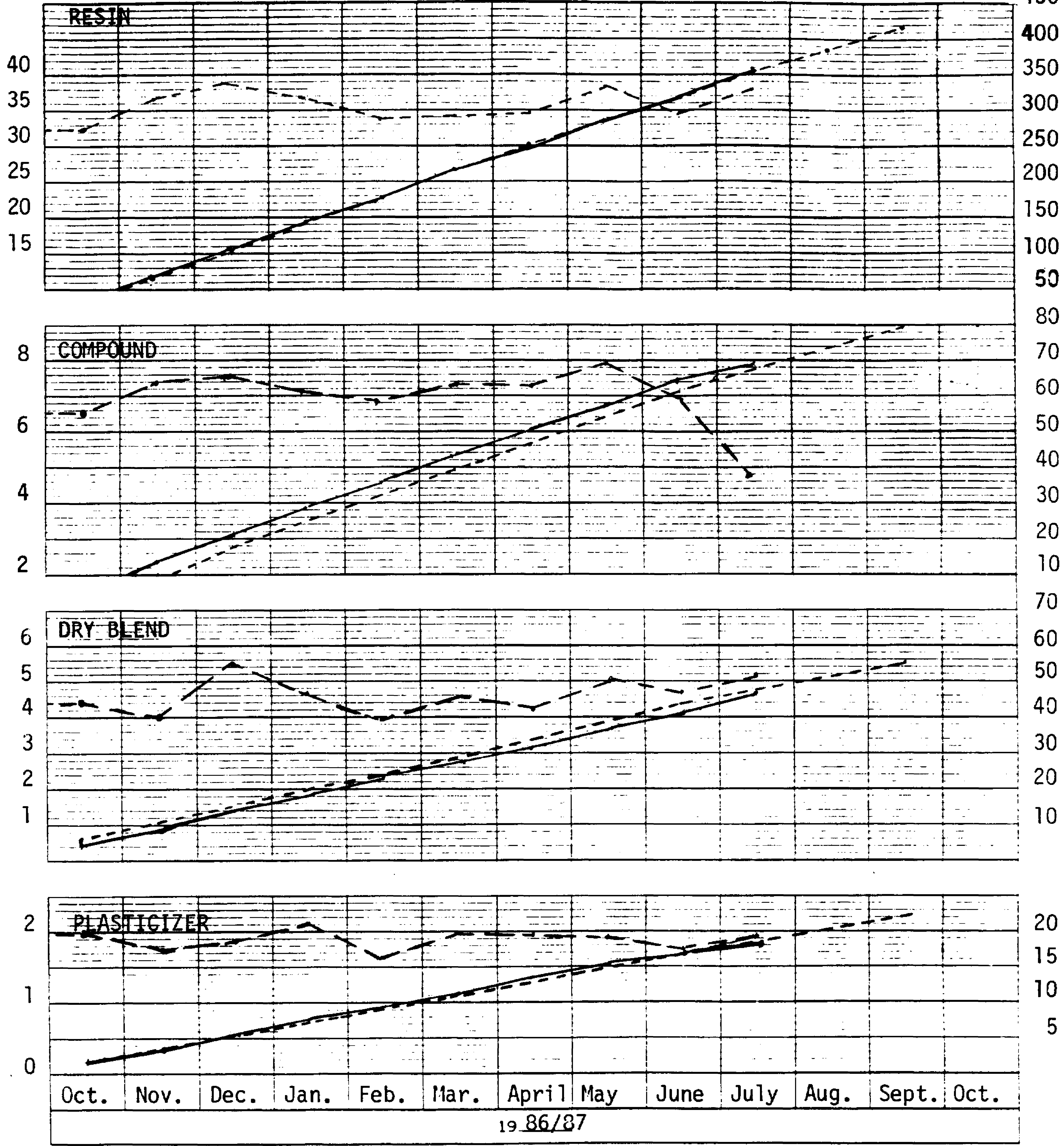
ABERDEEN PLANT PRODUCTION

A

10/01/86 - 09/30/87

MM POUNDS
MONTHLY

MM POUNDS
CUMULATIVE



----- Budget
..... Actual
———— Cumulative

ABERDEEN PLANT EFFICIENCY

10/01/86 - 09/30/87

POUNDS OF RAW MATERIAL/POUND OF PRODUCT

