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To: R. T. Ferrell

From: J. W. Ware
Date: May 15, 1987

Subject: ABERDEEN MONTHLY PROGRESS REPORT
APRIL, 1987

**Interoffice
Communication**

VISTA

One OSHA recordable and two first aid cases were recorded during the month of April. As of April 30, 1987, the plant had operated 2,854 days or 3,676,708 manhours without a lost time injury.

PVC resin production for April was 34.8MM pounds. Mechanical downtime in the reactor areas was due primarily to drilling of condensers on 744 and 745, nozzle repairs on 300 condenser and new module Modicon software revisions. Resin production year-to-date totaled 246.8MM pounds. The VCM efficiency for April was 0.99630 pounds of VCM per pound of PVC produced versus a 1.00208 standard. Year-to-date VCM efficiency is 1.00926.

Compound production for April was 7.3MM pounds. Line I and Line III operated thirty days and Line V operated sixteen days during the month. Production was limited primarily by product changes, quality problems and Line III mill maintenance. Year-to-date compound production was 50.0MM pounds. Quality performance for flexible compounds was 1.56% off-grade of which 72.5% was due to mill scrap. "BC" production was 3.6%.

Dry blend production was 4.2MM pounds for April and 31.3MM pounds fiscal year-to-date. Production was limited primarily by product changes, quality control problems and an outage taken to install the master batch bulk resin weigh system. Quality performance for the month was 99.3% customer grade.

The plasticizer unit operated thirty days in April to produce 1.9MM pounds. Year-to-date plasticizer production is 13.2MM pounds.

A three-day training course for department heads and supervisors was conducted on team leader training during April. In addition, a four-day course on statistical design of experiments was conducted for department heads, engineers and supervisors. Two new involvement teams were formed: one in compound to work on product changes and one in the yard department to address problems which our customers have with railcars.

Total energy consumption for April was 115.097 MMM BTUs. The energy consumption per pound of product was 2388 BTUs, resulting in an adjusted CMA reduction of 53.6%. The adjusted CMA reduction for fiscal 1987 year-to-date is 53.9%.

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The total plant variable cost variance for April was \$382.0M unfavorable, resulting from an overall unfavorable price variance of \$416.7M and a net favorable efficiency variance of \$34.7M. The total fixed cost variance for April was \$65.5M favorable.


J. W. Ware

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LAKE CHARLES CHEMICAL PLANT

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ABERDEEN

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

<u>Occupational Injuries</u>	<u>April</u>	<u>Fiscal Y.T.D. 1987</u>	<u>Fiscal Y.T.D 1986</u>
First Aid	2	6	8
OSHA Recordable	<u>1</u>	<u>6</u>	<u>6</u>
Total Injuries	3	12	14
Number of Restricted Workday Cases	0	2	2
Number of Lost Workday Cases	0	0	0

Injuries by Department

Vinyl Operations	1	2	3
Compound Operations	0	1	2
Maintenance	1	6	6
Laboratory	0	1	0
Receiving/Warehouse	1	2	0
Office	<u>0</u>	<u>0</u>	<u>3</u>
Totals	3	12	14

Injuries by Type

Cuts and Abrasions	1	6	4
Eye Injuries	0	2	1
Burns	0	0	3
Bruises	1	1	0
Strains/Sprains	1	3	3
Stings	0	0	0
Other	<u>0</u>	<u>0</u>	<u>3</u>
Totals	3	12	14

Non-Occupational Injuries

Lost Workday Cases	0	2	6
Days Lost	0	11	61

Safety Record

Last lost time injury 7/5/79
Days since - 2,854
Manhours since - 3,676,708

On April 30, 1987, the employees of the Aberdeen plant completed 2,854 days with no lost time injury.

One medical treatment case was reported in April: An ankle sprain suffered by a warehouse worker during March was reclassified as OSHA recordable after medical treatment became necessary.

SAFETY - Continued

Topics for the plant safety meetings during the month included: Annual First Aid Training, Reviews of Recent Injuries, Nitrogen Handling Safety and Maintenance Weekly Safety and Job Reviews (Lockout Procedures, Use of Personal Protective Equipment and Housekeeping).

Keith Fogg attended a meeting of the Environmental Sub-committee of the Mississippi Manufacturer's Association to discuss the new SUPERFUND legislation.

The May 17 notification under the SUPERFUND bill was completed as required.

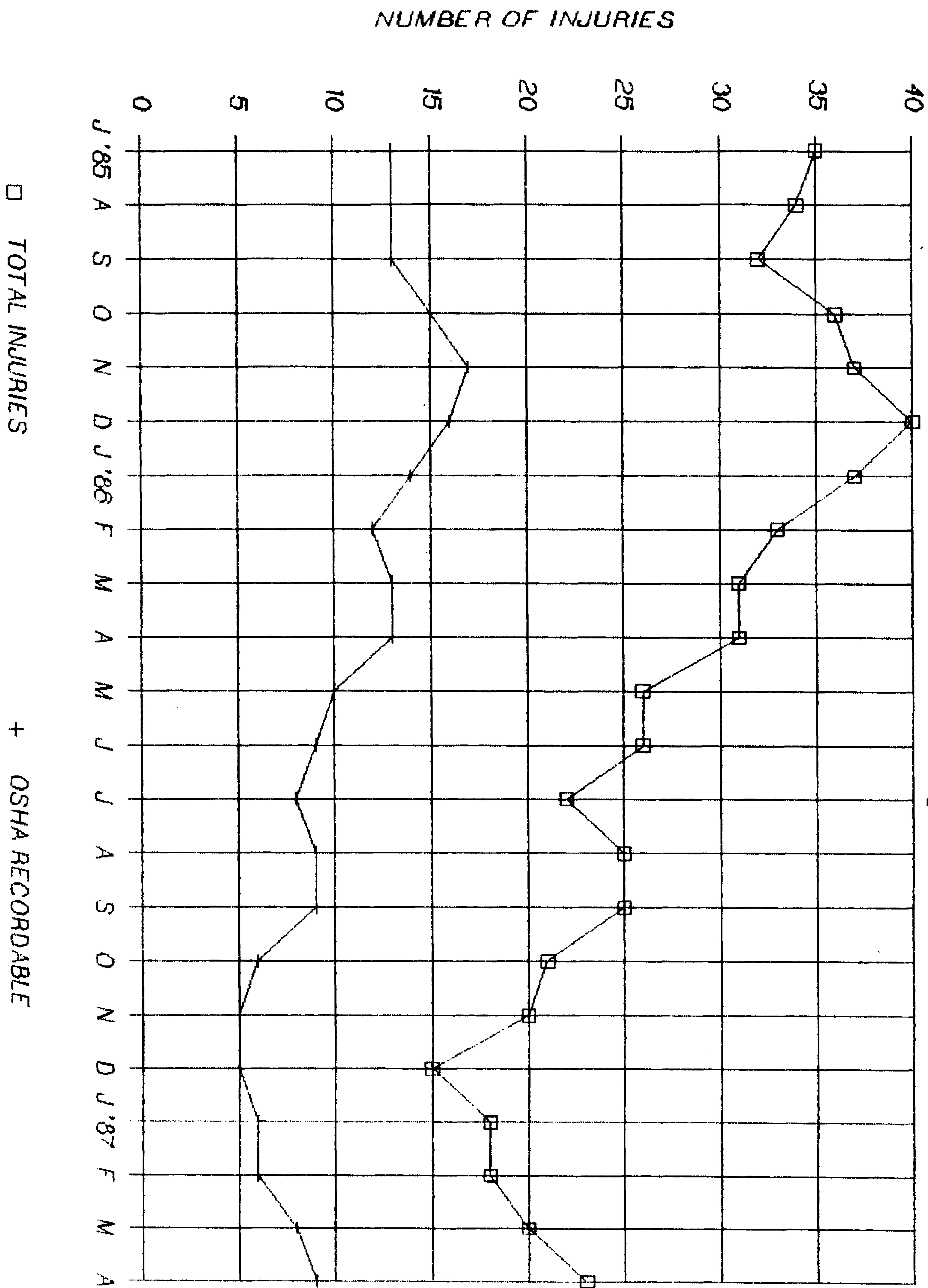
Health activity for the month included annual, VCM hands-on physicals and routine dosimetry (shown below):

<u>Chemical</u>	<u><</u> PEL		<u>></u> PEL	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
VCM	75	96.2	3	3.8
Lead	19	90.5	2	9.5
Total Particulates	6	100.0	0	0.0

All of the overexposures occurred with benefit of respiratory protection.

ABERDEEN CHEMICAL PLANT INJURIES

(Twelve Month Running Totals)



QUALITY IMPROVEMENT PROCESS - R. B. Newton

Plant management and some supervisors attended a three-day course in Team Leader training. This class is being modified for use by the plant in training current and future team leaders.

Department heads, engineers and supervisors attended a four-day Statistical Design of Experiments class taught by Bill McNeese.

A new team was organized in the Vinyl (Yard) Department to address problems that customers have with railcars.

The Compound Department is in the process of organizing a team to look at ways to reduce compound line downtime caused by product changes.

There are currently about twenty-five process variables being charted plant wide.

VINYL - D. W. Hollis, J. M. EdwardsSafety

The Vinyl and Yard Departments had one accident which resulted in a bruised lip (first aid).

Shift safety meeting topics for the month were CPR training, a film on hypertension, a review of recent accidents and some thoughts on safety awareness.

<u>Production</u>	<u>April</u>	<u>Y.T.D.(Fiscal 87)</u>
1. Production, MM Lbs.	34.8	246.8
2. Daily Production Rate, M Lbs./C.D.	1161	1164
3. Total Charges	907	6253
4. Charges, Reactor Batches/C.D.	30.2	29.5
5. Reactor Stream Factor	92.7	91.3
6. Dryer Rate, Average Lbs./Hr.	9143	10141
7. Dryer Stream Factor	66.1	60.1
8. Accounting Days	30	212

Reactors

The reactor stream factor for April was 92.7%. Downtime in the reactor area occurred as follows:

- 1) Operational Downtime: Accounted for 44.9% 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, reactor manway O-ring failures and downtime associated with test runs and reactor inspections.
- 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 55.1% of the total downtime and was due to drilling 744 and 745 reactor condensers, changing the Lenape lid on D400, repairing the recovery nozzle on D300 condenser, software addition to new module Modicon and rebuilding the Polyvic valve on reactor 745.

Dryers

The dryer stream factor for April was 66.1%. Downtime in the dryer area occurred as follows:

- 1) Reactor Limited Production: Accounted for 88.3% of the total downtime. Dryers were shut down when possible for energy conservation.
- 2) Operational Downtime: Accounted for 3.3% of the total downtime and was due to centrifuge plugging, burner flameouts, dryer cleaning and transfer activator problems.

VINYL - Continued

Dryers - Continued

- 3) Maintenance Repair/Revision Downtime: Accounted for 8.4% of the total downtime and was due to changing out #4 and #6 centrifuges, #8 centrifuge sparge pipe and major repairs with improvements to #6 dryer.

Product Quality Summary

<u>Resin Type</u>	<u>Prime</u>	<u>"B"</u>	<u>"H"</u>	<u>% of Total Production</u>
5265	3,119,716	-	-	8.9
5305	2,593,708	-	-	7.5
5385	15,858,751	-	-	45.5
5415	10,301,625	-	-	29.6
5465	1,349,530	-	-	3.9
Debox	-	944,720	-	2.7
Off-Grade	-	169,420	-	0.5
Sifter Overflow	-	-	133,201	0.4
Pond Resin	-	355,260	-	1.0
Total	33,223,330	1,469,400	133,201	100.0

Quality performance for April was 99.6% customer grade with 0.4% "H" grade production.

A total of seven railcars were shipped as "B" grade during the month which represented 6.8% of the 102 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>
03/25/87	04/08/87	PLWX 44722	Pacific Plast., CA	Debox	Quality
04/06/86	04/15/87	PLWX 44279	Gamma, CA	Pond Resin	Quality
09/25/86	04/15/87	ACFX 52553	Klockner, VA	5305	Quality
04/02/87	04/22/87	PTLX 41645	Wexford, CA	Debox	Quality
04/13/87	04/22/87	VIPX 45810	Wexford, CA	Pond Resin	Quality
04/21/87	04/28/87	PLCX 43854	Silverline, NC	5385	Contamination
04/16/87	04/29/87	PLCX 43730	Vulcan Plast., AL	Debox	Quality

The Vinyl area received thirty-three short lead time emergency type orders comprising 13.5% of the 244 Aberdeen resin shipments in April.

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VINYL - Continued

Monthly Variable Cost Performance

Variable costs for the month were unfavorable at \$473.2M resulting from an overall unfavorable price variance of \$456.2M and an unfavorable efficiency variance of \$17.0M. Resin variable cost for the month was 19.758 cents/lb. versus the budgeted 18.334 cents/lb.

The \$456.2M unfavorable price variance was primarily attributed to higher than budgeted pricing for VCM, \$607.2M, offset by favorable freight pricing of \$105.8M and favorable natural gas pricing of \$21.1M.

The \$17.0M unfavorable efficiency variance can be attributed mainly to the unfavorable efficiency variance of Initiator 939, \$10.4M; and Alcotex, \$10.3M, offset by a favorable VCM efficiency variance of \$31.0M.

VCM efficiency for the month was 0.9963 lbs. VCM/lb. PVC versus the budgeted 1.00208 lbs. VCM/lb. PVC.

YTD variable cost efficiency variances in the Vinyl Department totaled \$339.2M unfavorable.

Energy Performance/Progress

1. Plant energy performance for April was 2388 BTU/lb.

General

1. Resin raw material in the 0744 account totaled \$247.9M.

COMPOUND - P. J. Kober, 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	30	2484	83	16785
Line V	16	825	52	5790
Line III	30	4011	134	27436
Total		7319		50011

Line I operated thirty days in April at an average rate of 83M pounds per day. Major items affecting production efficiency were: product changes, 87 hours; dicer system problems and maintenance, 13 hours; housekeeping, 12 hours; quality problems and testing, 10 hours; running transfer line cleanout to remove streamers, 5 hours; and maintenance to the weigh computer, 4 hours.

Line V operated sixteen days during April at an average rate of 52M pounds per day. Major items affecting production efficiency were: product changes and startup time, 22 hours; quality problems (primarily testing and reworking compound with high hard particle count), 37 hours; and downtime due to elevator maintenance, 3 hours.

Line III operated thirty days during April at an average rate of 134M pounds per day. Major items affecting production were: product changes, 45 hours; mill and hydrotherm system maintenance, 16 hours; quality problems (primarily due to hard particles), 13 hours; and dicer systems problems and maintenance, 9 hours.

Quality performance for flexible compounds was 1.56% off-grade of which 72.5% was due to mill scrap. "BC" production was 3.6%.

The raw material requirement for flexible compounds was .99682 pounds of raw material per pound of compound versus a 1.01066 standard (YTD is 1.00828).

The variable cost variance for compound was \$19.2M favorable with \$8.3M favorable due to price and \$10.9M favorable due to efficiency. The efficiency variance due to product mix was \$13.2M unfavorable. The efficiency variance for DIDP was \$32.0M favorable primarily due to correction of an accounting error which left last month unfavorable. The TOTM efficiency variance was \$24.4M unfavorable. Most of this variance was also due to correction of an accounting error from the previous month.

Total compound inventory fell .5MM pounds in April to 7.5MM pounds.

<u>Dry Blend</u>	<u>Month</u>	<u>Average Operating-Day Rate</u>	<u>Fiscal Y.T.D.</u>
Production, M Pounds	4202	145	31335
Operating Days	29	-	213

COMPOUND - ContinuedDry Blend - continued

Dry blend operated twenty-nine days during April at an average rate of 145M pounds per day. Production included 80172C, 80273G, 90172D, RP-421, 186-139, 186-180, RP-203, 269-69, 269-113, RP-100, 269-148, 269-145, 269-185, 269-151 and 269-169.

Dry Blend production was hindered by: product changes, 58 hours; delays associated with quality and lab problems and normal Q.C., 29 hours; transfer system problems and maintenance, 27 hours; Orbitran weigh computer problems and maintenance, 12 hours; and Welex maintenance, 8 hours. The dry blend unit was down for forty hours for scheduled installation of the master batch bulk resin weigh system.

Quality performance for the month of April was 99.3% customer grade.

The raw material requirement for dry blend was 1.01909 pounds of raw material per pound of dry blend versus a standard of 1.00488 (YTD is 1.01110).

The variable cost variance for dry blend was \$33.3M favorable with \$13.8M favorable due to price and \$19.5M favorable due to efficiency. The efficiency variance due to product mix was \$39.1M favorable. There were no major dry blend raw material efficiency variances.

<u>Plasticizer</u>	<u>Month</u>	<u>Average Operating-Day Rate</u>	<u>Fiscal Y.T.D.</u>
Production, M Pounds	1872	62	13238
Operating Days	30	-	214

Plasticizer operated thirty days during April at an average rate of 62M pounds per day. Production included 610P and 108P.

VRP production totaled 152M pounds (8.1%).

The raw material requirement for plasticizer was 1.09072 pounds of raw materials per pound of plasticizer versus a 1.09877 standard (Y.T.D. is 1.10403).

The variable cost variance for plasticizer was \$38.8M favorable with \$17.5M favorable due to price and \$21.3M favorable due to efficiency. There were no major plasticizer raw material efficiency variances.

The efficiency variance due to product mix was \$2.9M favorable.

Quality Improvement

Key personnel, including the operations superintendent, operations supervisor, operations engineer and one shift supervisor, attended the three-day team/leader training held in Aberdeen. A problem solving team led by the trained shift supervisor will be formed soon. Charting of process variables or product characteristics measured in the lab continues on all lines.

COMPOUND - ContinuedEnergy

	<u>Usage (BTU/Lb.)</u>	
	<u>Actual</u>	<u>Standard</u>
Compound	1755.4	1783.0
Dry Blend	747.0	730.0
Plasticizer	1673.5	1833.5

MECHANICAL DEPARTMENT - T. F. LyonMAINTENANCE - G. A. Morgan, D. A. MillerSafety

There was one first aid injury to a General Mechanic during the month. The mechanic received minor bruises and contusions after falling over the trailer tongue of a solids transfer system.

Vinyl

One reactor agitator seal failed during the month. The D743 seal was changed due to an external leak. The seal had been in service only three days. An inspection revealed a burnt rotating face. There was no apparent reason for the failure. There have been nine seal failures fiscal year-to-date.

The 743 reactor agitator gearbox was removed from service and inspected during the month. The low speed helical gear set shows signs of accelerated wear. Action steps to develop a plan for corrective action are in progress.

The D743 condenser to reactor gasket failed during the month. A new gasket was installed.

Both D745 and D744 condensers were drilled and brushed.

Cracks in the D745 jacket were repaired.

Eight major reactor valves were replaced during the month.

The recovery nozzle on D300 condenser cracked at the shell weld during the month. An inspection indicated that the crack was probably a low cycle fatigue failure. The reactor was safely recovered and the nozzle was repaired.

The D400 Lenape manway was replaced. The defective manway was sent out to be reconditioned.

Mechanical seals were replaced in 703 vacuum pump, 903 vacuum pump and "B" compressor.

The old module west slurry transfer pump was overhauled.

Dryers

Numbers 4, 6 and 8 centrifuges were overhauled during the month. All three required new trunnion shafts and bushings. Number 6 had a failed thrust bearing. A rebuilt 15⁰ unit was received from Bird during the month.

A 9⁰ single flight centrifuge scroll was hard surfaced to serve as a spare for the resin reclaim dryer.

MECHANICAL DEPARTMENT - ContinuedDryers - Continued

Number 6 centrifuge effluent boot was replaced.

Number 6 dryer burner was replaced and internal modifications were completed to reduce the potential for contamination.

Numbers 1 and 2 dryer inlet ductwork was removed due to severe deterioration from corrosion. Replacement of number 1 dryer ductwork is in progress and will be complete in early May.

The spare rotary dryer exhaust fan was overhauled.

Compound, Dry Blend, Plasticizer

The Line III Zone I hydrotherm pump was overhauled.

Two scissor lift tables were assembled and delivered to the Compound Department.

The Line V Welex blades and seals were replaced. A spare Welex bowl and blades were sent out for lining and coating repairs.

Electrical repairs were made to both Line I and Line III elevators.

A spare process controller was installed in the dry blend Orbitran.

A new positioner was installed on the Line III FCM orifice gate.

Utilities

Number 2 air compressor was overhauled. The piston, rings and valves were replaced.

A test run was conducted by Betz and plant personnel to determine the performance of several neutralizing amines in the plant steam system. Results of the testing will be available in late May.

Rotating equipment alignment training was attended by all mechanics.

CAPITAL PROJECT STATUS - R. E. PolkAFE A5L2 - Plasticizer Modernization Phase I

Installation of additional cleanout nozzles has been completed. Materials to tie-in the south PA tank are on order and due by 5/29. Installation is scheduled for completion by 6/12. The project will be closed to field charges in June.

AFE C566 - Master Batch Bulk Resin Handling

Installation of new weigh bin was completed the week of 4/20 and the system is operational. Safety audit and punchlist items will be completed in May. The project will be closed to field charges in June.

AFE D606 - Propane Tank Farm Electrical Revisions

Electrical construction is in progress and planned for completion by 6/1.

AFE D756 - Reactor Jacket Expansion Joints

The three small joints for reactors 742, 743 and 744 have been received. Joints for 700 and 745 are due by 6/1. Installation of the joints will begin in June with completion in October based on reactor availability.

AFE F786 - Resin Quality Improvement - Permanent Rigid

Construction for Phases I and II is in progress and scheduled for completion by 7/1. A P&ID review for Phase III was held in Houston with attendance by GED, PED, Litwin and the plant. Control panel options for the vinyl control room and the S.A. building are being evaluated. A selection will be made in May.

CONTRACTS - C. A. Clark

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

PROCESS ENGINEERING - V. E. Messick

Resin Quality Improvement Project

- A. Flexible Resin Technology - Software changes on the Modicon were completed to allow Alcotex injection in the polymerization mode for reactors 741 through 744. Operating procedures were issued for these changes. Testing established that a larger Alcotex quantity injected during polymerization reduced foaming. To date, those changes have allowed a batch size increase equal to 60% of the original production loss incurred with implementation of 5415 technology. Testing on larger batch sizes continues. Testing with ALFOL 610 being injected from the bottom of the reactor as an antifoam agent does not appear successful.

A report on the Alcotex make-up temperature testing was issued. Recommendations for maintaining a final make-up temperature below the cloud point are being prepared.

- B. Rigid Resin Permanent Facilities - Equipment inquiries for the vessels, pumps and agitators were reviewed. Visits by all the agitator vendors to observe colloid make-up were completed in April. Plant personnel attended a flow sheet review of all Phase III and IV systems. Information is being gathered on tie-in points and existing equipment for Litwin's use.

Experimental Design Class

J. G. Cole and M. L. Nathan attended a four-day class on experimental design and evolutionary operations.

Rigid Calendering Team Activities

An experimental design was completed in which twelve batches of 5305 resin were produced for future trial to determine those variables significantly affecting calendering performance. Samples from these twelve batches were shipped to BASF in West Germany and to Ponca City. Plans are to test these samples on BASF's pilot plant.

Master Batch Bulk Resin Handling

The Master Batch Bulk Resin Handling System was commissioned. Minor punchlist items remain. Preliminary operating procedures were issued and operator training was completed.

Line V Operation Consistency

A report is being prepared detailing the causes of processing inconsistencies observed on Line V. A list of action steps to address the inconsistencies is also included. Most of the steps have been completed to date. Several options for blender installation on Line V were drawn up for estimation by GED.

PROCESS ENGINEERING - Continued

Process Water Header Distribution System

A study was conducted on the process water system during the month to determine the best method of operation with the recent installation of the backflow prevention project. The conclusion of the study was that all four water well pumps must be operational in order to minimize city water usage. The system is being evaluated to determine methods to reduce the large fluctuations in pressure due to reactor charging and rinsing.

Pond Resin Residual VCM (RVCM) Removal

An experimental design was formulated to determine which factors significantly affect RVCM removal from pond resin. This design is part of the overall TCLP study to reduce VCM levels in our products and wastes to levels that will make these materials non-hazardous.

Recovery System Seal Water Filter Study

A report was written during the month outlining process and filter media changes to the seal water filter systems in the plant's three recovery systems. These changes are required in order to reduce the RVCM content of the filters to a level which will make these items non-hazardous by TCLP.

RQIP Environmental Team

A sampling plan was initiated during the month to gather operating data for each pond in the plant's wastewater system. The data will be used to formulate a mathematical model to simulate the wastewater systems performance with increased organic loading due to RQIP.

Dry Calcium Stearate Addition Project

The plant worked with R&D in pursuing customer trials for resins produced with dry calcium stearate as the antistat. R&D will work with Marketing in setting up trials for customer evaluation. An investigation was made into discrepancies of calculated calcium stearate concentrations during testing and values measured by R&D. It was discovered that the bulk density of the calcium stearate varies and causes changes in flow through the screw feeder. The bulk density difference explained the calculated versus measured differences.

PERSONNEL - R. A. Miller

EMPLOYMENT

None

PROMOTIONS/TRANSFERS

None

RETIREMENTS

None

TERMINATIONS

None

TO/FROM LEAVE OF ABSENCE

None

Aberdeen, Mississippi

APRIL, 1987
MONTHLY PERSONNEL REPORT

Salaried Employees 74*

Hourly Employees 168

Total Employees 242

Employees (Hourly)

New Employees 0

Terminations 0

Minority Employees # %

Salaried 8 11%

Hourly 65 39%

Total 73 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>13</u>	<u>6</u>	<u>46</u>	<u>0</u>	<u>7</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>
Laboratory	<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 10 Year to Date 17

APPLICANT BREAKDOWN:

Minority 1 % Minority 10

Female 0 % Female 0

Hires (Hourly) :

Month 0 Year to Date 7

Terminations (Hourly) :

Month 0 Year to Date 2

Overall Turnover 0

Projected Annual Turnover 3.6%

* Includes 1 temporary employee and one Co-op Engineer.

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	Total F.Y.T.D.
WAREHOUSE	3128.00	241.00	48.00	9.24	9	.00	.29	1.10
MAINTENANCE	5897.75	370.50	16.00	6.55	22	.00	.37	2.39
LAB	4612.50	397.00	124.00	11.30	22	.17	.30	2.19
COMPOUND	7969.75	703.50	208.00	11.44	50	.00	.63	2.82
VINYL	7372.75	1079.00	204.00	17.40	68	.65	.27	1.64
PLASTICIZER	1119.00	75.75	36.00	9.99	5	.00	.45	.90
UTILITY BOILER	792.00	51.75	24.00	9.56	0	.00	.00	.00
GENERAL PLANT	814.25	2.75		.34	210	24.56	1.23	27.05
TOTAL	31706.00	2921.25	660.00	11.30	386	.81	.41	2.63

(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. JeansonI. Plant Operations

Total energy consumption for April was 115.097 MMM BTUs. Energy consumption decreased to 2388 BTU/lb. from 2434 BTU/lb. in March. An adjusted CMA reduction of 53.6% was obtained for the month. The adjusted CMA reduction for fiscal 1987 is 53.9%.

II. Plant Energy Conservation ProgramMaintenance

There were fifteen energy related items completed in April. Thirteen of these items were steam leak repairs. The remaining two were steam trap repairs.

III. Boiler Operation

<u>Boilers</u>	<u>Combustion Efficiency %</u>	
	<u>April, 1987</u>	<u>April, 1986</u>
No. 1	(1)	(1)
No. 2	83.4	83.6
No. 3	83.2	83.5

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

ENERGY CONSERVATION DATA

<u>Month</u>	<u>1987</u>	<u>1986</u>
	<u>April</u>	<u>April</u>
<u>Production, MM Lbs.</u>		
Resin	34.8	32.5
Dry Blend	4.2	4.6
Compound	7.3	5.2
Plasticizer	1.9	1.4
TOTAL	48.2	43.7
<u>Natural Gas</u>		
Consumption, MSCF	56481	51695
Conversion, BTU/SCF	1020	1020
Energy Consumption, MMM BTU	57.611	52.729
Energy Consumption, BTU/lb.	1195	1207
<u>Electricity</u>		
Consumption, MM KWH	5.7486	5.1986
Conversion, BTU/KWH	10000	10000
Energy Consumption, MMM BTU	57.486	51.986
Energy Consumption, BTU/lb.	1193	1190
<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.	2388	2397
Energy Consumption, MMM BTU		
Actual Unadjusted	115.097	104.715
Actual Adjusted	95.229	83.414
1972 Base Period	205.221	183.792
<u>CMA Reduction (%)</u>		
Adjusted	53.6	54.6
Unadjusted	43.9	43.0
Fiscal 1987 Year-to-Date	53.9% Adjusted	
Performance	44.1% Unadjusted	

ENVIRONMENTAL - F. G. Jeanson

Water

All wastewater discharge parameters were within NPDES limits during April.

March bioassay results were issued to the State. Our 100% effluent showed a significant amount of mortality. This test will be re-run in April.

Waste Management

One truckload of reactor culls was shipped to Sun Polymers.

Reporting

The quarterly progress report for the compliance plan was completed and issued.

The EPA laboratory performance evaluation was completed and issued.

A letter was written to the State explaining a manifest discrepancy with a shipment of spent solvent.

Other

Federal and State EPA personnel conducted a compliance plan inspection on April 29 and 30.

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.										
	Max.										
June -	Ave.										
	Max.										
July -	Ave.										
	Max.										
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	

Safety

A. Safety

There were no recordable first aid or medical cases for the month.

B. Customer Relations

Customer Contacts

The following customers visited the plant during customer week (April 6-10). H. G. Coleman gave the standard laboratory presentation and tour:

* Uniroyal Chemical Company, Inc.

* Diversitech General

Southwire Company

Better-Bilt Aluminum

Available Plastics, Inc.

* Included a vendor survey by these customers.

Poly-Tex Company - B. J. Harrison accompanied R. D. Jackson to this account on 4/15 to investigate continuing problems with 223-204, lot 47C23. A formula correction was made (269-185) to increase the amount of paraffin and colorant and the blue-white specification (WHT 144) was revised.

Dayton Extruded Plastics - B. J. Harrison visited this customer with R. D. Jackson on 4/16 where it was learned that we were using the wrong color specification. A new WHT 145 color code has been issued and the colorant level increased.

Requests for Corrective Action

<u>Date</u>	<u>Customer</u>	<u>Product</u>	<u>Reason</u>
4/06	Donnelly Corporation Holland, MI	48562	Customer received miscuts and streamers in bags of compound.
4/06	Donnelly Corporation Holland, MI	48562	Customer identified hard particles in compound produced on Line V.
4/06	Donnelly Corporation Holland, MI	48562	Returned 1700 lbs. due to improper colorant dispersion.
4/07	ITT Automotive Brownsville, TX	35031	Returned 1700 lbs. of unusable compound - hard particles on Line V.
4/06	DOTT Manufacturing Deckerville, MI	48562	Improper dispersion of compound made on Line V; caused surface appearance problems.

LABORATORY - ContinuedCustomer Problem Reports

<u>Date</u>	<u>Customer</u>	<u>Product</u>	<u>Reason</u>
4/03	Dayton Extruded Plastics Springboro, OH	269-12 WHT 142	Fusion torque; color not blue enough.
4/03	UTC Automotive Mt. Airy, NC	RP-200T WHT 111	Too glossy.
4/03	Columbia Plastics Columbia, TN	5385	Stones in storage silo.
4/08	United Thermal Plastics Philadelphia, PA	269-67	Plate-out; variable bulk density.
4/13	Dayton Extruded Plastics Springboro, OH	269-12 WHT 142	Color not blue enough. (Railcar compartment rejected.)
4/14	Southwire Company Osceola, AR	240-98	Spark failures; white powder contamination on screen paks.
4/21	Twitchell Dothan, AL	5415	Rough extrusion due to gels/hard particles.

Waivers Issued

<u>Customer</u>	<u>Product</u>	<u>Reason</u>	<u>No.</u>
Anchor Wire	15041 CB50	Streamers	1 H/T
Colby Plastics	80172C	Eq. Torque	1 R/C
Nibco	5305	Static Flow	1 H/T
United Technologies	5415	Static Flow	2 H/T

C. Development Lab SummaryRVCM 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 April, 1987.

	<u>Reactor Slurries</u>	<u>Drier</u>	
		<u>5265</u>	<u>5305</u>
Number of Samples	907	42	50
Average ppm, VCM	180	2.7	0.59

LABORATORYC. Development Lab Summary - continuedRVCM of Shipment Samples

The following is a summary of the residual VCM analysis of shipment samples for the month of April, 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>
No. of Samples	82	73	38	42	7	20	42
Average RVCM, ppm	1.1	0.2	0.3	0.1	0.1	0.6	0.6

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

	<u>5265</u>	<u>5305</u>	<u>5385</u>	<u>5415</u>	<u>5465</u>
Bulk Density	0.88	0.14*	2.44	1.39	3.39
Inherent Viscosity	1.61	0.64	0.56	0.63	0.78
"L" Color Value	2.61	6.78	3.33	3.25	7.00
"A" Color Value	0.81	4.33	----	----	----
"B" Color Value	1.22	1.50	3.33	4.00	4.33
% on Pan (vs. 2% max.)	2.00	3.67	6.00	3.42 (0.92)	6.50 (1.50)
% thru 140m	1.89	1.70	2.04	2.25	3.26
Drytime	----	----	0.44	0.83	2.67
Mets IR (vs. 95% of control)	----	----	----	1.55 (0.77)	1.06 (0.63)
Hard Particles (% > 10)	----	----	6.5	16.8	5.3

* 5305 bulk density is low because of an effort to minimize antistat at Hoechst's request.

E. Compound Quality Summary

	<u>Adjustments</u>	<u>Rejections</u>
	<u>M Lbs. (%)</u>	<u>M Lbs. (%)</u>
Hardness		7.20 (0.10)
Color/Clarity	No	29.51 (0.41)
Hard Particles	Adjustments	70.13 (0.97)
Contamination	This	4.80 (0.07)
Dispersion	Month	1.50 (0.02)
Dicing		13.05 (0.18)
Total	0.0 (0.0)	126.19 (1.74)

LABORATORYF. Dry Blend Quality Summary

	<u>Rejections</u>	
	<u>M Lbs.</u>	<u>(%)</u>
Color	27.11	(0.65)
Total	27.11	(0.65)

G. Miscellaneous

1. Training - Harold Coleman attended the three-day Team Leadership Training Course April 21-23. Brian Harrison and Dave Cox attended the four-day Experimental Design Course April 28 - May 1; Harold Coleman and Richard Williams received only the one-half day orientation.
2. TCLP Testing - Zero headspace extractors were received and some preliminary precision testing was performed by J. L. Cox of R&D. Receipt of tumbling devices is expected in early May.
3. All quality letters of certification were typed onto a computer disc. Use of the IBM PC will not only make a neater letter, but it will be much quicker and easier to make revisions. Also, we began reporting actual values for I.V. and RVCM on all resin railcar shipments.
4. Design work on Aberdeen's new dry blend color lab will begin soon. Brian Harrison is compiling a list of required utility hook-ups and is proceeding with equipment specifications and quotations.
5. RQIP Wastewater Studies - The lab is supporting T. W. Heller's program by running about ten COD measurements per day.

SHIPMENTS BY PRODUCT - M LBS.

APRIL 1987

FISCAL
YEAR-TO-DATE

RESIN	24,350	189,108
PLASTICIZER	1,005	5,448
DRYBLEND	4,458	31,918
COMPOUND	7,985	50,617

TOTAL	37,798	277,091
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NUMBER OF SHIPMENTS BY MODE:

	RAILCAR	VISTA BULK	TRUCK VAN	TRAILER ON A FLAT CAR	COMMON CARRIER	CUSTOMER PICK-UP	CONTAINER	TOTAL
RESIN-Bulk	103	34			1	90		228
Package			3	1	5	2		11
Export								
PLAST.-Bulk	4	6			1			11
Package								
DRYBLEND-Bulk	23	11			2			36
Package			4	3	9	2		18
Export								
COMPOUND-Bulk	20	2			1			23
Package			39		23	46	1	109
Export					2			2
TOTAL APRIL	150	53	46	4	44	140	1	438
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

ENERGY USAGE

A

46 3290

BTU/LB.

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



Monthly

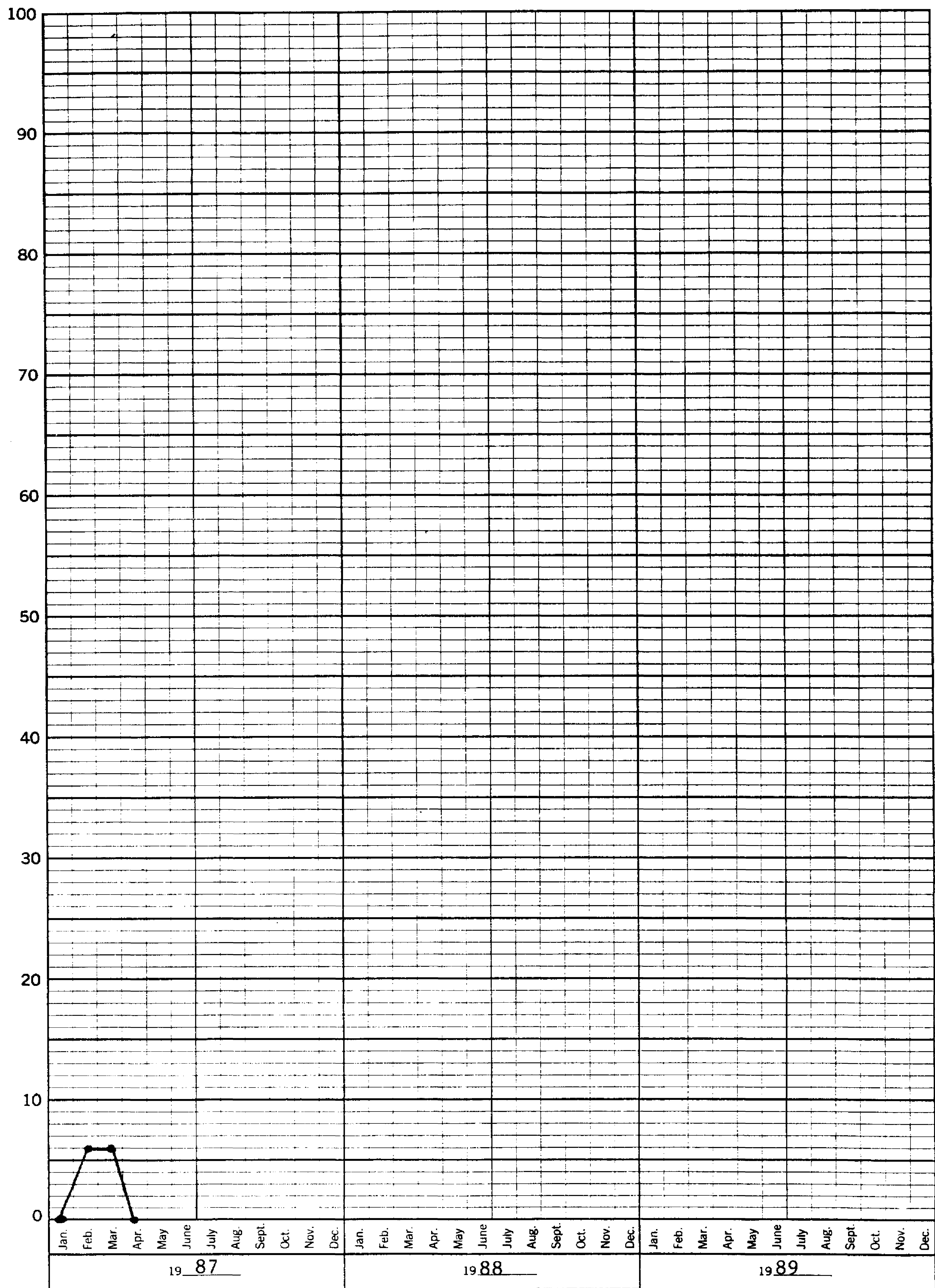
12-Month Moving Avg.

MONTHLY HOURLY TURNOVER

A

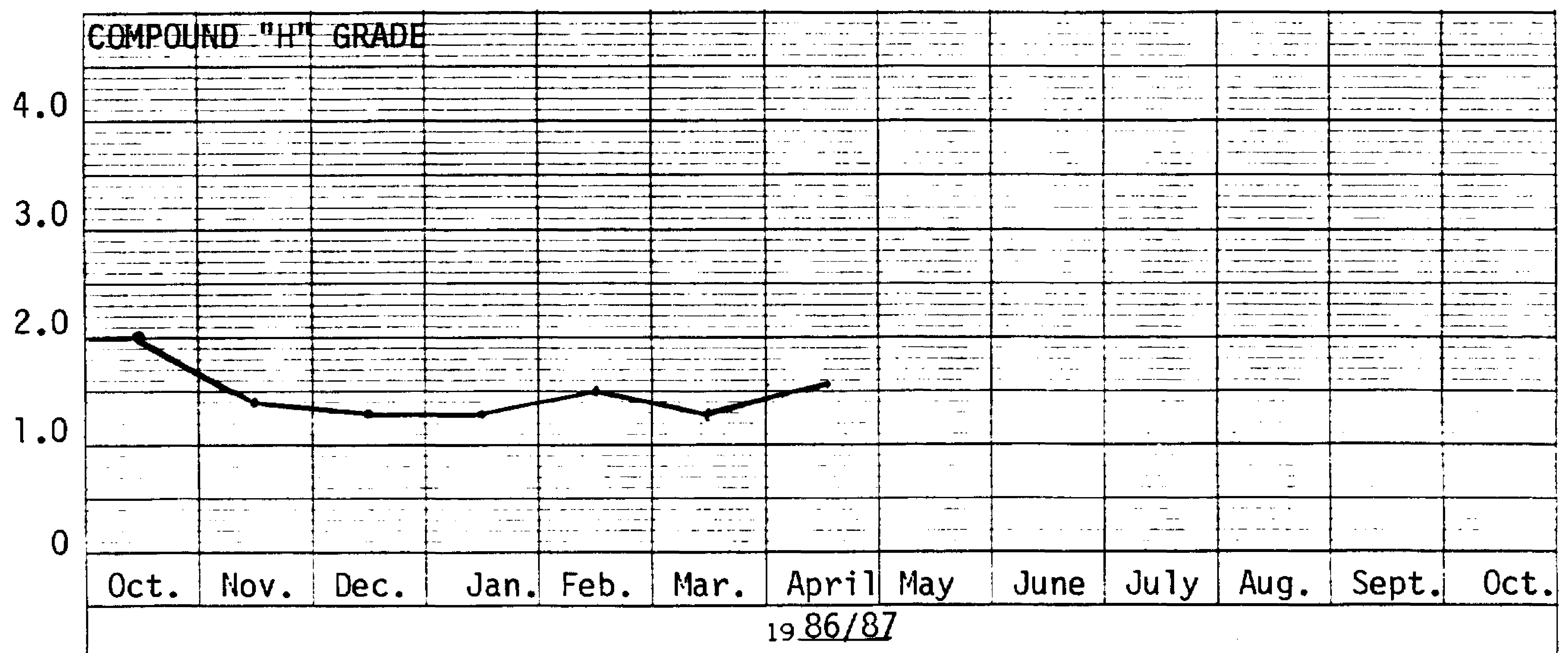
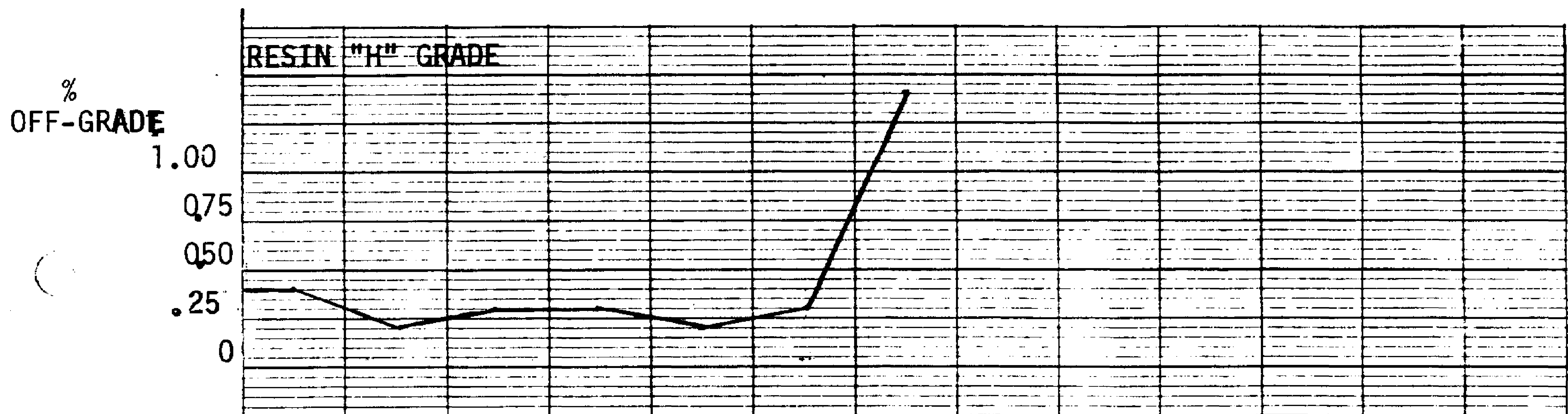
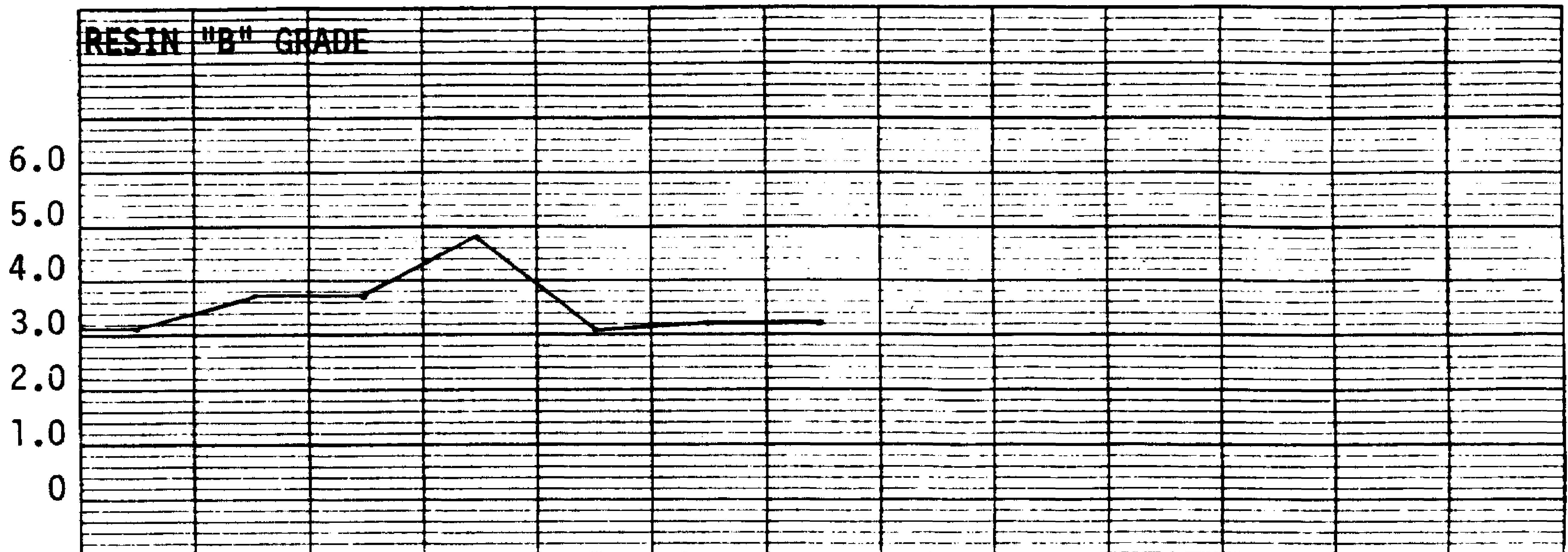
46 3290

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

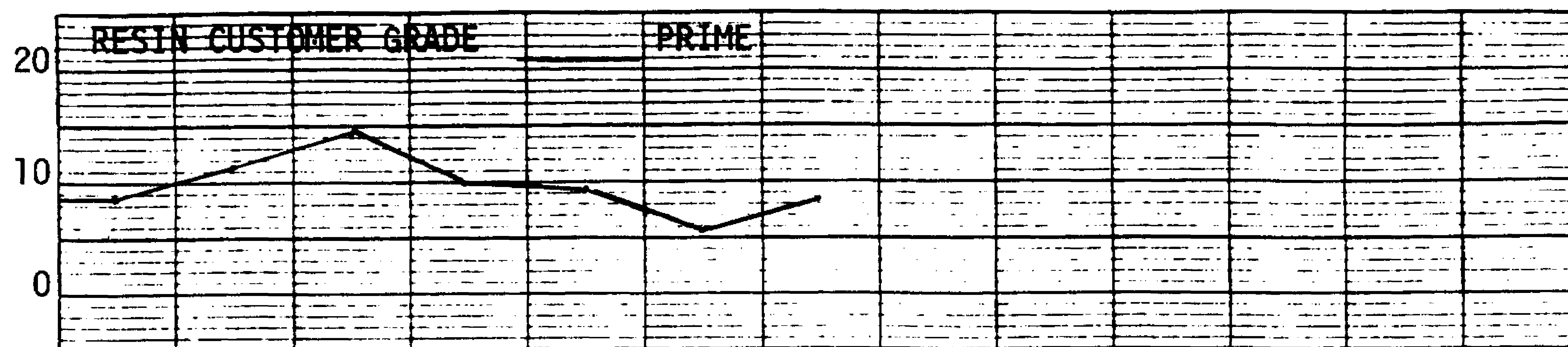


ABERDEEN PLANT INVENTORIES

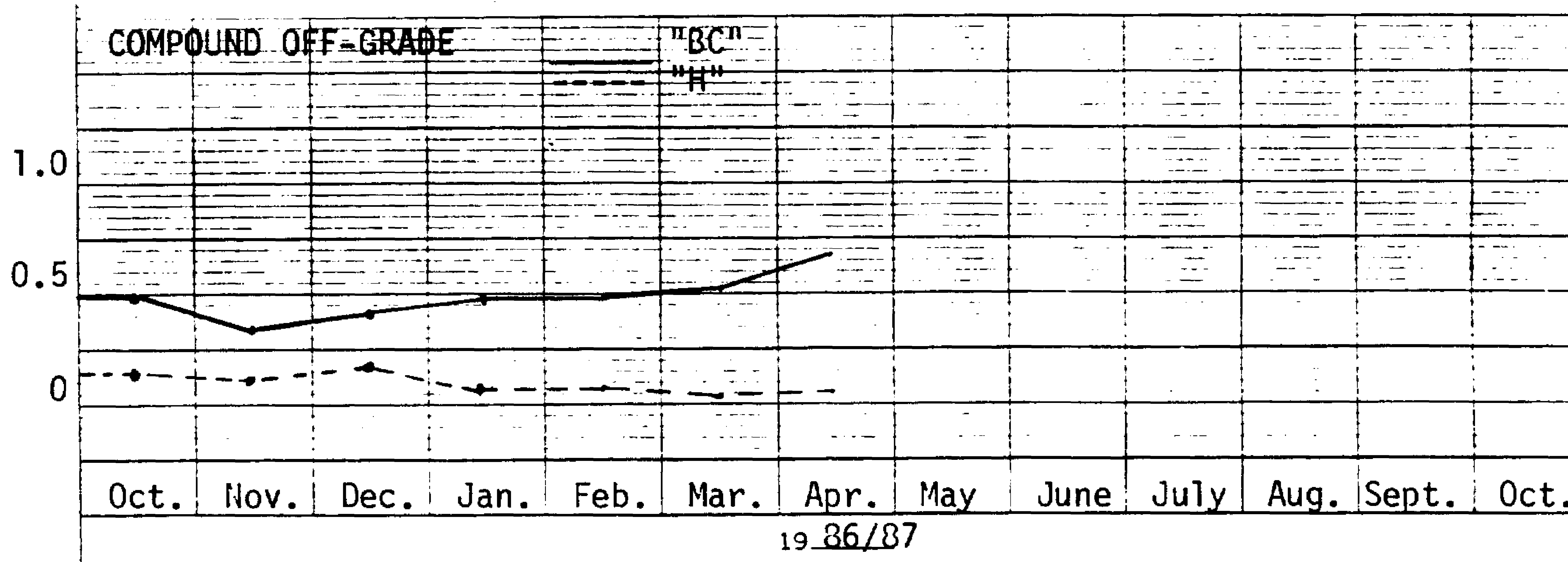
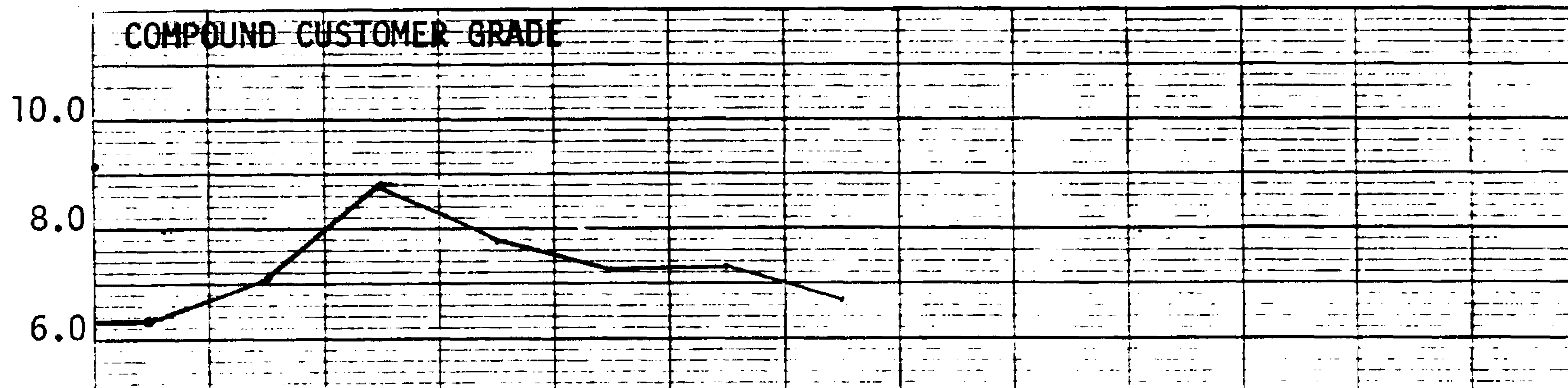
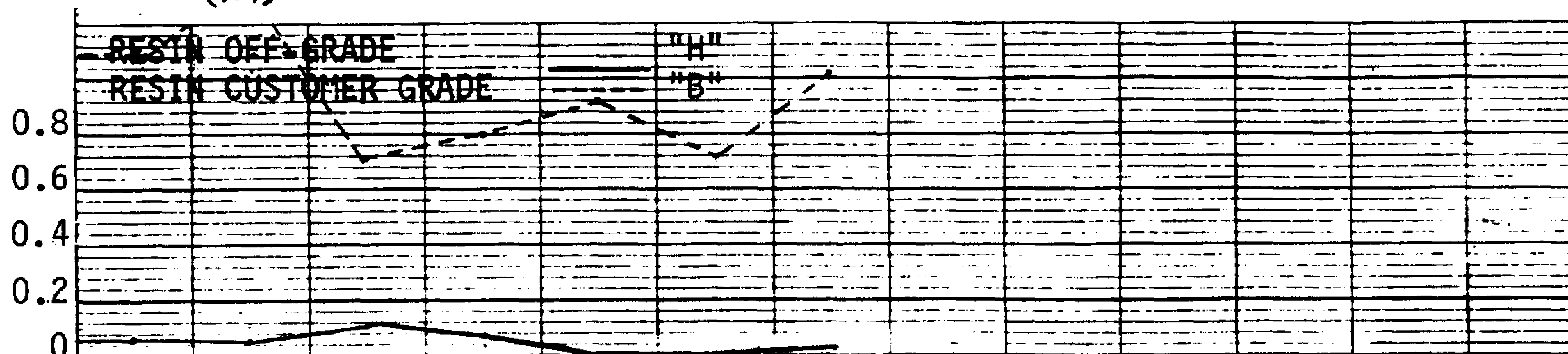
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10/01/86 - 09/30/87

MM
POUNDS
PRIME



(1.4)



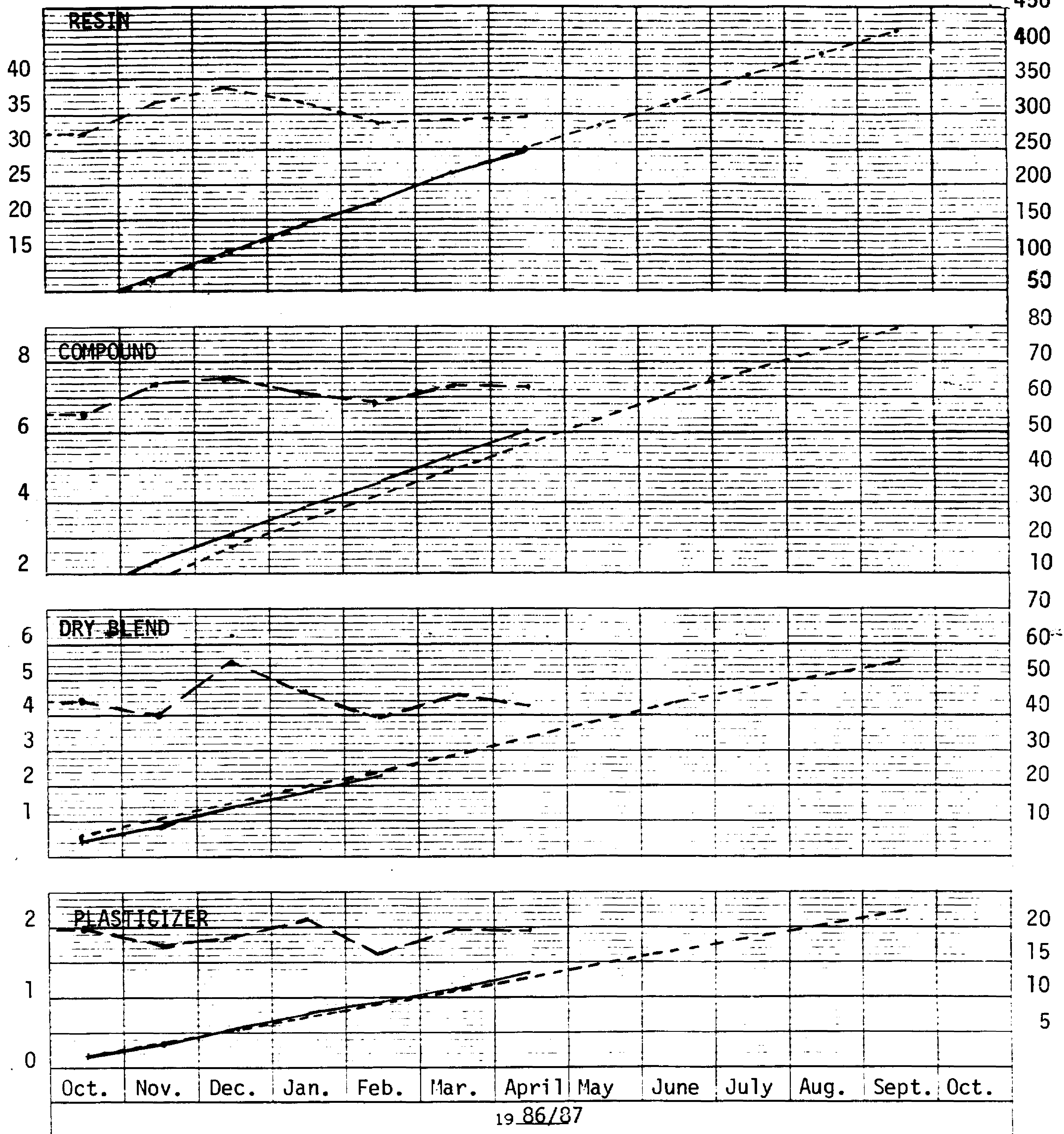
19 86/87

ABERDEEN PLANT PRODUCTION

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

