

File Copy

To: T. H. Huffman

From: D. C. Skokna
Date: July 18, 1988

Subject: ABERDEEN MONTHLY PROGRESS REPORT
JUNE, 1988

VISTA

Interoffice
Communication

There was one first aid case reported during the month. As of June 30, 1988, the plant had operated 3,283 days or 4,274,987 manhours without a lost time injury.

On June 4, an Open House was held for employees and their families to celebrate the plant's 25th anniversary and to communicate SARA 313 information. Approximately 480 people participated.

Key Statistical Information

	<u>Month</u>	<u>Y.T.D.</u>
PVC Production, MM Lbs.	27.3	343.9
Reactor Stream Factor, %	65.1	89.9
Resin Quality, % Prime	95.2	
VCM Efficiency, lbs./lb	1.00257	1.01425 (std. = 1.00756)
Compound Production, MM Lbs.	7.3	67.2
Compound Quality, % Prime	96.5	
Dry Blend Production, MM Lbs.	5.5	50.0
Dry Blend Quality, % Prime	98.6	
Plasticizer Production, MM Lbs.	2.0	16.3
Plasticizer Quality, % Prime	96.6	
Energy Use (CMA Reduction, %)	46.8	52.0
Fixed Cost Variance, \$M	(146.9)	281.6
Variable Cost Efficiency Variance, \$M	43.1	682.5
Variable Cost Price Variance, \$M	(2250.5)	(17,216.1)
Variable Cost Variance, \$M	(2207.4)	(16,533.6)

The primary cause of downtime in the vinyl unit was a VCM shortage. During the period of VCM shortfall, most of the annual old reactor module turnaround work was completed.

In the compound unit, Lines I and III operated thirty days and Line V operated 26.5 days.

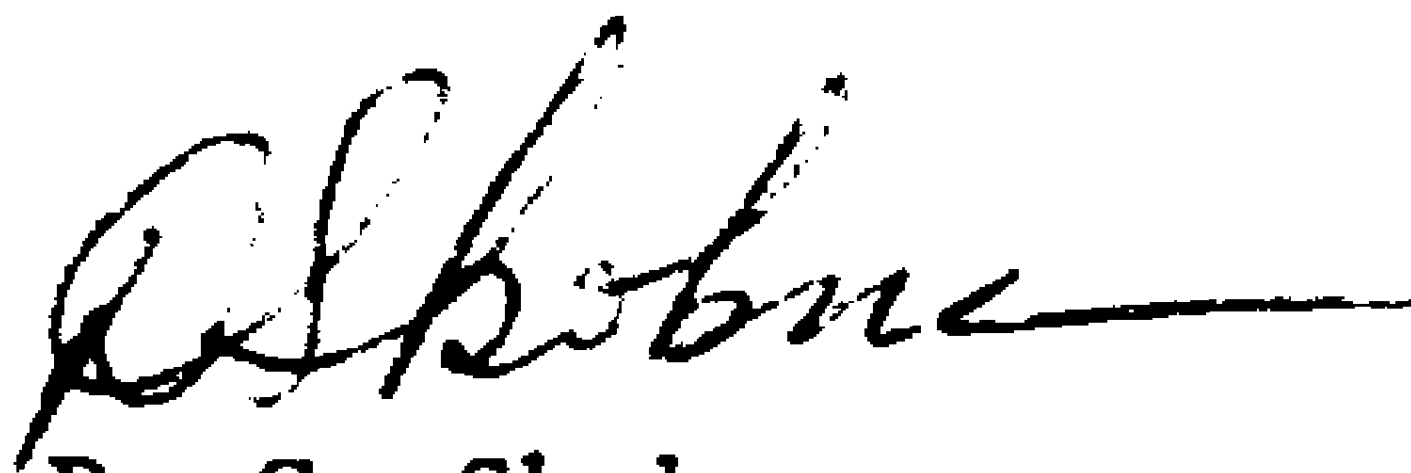
Fixed costs were unfavorable due to several large maintenance projects and the old module turnaround clearing during the month.

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QMP

- The plant participated in supplier audits for initiators and antioxidants.
- Meetings were held with laboratory personnel to discuss calculating the cost of quality.
- The V-11 Dust and the 5265/5305 Contamination Teams met and progressed during the month.
- A Lead Abatement Team was formed to recommend ways to reduce lead exposures in the compound unit.
- The plant participated in a review of a prototype "Laboratory Information Management System" at the Lake Charles Chemical Plant.
- A team (the Plasticizer Improvement Team) was formed to improve quality, productivity and the environmental performance of this unit. In addition to plant members, this team has PED and R&D members.

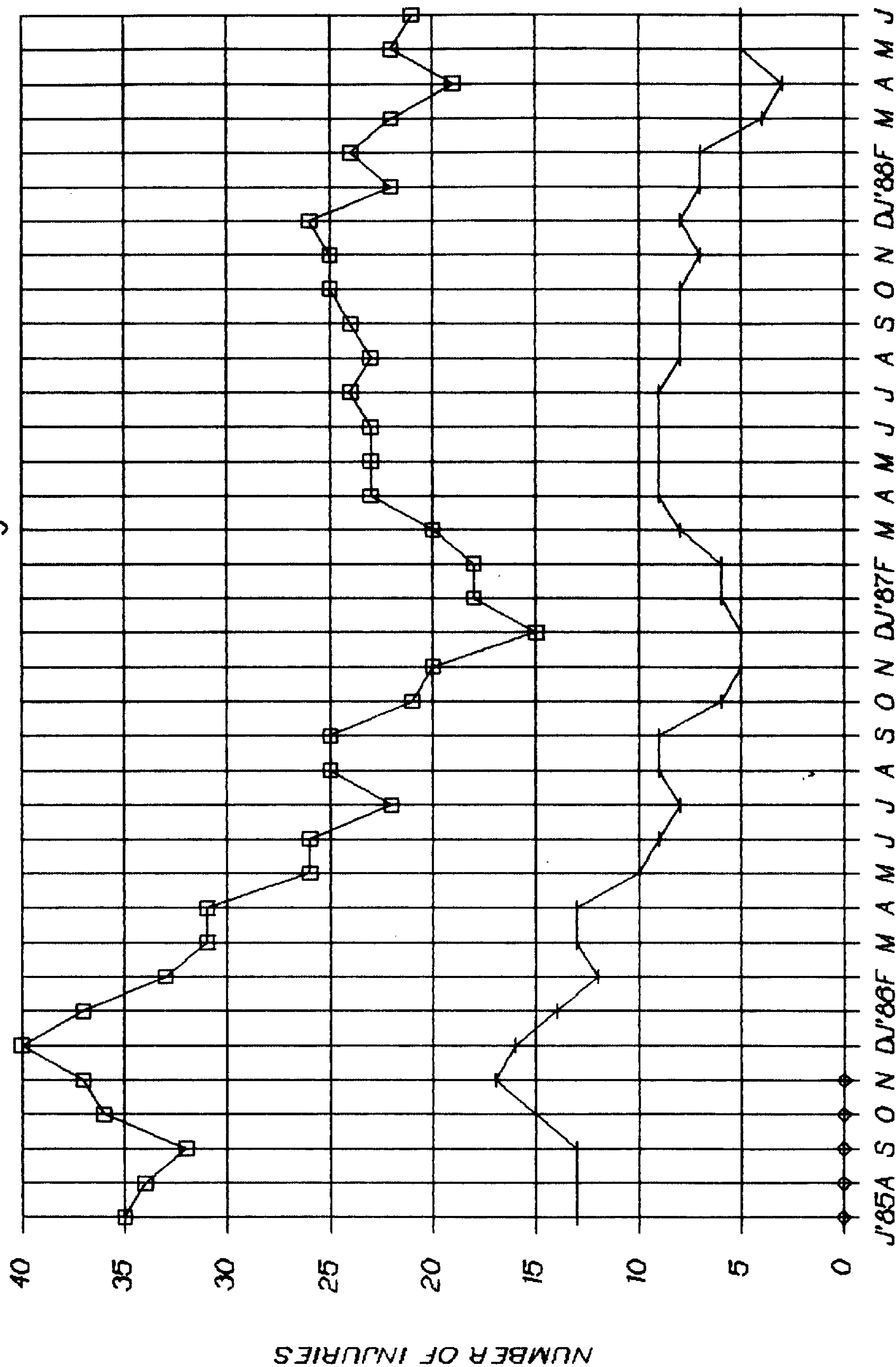


D. C. Skokna
Plant Superintendent

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ABERDEEN CHEMICAL PLANT INJURIES

(Twelve Month Running Totals)



□ TOTAL INJURIES + OSHA RECORDABLE

PLANT FIXED COSTS - D. C. Skokna

<u>Major Category</u>	<u>Variance vs. Budget</u>	
	<u>June, 1988, \$M</u>	
	<u>June</u>	<u>YTD</u>
Payroll and Benefits	(\$52.5)	(\$174.5)
MM&C	(115.6)	187.7
T&I	4.1	86.0
Miscellaneous	17.1	182.4
	<u>(\$146.9)</u>	<u>\$281.6</u>

Payroll and Benefits - Overtime for Line V operation and a \$26.1M unfavorable benefits clearance were the primary causes of the unfavorable variance.

MM&C - Major extraordinary projects and the unscheduled old module turnaround caused the unfavorable variance. We forecast that MM&C expenditures will be approximately \$80M favorable by year-end.

Miscellaneous

- Travel and Entertainment - \$11.1M unfavorable due to supplier visits and training related to the dry blend Orbitran replacement project.
- Outside Professional Services - \$9.0M unfavorable due to SARA 313 communications preparation (video, pamphlets).
- Operating Supplies - \$17.7M favorable - No major purchases were made during the month.
- Shipping Costs - \$10.6M favorable due to late clearing invoices.

QUALITY MANAGEMENT PROCESS - D. W. Hollis, R. B. Newton

- 1) Participated in Employee Open House on June 4.
- 2) Dave Hollis and representatives from R&D, Purchasing, Aberdeen manufacturing and Oklahoma City manufacturing conducted audits of the initiator suppliers. Also, a site survey was done on the resin anti-oxidant supplier.
- 3) Dave Hollis, Harold Coleman and Dave Cox attended a presentation of the "BLISS" software for lab data management at Lake Charles Chemical Plant.
- 4) A meeting was held with lab personnel to discuss calculating lab cost of quality.

VINYL - P. J. Kober, C. J. McDonald

Safety

There was one first aid injury in Vinyl this month. A General Helper burned his wrist while making a suspending agent solution.

The monthly safety meeting topic was "Scott-Air Pak Training". All operators and supervisors practiced donning and using the Scott fresh air pak system.

Quality Management Process

The department's Natural Team met four times during the month to coordinate daily activities and to continue discussions/actions on the Quality Implementation Plan.

There are three active employee involvement teams. A fourth, the Railcar Cleaning Team, has submitted an AFE designed to improve their process. The three active teams all met during the month. The V-11 Dust Team is testing some vendor equipment in addition to pursuing modifications to sifter deck equipment in the V-11 dryer room. The 5265/5305 Contamination Team continues to test various methods to reduce wall scale during low molecular weight resin production. To date, none have been successful. They are currently also soliciting help from R&D.

<u>Production</u>	<u>June</u>	<u>Y.T.D.(Fiscal 88)</u>
1. Production, MM Lbs.	27.3	343.9
2. Daily Production Rate, M Lbs./C.D.	909.3	1255
3. Total Charges	633	8130
4. Charges, Reactor Batches/C.D.	21.1	29.7
5. Reactor Stream Factor	65.1	89.9
6. Dryer Rate, Average Lbs./Hr.	8424	9535
7. Dryer Stream Factor	56.2	68.8
8. Accounting Days	30	274

Reactors

The reactor stream factor for June, 1988, was 65.1%. Downtime in the reactor area occurred as follows:

- 1) Operational Downtime: Accounted for 9.9% of the total downtime and was due to reactor recovery scheduling conflicts, downtime due to rinsing the chem wash tank, waiting on particle size data before charging, power failures, new module rinse/charge water conflicts, and holding recovery for Isonox^R 132 kill test, and reducing recovered VCM levels in the receivers to avoid using RVCM in 5305 production.
- 2) Maintenance Repair/Revision Downtime: Accounted for 14.1% of the total and was due to installation of a larger condenser on D600, replacing the agitator fluid drive coupling on D741, repairing new module F-50 charge meter, old module Modicon repairs, cleaning the D300 sewer, and checking the calibration on new module water meter and VCM meter temperature compensation.

Reactors - continued

- 3) Other Downtime: Accounted for 76.0% of the total and was due to an Open House for plant employees and their families (6.2%), and a VCM shortage (69.8%). The downtime from the VCM shortage was used for maintenance normally done during the annual old module turnaround and some new module maintenance. Major old module turnaround items completed were: new bottoms were installed on D400 and D500 reactor jackets, replaced bottom manway on D300, inspected recovery collect tank, inspected recovery seal water separators, inspected water charge tank, inspected fresh VCM receiver, inspected both recovery knock-out tanks, drilled recovery system subcoolers, drilled knock-out tank heat exchanger, inspected D700 VCM charge header, installed new crossover cooling tower valve between D300/400 and D500/600 cooling tower, repaired fluid bed leaks, installed new VCM charge header, hydroblasted and dye-checked all old module reactors, and removed a relief valve from D300. In addition, new module reactors D743, 744 and 745 were hydroblasted. D742, 743 and 744 had their condensers drilled and D743 was dye-checked.

Dryers

The dryer stream factor for June, 1988, was 56.2%. Downtime in the dryer area occurred as follows:

- 1) Reactor Limited Production: Accounted for 96.8% of the total. Dryers were shut down when possible for energy conservation.
- 2) Operational Downtime: Accounted for 2.6% of the total downtime and was due to centrifuge plugging, dryer cleaning, activator transfer problems, power failures, and checking socks for leaks.
- 3) Maintenance Repair/Revision Downtime: Accounted for 0.6% of the total downtime and was due to repairs of leaking socks, activator repairs, and centrifuge and air sweep repairs on #7 dryer.

Product Quality Summary

<u>Resin Type</u>	<u>Prime</u>	<u>"B"</u>	<u>"H"</u>	<u>% of Total Production</u>
5325	1,977,178	-	-	7.2
5305	4,243,785	-	-	15.6
5385	12,044,936	-	-	44.2
5415	7,701,204	-	-	28.2
5465	-	-	-	0.0
Debox	-	1,026,710	-	3.8
Off-Grade	-	-	-	0.0
Sifter Overflow	-	-	81,720	0.3
Pond Resin	-	-	204,050	0.7
Total	25,967,103	1,026,710	285,770	100.0

VINYL - Continued

Monthly Variable Cost Performance

Variable costs for the month were unfavorable at \$1326.8M resulting from an unfavorable price variance of \$1241.8M and an unfavorable efficiency variance of \$85.0M. Resin variable cost for June, 1988, was 25.525 cents per pound versus the budget of 20.658 cents per pound.

The unfavorable price variance was due to VCM pricing at \$1299.1M unfavorable.

VCM efficiency for the month was 1.00257 pounds per pound of PVC produced versus the budget at 1.00756 pound per pound. This resulted in a favorable variance of \$25.4M. The lower VCM efficiency was a result of seasonal drying of pond resin. Initiator had an unfavorable variance of \$85.3M. The variance is due to problems in accounting of inventory. We are currently trying to improve the initiator inventory accounting system.

Energy Performance/Progress

Plant energy performance for June, 1988, was 3197 BTU/lb.

General

The resin raw materials in the 744 account were valued at \$245.3M.

The Vinyl and Yard Departments participated in Open Houses for plant employees and their families, and local dignitaries and media. Vinyl also assisted R&D in a successful test run of Isonox^R 132 as a reactor kill agent.

COMPOUND - C. W. Turner, S. C. Hillman

Safety

The Compound Department worked without injury in June.

June's monthly safety meeting topic was a review of general safety rules.

Quality Management Process

The Compound Department's Operations Superintendent Natural Team met in June. The meeting included all the compound shift supervisors. Topics covered included feedback from supervisor natural team meetings and status of the supervisor natural team projects.

A Plasticizer Improvement Team has been formed to identify ways to improve quality, productivity, and environmental performance of the plasticizer unit. This team includes representatives from PED, plant Process Engineering, R&D, and plant lab.

<u>Compound Production</u>	<u>Operating Days</u>	<u>Month</u>	<u>Production (M Pounds)</u>	
			<u>Average Operating Day Rate</u>	<u>Fiscal Y.T.D.</u>
Line I	30	2008	67	20747
Line III	30	4019	134	35002
Line V	26.5	1286	49	11476
Total		7313		67225

Line I operated thirty days in June at an average rate of 67M pounds per day. Major items affecting production efficiency were: product changes, 111 hours; maintenance on Banbury seal and gate, 34 hours; quality problems, 22 hours; dicer problems and maintenance, 20 hours; and housekeeping, 7 hours.

Line III operated thirty days in June at an average rate of 134M pounds per day. Major items affecting production were: product changes, 44 hours; housekeeping, 18 hours; dicer problems and maintenance, 13 hours; FCM seal maintenance, 12 hours; quality problems, 11 hours; and pull roller maintenance, 5 hours.

Line V operated 26.5 days in June at an average rate of 49M pounds per day. Major items affecting production efficiency were: product changes, 43 hours; Welex intensive mixer problems and maintenance, 35 hours; pelletizer blade changes, 16 hours; microingredient conveyor maintenance, 10 hours; Orbitran problems, 4 hours; and housekeeping, 4 hours. Line V was scheduled down two days for maintenance on the Welex intensive mixer.

COMPOUND - continued

Quality performance for flexible compounds for June was 1.8% off-grade of which 84.0% was due to mill scrap. "BC" production was 1.5%.

The raw material requirement for flexible compounds was 1.00472 pounds of raw material per pound of compound versus a 1.01192 standard (YTD is 1.00800).

The variable cost variance for compound was \$320.3M unfavorable with \$433.5M unfavorable due to price and \$113.2M favorable due to efficiency. The efficiency variance due to product mix was \$213.8M favorable.

The only major compound raw material efficiency variance was colors at \$17.5M favorable.

Total compound inventory rose 366M pounds in June to 9.43MM pounds.

<u>Dry Blend</u>	<u>Month</u>	<u>Average Operating-Day Rate</u>	<u>Fiscal Y.T.D.</u>
Production, M Pounds	5458	182	49967
Operating Days	30	-	274

Dry blend operated thirty days in June at an average rate of 182M pounds per day. Production included 80273G WHT 110, 80172C WHT 110, 90172D WHT 110, RP-100 WHT 142, RP-200 WHT 111, RP-203 BGE 322, RP-460 WHT 110, 186-139 WHT 111, 269-151 WHT 145, 290-61 WHT 121, 317-91 WHT 110, 317-166 WHT 144, 317-186 WHT 110, 317-196 WHT 111, 378-34 WHT 141, and 378-39 WHT 138. During June, 41.9% of production was fittings and other non-pipe dry blends.

Dry Blend production was hindered by: quality control, 81 hours; product changes, 43 hours; waiting on blender transfers, 28 hours; screener inspection and cleaning, 23 hours; and blender inspection, 4 hours.

Quality performance for the month of June was 98.6% customer grade.

The raw material requirement for dry blend was 1.00526 pounds of raw material per pound of dry blend versus a standard of 1.00489 (YTD is 1.00490).

The variable cost variance for dry blend was \$497.4M unfavorable with \$508.9M unfavorable due to price and \$11.5M favorable due to efficiency. The efficiency variance due to product mix was \$13.4M favorable. There were no major dry blend raw material efficiency variances.

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COMPOUND - continued

<u>Plasticizer</u>	<u>Month</u>	<u>Average Operating-Day Rate</u>	<u>Fiscal Y.T.D.</u>
Production, M Pounds	2065	69	16343
Operating Days	30	-	271

Plasticizer operated thirty days in June at an average rate of 69M pounds per day. Production included 610P and 108P.

VRP production totaled 68.6M pounds (3.3%).

The raw material requirement for plasticizer was 1.07138 pounds of raw materials per pound of plasticizer versus a 1.10056 standard (Y.T.D. is 1.09304).

The variable cost variance for plasticizer was \$62.9M unfavorable with \$66.3M unfavorable due to price and \$3.4M favorable due to efficiency. The only major raw material efficiency variance was Alfol 610 alcohol at \$18.7M favorable.

The efficiency variance due to product mix was \$0.1M unfavorable.

Energy

	<u>Usage (BTU/Lb.)</u>	
	<u>Actual</u>	<u>Standard</u>
Compound	2073	1758.0
Dry Blend	862	720.0
Plasticizer	1878	1550.6

MECHANICAL DEPARTMENT - T. F. Lyon

MAINTENANCE - D. A. Miller

Safety

There were no injuries to Mechanical Department personnel during the month.

The monthly safety meeting topic was "Respirator Training".

Quality Management Process

The Maintenance Shop Utilization Team was formed and had two meetings during the month.

Vinyl

Due to an unscheduled shutdown of the old module because of VCM supply problems, the unit was cleared and annual shutdown work completed. The following is a list of the major work completed:

- Rupture discs were changed on all old module reactors.
- All old unit reactors were hydroblasted and die-checked. No problems were found.
- The D-300 bottom manway was replaced.
- The bottom closure ring on the D400 and D500 reactor jackets were replaced due to leaks caused by water-side corrosion.
- The fresh VCM receiver, knockout pots, seal water separators, hot water tank, and collect tank were inspected.
- The knockout pot water cooler and ring seal water coolers were cleaned.
- The VCM charge header was replaced.
- All reactor agitator rotating equipment was inspected and lubricated.
- The D500 vinyl chloride charge valves were replaced.
- Several leaking valves were replaced in the old unit steam system.
- The old dump Sweco screens were replaced.
- The D600 cooling water control valve was replaced with a larger valve.

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MECHANICAL DEPARTMENT - continued

Vinyl - continued

The following instrument and electrical work was performed during the month:

- The VCM turbine meters were PM'd.
- The VCM receiver level and pressure instrumentation was calibrated.
- The power supply to the old module Modicon I/O racks was modified to allow isolation of each rack.
- A floating ground was repaired in the Foxboro spec 200 system.

The D600 chem wash and rinse system was revised to eliminate pressure drop and unnecessary valving during the condenser replacement.

Reactor condensers 741, 742, 743 and 744 in the new module were drilled due to tube side fouling.

Reactors 743 and 744 were hydroblasted and die-checked.

Reactor 745 was hydroblasted in preparation for a low mole resin run.

The D744 condenser lid was replaced with a new lid due to cracked cladding. The old lid will be repaired and will be installed on D742 which also has a lid with cracked cladding.

The following mechanical seals were replaced:

- D300 agitator seal
- Old unit south chem wash pump
- 903 compressor inboard and outboard
- North fluid bed scrubber recycle pump

The following major valves were replaced:

- D700 main dump valve
- D700 sewer valve
- D742 main dump valve
- D744 condenser cleaning valve
- D300 sewer valve
- D300 primary VCM valve
- D400 slurry dump valve
- D600 recovery valve

MECHANICAL DEPARTMENT - continued

Dryer Area

The #1 Bird centrifuge overhaul was completed and installed in preparation for a pond resin run.

During the old unit shutdown, the following work was performed on the fluid bed dryer:

- The bed plate was resealed.
- The heating panel door gaskets were replaced.
- The scrubber was chemically cleaned and the demister pad replaced.
- Revisions were made to the centrate hopper discharge piping.

Compound, Dry Blend, Plasticizer

The Line I Banbury seals and hydraulic pump were replaced.

The Line III FCM Visco seals were replaced and the rotors were inspected. No abnormal rotor wear was noted.

A vibration problem on the Line V Welex deck was investigated. All rotating parts associated with the intensive mixer were dynamically balanced. Vibration of the platform has not decreased. Investigation into structural problems is continuing.

Only routine maintenance was performed in the dry blend and plasticizer units.

Utilities

The #3 boiler annual inspection was completed; the following repairs were completed:

- Minor firebox refractory repairs.
- Repaired the burner damper linkage and controls.
- The magnetrol level system wiring was replaced.
- The relief valves were reconditioned.

The east Joy centrifugal compressor motor was overhauled on a scheduled basis.

The Joy compressor vibration instrumentation was recalibrated.

The supply and return piping to #2 cooling tower was sandblasted and painted.

MECHANICAL ENGINEERING - R. E. Polk

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AFE F596/A717 - Reactor Heat-Up Loop

This project is complete and operational. The project will be closed to field charges in July.

AFE F786/F557 - Resin Quality Improvement

Concrete work is 97% complete and in progress. Fireproofing and minor paving remains. Mechanical work is complete except for punchlist items. I/E work is 50% complete and in progress. Painting, roofing and siding are in progress. Project completion is targeted for completion in early August, 3-4 weeks ahead of schedule.

AFE F587 - Laboratory Addition

The lab was completed the week of May 16. Punchlist items are in progress and scheduled for completion by 7/15. The project will be closed to field charges in August.

AFE D707 - VCM Unloading Fire Protection

Installation by Texas Automatic is 85% complete and in progress. Completion is planned for the week of 7/4. The project will be closed to field charges in August.

AFE A538 - Reactor Condenser Revisions

Installation of the new condenser on D600 was successfully completed in early June. Retubes for D500 and D400 are planned for mid-July and mid-August, respectively.

AFE D608 - Dryblend Orbitran Replacement

Software development and checkout are complete. Pre-shutdown field work is 80% complete and in progress. Installation is planned for the period of 7/10-20.

AFE B548 - Plasticizer Lighting Upgrade

All scope work is complete including punchlist items. The project will be closed to field charges in July.

AFE D638 - Boilerhouse MCC Replacement

Bids have been requested and are due in early July. Installation is planned for completion by 10/1.

AFE F598 - Line I Screeners

Installation is 20% complete and in progress. Completion is planned for 9/1.

PROCESS ENGINEERING - V. E. Messick

Dry Blend Orbitran Replacement

Univox configuration and software checkout was essentially completed in June. The operations training manual was also completed. Training classes for operations and I&E personnel were conducted.

Railcar Cleanout Team

An AFE for a new railcar cleaning system was submitted by the team and has been approved.

Plant Air System Modification

This project was included in the fourth fiscal quarter budget. An AFE request was written and submitted for this project.

Compound Silo Bridging Problem

A report from Jenike and Johnson was received containing recommendations to correct the bridging problem. It was reviewed and major equipment costs are being determined.

SARA

The Section 313 forms were approved and issued to the EPA and State. Titanium dioxide was removed from the Section 313 list.

Chem Wash Optimization

A letter was written describing work to date on backflush filters, problems encountered and recommendations to correct. An estimation was completed on proposed solutions.

Plant Water System

A meeting was held with PED, R&D, plant personnel and a hydrologist to discuss alternate charge water testing. An estimate was completed on charge water testing costs. The AFE request for the Coker aquifer test was prepared and submitted.

Steam Trap Survey

All of the steam traps in the new and old modules were tagged and documented.

Well Water Safety Items

A design was completed to provide additional relief capacity to the well water system and to provide instrumentation to start the city water booster pump during periods of low pressure in the well water system.

PROCESS ENGINEERING - continued

Well Water Safety Items

A design was completed to provide additional relief capacity to the well water system and to provide instrumentation to start the city water booster pump during periods of low pressure in the well water system.

Pond #3 pH Control

A design was completed to provide improvements to the current acid addition system. An alternative to sulfuric acid is also being evaluated.

RQIP

Construction continues in all areas. A pre-completion audit was held in June. PED people are developing the operating procedures with plant input. Manuals will be in the plant for review in July. Assistance to the construction group is ongoing and continuous.

D600 Condenser

The new extended-length condenser was installed on D600 reactor. Several batches of 5385 were made at 7 and 8 gallons of initiator. Testing will continue in July.

Shutdown Assistance

Process Engineering provided assistance during the recent shutdown of the V-11 reactor module. Information was gathered on all rupture discs which were changed out during the shutdown.

Plasticizer Filtering Problem

A design was completed to electric heat trace soya epoxy lines in order to eliminate hard particle formation. Designs were also completed to install better plasticizer filters on Line I, III and V.

Plasticizer Discoloration Problem

A design was completed to install an oxygen analyzer on the inert gas system that will alert operators of excess oxygen.

Dryer Dust Collectors

A consultant was in the plant to gather information and observe both the existing dust collector system and a proposed new dust collection system.

HUMAN RESOURCE REPORT

PERSONNEL - J. E. Beall

EMPLOYMENT

Wayne L. Cadden, New Hire
Charles R. Clay, New Hire
Thomas A. Madigan, Rehire
Bernard McGee, New Hire
Nathaniel Smith, New Hire
Rory H. Sneed, New Hire

PROMOTIONS/TRANSFERS

Paul E. Allman promoted from General Helper to Compound Utility.
Paul Cook from Compounder to Compound Operator.
Lee Roy Howell promoted from General Mechanic "B" to General Mechanic "A".
David Nolen from General Mechanic "A" to Instrument Technician "B".
James D. Wells promoted from Maintenance Helper to General Mechanic "B".

RETIREMENTS

None

TERMINATIONS/RESIGNATIONS

Jeffrey B. Popp

TO/FROM LEAVE OF ABSENCE

None

Aberdeen, Mississippi

JUNE, 1988
MONTHLY PERSONNEL REPORT

Salaried Employees 78*Hourly Employees 171Total Employees 249Employees (Hourly)New Employees 4Terminations 0

Minority Employees #, %

Salaried 7 9%Hourly 68 40%Total 75 30%Hourly Min. Hired 2% Min. Hired 50%Hourly Min. Term. 0% Min. Term. 0

<u>DEPARTMENTS</u>	<u>PAR</u>	<u># EMPLOYEES</u>	<u>MIN. EMP.</u>	<u>% MIN.</u>	<u>NEW HIRES</u>	<u>YTD</u>	<u>TERM.</u>	<u>YTD</u>	<u>TURNOVER</u>	<u>YTD</u>
Warehouse	<u>16</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>13</u>	<u>17</u>	<u>7</u>	<u>41</u>	<u>4</u>	<u>8</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Maintenance	<u>40</u>	<u>38</u>	<u>9</u>	<u>24</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Laboratory	<u>24</u>	<u>24</u>	<u>6</u>	<u>25</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Compound	<u>40</u>	<u>39</u>	<u>27</u>	<u>69</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>10</u>	<u>31</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Plasticizer	<u>5</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 23

APPLICANT BREAKDOWN:

Minority 2 % Minority 20# Female 0 % Female 0

Hires (Hourly):

Month 4 Year to Date 8

Terminations (Hourly):

Month 0 Year to Date 3Overall Turnover 0Projected Annual Turnover 3.5%

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

OVERTIME AND ABSENTEEISM

<u>Department</u>	<u>Straight Time Hours Worked</u>	<u>Overtime Hours Worked</u>		<u>Overtime as a % Of Straight Time</u>	<u>Absence Hours Lost</u>	<u>Absence as a % of Straight Time</u>	
		<u>Controllable(1)</u>	<u>Non-Controllable(2)</u>			<u>Sickness</u>	<u>Other Total F.Y.T.D</u>
WAREHOUSE	1511.50	144.25	-----	9.54	1	.00	.07 2.36
YARD	1500.00	162.50	48.00	14.03	48	3.20	.00 3.20 4.49
MAINTENANCE	5409.75	990.00	16.00	18.60	114	1.63	.48 2.11 1.03
LAB	3923.00	629.75	80.00	18.09	434	10.30	.76 11.06 4.26
COMPOUND	8241.00	1839.00	84.00	23.33	408	4.66	.29 4.95 3.23
VINYL	6646.50	1149.25	180.00	20.00	392	5.60	.30 5.90 4.27
PLASTICIZER	925.75	56.25	-----	6.08	6	.00	.65 .65 2.43
UTILITY BOILER	792.00	113.25	24.00	17.33	0	.00	.00 .00 .00
GENERAL PLANT	944.00	4.50	-----	.48	0	.00	.00 .00 .11
TOTAL	29893.50	5088.75	432.00	18.47	1403	4.34	.35 4.69 3.02

(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 June was 109.816 MMM BTUs. Energy consumption increased to 2608 BTU/lb. from 2370 BTU/lb. in May. An adjusted CMA reduction of 46.8% was obtained for the month. The adjusted CMA reduction for fiscal 1988 is 52.0%.

II. Plant Energy Conservation Program

Maintenance

There were twelve energy related items completed in June. Ten 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>June, 1988</u>	<u>June, 1987</u>
No. 1	83.4	83.6
No. 2	83.5 ⁽¹⁾	83.3
No. 3	82.7 ⁽²⁾	83.4

Note: (1) Boiler number two was operated eleven days during the month.

(2) Boiler number three was operated sixteen days during the month.

ENERGY CONSERVATION DATA

	<u>1988</u>	<u>1987</u>
<u>Month</u>	<u>June</u>	<u>June</u>
<u>Production, MM Lbs.</u>		
Resin	27.3	34.8
Dry Blend	5.5	4.7
Compound	7.3	6.8
Plasticizer	2.0	1.8
TOTAL	42.1	48.1
<u>Natural Gas</u>		
Consumption, MSCF	51448	49343
Conversion, BTU/SCF	1020	1020
Energy Consumption, MMM BTU	52.477	50.330
Energy Consumption, BTU/lb.	1246	1046
<u>Electricity</u>		
Consumption, MM KWH	5.7339	5.7963
Conversion, BTU/KWH	10000	10000
Energy Consumption, MMM BTU	57.339	57.963
Energy Consumption, BTU/lb.	1362	1205
<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.	2608	2251
Energy Consumption, MMM BTU		
Actual Unadjusted	109.816	108.293
Actual Adjusted	91.936	88.615
1972 Base Period	172.879	203.082
<u>OMA Reduction (%)</u>		
Adjusted	46.8	56.4
Unadjusted	36.5	46.7
Fiscal 1988 Year-to-Date	52.0% Adjusted	
Performance	42.3% Unadjusted	

ENVIRONMENTAL - R. A. Frohreich

Water

All wastewater discharge parameters were within NPDES limits in June.

RCRA

Additional information on wastewater was provided to the State for the 1987 Hazardous Waste Biennial Report.

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.	1229	5	77	28	433	10	147	8.4	1.8	7.5
	Max.	1264	7	100	39	553	15	215	8.6	2.9	7.9
Nov. -	Ave.	1222	15	212	43	607	22	310	7.4	1.4	7.5
	Max.	1430	22	378	65	1117	25	370	7.9	1.7	7.8
Dec. -	Ave.	1083	8	106	35	468	14	191	7.6	9.5	7.6
	Max.	1146	12	155	51	659	20	264	8.2	17.6	7.8
Jan. -	Ave.	1326	19	311	68	1111	13	213	7.5	2.0	7.5
	Max.	1431	25	426	87	1476	18	307	7.7	2.8	7.7
Feb. -	Ave.	1521	11	201	45	818	12	228	8.4	3.3	7.5
	Max.	1562	14	262	51	955	16	295	8.8	5.6	7.7
Mar. -	Ave.	1208	12	179	55	824	23	342	7.8	7.2	7.5
	Max.	1507	15	211	75	1052	34	473	8.8	21.8	7.8
Apr. -	Ave.	1076	6	80	38	508	18	237	8.3	5.1	7.7
	Max.	1312	9	112	53	662	27	336	8.8	6.2	7.7
May -	Ave.	757	9	81	42	379	17	152	8.0	9.4	7.5
	Max.	882	11	116	52	550	18	175	8.7	15.9	7.7
June -	Ave.	611	7	56	33	263	15	122	7.9	1.2	7.6
	Max.	722	11	85	48	373	23	174	8.8	2.6	8.0
July -	Ave.										
	Max.										
Aug. -	Ave.										
	Max.										
Sept. -	Ave.										
	Max.										

NPDES Permit Limits - December 1 through April 30

Ave.	-	32	431	-	1462	-	674	7	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	7	6.0	13	6.0 - 9.0
Max.	-	40	744	-	2523	-	1396			28	

LABORATORY - H. G. Coleman

A. Safety

The Laboratory operated without a safety incident this month. Hands-on respirator training was provided by the Safety Department.

B. Customer Relations

Customer Contacts - There were no customer visits by Lab personnel in June.

Requests for Corrective Action

There were no RCA's received this month.

Customer Problem Reports

<u>Date</u>	<u>Customer</u>	<u>Product</u>	<u>Reason</u>
6/01/88	Flexible Tech. Abbeville, SC	17121 WAT. CLR.	Soya epoxy contamination.

STATUS: Project to install new filters is in engineering.

6/03/88	National Extrusions El Paso, TX	18162 GRY 563	Slow extrusion rates.
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STATUS: Samples sent to PRS for analysis.

06/10/88	Master Halco Olney, ILL	45541 NAT	Stringers.
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STATUS: Customer used material. RESOLVED

6/15	Mid-American Memphis, TN	80172C	High tin content as tested by NSF.
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STATUS: NSF to retest samples.

6/17	Athol Mfg. Butner, NC	5415	Slow plasticizer take-up.
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STATUS: Drytimes and CPA's looked good; samples sent to PRS.

LABORATORY - Continued

Customer Problem Reports - continued

<u>Date</u>	<u>Customer</u>	<u>Product</u>	<u>Reason</u>
6/23/88	ITT Automotive Brownsville, TX	35031 NAT	Low hardness values.
<u>STATUS:</u> Lab tested product OK, ITT to check procedure.			
6/23/88	Klockner Gordonsville, VA	5305	Higher contamination.
<u>STATUS:</u> One compartment sold at reduced price. <u>RESOLVED</u>			
06/29/88	Dayton Extruded Plastics Dayton, OH	269-151 WHT 145	Metal chunks.
<u>STATUS:</u> Post-Gump screens installed. <u>RESOLVED</u>			
06/29/88	Vinyl Building Products Oakland, NJ	290-61 WHT 121	Contamination.
<u>STATUS:</u> Contaminants are line scale; customer's first bulk shipment; monitor future runs.			
06/30/88	Premiere Polymers Jeffersontown, KY	5415	Contamination.
<u>STATUS:</u> Filter media; working with S&T to solve problem.			

Waivers Received

<u>Customer</u>	<u>Product</u>	<u>Reason</u>	<u>No.</u>
Athol	5415	Bulk density	4 HT
IPC	5415	Bulk density	1 RC
Nibco	5305	Static flow	1 HT
Premiere Polymers	5415	Bulk density	1 RC
Uniroyal	5305	Static flow	1 HT

LABORATORY - Continued

C. RVCM Summary

A

RVCM 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 June, 1988.

	Reactor Slurries	Dryer	
		5265	5305
Number of Samples	631	27	64
Average ppm, RVCM	132	0.5	0.2

RVCM of Shipment Samples

The following is a summary of the residual VCM analysis of shipment samples for the month of June, 1988.

<u>Product</u>	<u>5265</u>	<u>5305</u>	<u>5385</u>	<u>5415</u>	<u>5465</u>	<u>Dry Blend</u>	<u>Pond</u>	<u>Debox</u>
No. of Samples	39	93	28	27	1	35	0	24
Average RVCM, ppm	0.0	0.1	0.1	0.1	0.0	0.1	0	0.0

D. Resin Process Capabilities

	<u>5265</u>	<u>5305</u>	<u>5385</u>	<u>5415</u>
Bulk Density	1.56	1.17	1.01	0.57
Inherent Viscosity	0.16	1.05	0.52	0.77
"L" Color Value	2.75	5.08	2.40	3.17
"A" Color Value	3.33	4.17	—	—
"B" Color Value	1.17	2.67	1.50	1.83
% on Pan (vs. 2% max.)	1.13	3.25	0.97	1.25
	—	—	—	0
% thru 140M	0.39	0.71	0.64	0.66
Drytime	—	—	0.67	0.56
Mets I.R. (vs. 95% of Control)	—	—	—	1.75
				0.88
Hard Particles (% > 10)	—	—	3.3	0

LABORATORY - continued

E. Compound Quality Summary

	<u>Adjustments</u>	<u>Rejections</u>
	<u>M Lbs. (%)</u>	<u>M Lbs. (%)</u>
Hardness	32.5 (0.44)	— —
Color/Clarity	— —	10.4 (0.14)
Hard Particles	— —	43.3 (0.59)
Heat Stability	10.0 (0.14)	7.8 (0.11)
Contamination	— —	70.5 (0.96)
Dicing	— —	17.0 (0.23)
Total	42.5 (0.58)	149.0 (2.04)

F. Dry Blend Quality Summary

	<u>Rejections</u>
	<u>M Lbs. (%)</u>
Color	17.8 (0.33)
40 Mesh	10.6 (0.19)
Stability/Torque	24.1 (0.44)
Stability/Color	10.4 (0.19)
Fusion Torque	5.1 (0.09)
Stability	3.8 (0.07)
Total	71.8 (1.32)

G. Quality Management Process

1. Daily testing for residual alcohol of a standard (0.2%) 610P sample was begun in June to determine the precision of this test.
2. Harold Coleman and Dave Cox visited the LOCP with Dave Hollis to look at a prototype Laboratory Information Management System (LIMS). A LIMS would enable us to automate certificates of analysis and to provide customers with SPC charts.
3. Dave Cox is participating on a plasticizer team dealing with quality and productivity improvements.
4. 5415 Control Resin (Lot 04169) Testing:

	<u>n</u>	<u>$\bar{X}$</u>	<u>3σ</u>
Moisture	60	.161	.029
Dry Time	27	4.99	.52
Particle Size - 60M	60	1.22	.78
- 80M	60	30.99	3.84
- 100M	60	33.35	1.41
- 120M	60	20.72	2.69
- 140M	60	7.22	1.17
- 200M	60	5.29	1.53
Pan	60	1.20	.71
Bulk Density	29	.5147	.0052
Color - L	55	100.438	.274
A	54	-0.101	.224
B	57	2.412	.563
Flow Time	29	7.597	1.33
Hard Particles, 7 Min.	—	—	—
Inherent Viscosity	15	1.0105	.0106

LABORATORY - Continued

H. Miscellaneous

1. The new applications lab was completed and Brian Harrison moved in this month. Melvin Tallie was assigned full time technician duty in the new lab.
2. Resin samples were sent to Hoechst Celanese for comparative RVOM readings in the ppb range. Testing differences made this first exchange meaningless; further work is planned.
3. Dave Cox finished writing a program for compound Q.C. data storage; working on same for dry blend and awaiting hardware necessary to complete project.
4. Brian Harrison developed "reduced TiO_2 " formulations for Vycom's color applications and performed color matches for National Extrusions Inc.
5. Brian Harrison visited Hitox Corporation and discussed applications for "buff" TiO_2 . There is potential cost reduction when used in beige and brown colors.
6. Brian Harrison attended Influence Management training June 1-3 in Houston and product liability/technical service meetings at Premiere Polymers on June 17. He also attended the National Plastics Exposition in Chicago on June 20-22.

SAMPLE SHIPMENTS

JUNE 1988

RESIN

<u>Ship Date</u>	<u>Product</u>	<u>Amount</u>	<u>Customer</u>
6/06/88	5305	50 lbs.	Product Specialties
	5385	50 lbs.	
6/16/88	5385	50 lbs.	Chisso Petrochemical Corporation
	5415	50 lbs.	
	5465	50 lbs.	
6/30/88	5385	2 lbs.	Stahl Finish Co.
	5415	2 lbs.	

COMPOUND

<u>Ship Date</u>	<u>Product</u>	<u>Amount</u>	<u>Customer</u>
6/01/88	34551 NAT	5 lbs.	Southwire Company
6/02/88	34431 NAT	1500 lbs.	Multiflex
6/03/88	17461 BLK	100 lbs.	Tubular Protection of America
6/13/88	17462 NAT	150 lbs.	Superior Rubber Co.
	18961 NAT	150 lbs.	
6/21/88	18162 NAT	100 lbs.	National Extrusion
6/27/88	34451 NAT	50 lbs.	Quintex
	35852 NAT	50 lbs.	
6/29/88	271-152A BLK	200 lbs.	Alcatel NA Inc.
	271-152B NAT	200 lbs.	

OTHER

<u>Ship Date</u>	<u>Product</u>	<u>Amount</u>	<u>Customer</u>
6/15/88	Hubercarb Q6	200 lbs.	Vista - Ponca City

SHIPMENTS BY PRODUCT - M LBS.

JUNE 1988

FISCAL
YEAR-TO-DATE

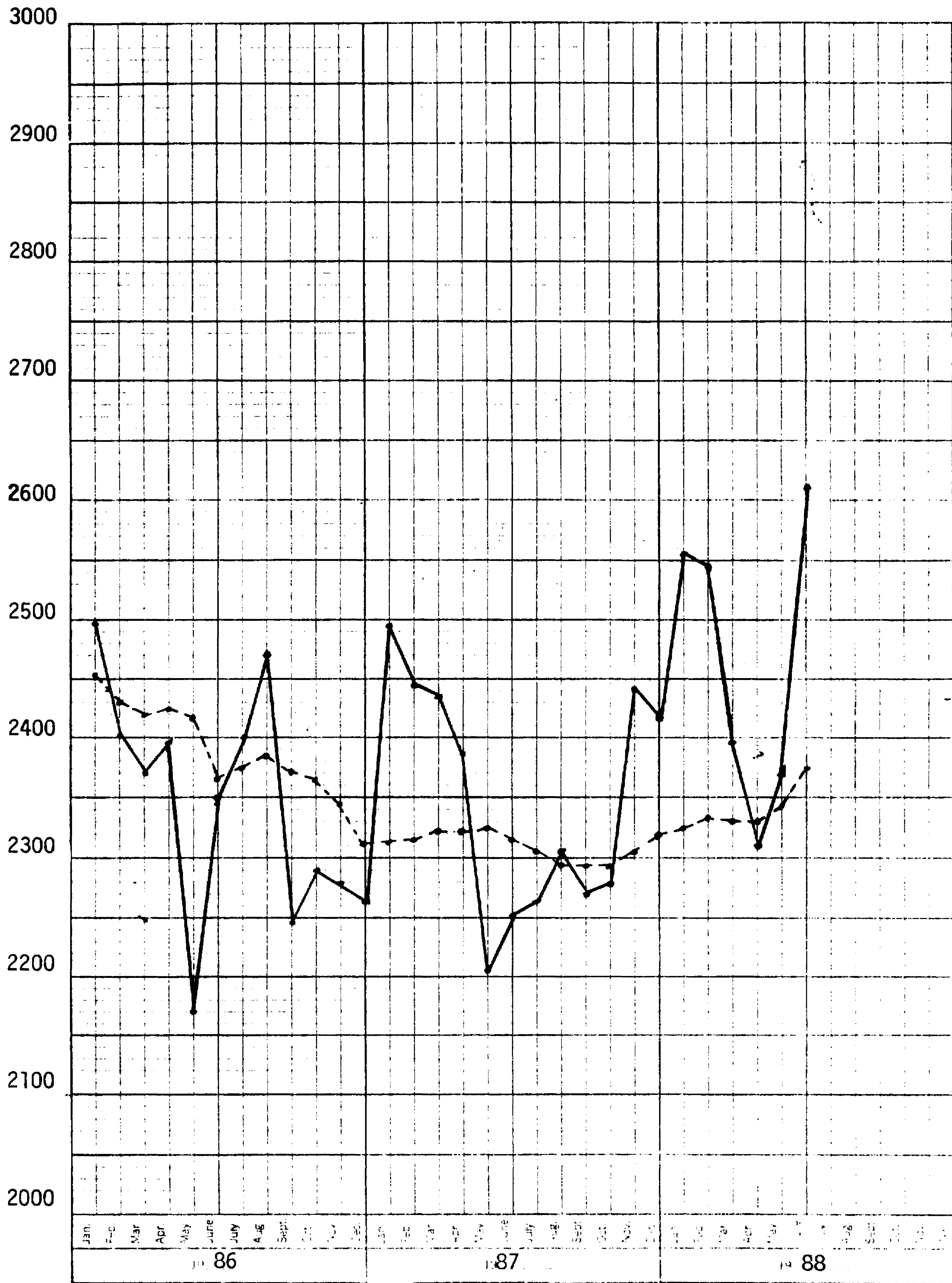
RESIN	24,079	265,290
PLASTICIZER	1,010	6,232
DRYBLEND	5,133	46,885
COMPOUND	7,051	62,667

TOTAL	37,273	381,074
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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	102	56				69		227
Package			5	2	9	8		24
Export								
PLAST.-Bulk	5	3						8
Package								
DRYBLEND-Bulk	22	4				10		36
Package			9		12			21
Export								
COMPOUND-Bulk	12	2						14
Package			36		49	47		132
Export					1			1
TOTAL JUNE	141	65	50	2	71	134		463
OCT 1987	182	62	56	2	51	145	1	499
NOV 1987	173	72	50	1	61	142		499
DEC 1987	154	88	38	1	85	161	1	528
JAN 1988	155	88	45	5	77	139	3	512
FEB 1988	178	97	50	2	68	168		563
MAR 1988	211	46	37	2	82	160		538
APR 1988	170	63	44	1	58	141	6	483
MAY 1988	159	61	51		62	149	1	483

ENERGY USAGE



————— Monthly
 - - - - - 12-Month Moving Average

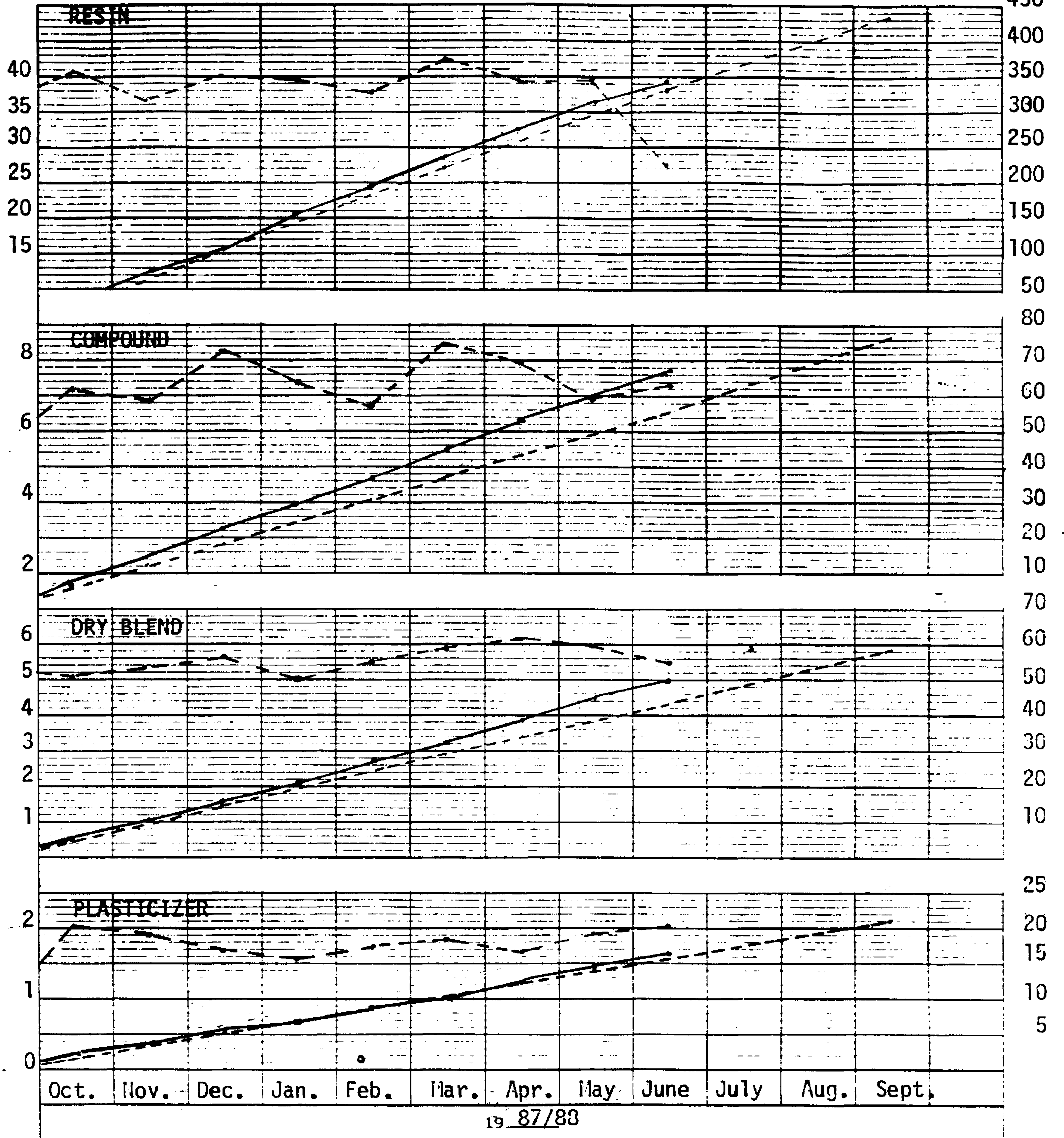
ABERDEEN PLANT PRODUCTION

10/01/87 - 09/30/88

A

MM POUNDS
MONTHLY

MM POUNDS
CUMULATIVE



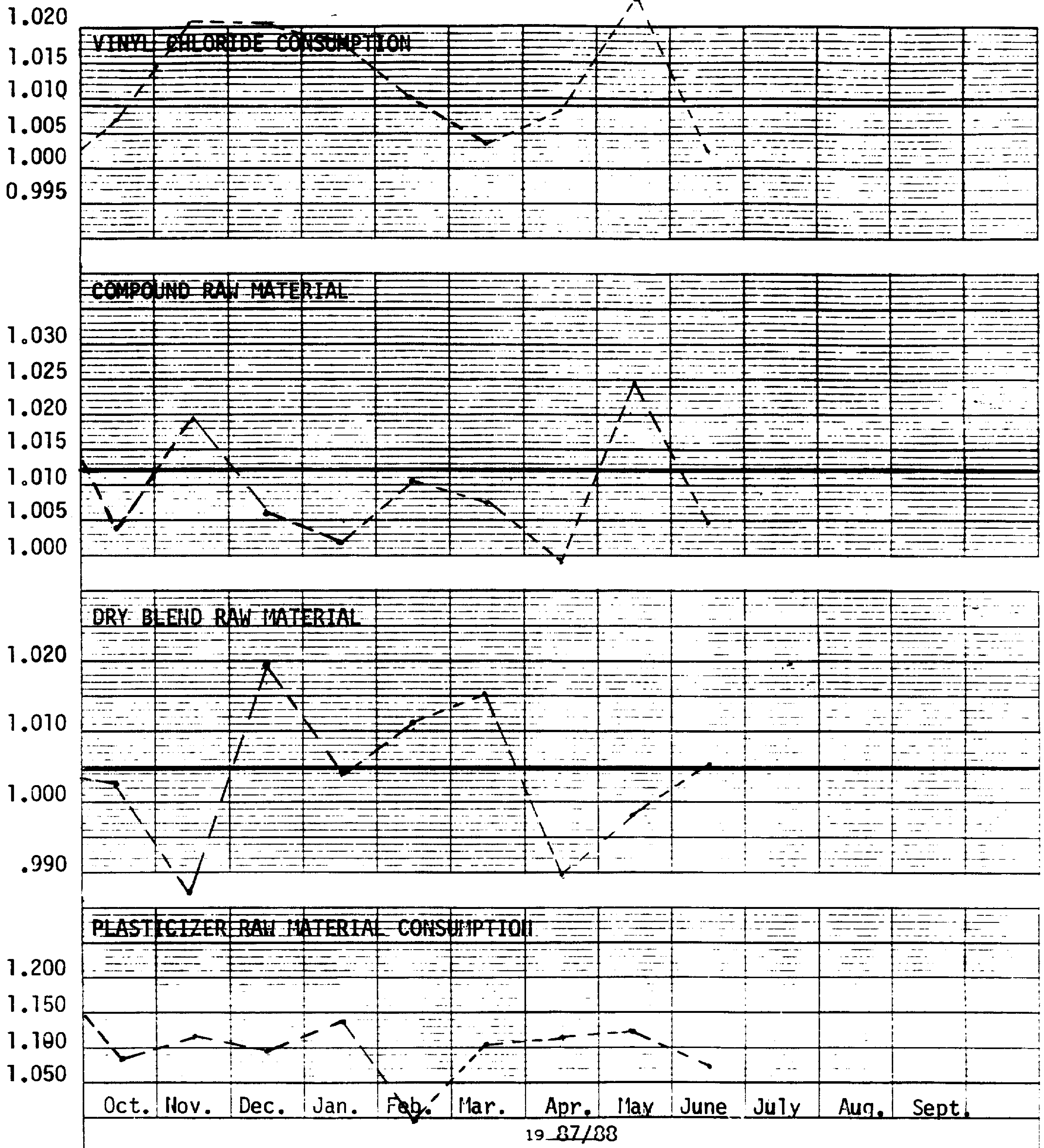
----- Budget
 Actual
 _____ Cumulative

VAB.0001190883

ABERDEEN PLANT EFFICIENCY

10/01/87 - 09/30/88

POUNDS OF RAW MATERIAL/POUNDS OF PRODUCT

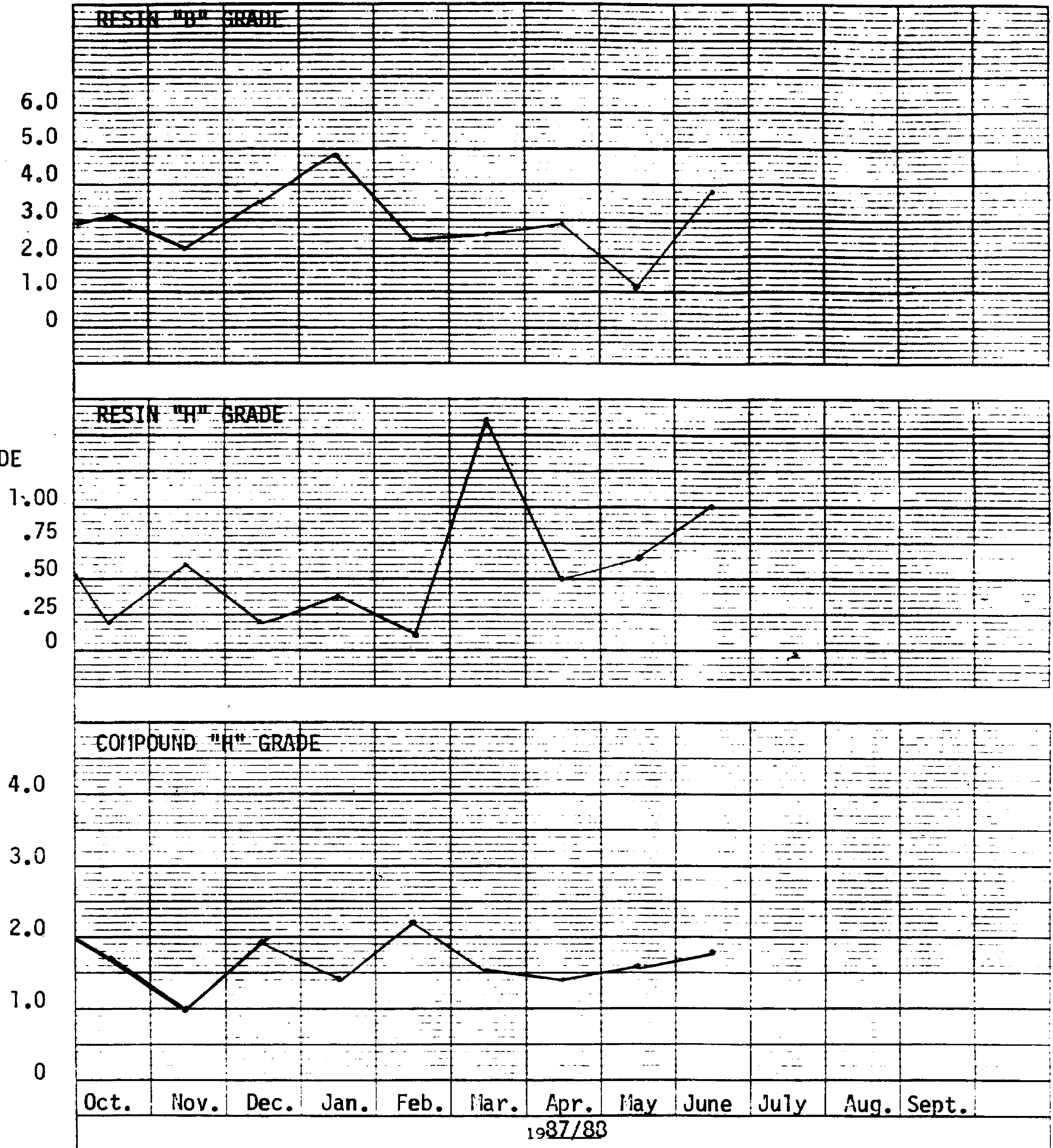


ABERDEEN PLANT QUALITY PERFORMANCE

10/01/87 - 09/30/88

A

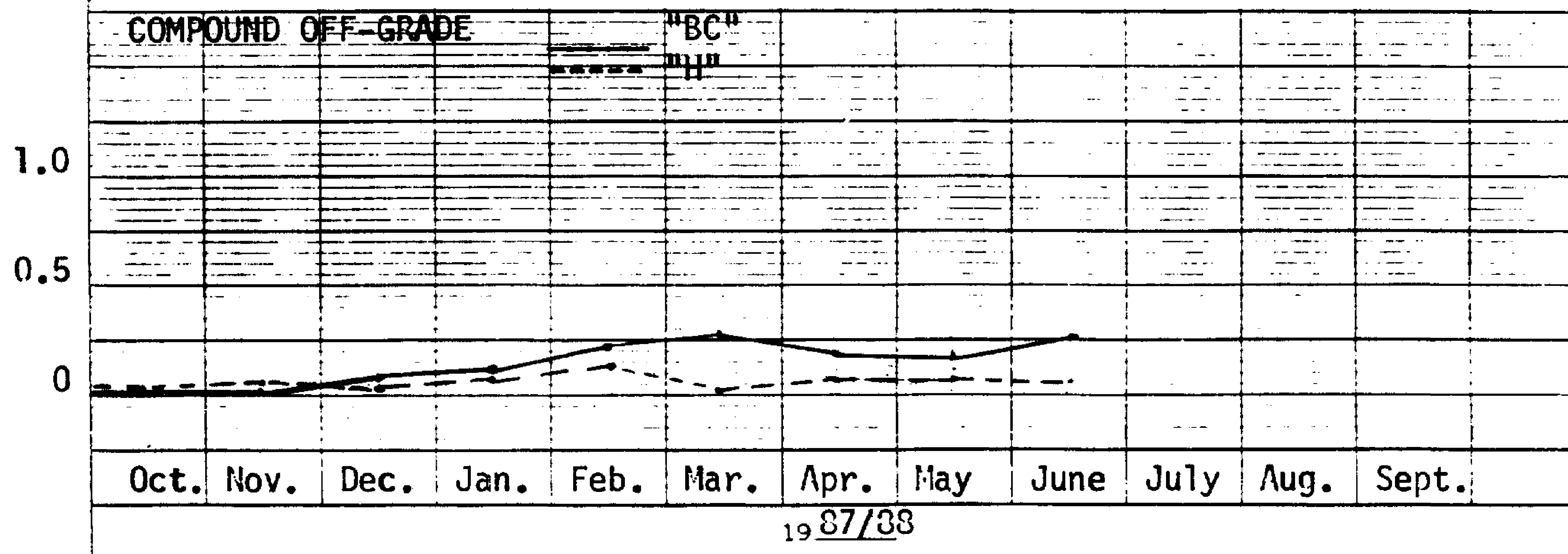
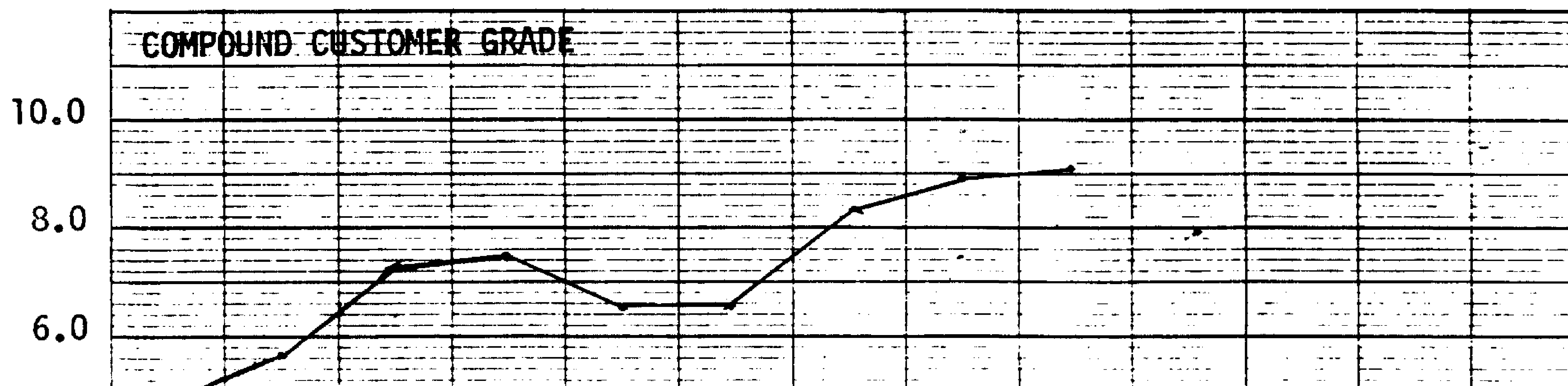
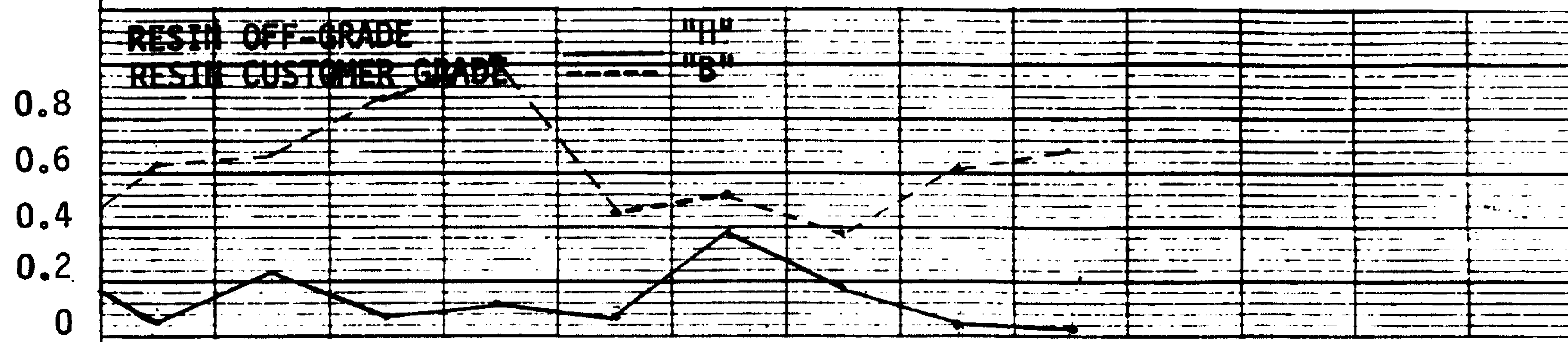
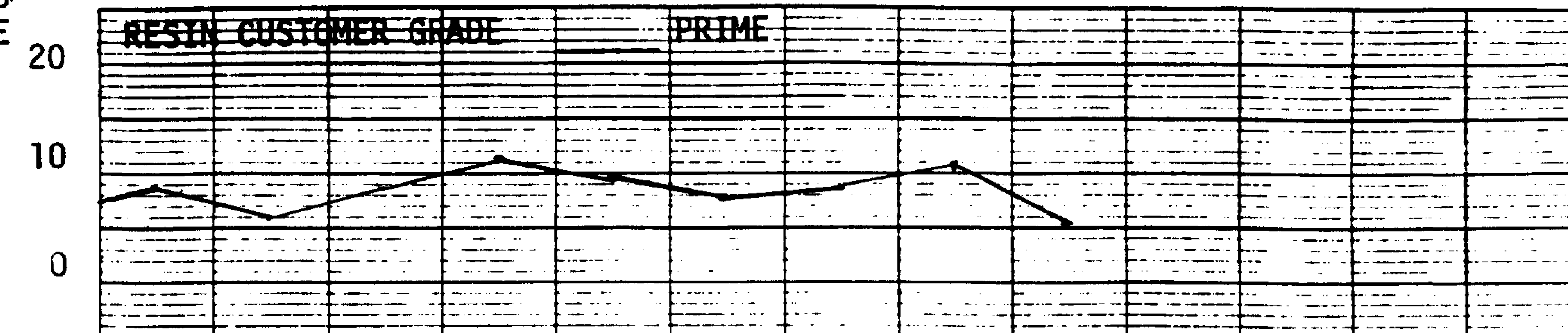
%
OFF-GRADE



ABERDEEN PLANT INVENTORIES

10/01/87 - 09/30/88

MM
POUNDS
PRIME



1987/88