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To: R. T. Ferrell

From: J. W. Ware
Date: March 17, 1987

VISTA

Interoffice
Communication

Subject: ABERDEEN MONTHLY PROGRESS REPORT
FEBRUARY, 1987

There were no injuries recorded during the month of February. As of February 28, 1987, the plant had operated 2,793 days or 3,588,055 manhours without a lost time injury.

PVC resin production for February was 33.7MM pounds. Mechanical downtime in the reactor areas was due primarily to agitator seal repairs on 400, safety disc replacement on 745 and miscellaneous reactor valve repairs. Resin production year-to-date totaled 177.8MM pounds. The VCM efficiency for February was 1.01638 pounds of VCM per pound of PVC produced versus a 1.00208 standard. Year-to-date VCM efficiency is 1.01065.

Compound production for February was 6.8MM pounds. Line I and Line III operated twenty-eight days and Line V operated fourteen days during the month. Production was limited primarily by product changes, Banbury maintenance and Line III mill maintenance. Year-to-date compound production was 35.4MM pounds. Quality performance for flexible compounds was 1.5% off-grade of which 100% was due to mill scrap. "BC" production was 1.2%.

Dry blend production was 3.9MM pounds for February and 22.6MM pounds fiscal year-to-date. Production was limited primarily by product changes and quality control problems. Quality performance for the month was 99.8% customer grade.

The plasticizer unit operated twenty-eight days in February to produce 1.6MM pounds. Year-to-date plasticizer production is 9.4MM pounds.

Two of four active involvement teams have completed their projects. The vinyl team presented the results of their work to management and a miscellaneous capital project was approved to institute their proposal. Department steering teams have been formed and began regular meetings in February.

Total energy consumption for February was 112.690 MMM BTUs. The energy consumption per pound of product was 2444 BTUs, resulting in an adjusted CMA reduction of 52.3%. The adjusted CMA reduction for fiscal 1987 year-to-date is 54.2%.

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The total plant variable cost variance for February was \$277.4M unfavorable, resulting from an overall unfavorable price variance of \$283.8M and a net favorable efficiency variance of \$6.4M. The total fixed cost variance for February was \$56.9M favorable.


J. W. Ware

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SAFETY - J. V. UPTAIN

<u>Occupational Injuries</u>	<u>Feb.</u>	<u>Fiscal Y.T.D. 1987</u>	<u>Fiscal Y.T.D 1986</u>
First Aid	0	4	12
OSHA Recordable	<u>0</u>	<u>1</u>	<u>2</u>
Total Injuries	0	5	14
Number of Restricted Workday Cases	0	0	1
(RWC Rate)	(0.0)	(0.0)	(1.01)
Number of Lost Workday Cases	0	0	0
(LWC Rate)	(0.0)	(0.0)	(0.0)

Injuries by Department

Vinyl Operations	0	1	3
Compound Operations	0	0	3
Maintenance	0	4	5
Laboratory	0	0	0
Receiving/Warehouse	0	0	0
Office	<u>0</u>	<u>0</u>	<u>3</u>
Totals	0	5	14

Injuries by Type

Cuts and Abrasions	0	4	4
Eye Injuries	0	0	2
Burns	0	0	4
Bruises	0	0	1
Strains/Sprains	0	1	1
Stings	0	0	0
Other	<u>0</u>	<u>0</u>	<u>3</u>
Totals	0	5	15

Non-Occupational Injuries

Lost Workday Cases	0	2	3
Days Lost	0	11	35

Safety Record

Last lost time injury 7/5/79
 Days since - 2,793
 Manhours since - 3,588,055

Training

Topics for the plant safety meetings during the month included: Housekeeping, Personal Responsibility to Act, Finding Cures for Accidents, The Team Approach to Safety, Review of 1986 Safety Performance, and Maintenance Weekly Safety and Job Review.

One R&D employee and six contract personnel received plant safety orientation.

SAFETY - ContinuedHealth

Activity for the month included routine dosimetry (shown below) and the start of annual, medical health screening (van).

<u>Chemical</u>	<u><</u>		<u>></u>	
	<u>Number</u>	<u>PEL Percent</u>	<u>Number</u>	<u>PEL Percent</u>
VCM	77	100.0	0	0.0
Lead	16	88.9	2	11.1
Total Particulates	7	100.0	0	0.8

The two lead overexposures occurred with respiratory protection.

QUALITY IMPROVEMENT PROCESS - R. B. Newton

A one-day training course for involvement teams and problem solving techniques was prepared. It is scheduled to be given to the Vinyl Department the first two weeks of March.

Two of the four active teams completed their projects. The team of vinyl operators presented their solution to the problem of resin cross-contamination to management. A miscellaneous AFE request is being approved to implement their recommendations.

The maintenance team that was preparing the Preventative Maintenance Program for the new plant crane completed its work. A presentation to management is scheduled for early March.

An additional involvement team was formed in the Maintenance Department to address the problem of valve actuator mounting brackets.

Each department in the plant has formed a steering team to keep the quality improvement effort moving forward. These teams began meeting regularly during February.

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

Safety

The Vinyl and Yard Departments operated without an injury in February.

Shift safety meeting topic for the month was Accident Prevention and a review of the plant's first aid and medical cases which resulted from accidents in recent years.

<u>Production</u>	<u>February</u>	<u>Y.T.D.(Fiscal 87)</u>
1. Production, MM Lbs.	33.7	177.8
2. Daily Production Rate, M Lbs./C.D.	1202	1190
3. Total Charges	854	4431
4. Charges, Reactor Batches/C.D.	30.5	29.3
5. Reactor Stream Factor	94.8	90.6
6. Dryer Rate, Average Lbs./Hr.	10616	10407
7. Dryer Stream Factor	59.0	59.2
8. Accounting Days	28	151

Vinyl Department production for February was 33.7MM pounds.

Reactors

The reactor stream factor for February was 94.8%. Downtime in the reactor area occurred as follows:

- 1) Operational Downtime: Accounted for 71.3% 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.
- 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 28.7% of the total downtime and was due to changing the agitator seal on D-400, changing D-300 and 745 primary VCM valves, changing various chem wash and rinse valves on D-500, D-700 and 745, changing the safety discs on 745 and changing the inboard seal on B-compressor.

Dryers

The dryer stream factor for February was 59.0%. Downtime in the dryer area occurred as follows:

- 1) Reactor Limited Production: Accounted for 92.8% of the total downtime. Dryers were shut down when possible for energy conservation.
- 2) Operational Downtime: Accounted for 3.8% of the total downtime and was due to centrifuge plugging, burner flameouts, dryer cleaning and transfer activator problems, and the fluid bed scrubber plugging.

VINYL - ContinuedDryers - Continued

- 3) Maintenance Repair/Revision Downtime: Accounted for 3.4% of the total downtime and was due to changing out #7 centrifuge, changing out the fluid bed exhaustor sheave, #5 activator problems, #6 star valve problems and the #8 tumbler seals.

Product Quality Summary

<u>Resin Type</u>	<u>Prime</u>	<u>"B"</u>	<u>"H"</u>	<u>% of Total Production</u>
5265	1,483,273	-	-	4.4
5305	2,899,270	-	-	8.6
5385	17,691,415	-	-	52.6
5415	7,270,740	-	-	21.6
5425	1,828,830	-	-	5.4
5465	1,388,600	-	-	4.1
Debox	-	1,038,080	-	3.1
Off-Grade	-	20	-	0.0
Sifter Overflow	-	-	55,703	0.2
Pond Resin	-	2,000	-	0.0
Total	32,562,128	1,040,100	55,703	100.0

Quality performance for February was 99.8% customer grade with 0.2% "H" grade production.

A total of six railcars were shipped as "B" grade during the month which represented 5.6% of the 108 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>
01/21/87	02/02/87	RTMX 580054	Cont. Plast. Co.	Debox	Derailed
12/14/86	02/03/87	VIPX 45811	Wexford, CA	Pond	Quality
01/27/87	02/09/87	PLCX 43730	Wexford, WI	Debox	Quality
02/04/87	02/23/87	VIPX 45871	Wexford, CA	Debox	Quality
01/28/87	02/25/87	VIPX 45793	Wexford, WI	5385	Contamination
02/20/87	02/27/87	VIPX 45713	Griffco, MS	Debox	Quality

The Vinyl area received fifty-nine short lead time emergency type orders comprising 22% of the 269 Aberdeen resin shipments in February.

Monthly Variable Cost Performance

Variable costs for the month were unfavorable at \$269.3M resulting from an overall unfavorable price variance of \$247.8M and an unfavorable efficiency variance of \$48.5M. Resin variable cost for the month was 18.996 cents/lb. versus the budgeted 18.086 cents/lb.

VINYL - Continued

Monthly Variable Cost Performance - (Continued)

The \$247.8M unfavorable price variance was primarily attributed to higher than budgeted pricing for VCM, \$342.1M.

The \$48.5M unfavorable efficiency variance can be attributed mainly to the unfavorable efficiency variance of VCM, \$72.7M. This was partially offset by a favorable efficiency variance in Polyvic, \$10.3M.

VCM efficiency for the month was 1.01638 lbs. VCM/lb. PVC versus the budgeted 1.00208 lbs. VCM/lb. PVC.

YTD variable cost efficiency variances in the Vinyl Department totaled \$223.6M unfavorable.

Energy Performance/Progress

1. Plant energy performance for February was 2444 BTU/lb.

General

1. Resin raw material in the 0744 account totaled \$209.7M.

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	28	2142	77	11904
Line V	14	827	59	4268
Line III	28	3860	138	19219
Total		6829		35391

Line I operated twenty-eight days during February at an average rate of 77M pounds per day. Major items affecting production efficiency were: product changes, 73 hours; Banbury maintenance and seal changes, 41 hours; ribbon blender maintenance, 11 hours; housekeeping, 11 hours; quality problems and Q.C., 14 hours; dicer problems and maintenance, 6 hours; and Modicon reprogramming, 6 hours.

Line V operated fourteen days during February at an average rate of 59M pounds per day. Major items affecting production efficiency were: product changes and startup, 33 hours; quality problems, 4 hours; and plasticizer system problems and maintenance, 3 hours.

Line III operated twenty-eight days during February at an average rate of 138M pounds per day. Major items affecting production were: product changes, 40 hours; mill drive shaft gear replacement, 16 hours; dicing system problems and maintenance, 6 hours; hydrotherm system maintenance, 5 hours; and transfer system problems and maintenance, 5 hours. A test run to investigate rigid PVC production on Line III lasted approximately 11 hours.

Quality performance for flexible compounds was 1.5% off-grade of which 100% was due to mill scrap. "BC" production was 1.2%.

The raw material requirement for flexible compounds was .99658 pounds of raw material per pound of compound versus a 1.00993 standard (YTD is 1.00462).

The variable cost variance for compound was \$46.4M unfavorable with \$59.5M unfavorable due to price and \$13.1M favorable due to efficiency. The efficiency variance due to product mix was \$8.4M unfavorable. There were no major compound raw material efficiency variances.

Total compound inventory fell .4MM pounds in February to 7.8MM pounds.

<u>Dry Blend</u>	<u>Month</u>	<u>Average Operating-Day Rate</u>	<u>Fiscal Y.T.D.</u>
Production, M Pounds	3926	140	22561
Operating Days	28	-	151

COMPOUND - ContinuedDry Blend - continued

Dry blend operated twenty-eight days during February at an average rate of 140M pounds per day. Production included 80172C, 80273G, 90172D, RP-200T, RP-421, 186-74, 186-139, 223-36, 196-198, 223-57, 245-53, 269-12, 269-67, 269-66, 269-63 and 269-43.

Dry Blend production was hindered by: product changes, 53 hours; delays associated with quality and lab problems and normal Q.C., 38 hours; transfer system problems and maintenance, 15 hours; filler system problems and maintenance, 8 hours; Welex diverter valve maintenance, 8 hours; screener maintenance, 8 hours; and Welex maintenance, 5 hours. Quality performance for the month of February was 98.4% customer grade.

The raw material requirement for dry blend was 1.00744 pounds of raw material per pound of dry blend versus a standard of 1.00489 (YTD is 1.01018).

The variable cost variance for dry blend was \$51.2M favorable with \$14.9M favorable due to price and \$36.3M favorable due to efficiency. The efficiency variance due to product mix was \$38.3M favorable.

<u>Plasticizer</u>	<u>Month</u>	<u>Average Operating-Day Rate</u>	<u>Fiscal Y.T.D.</u>
Production, M Pounds	1624	58	9372
Operating Days	28	-	151

Plasticizer operated twenty-eight days during February at an average rate of 58M pounds per day. Production included 610P and 108P.

VRP production totaled 142M pounds (9.6%).

The raw material requirement for plasticizer was 1.11239 pounds of raw materials per pound of plasticizer versus a 1.09848 standard (Y.T.D. is 1.11520).

The variable cost variance for plasticizer was \$14.1M favorable with \$8.6M favorable due to price and \$5.5M favorable due to efficiency. There were no major plasticizer raw material variances.

The efficiency variance due to product mix was \$1.7M favorable.

Quality Improvement

Charting of process variables is being practiced on all lines. The continuing monitoring of plasticizer reaction rate has demonstrated a statistical increase in rate and reduction of reaction time since the charting began. A quality information bulletin board was started in the production area. Customer problems and positive responses are posted on the board to help the operators grow more familiar with the customer and his concerns and to provide feedback for our quality effort.

COMPOUND - ContinuedEnergy

	<u>Usage (BTU/Lb.)</u>	
	<u>Actual</u>	<u>Standard</u>
Compound	1716.5	1783.0
Dry Blend	720.1	730.0
Plasticizer	1792.0	1833.5

MECHANICAL DEPARTMENT - T. F. Lyon

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

Safety

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

Vinyl

The D-400 reactor agitator seal was repaired during the month. Four agitator seals have been replaced through the first five months of fiscal 1987.

Ten reactor valves were replaced.

The following work was accomplished on pumps and compressors:

- The seal was replaced in the old module east VCM charge pump.
- The seal was replaced in the old module north chem wash pump.
- The south VCM sphere pump was replaced with a spare.
- The impeller was replaced on the fluid bed dryer scrubber pump.
- The seal was replaced in the old module high pressure service water pump.
- The outboard seal was replaced in the 706 emission recovery compressor.

All mercury manometers on the reactors were replaced with vacuum gauges.

The annual replacement of the D-745 reactor rupture discs were completed.

The #6 dryer exhauster was replaced with a spare due to high vibration.

The #7 dryer Bird centrifuge was replaced with a spare due to high vibration.

Twenty-three steam leaks were repaired.

The control room batteries and inverter system was PM'd.

The new unit seal water separator temperature controller was replaced.

MECHANICAL DEPARTMENT - ContinuedCompound, Dry Blend, Plasticizer

The Line I Banbury seals were replaced and two seal yoke cylinders were replaced.

The Line I B-blender gearbox was replaced.

The Line I A-blender ribbon shaft was repaired in the outboard bearing area. New chain guards were installed on both blenders.

The Zone I Line III hydrotherm system pump was replaced.

The dry blend unit #1 Welex mixer drive motor was replaced with a spare.

A rebuilt gearbox was installed on the north gump screener.

The Line I Banbury inlet chute and Ram housing was modified to eliminate excessive dusting and a potential lead exposure hazard.

The Line V single screw hot oil system was overhauled.

The Line I pro-batcher weigh controller was repaired.

Utilities

Dredging on pond #3 was completed and a subsurface aerator was installed.

A new sulphuric acid day tank was installed at pond #3.

The hydrazine based oxygen scavenger for the boilers was replaced with a hydroquinone based product to eliminate potential employee exposure hazards.