



Interoffice Communication

To R. D. Gamblin
From J. H. Brunson
Date August 22, 1979
Subject Explanation of Variances - June, 1979

During the month of June the plant produced 59,090,914 pounds of VCM and 99,536,936 pounds of EDC. The variances from standard costs were as follows:

	<u>June</u>			<u>Year to Date</u>		
	<u>Efficiency</u>	<u>Price</u>	<u>Total</u>	<u>Efficiency</u>	<u>Price</u>	<u>Total</u>
EDC	\$ 64,331	\$(179,396)	\$(115,065)	\$ 345,427	\$(230,465)	\$ 114,962
VCM	(31,555)	(12,350)	(43,905)	(212,535)	(116,331)	(328,866)
Incinerator	(27,108)	13	(27,095)	(163,853)	46	(163,807)
Subtotal	\$ 5,668	\$(191,733)	\$(186,065)	\$ (30,961)	\$(346,750)	\$(377,711)
Fixed Costs			(45,399)			208,751
Total			\$(231,464)			\$(168,960)

Fixed Cost Variance

The unfavorable variance of \$45,399 was due primarily to Maintenance Materials - \$52.4M, Maintenance Contracts - \$13.0M, and Clearances from R&D - \$26.8M. The above variances were partially offset by favorable variances for Maintenance Payroll - \$16.0M, AdValorem Taxes - \$13.4M, and Depreciation - \$49.8M. Smaller variances account for the remaining differences between budget and actual costs. The major variances are explained in detail below.

Maintenance Labor - \$15,954 Favorable

The favorable variance was due to expenditures less than budgeted in the EDC/VCM area - \$29.5M. This was partially offset by expenditures greater than budgeted in the incinerator area - \$13.5M. Under the MMS system, started in June at the VCM Plant, various items such as Acting Foreman, sick pay, vacation, paid personnel business, holiday pay, etc. are no longer charged to maintenance expense but to operating payroll. In June this amount was \$14.7M.

Maintenance Contract Costs - \$13,058 Unfavorable

The unfavorable variance was due to incinerator costs greater than budgeted - \$38.4M; and expenditures in the EDC/VCM ordinary budget greater than budgeted for buildings - \$4.6M; motors - \$1.9M; pipe and valves - \$3.3M; railroad repairs - \$2.8M; and instrument repairs - \$1.8M. This was partially offset by expenditures less than budgeted in the EDC/VCM extraordinary budget - \$42.1M.

Maintenance Materials - \$52,387 Unfavorable

The unfavorable variance was due to incinerator expenditures greater than budgeted - \$5.5M; first quarter shutdown material invoices clearing accounting - \$8.9M; and by additional warehouse stock purchases for the incinerator - \$38.3M.

Clearances - R&D - \$26,838 Unfavorable

The unfavorable variance was due to charges greater than budget for Plant Analyses - \$2.7M and Carbon Adsorption for Ferric Chloride Removal - \$30.0M. These were partially offset by a favorable variance for Plant Service Work - \$5.8M.

Depreciation - \$49,793 Favorable

The favorable variance was due to the incinerator projects not being completed as soon as anticipated - \$5.7M, the 1979 depreciation rate being 1% less than the rate used for budget purposes - \$32.8M, and to plant capital investments being approximately \$1,940M less than anticipated due to projects not completed as soon as expected - \$11.3M. Major projects not completed as soon as expected were VCM Exposure Reduction - \$248.2M, EDC Exposure Reduction - \$421.0M, and Stand-by Waste Water Steam Stripper - \$392.0M.

Variable Cost Variance

The total variable cost variances for June (including incinerator IPA variances) was \$186,065 unfavorable. This unfavorable variance consisted of:

	<u>June, 1979</u>	
	<u>EDC/VCM</u>	<u>Incinerator</u>
Raw Materials and By-Products	\$ (55,146)	\$ 4,387
Processing Supplies	6,445	(12,585)
Utilities	(128,425)	(18,897)
By-Product Handling	18,156	-
	<u>\$(158,970)</u>	<u>\$(27,095)</u>

In the explanations which follow, the incinerator variances are discussed as a separate topic.

Raw Materials and By-Products - \$55,146 Unfavorable

The chlorine and ethylene price variances continued to be favorable and unfavorable, respectively. The chlorine price variance for June was \$90.0M favorable, and the ethylene price variance for this month was \$218.5M unfavorable. The chlorine plus HCl efficiency variance was \$22.2 unfavorable again due to higher than normal oxy acid strengths resulting from inefficient reaction caused by pressure drop limitations in R-301 and R-303 reactor and due to higher than budget chlorine consumption in R-304 clean-up reactor to control VCM in the oxy vent. In addition, the release during June of a full chlorine car to Georgia-Pacific contributed approximately \$8.0M to this unfavorable variance. This quantity of chlorine will be credited during July.

The ethylene efficiency variance was \$94.8M favorable in June. As with previous months in this run, the primary cause of this favorable variance is the fact that a larger than budgeted percentage of EDC is being produced in the more efficient direct chlorination reactor.

Processing Supplies - \$6,445 Favorable

Price variances totaled \$12.3M favorable in the area of Processing Supplies in June. Caustic solution and gaseous nitrogen yielded price variances in excess of \$3.0M each; \$15.2M favorable, and \$7.0M unfavorable, respectively. An unfavorable efficiency variance of \$3.3M was recorded for June as a result of some caustic usage indicated during the month which should have been associated with the month of May. The net result was a favorable variance of approximately \$10.9M associated with each month (May and June). This is consistent with the favorable efficiency variances with respect to caustic shown in previous months due to greater caustic savings from the R-304 copper catalyst and EDC tar still overhead projects. Lower than budget production of EDC from oxy also contributed to this favorable variance. Oxychlorination catalyst continued to exhibit a favorable variance due to the fact that R-304 was not recharged during the February turnaround. The limestone efficiency variance was unfavorable by \$8.6M in June due to the fact that frequent clean-out of the T-500 neutralization pit has been required with the experimental use of coral as a neutralizing agent. The \$0.5M favorable gaseous nitrogen efficiency variance was less favorable than expected for a non-turnaround month due to instrument air dryer problems experienced during June which required make-up from the nitrogen system. Nitrogen purging requirements for the portable carbon beds from the docks also detracted from the expected favorable variance.

Utilities - \$128,425 Unfavorable

Price variances for electricity, steam and natural gas were \$26.1M unfavorable, \$107.7M unfavorable, and \$22.2M favorable, respectively. A favorable electricity efficiency variance of \$5.6M reflected normal use and high production during a non-turnaround month. An unfavorable efficiency variance for steam of \$44.5M was due primarily to lower than budgeted waste heat steam generation in oxy. The natural gas efficiency variance for June was unfavorable by \$7.1M due to the decoking of R-201B cracking furnace.

By-Product Handling - \$18,156 Favorable

The price variance for tars disposal was \$7.0M in June. The expected decrease in tars production anticipated from operation of R-300 has not been entirely realized; therefore, unfavorable efficiency variances have occurred with respect to tars disposal in every month to date in 1979 (June was \$6.0M unfavorable). This situation is expected to continue. Light ends to sales (\$6.5M favorable) increased in lieu of light ends transfer to the incinerator (\$10.7M favorable) since light ends burning on a routine basis has not yet been instituted.

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Incinerator - \$27,095 Unfavorable

No liquids burning was pursued in the incinerator area in June due to mechanical problems, which led to a \$3.0M unfavorable efficiency variance in the consumption of light ends. The lack of light ends burning has also required an above-budget consumption of natural gas leading to an unfavorable variance of \$13.4M in this area.

The concentration unit was budgeted to be on-stream in June and, since construction of this unit is still underway, no anhydrous HCl for dilute acid concentration was utilized. This resulted in a \$7.4M favorable anhydrous HCl efficiency variance. The electricity consumed by the construction work, when combined with normal electricity usage by incineration equipment and the lower-than-budgeted HCl production, caused an unfavorable electricity efficiency variance of \$5.3M. Unfavorable efficiency variances with respect to caustic (\$4.6M) and limestone (\$7.9M) are inter-related. Ineffective neutralization due to plugging in the neutralization basins has required basin cleaning on a more frequent basis and excessive caustic injection for pH control.

J. H. Brunson

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APPROVED: *J. A. DeBernardi*
J. A. DeBernardi

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CC:
JAD-JRH-HDG-TRC

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