



Interoffice Communication

To R. D. Gamblin
From J. H. Brunson
Date December 10, 1979
Subject Explanation of Variances - September, 1979

During the month of September the plant produced 57,906,540 pounds of VCM and 97,052,765 pounds of EDC. The variances from standard were as follows:

	September			Year-to-Date		
	Efficiency	Price	Total	Efficiency	Price	Total
EDC	\$(137,938)	\$(1,058,431)	\$(1,196,369)	\$ 25,286	\$(3,217,997)	\$(3,192,711)
VCM	(24,099)	(89,340)	(113,439)	(279,817)	(312,447)	(592,264)
Incinerator	(50,052)	(7,062)	(57,114)	(273,949)	(14,659)	(288,608)
Subtotal	\$(212,089)	\$(1,154,833)	\$(1,366,922)	\$(528,480)	\$(3,545,103)	\$(4,073,583)
Fixed Costs			(183,430)			(180,840)
Total			\$(1,550,352)			\$(4,254,423)

FIXED COSTS VARIANCE

The unfavorable variance of \$183,430 was due primarily to Operating Supplies - \$10.9M, Maintenance Materials - \$57.8M, Maintenance Contracts - \$96.5M, Insurance - \$30.2M, and Waste Hauling - \$49.6M. The above variances were partially offset by favorable variances for Ad Valorem Taxes - \$13.4M and Depreciation - \$55.2M. Smaller variances account for the remaining differences between budget and actual costs. The major variances are explained in detail below.

Operating Supplies - \$10,903 Unfavorable

The unfavorable variance was due to expenditures greater than budget for Laboratory Supplies - \$1.3M, Safety Supplies - \$1.0M, Office Supplies - \$2.4M, Phosphoric Acid - \$1.7M, Refrigerant Supplies - \$3.1M, and Water Treating Chemicals - \$4.8M. The above was partially offset by favorable variances for Instrument Parts and Charts - \$1.1M, Filter Supplies - \$1.3M, and Miscellaneous - \$1.1M.

Maintenance Materials - \$57,811 Unfavorable

The unfavorable variance was due to incinerator costs greater than budgeted - \$9.9M; unbudgeted extraordinary items requested by management - \$5.8M; material for the turnaround (not budgeted this quarter) - \$5.3M; and the following ordinary items greater than budget - Warehouse - \$7.4M; Instruments - \$6.4M; Electrical - \$4.5M; Pumps - \$7.3M; Air Conditioning - \$1.9M; Process Analyzers - \$1.8M; Rupture Disks - \$1.1M; Safety - \$1.5M; Dryers - \$1.2M; Rigging Equipment - \$1.0M; and other ordinary items (individually less than \$1M) - \$2.2M.

Maintenance Contract Costs - \$96,457 Unfavorable

The unfavorable variance was due to incinerator charges greater than budget - \$18.0M; unbudgeted extraordinary items requested by management - \$72.2M; and the following ordinary items greater than budget - Reactors - \$2.1M, Painting - \$9.5M, Exchangers - \$2.2M, Instruments - \$1.9M, Pipe and Valves - \$6.8M, Grounds and Cleanup - \$4.2M, Towers - \$4.8M, Air Conditioning Repairs - \$1.2M, Structures - \$1.4M, Safety Items - \$1.2M, Insulation - \$1.6M, Motor Repair - \$0.9M, and Agitator Repairs - \$0.9M. This was offset by expenditures in the extraordinary category less than budget - \$31.4M.

Insurance - \$30,167 Unfavorable

The unfavorable variance was due to an adjustment for actual costs versus estimated cost for the first eight months of 1979 - \$25.7M and Workmen's Compensation charges - \$4.0M.

Waste Hauling - \$49,551 Unfavorable

The unfavorable variance was due to the cost for the removal and disposal of 1,152 cubic yards of copper contaminated dirt from the unlined copper disposal pit - \$30.1M and the cost for hauling and disposing of 2,165 cubic yards of bio-sludge - \$19.5M.

Taxes - Ad Valorem - \$13,417 Favorable

The favorable variance was due to the revised estimated taxes for 1979 being less than estimate provided at time of budget.

Depreciation - \$55,246 Favorable

The favorable variance was due to the incinerator projects not being completed as soon as anticipated - \$11.9M, the 1979 depreciation rate being 1% less than the rate used for budget purposes - \$33.2M, and to plant capital investments being approximately \$1,800M less than anticipated due to projects not completed as soon as expected - \$10.2M. Major projects not completed as soon as expected were VCM Exposure Reduction - \$248.2M, EDC Exposure Reduction - \$421.0M and Stand-by Waste Water Stripper - \$392.0M.

VARIABLE COST VARIANCE

The total variable cost variance for September (including incinerator IPA variances) was \$1,366,922 unfavorable. This unfavorable variance consisted of:

	<u>September, 1979</u>	
	<u>EDC/VCM</u>	<u>Incinerator</u>
Raw Materials & By-Products	\$(1,085,594)	\$ 6,033
Processing Supplies	(14,383)	(40,848)
Utilities	(227,585)	(22,299)
By-Products Handling	17,754	-
	<u>\$(1,309,808)</u>	<u>\$(57,114)</u>

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

EDC/VCM

Raw Materials and By-Products - \$1,085,594 Unfavorable

The chlorine price variance for September was \$292.7M unfavorable, and the ethylene price variance for the month was \$940.0M unfavorable. The chlorine plus HCl efficiency variance for September was \$165.0M unfavorable. The ethylene efficiency variance was \$24.0M favorable. This leads to a total raw material efficiency variance of \$141.0M unfavorable. This unfavorable variance resulted in part from the following:

- 1) HCl losses from higher than budget oxy acid strength.
- 2) HCl losses from venting during oxy start up and shut down.
- 3) Ethylene losses in the oxy vent during start up and shut down of oxy and during normal operation due to unusually low oxy conversion.

Other sources of this unfavorable variance are under investigation.

Processing Supplies - \$14,383 Unfavorable

The net price variance for processing supplies in September was \$8.1M unfavorable. Significant price variances occurred with respect to caustic solution (\$23.5M favorable), nitrogen (\$18.4M unfavorable), and limestone (\$20.2M unfavorable). The net efficiency variance for processing supplies was \$6.5M unfavorable. Significant efficiency variances occurred with respect to oxychlorination catalyst, caustic solution, limestone, and anti-foulant chemicals. Oxy reactor, R-304, was not recharged during the February turnaround, and led to a favorable variance of \$5.3M in this area for September. HCl conversion in oxy continues to deteriorate. This conversion problem, when combined with the short supply and poor quality of available limestone for neutralization requirements, has required additional caustic. The efficiency variances for caustic and limestone are therefore, unfavorable at \$38.3M and \$5.2M, respectively. The limestone efficiency variance has been corrected in this report from the figure reported in the IPA, based on a malfunction of limestone charges which occurred between the EDC and incinerator areas in August. Antifoulant chemical usage in September was excessive due to:

- 1) Injection pump adjustment difficulties.
- 2) The charge in September for chemical consumed in August.

Utilities - \$227,585 Unfavorable

Price variances for electricity and steam were unfavorable in September at \$15.6M and \$169.4M, respectively. Waste heat steam generation in oxy was below budget in September leading to an unfavorable efficiency variance in this area of \$27.0M. A favorable electricity efficiency of \$6.5M variance reflects normal usage and increased production during a non-turnaround month. Natural gas usage led to an unfavorable efficiency variance of \$6.8M due to the above-budget injection of methane in the R-101 vent for flammability control. Oxy outages resulted in near normal utility consumption with extremely low production.

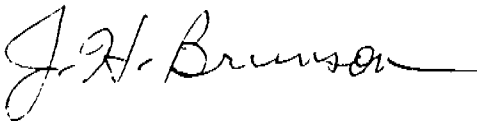
By-Product Handling - \$17,754 Favorable

The price variance for tars disposal was \$5.9M favorable in September. Light ends to the incinerator was \$9.6M favorable since light ends burning on a routine basis has not been instituted.

Incinerator - \$57,114 Favorable

Limited liquids burning was pursued in the incinerator area in September due to mechanical problems which led to a \$3.2M favorable 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 \$14.8M 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 \$9.3M 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 \$4.7M. Unfavorable efficiency variances with respect to caustic (\$5.6M) and limestone (\$17.9M) 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. In addition, some limestone charges incurred in September were a carryover from August consumption.



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