ANACONDA
from mine to consumer

EAST CHICAGO, INDIANA

November 29, 1944

Mr. C. E. Johnson:

Since our total costs have gone up considerably because of the war, I thought it might be worth while to have some comparisons with a pre-war period.

I am attaching summary sheets for the first six months January to June, 1944 vs January to June, 1939, this being the last pre-war period in which these summaries were made. Sheets attached are as follows:

Total Operating Costs	- All Departments
Total Operating Expenses & Shops	- All Departments
Total General Expenses	- All Departments

I shall attempt to analyze some of the major differences in these costs both from the standpoint of total departmental costs as well as by departments.

TOTAL OPERATING COSTS

		Tons		Amount	Cost per Ton (All Material)
Six Months 1944		28,531.74		$ 823,145.67	$ 28.86
Six Months 1939		37,037.36		760,689.87	20.56
	Decrease	8,505.62	Increase	62,455.80	8.30
Percent	"	23.0	"	8.2	40.4

By another breakdown, we have another interesting picture:

	Total Costs	Direct Costs	Shops	Expenses	General	All Other
1944	$823,145.67	$369,446.56	$72,140.67	$188,337.52	$109,472.92	$83,747.70
1939	760,689.87	351,531.53	62,047.95	199,898.59	112,039.21	35,172.29
Diff.	62,455.80	17,915.03	10,092.72	11,561.07	2,566.29	48,575.41

The above is very enlightening because it shows that the two fixed expense items - namely Expenses and General - actually were lower in total. These will be covered in more detail later. The increase in "other items" is not a true fact. In 1939, "Packing" was a direct department in the Oxide whereas now it is redistributable so that $ 38,247.48 of the above $ 48,575.41 was Packing Costs. Considering the Packing Costs the same way as 1939, the direct costs would be increased by $ 37,953.64 or a total increase of $ 55,868.67. This means that most of the increase in money spent was in the direct costs.

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Cost per ton of All Material

The cost per ton increased from 20.55 in 1939 to 28.85 in 1944 or $ 8.30 per ton - a 40% increase. All of this was not attributable to higher costs as the over-all tonnage dropped 23%.

Some of the major items represented in this increase of $ 8.30 are listed below:

	Cost per Ton		
	1944	1939	Difference
Labor - Direct	$ 5.89	$ 4.09	$ 1.80
Superintendence - Direct	1.37	.98	.39
Supplies	5.67	4.42	1.25
Shops	2.52	1.67	.85
Expenses	6.59	5.40	1.19
General	3.63	3.02	.61
Depreciation	1.55	1.03	.58
All Other	1.43	[illegible]	1.49
	$ 28.85	$ 20.56	$ 8.30

In this period wages increased from 60¢ in 1939 to 77¢ at present, an increase of approximately 30%. In addition the work week was extended from forty to forty-eight hours with time and one half pay for overtime. This premium pay amounts to approximately 8.3% on the base pay. The over-all increase from the 60¢ base in 1939 is approximately 40%. Apply this 40% to the $4.09 cost in 1939 and we account for $ 1.64 of the $ 1.80 increase. Assuming that labor costs are fixed with tonnages the balance or 16 cents per ton was due to inefficient labor. This seems low when we consider the quality of labor we have had. Of course, this does not take into account labor saving devices, if any, that were introduced.

The increases in salary rates of pay, exclusive of merit increases, amounted to 16.58%. The extended work week in January, 1944 ranged from 10% to 30% depending on the hours worked and whether the employee was exempt or non-exempt. These added earnings amounted to approximately 11.5% or a total of 28% over 1939. This applied to the 1939 costs (98 X 28) = 28 cents of the 39 cent per ton increase. We also recall that there was an increase in the number of supervisors in this same period. From the foregoing, it would seem we "held the line" fairly well in this department.

Cost of supplies increased $ 1.25 per ton or approximately 20%, which is not out of line judging from the labor increases that are a part of all supply costs.

Shops, Expenses and General will be covered later under specific headings.

There is usually a change in the operations of the various departments which reflects itself in the percentage of the total money spent, as shown in table below:

	Refinery	Zinc Oxide	White Lead
1939	43.4	31.4	25.2
1944	51.5	26.1	22.4

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Let us do a little analyzing by Departments, starting with the Lead Refinery.

	Tons Charged		Money Spent	Cost Per Ton
1939	22,761.0		$ 311,473.57	13.66
1944	19,664.9		402,212.44	20.43
Decrease	3,096.1	Increase	$ 90,738.87	$ 6.77
Percent	13.6%	"	29.0 %	49.6 %

On basis of lead produced:

1939	38,409,399		$ 311,473.57	16.22
1944	37,823,265		402,212.44	21.26
Decrease	586,134	Increase	90,738.87	$ 5.04

Some of the major items making up this increase of $ 6.77 are detailed below:

	Cost per Ton 1944	Cost per Ton 1939	Cost per Ton Difference
Labor - Direct	$ 4.13	$ 2.43	$ 1.70
Superintendence - Direct	.89	.66	.23
Supplies	4.48	2.22	2.26
Shops	2.42	1.00	1.42
Expenses	4.57	5.04	.47
General	3.08	2.08	1.00
Depreciation	.86	.23	.63
	$ 20.43	$ 13.66	$ 6.77

Using the same formula for labor increase of 40% over 1939, we can account for ($2.43 X 40) = 97 Cents, leaving the balance of 73 cents due to inefficient labor.

The Direct Supervision increase can be accounted for in part by assuming the percent increase of 28% over 1939 (66 x 28) = 18 cents, the balance or 5 cents due to increase in personnel.

Supplies in this department increased 100% and the Shops about 142%. Some of this was due to increase in cost of supplies and some to increase in supplies used.

Shops, Expenses and General will be covered under separate headings.

Depreciation rate was changed, which accounts for the increase of 63 cents per ton.

In summing up the Refinery, it is evident that we are spending $ 15,000 per month more than pre-war for the same amount of work, as the gross tons charged was 500 per month less and the tons of lead produced was only 50 tons per month less.

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	Cost per Ton		
	1944	1939	Difference
Labor - Direct	$ 9.92	$ 7.06	$ 2.86
Superintendence - Direct	2.26	1.24	1.02
Supplies	6.88	5.35	1.47
Shops	1.92	2.20	.28
Expenses	7.43	3.38	4.05
General	5.18	4.08	1.10
Depreciation	2.33	1.90	.43
Packing	8.33	-	8.33
Other Items	2.73	.23	2.50
	$ 46.86	$ 25.38	$ 21.48

It is evident that a loss of tonnage was a large factor in the Oxide Plant Costs. The tonnage decreased 51% and the costs per ton increased 85% or we spent nearly as much per month producing half as much zinc oxide.

Labor

The 40% increase in labor rates applied to 1939 costs would give ($7.06 X 40) = $ 2.82 of the $ 2.86 increase. This should be explained further and, as previously stated, the Packing was a department in 1939 whereas now it is a redistributable item and is listed separately, therefore, adding the packing labor of 2.44 to the $ 9.92 we would have a difference to account for of $ 5.28 of which we say $ 2.82 was due to increase in labor rates. The remaining $ 2.48 was due to reduced tonnage and inefficient labor.

Supervision

Applying the same 28% increase to 1939 costs of (1.24 X 28) = 35 cents of the $ 1.02 increase. Here again the Packing Supervision of 53 cents should be added making a total increase in this item of $ 1.55 of which we only account for 35 cents because of rate increase. The balance is due in part to increased personnel.

Supplies

The increase, after adjusting for packing changeover of $ 2.24, is $ 3.71 per ton. This is more than the normal increase due to higher prices. Decreased tonnage is a factor on some supply items.

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Shops

Show a small decrease but, again adjusting for Packing Costs, there would be an increase of 37 cents per ton.

Expenses

These costs being of a fixed nature are doubled because of tonnage.

General

After allowing for the Packing, the increase amounts to $ 2.38 per ton, which is due to tonnage as the total general expense was considerably less.

Packing

This account, broken down, is divided as follows:

Labor	$ 2.44
Superintendence	.53
Supplies	2.24
Shops	.65
Expenses	1.19
General	1.28
	$ 8.33

The above items were the amounts referred to as being in the 1939 costs but shown separately in 1944.

The item listed under "Other Items" covers special furnace repairs.

White Lead Department (Both Depts.)

	Tons Produced	Money Spent		Cost Per Ton
1939	4,758.24	$ 191,177.58		$ 40.16
1944	4,185.65	184,297.68		44.05
Decrease	572.59	$ 6,879.90	Increase	3.89
Percent	12.%	3.6%	"	9.8%

Major items of Cost as follows:

	Cost per Ton 1944	1939	Difference
Labor - Direct	$ 8.77	$ 5.07	$ 3.70
Superintendence - Direct	2.32	1.82	.50
Supplies	9.68	12.64	2.96
Shops	2.99	3.28	.29
Expenses	13.81	10.46	3.35
General	5.23	4.83	.40
Depreciation	3.68	3.13	.55
Other Items	2.43	1.07	1.36
	$ 44.05	$ 40.16	$ 3.89

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This department has the lowest cost increase of all. With a decrease in tons of 12% or 100 tons per month, the money spent was about $1100. per month less, resulting in an increase per ton of $ 3.89, some of which can be accounted for as follows:

Labor

The 1939 costs at the 40% increase ($5.07 X 40) = $ 2.03 of the $ 3.70 increase, leaving $ 1.67 due to other factors, mainly inefficient labor.

Supervision

Applying the 28% increase to 1939 costs ($1.82 X 28) = 51 cents, which checks the increase of 50 cents.

Supplies

Show a reduction of $ 2.96 due to less consumption as we know most prices have advanced.

Expenses

Show increases in the normal ratio to costs.

General

Remains about fixed.

The costs, by departments, are recorded by comparison as follows:

Dry Lead

	Tons Produced	Money Spent	Cost Per Ton
1939	3,470.47	$ 139,417.86	40.16
1944	3,589.43	152,716.94	42.55
Increase	118.96	$ 13,299.08	$ 2.39
Percent	3.4%	9.6%	6%

We have always considered $ 40.00 a fairly normal standard for a 600 ton per month operation. This cost is then about 6% above normal. A standard for a capacity operation was usually about $ 32.00 per ton.

Lead-in-Oil

	Tons Produced	Money Spent	Cost Per Ton
1939	1,285.77	$ 51,759.72	40.25
1944	594.22	31,580.74	53.15
Decrease	691.55	$ 20,178.98 Increase	$12.90
Percent	54%	39%	33%

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This operation was away below normal due to lack of containers, oil, etc., therefore, the costs are not comparable. The largest item of cost in this department is Supplies, which jumped from $ 34.07 in 1939 to $ 44.85 per ton in 1944. This accounts for $ 10.78 of the $ 12.90 increase. Since these supplies represent 85% of the total cost, any appreciable saving would have to be made in this expenditure.

Expenses Charged to Operations (All Departments)

		Money Spent		Cost Per Ton
1939		$ 199,898.89		5.40
1944		188,337.82		6.59
	Decrease	$ 11,561.07	Increase	1.19
	Percent	5.8%	"	18%

1.19 These expenses were reduced by about $2,000. per month. The increase of ~~99~~ cents was due to reduced tonnage.

Some of the major items of cost are shown below:

	Cost per Ton		
	1944	1939	Difference
Electric Power	1.27	.93	.34
Change House	.40	.20	.20
Laboratory	.41	.34	.07
Buildings	.37	.54	.17
Testing and Research	.33	.25	.08
Watchmen and Fire Protection	.60	.15	.45
Inter-Plant	.71	.40	.31
Redistributable Oper. Units	.94	1.62	.68
	$ 5.03	$ 4.43	$ .60

The above items account for 60 cents of the total increase of ~~99~~ 1.19 cents. There is not much more that can be said as to the reason for these increases except that they are in line with other costs.

The distribution of expenses in percentage and cost per ton by departments is shown below:

	Lead Refinery		Zinc Oxide		White Lead	
	%	Cost	%	Cost	%	Cost
1939	59.0	$ 5.04	16.0	$ 3.38	25.0	$ 10.53
1944	51.2	4.57	18.1	7.43	30.7	13.81
	7.8	$ .47	2.1	$ 4.05	5.7	$ 3.28

Decreases in red.

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General Expense (All Departments)

	Money Spent	% of Total Oper. Costs	Cost Per Ton
1939	$ 112,184.90	14.7	$ 3.03
1944	115,995.18	14.1	4.06
Increase	$ 3,810.28	Decrease .6	Increase $ 1.03
Percent	3.4%	"	34%

This is very interesting. The General Expense increased only about $300. per month but it was less in percent of total cost and more per ton because of less tonnage. This means that about one seventh of the total cost is General Expense. I remember other periods when it reached 17%. By departments it records as follows:

	Refinery	Zinc Oxide	White Lead
1939	$ 2.08	$ 4.00	$ 4.84
1944	3.08	8.12	5.23
Increase	$ 1.00	$ 4.12	$ .39

Most of these increases were in relation to tonnage.

I will list some of the major items included in the General Expense that had any material changes.

Office Salaries

	Average Per Month	Percent of General	Percent of Total Oper. Cost	Cost Per Ton
1939	$ 3,186.13	17.0	2.5	.516
1944	4,868.27	25.2	3.6	1.016
Increase	$ 1,682.14	8.2	1.1	$ .500

The approximate percent increase made in Office Salaries is about 33%. This applied to the 1939 monthly figure of $ 3,186.13 = $ 1,051.42. Salaries chargeable to Government Reports amount to $ 642.07 per month, making a total accounted for of $ 1,693.49. The cost per ton increase is not all due to increase in cost but rather a reduction in tonnage.

Insurance

There was a monthly increase of $ 902.55 of which $ 708.00 was for War Damage, an item not incurred in 1939. This increase amounts to 19 cents per ton of all material.

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Taxes

Contrary to opinion, taxes were reduced from $ 4,133.25 to $ 2,971.41 per month. However, the bulk of this difference of $ 1,161.84 was in Unemployment Insurance, as shown below:

	Per Month	
Property Tax	$ 121.80	Less
State Unemployment	1,161.84	Less
Old Age Annuity	106.04	More
Net	$ 1,161.84	Less

The reduction in Unemployment Tax is due to a drop in rate from 3% to a merit rating of 1%. This over-all reduction in taxes amounts to a saving of approximately 25 cents per ton all material.

Other Items

	Per Month Decrease	Per Month Increase
Liability and Compensation	$ 676.60	$
Legal Expense		342.77
Vacation Expense		563.50
Departmental Expense (N.Y.)		224.12
Auditing		356.38
Testing and Research	1,500.49	
Safety	354.26	
Donations		354.89
	$ 2,531.35	$ 1,841.66

The decrease in Safety was due to distribution as Safety Expense as listed under Redistributable Expenses increased $ 1,234.85 per month. After allowing for the decrease chargeable to General, we have a total increase in Safety of $ 880.59 per month.

All things considered, the General Expense as a unit of cost held the line pretty well when you consider the average expenditure in 1939 was $ 18,697.48 as against $ 19,332.53 in 1944, a difference of only $ 635.00 per month.

Shops (All Departments)

	Money Spent		Cost per Ton (All Tonnage)
1939	$ 143,950.36		3.87
1944	112,197.97		3.93
Decrease	$ 31,752.39	Increase	$ .06
Percent	22%		Nil

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Cost per ton by Departments

		Refinery	Zinc Oxide		White Lead
1939		2.99	3.91		8.17
1944		3.46	4.93		4.56
	Increase	.47	$ 1.02	Decrease	$ 3.61
Percent		16%	26%		44%

While the total shop expenditures were 22% less, the cost per ton remained about the same because of reduced tonnage.

The cost per ton at the Refinery was 47 cents higher than 1939 but was 75 cents lower than 1938. The Zinc Oxide increase of $ 1.02 was due to tonnage as the expenditure was much less. The White Lead decrease of $ 3.61 was abnormal as the 1939 costs were unusually high. The 1944 costs check closer to the 1938 costs of $ 4.93.

Bismuth Department

	Money Spent		Pounds Produced		Cost Per Pound ¢
1939	$ 19,044.65		187,540		10.155
1944	21,610.56		139,746		15.460
Increase	$ 2,565.91	Decrease	47,794	Increase	¢5.305 ¢

I have no comment on this subject.

This analysis is intended to give you an over-all picture of the East Chicago Plant as a unit and I have attempted to break it down by departments without going into too much detail or study. While it is several months behind the period covered, I believe our present operations are pretty much the same.

I shall try to analyze the next period at an earlier date.

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Chief Clerk

LAM/lf

cc: R. G. Bowman
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