

ANACONDA COPPER MINING COMPANY

DRAWER 1961

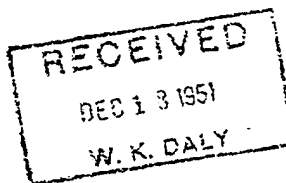


BUTTE, MONTANA

K. B. FRAZER
CHIEF CLERK/ASSISTANT SECRETARY
AND
ASSISTANT TREASURER

December 13, 1951

Mr. Rom Warburton, Cashier
International Smelting and Refining Company
821 Kearns Building
Salt Lake City 10, Utah



Dear Sir:

Herewith, report of Mr. C. E. Rowan, Traveling Auditor,
covering audit of metallurgical operations of the Tooele Plant of
the International Smelting and Refining Company for the month of
August 1951.

Two additional copies of the report are enclosed, one for
Mr. Floyd and the other to be given to any party who might be
interested.

Yours very truly,

WJF:TS

Enc.

cc: Mr. E. S. McGlone
Mr. W. K. Daly

PNYC 00012285

ANACONDA COPPER MINING COMPANY

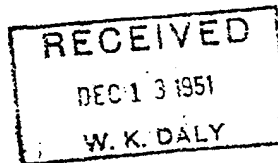
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K. B. FRAZER
ASSISTANT SECRETARY
AND
ASSISTANT TREASURER

BUTTE, MONTANA

December 13, 1951



Mr. E. S. McGlone, Vice President
Anaconda Copper Mining Company
Hennessy Building
Butte

Dear Sir:

Herewith, report of Mr. C. E. Rowan, Metallurgical Auditor, covering audit of metallurgical operations of the Tooele Plant of the International Smelting and Refining Company for the month of August 1951.

The Auditor's findings are summarized on pages 14 to 18, inclusive.

Copies of my letters to Mr. W. K. Daly, Comptroller, and Mr. Rom Warburton, Cashier, are also enclosed.

Yours very truly,

WJF:TS
Enc.
cc: Mr. W. K. Daly

PNYC 00012286

N11175.01

ANACONDA COPPER MINING COMPANY

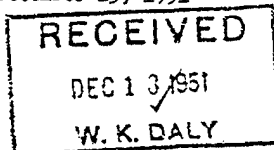
DRAWER 1961

K. B. FRAZER
ASSISTANT SECRETARY
AND
ASSISTANT TREASURER



BUTTE, MONTANA

December 13, 1951



Mr. W. K. Daly, Comptroller
Anaconda Copper Mining Company
25 Broadway
New York 4, New York

Dear Sir:

Herewith, in quadruplicate, report of Mr. C. E. Rowan, Metallurgical Auditor, covering audit of metallurgical operations of the Tooele Plant of the International Smelting and Refining Company for the month of August 1951. Reports are for the following:

Mr. W. K. Daly
Mr. W. C. Roney ✓
Pogson, Peloubet & Company
Extra

Valuation of inventories is set forth in detail on pages 10 and 11 of the report and in this connection we note item (4), page 18, wherein the Auditor states, "The New York Office is herein asked to clarify the desired inventory valuation procedure. The methods used are changed at will to facilitate recoveries and to hold low costs and all parties concerned desire written instructions."

Errors and Discrepancies and Conclusions are covered on pages 14 to 18, inclusive.

Mr. E. S. McGlone, Vice President, has been provided with a copy of the report and three copies have been sent to Mr. Rom Warburton, Cashier, for distribution to interested parties in the Salt Lake vicinity.

Copies of my letters to Mr. E. S. McGlone, Vice President, and Mr. Rom Warburton, Cashier, are also enclosed.

Yours very truly

PNYC 00012287

WJF:TS
Enc.

N11175.02

RECEIVED

DEC 18 1951

W. K. DALY

INTERNATIONAL SMELTING AND REFINING COMPANY

TOOELE PLANT - TOOELE, UTAH

REPORT ON AUDIT OF THE SULPHIDE CONCENTRATOR, THE LEAD PLANT AND THE SLAG TREATING PLANT
OF THE INTERNATIONAL SMELTING AND REFINING COMPANY, TOOELE, UTAH, FOR AUGUST 1951

MONTH OF AUGUST 1951

TIME REQUIRED FOR AUDIT

C. E. Rowan

September 17, to November 18, 1951, inclusive

Audit of the Metallurgical records of the Tooele Plant of the International Smelting and Refining Company for August 1951 included the three operating plants, as follows:

Approximately 61.5%, 17% and 65% of the purchased receipts of the Concentrator, Lead Plant and Slag Treating Plant, respectively, were audited in detail for weights, assays, unloadings, contracts, settlements and costs. In addition, 35% and 25% of purchased receipts of the Concentrator and the Lead Plant, respectively, were audited for Tooele weights and unloadings. This covered seven fully audited shippers and four tested shippers. Detail on some receipts and new contracts appears in the report.

All of the outside shipments and interplant movements were audited in detail as were most of the interplant movements at the Sulphide Concentrator and the Lead Plant. All shipments from the Slag Treating Plant were audited except two cars of Deleaded Zinc Fume shipped to the Great Falls Plant of the Anaconda Copper Mining Company. Final and preliminary data as included in the August statements were used in all cases.

Inventory observations were made on September 1st and 27th, October 1st and November 1st, as detailed in the audit. All four observations were checked to the books to determine practices and accuracy. All September 1st inventories were audited in detail from the physical and estimated inventory reports on into the statements. Valuations of all inventories were also audited in full including purchase costs, fixed operating costs and worked back inventory. A complete review of the lead plant metal valuation was made and a discussion of such is presented herein.

August work sheets and statements as well as August 31, 1951 cumulative statements were audited using the data as mentioned above and assuming all July 31, 1951 inventories to be correct.

C. E. Rowan
Metallurgical Auditor

November 18, 1951

PNYC 00012288

N11175.03

INTERNATIONAL SALTING AND REFINING COMPANY

MOORE PLANT - TONALE, UTAH

MONTH OF JUNE 1951

I N D E X

	<u>Pages</u>
SULPHIDE CONCENTRATOR:	
Receipts	1
Shipments	2
Inventories	3
Valuation of Inventories	3
LEAD PLANT:	
Receipts	4 to 5, inclusive
Shipments	5 to 6, inclusive
Miscellaneous Interplant Transfers	6 to 7, inclusive
Inventories	7 to 8, inclusive
Valuation of Inventories	9 to 13, inclusive
SLAG TREATING PLANT:	
Receipts	13
Shipments	13
Inventories	13 to 14, inclusive
Valuation of Inventories	14
ERRORS AND DISCREPANCIES:	
Sulphide Concentrator	14
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GENERAL COMMENTS:	
Lead Plant Cottrell Fire	15
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Date of Receipts	16
Adjustments to arrive at Normal Recoveries	16 to 17, inclusive
Excess Metal Recovery from Furnace Bottoms	17
CONCLUSION	17 to 18, inclusive

PNYC 00012289

INTERNATIONAL REFINING COMPANY

MOOSE BLAST - MOOSE, UTAH

MONTH OF AUGUST 1951

SULFIDE CONCENTRATOR

DETAILS

Park Utah Consolidated Mines Company - Ore

This ore accounted for over 42% of the Concentrator receipts in August 1951. The contract has remained essentially the same as detailed in the 1948 audit. The treatment cost has risen to \$1.49 per dry ton and the sampling credit has been increased to 50¢ per dry ton. This ore is all sampled, weighed and assayed by the Utah Ore Sampling Company and the International Company accepts and uses these weights and moistures but averages the assays with their own and calls for umpires when needed.

All August zinc contents were totaled and averaged and the shipper was paid for the balance of zinc in two lots which had been given the 60 pound minimum deduction because of low content zinc. This is allowed in the contract if the monthly average assay is large enough to receive the 65% payment. 19,125 pounds were paid for at 9.438¢ per pound. Also, the difference between the July sampling credit total (50¢ per dry ton) and half the July sampling charge (\$1.00 per wet ton) was paid to the shipper as allowed in the contract.

Fred and Earl Shirts - Ore

This lead-zinc ore from Ketchum, Idaho, received in August 1951 amounted to 5 lots or 4.7% of the August receipts. The contract of September 15, 1948 states the usual metal percentages and prices but the duplicate copy has not yet been signed and returned, as is the custom. The August 1951 treatment cost was 2.921 per dry ton and copper is not paid for. No agreement could be located for the 8% royalty paid on each lot to J. B. Eldridge, owner of the property.

McFarland and Mullinger - Tailings

These tailings are from Park City, Utah, and accounted for 6.5% of the August 1951 receipts. No written contract was available but the terms of the last two lots were listed by Mr. G. A. Burt, Ore Buyer, on one of the lot sheets, as follows:

Gold - 100% @ \$16.00 per ounce, if .01 ounce per ton or over.

Silver - 80% @ market over 1 ounce per ton.

Lead - 100% @ \$1.50 per unit over 1.5 units.

Copper - 100% @ \$1.50 per unit

Zinc - 100% @ \$1.75 per unit after deducting oxide zinc and .7 unit.

Treatment - \$4.00 per dry ton.

Hauling - \$1.00 per wet ton to shippers.

Splitting Limits - Au. - .01 oz. per ton, Ag. - .3 oz. per ton,
Pb. - .3%, Cu. - .2%, Zn. - .5%.

Payment - Half to Silver King Coalition Mines.

These terms were higher than those on the first three August lots because of an upswing in grade during the month. Neither formal contract was available.

Anaconda Copper Mining Company - Silver Iron Concentrates

These concentrates accounted for 34.5% of the Concentrator receipts for August 1951. Tooele weights, moistures and assays are used on the settlements. These were checked in detail but the settlements themselves were not proven because they are checked yearly in Anaconda, during the Zinc Concentrator Audit.

PNYC 00012290

SULPHIDE CONCENTRATORSHIPMENTSLead Concentrates to Lead Plant

In August 1951, five cars, 293 wet tons of lead concentrates, were received and treated at the Lead Plant. All Concentrator production is considered shipped, used as Lead Plant Receipts and the Lead Plant carries all inventories. These shipments are adjusted monthly to arrive at normal concentrator recoveries. August shipments were reduced by 13,000 pounds of lead, 1,700 ounces of silver, and seven ounces of gold. Each car is assayed so this reduction in August pushed the concentrator recoveries down and helped to raise the Lead Plant recoveries at the same time since all of these shipments were received at the Lead Plant in August. These adjustments are made at December 31st, as well, if needed.

A schedule of payments and credits, similar to the Lead Plant open contract is used for valuing these concentrates for transfer. The schedule, including latest changes in freight and labor, is as follows:

Lead	- Less 1.5 units, balance 95% @ N. Y. price, less 2.0225¢ per pound.
Copper	- (Min. deduction 10 lbs.) 90% @ N. Y. price, less 3.5225¢ per pound.
Zinc	- If 5% 80% @ 22¢ of East St. Louis price.
Silver	- If 1 ounce 97½¢ @ Mint Price
Gold	- If .02 ounce 91¢ @ \$35.00 per ounce
Iron	- Credit - 6¢ per unit.
Insoluble	- Charge - 10¢ per unit
Sulphur	- 2¢ free - balance 25¢ per unit - Maximum \$2.25 ton.
Zinc	- Charge - 15¢ per unit paid for.
Treatment	- \$5.215 per dry ton plus or minus 8¢ per unit of lead over or under 48% (after deducting 1.5 units)
Labor Base	- \$ 9.85 - 15¢ for each - 25¢ change
Coke Base	- \$16.167- 15¢ for each - \$1.00 change
Bullion Freight Base	- \$22.95

Weights, assays and value of shipments were audited in detail for August 1951.

Iron Concentrates to Lead Plant

Concentrator production is also used to determine lead plant receipts but no adjustments are made to come to normal concentrator recoveries. All inventories are Lead Plant inventories, August 1951 shipments were 18 cars, 759 wet tons.

The schedule for valuing these iron concentrates is as follows:

Lead	- 50% at N. Y. price less 4.0225¢.
Copper	- Deduct 20 pounds, balance at N. Y. price less 3.5225¢.
Zinc	- No payment.
Silver	- If .5 ounce, 95¢ at Mint price.
Gold	- If .02 ounce, 91¢ at \$35.00 per ounce.
Iron less insoluble	- 5¢ per unit, credit.
Treatment	- \$7.59 per dry ton. If entire value is deficiency, change treatment to bring total to zero.
Labor Base	- \$ 9.65 - 15¢ for each - 25¢ change
Bullion Freight	- \$22.95 base.

Weights, assays and value of shipments were audited in detail for August 1951.

PNYC 00012291

SHUT-DOWN CONCENTRATORINVENTORIES

All Concentrator bin inventories were measured on September 1, 1951 and observed and noted by Messrs. J. C. Wilson and W. F. Poil, Jr., Fogson and Peloubet Auditors. These measurements, capacities and specific weights are used as comparisons. Full cars and/or lots are used to approximate the estimated tonnages. Actual weights and assays are used on a first-in, first-out basis. Stockpile removals are at average stockpile assays.

Zinc concentrates on hand are weighed and assayed. Lead and Iron concentrates are included in Lead Plant inventories.

The Superintendent prepares a monthly sheet detailing the full lots which remain in bins, estimated weights and actual weights on any zinc concentrates on hand. This report is used for inventories whereas bin measurements are only used for checking.

On September 27, 1951 the Auditor viewed the shutdown concentrator and its inventories. No fixed in-process inventories are reported for this plant because it is usually between runs when inventories are taken and any material on hand belongs to the prior run. Some base material was observed in the classifiers and on the floor but neither the Superintendent nor the Accounting Office thought it to be large enough to affect recoveries of the prior run and put it into inventories.

VALUATION OF INVENTORIESStockpile and Bins

As explained in the previous audit, these ore inventories are valued on a cost basis except for silver and gold. Each lot, on a first-in, first-out basis for weight, is valued at cost. The total silver ounces paid for are valued at 34.75¢ per ounce. The total value of gold paid for is divided by 34.91 to arrive at ounces paid for and this total is valued at \$34.00 per ounce. The theory back of this is that, even though the terms of the many contracts differ in percent of gold paid for and price, all are based on a \$34.91 price, approximately. This is market price less cost to market.

Ores and concentrates in bins which were not sampled at the public sampler in Salt Lake are given a sampling cost of \$4.646 per ton which is an old fixed Teocle sampling cost. Stockpile materials do not carry this because they are to be sampled again before treatment.

Zinc Concentrates

Zinc Concentrates are still valued at the contract sales prices except for silver which is valued at 34.75¢ per ounce. The contract states a gold price of \$33.78 per ounce and this is used for valuation.

PNYC 00012292

RECEIPTS

Chief Consolidated Mining Company - Lead Ore

The date of metallurgical receipt of this ore depends on the availability of the silver affidavits and/or the final settlement data in time to enable the two offices to submit their estimated profit and loss statement by the 12th of the following month. If a lot is on hand at month end but the settlement is not complete in time for the estimated profit and loss statement, it is regarded as not yet received in that month and the inventory is adjusted. This is true of all other Tooele receipts, also, Chief Consolidated ore accounted for 14.5% of the Lead Plant receipts of August 1951. Full lots of this ore are weighed, sampled and assayed by the Utah Ore Sampling Company of Salt Lake or by the Tooele Plant at the discretion of the shipper. In August 70% of the lots were weighed at the Tooele Plant, seven lots, 30%, were sampled, assayed and weighed by the sampling company and were completely audited, through settlements and contracts, to Lead Plant receipts.

The contract dated January 22, 1948 contains the following payments and charges:

Gold	- Between .02 oz and .1 oz. - 100% @ \$1.816
	- Over .1 oz. - 100% @ \$2.316
Silver	- 1 oz. or over - 96% @ Mint on date of arrival
Lead	- If 3% settlement or over, deduct 1.5 units from wet assay and pay for 80% of balance at N. Y. price, less 1.9725¢
Zinc	- 6 to 8% - 80% @ 22¢ of East St. Louis price
	- 8 to 9% - 80% @ 23¢
	- 9 to 10% - 80% @ 24¢
	- Over 10% - 80% @ 25¢
	- If under 6%, can use monthly average and pay for all as above
Copper	- Deduct 12 pounds, balance at N. Y. cathode price less 5.5225¢
Insoluble	- 10¢ charge per unit
Sulphur	- 25¢ for each 1% over 2%. Maximum \$3.00 per ton
Iron	- 8¢ credit per unit
Lime	- 5¢ credit per unit if over 4%
Zinc	- All paid zinc at 15¢ charge per unit
Arsenic and Antimony	- 2¢ free - 50¢ charge per unit on excess
Treatment	- \$ 6.556 per dry ton -
	- Add or subtract 8¢ per unit when lead is under or over 20%
	- Credit 25¢ when copper is 5% or more
	- Credit 25¢ when sampled by U. O. S. Co.
	- If net return is under \$11.00, credit 50% of difference up to a maximum of \$1.00
Labor Base	- \$ 9.85 - add 15¢ for each - 25¢ increase
Coke Base	- \$15.755 - add 15¢ for each - \$1.00 increase
Million Freight	- \$20.64 - variance for shippers account, made in lead price
Splitting	
Limits	- Au. - .01 oz., Ag. - .3 oz., Pb. - .4%
	- Cu. - .2%, Others - 1%

To be sampled weighed and assayed at Utah Ore Sampling Company, Salt Lake at the shippers decision.

These terms include the latest letter changes of April 6, 1951 and November 1, 1950 which were the latest freight and wage rate changes, in that order. In the earlier letter of November 1, 1950, from Mr. G. A. Burt, Ore Buyer, to Mr. Ron Warburton, Cashier, the wage increase of common labor from \$10.25 per shift to \$11.05 per shift effective October 15, 1950 was noted. The later letter from Mr. Burt to the Ore Settlement Department noted the freight rate increase of 2% effective April 4, 1951.

Bonanza Mine, Anaconda Copper Mining Company - Lead Concentrates

Three lots of Bonanza Lead Concentrates, 1.5% of August receipts, were received from Palmers, Washington. This concentrate comes under a new contract dated May 22, 1951 covering one year with a sixty day cancellation notice. The contract, in a letter from International Metallurgical Manager, Mr. B. L. Sackett, Salt Lake City, to Mr. E. S. McGlone, Vice President of Anaconda in Butte, and signed and returned by Mr. McGlone, contained the following provisions:

Gold	- .03 to 3.0 oz. 100% @ \$31.81825
	- Over 3.0 oz. 100% @ \$32.81825
Silver	- 1 oz. or over 95% @ Mint Price

PNYC 00012293

LEAD PLANT

RECEIPTS - Continued

Bonanza Mine, Anaconda Copper Mining Company - Lead Concentrates - Continued

Lead	- Under 25% - 90% of Wet Assay, Minimum 2.5%
	- 25 to 50% - 91% of Wet Assay
	- Over 50% - 92% of Wet Assay
	- Price - Average New York E. & M. J. price week ending Wednesday, next preceding sampling date, less 1.78¢ when lead is 15%, plus or minus .031¢ for each 1¢ change in lead price. Also plus or minus change in Refinery labor rate.
Copper	- Deduct 20 pounds, balance at N. Y. price less 6¢ per pound
Arsenic and Antimony	- 1¢ free, excess at 50¢ per unit
Treatment	- \$9.00 per dry ton, F.O.B. International - Utah
Freight	- International pays freight from Bradley, Idaho
	- Shipper pays only freight to Bradley, Idaho
Labor	- Smelter - \$13.6467, Base. Add 17¢ for each 25¢ raise
	- Refinery - \$1.55663 per hour base. Adjust lead price 3.5¢ per ton of paid for lead for each 1¢. Use third preceding months labor cost average
Coke	- \$15.167 Base plus 15¢ for each \$1.00 raise
Bullion	
Freight	- \$22.95 Base, Variation for shippers account, made in lead price deduction.

The splitting limits on assays were mentioned in a letter dated June 20, 1951 from Mr. E. C. Stephens, Manager at Bonanza, to Mr. E. L. Sackett, suggesting limits of .5% on lead and .5 ounce on silver. Mr. Sackett agreed in his reply of June 25, 1951.

August 1951 Bonanza Mine receipts using Tooele weights and assays for settlements were:

<u>Wet Weight</u>	<u>Dry Weight</u>	<u>Lead</u>	<u>Zinc</u>	<u>Silver</u>
332,720 lbs.	308,187 lbs.	164,829 lbs. 53.483%	3,657 lbs. 1.19%	1,491.69 oz. 9.68 oz.

The zinc was not paid for and there was no gold content.

SHIPMENTS

Lead Bullion to Omaha, Nebraska

Lead bullion shipped to the American Smelting and Refining Company, Omaha is the major product of the Tooele Smelter. The silver is returnable 100% in 40 days and the lead is returnable 100% less 8 pounds per ton of bullion in 20 days after receipt at Omaha. 99.5% of the gold is paid for at \$34,9125 per ounce. The contract has remained the same as outlined in the previous audit except that the last half (5 years) of contract period started on June 15, 1951 and the supply cost addition to treatment cost went into effect adding \$2.759 per dry ton to the treatment charge of June receipts after the 14th. Also the splitting limit on silver was raised to .3 ounce in June 1948 in an exchange of letters between Mr. Carl Gall, Manager of the Omaha Plant and Mr. Carlos Bardwell, Superintendent of the Tooele Plant. If silver ran over 100 ounces the splitting would be raised to .4 ounce.

The final settlement for June 1951 shipments was audited in detail as was the preliminary settlement for August 1951 shipments. The settlements and entries are made in New York, but the settlements are checked in Tooele as received.

August shipments with Omaha weights (final) and Tooele assays and costs (preliminary) were:

	<u>Assays</u>	<u>Pounds</u>	<u>Ounces</u>	<u>Returnable</u>
Total Weight		4,801,851		
Lead	98.701%	4,739,475		4,720,268 lbs.
Bismuth	.060%	2,881		None
Silver	84.27 oz.		202,325.00	202,325.00 oz.
Gold	.9363 oz.		2,248.00	---
			<u>Payments</u>	<u>Charges</u>
Gold Payment			\$ 78,095.77	---
Bismuth Charge				33,869.86
Estimated Treatment				38,841.92
Estimated Freight				

PNYC 00012294

LEAD PLANTSHIPMENTS - ContinuedCopper Bullion to Raritan Copper Works

Two cars of copper bullion were shipped to the Raritan Copper Works, Perth Amboy, New Jersey in August 1951. Both were received at that plant in August along with five cars in transit on August 1, 1951. Raritan weights and assays are used on receipts whereas until receipt, Toole weights and assays are used as preliminaries. Settlements, payments and entries are handled in New York. The audit included only the use of Raritan weights and assays on August Raritan receipts and the inclusion of those figures into the Metallurgical Statements.

Cadmium Fume to Great Falls, Montana

The Fume Roasters did not operate in August 1951 nor was there any inventory of Cadmium Fume on August 1, 1951.

MISCELLANEOUS INTERNAL TRANSFERS AND PAYMENTS

As a rule all transfers between the three major plants, Sulphide Concentrator, Lead Plant and Slag Treating Plant, are valued and transferred on entries but materials moved between divisions of one plant are not formally transferred. Often one division will charge another for treating the latter's material, but no entry follows that movement. The five divisions of the Lead Plant are:

Copper Converters	- run at intervals to recover copper
Cadmium Roasters	- run at intervals to produce Cadmium Fume
Sintering Plant	- produces sinter for the blast furnaces
Blast Furnaces	- produces lead for dressing
Dressing Plant	- draws off dross and pours lead bars

The Sample Mill is not a division of the Lead Plant, nor a separate plant. Its costs are distributed to the plants serviced and it has no metallurgical statements.

The weights, moistures, unloadings and assays of the following materials were checked in detail:

Lead Fume from Slag Treating Plant

This material is weighed by cars and assayed monthly. It enters the Sintering Plant charge bins and becomes a part of the sintering mix. It is transferred by entry as explained in the 1948 audit.

Cadmium Calcine

This calcine is produced at the Cadmium Roasters after the Fume is drawn off. It is sent to the Sintering Plant charge bins, also. In August the entire August 1st inventory was shipped so no current weights or assays were used.

Blast Furnace Dust

This dust, recovered from the Blast Furnace Baghouse is returned to the Sintering Plant charge bins. Actual weights with monthly moisture and assays are used.

Old Copper Plant Inventories

Now that the old Copper Plant inventories have been transferred, they do not require entries when used. In August some old reverb dust and copper calcine were sent to the Sintering Plant but since all the metals except copper in those old inventories have been recovered, only copper is used on the metallurgical sheets. Current weights and copper assays are used.

Some old reverb furnace bottoms were also treated at the Blast Furnaces in August but only the copper content was used. See General Remarks for discussion of excess metals reclaimed.

Converter Cleanings

This is slag from current runs at the converters which is sent to the Blast Furnaces for further recoveries. It has actual weights, monthly assays and contains no moisture.

PNYC 00012295

LEAD PLANT

7.

DISPOSITION OF LEAD PLANT TRANSFERS - AUGUST 1951 - Continued

Dross, Scavenged Matte and Spills

The Converters receive and treat this material from the Blast Furnaces. The August transfer was from the August 1st inventory and carried those assays.

Blast Furnace Cadmium Dust

High cadmium content dust is accumulated for twice yearly roasting runs at the old copper roasters. None was shipped in August 1951.

Sinter to Blast Furnaces

The product of the Sintering Pans is weighed by cars, adjusted by inventories at the Blast Furnace Bins and the balance used as shipments to the Blast Furnace and as Blast Furnace Treatment. All inventories are for the Sintering Plant. A fixed moisture of .75% is used. Constant loss percentages are used on each metal to arrive at the content of the sinter, even though a monthly assay is taken for comparison. August statistics on sinter shipped are:

	<u>Lead</u>	<u>Copper</u>	<u>Zinc</u>	<u>Silver</u>	<u>Gold</u>
Fixed Loss	2%	.5%	1.5%	.5%	1.0%
Monthly Assay	29.20%	2.00%	10.70%	22.46 oz.	.24 oz.
Computed Assay	29.06%	1.95%	9.02%	25.168 oz.	.278 oz.
Monthly Weights	4,477,236 lbs.	306,660 lbs.	1,640,631 lbs.	172,189.59 oz.	1,839.960 oz.
Computed Weights	4,455,170 lbs.	298,994 lbs.	1,383,037 lbs.	152,950.47 oz.	2,131.287 oz.

Hot Slag to the Slag Treatment Plant

The molten slag sent to the Slag Treatment Plant is computed by assuming no loss of iron and manganese at the Blast Furnaces. The total treated iron plus manganese, including that in the cold dump slag, scrap iron and coke, less the production of iron and manganese in all materials except slag is the content of the slag. Using a monthly composite assay, the dry weight and other contents of the slag are ascertainable. The cost is transferred to the Slag Treating Plant on the following schedule:

Zinc Charge	- Total zinc content of molten slag less 95% of all zinc from the Slag Treating Plant treated at the Lead Plant during the month plus cold slag zinc and toll zinc treated. 75% of this computed zinc content is paid for at 20% of the monthly average Prime Western Price.
Treatment of Cold Slag Charge	- \$7.00 per dry ton treated by Blast Furnaces. Increased from \$5.00 per ton in August 1951 as per letter of August 21, 1951 from Mr. Sackett to Mr. Floyd.
Credit for further Treatment of Toll Zinc	- \$6.75 per dry ton of toll material treated at the Lead Plant during the month.

INVENTORIES

At 3 A. M. on September 1, 1951, Messrs. J. C. Wilson and W. F. Noll, Jr., Peggson, Peloubet & Company Auditors, observed the taking of all bin inventories at the Tooele Smelter. The measurements were recorded and turned over to the Metallurgical Auditor upon his arrival at the plant on September 18, 1951. These bins accounted for a major portion of all inventories except stock piles. Being taken at the end of the audit period, they did not necessitate any duplicated audit such as was required with inventories taken at a later date. Bin audit included converting measurements to weights using specific weights per cubic foot if available, checking weights to inventory sheets and extending contents using specific assays. Full or partially loaded cars on hand were accepted as recorded by the clerk who observed that inventory, but were further audited for dump weights and dates, assays and extensions of contents. This also included clerks' estimates of materials on the floors.

PNYC 00012296

LEAD PLANTINVENTORIES - Continued

On September 27, 1951 while the plant was down the Auditor accompanied James Lougy, Clerk, on an inventory taking trip around the Lead Plant. Observations were made of materials on the floor, in bins and in cars at the old Copper Plant. These are mostly lead inventories. They were later traced to the work sheets for September 30, 1951.

Also observed on September 27, 1951 were the old Reverberatory Furnace Building and Baghouse, the Yard, Sintering Plant, Blast Furnaces and the Dressing Plant. At the Reverb building both Reverb furnace bottoms had been excavated leaving one 25 foot pit and one 10 foot pit. Surplus recoveries have been realized but copper content is still being treated and deducted from the balance in the Copper Plant dust and calcine inventory. The Converter Baghouse was observed as completely empty, although it is used at every Converter run.

The Sintering and Precoat (crusher) buildings were devoid of any appreciable inventories. Three partially loaded cars were noted at the loading platform near these buildings. At the Blast Furnaces considerable repairs were in progress. Furnaces number 1, 2 and 5 are completely gone with only a bin replacing number 2. Furnace number 3 had been torn down for repairs and number 4 was being cleaned out to make ready for the next run. Inventories were very difficult to take but it was assumed that no change in quantities had taken place since September 1, 1951 even though a change in location had been made.

Following are comments on a few inventories. All were completely explained in the 1948 audit but these were deemed to be of sufficient interest to warrant duplication.

Sinter

Actual car weights and monthly assays were first used as was the .75% fixed moisture. In taking this inventory to the plant sheets, however, and to the statements, other assays were used as explained under General Comments.

Flue Dust

Most of this dust is in fixed quantities as follows:

Dry Flue	25 Tons
Moisture Chamber	100 Tons
Main Flue	60 Tons
Treater Intake	35 Tons
Stack Base	40 Tons

The assays on these fixed inventories are also fixed and are reasonably near the monthly assays used on the car inventory of Dust. Actual weights and monthly moistures were used on the car inventories. See further comment at the end of this audit report.

Lead Dross

The small stockpile of this material was observed on September 27, 1951, unchanged since September 1, 1951. An estimate of baskets (pots) of dross on hand in the dross plant was also made on September 27, 1951, agreeing with the September 1, 1951 inventory. This material also carries a fixed .75% moisture and monthly assays on the work sheets. As with Sinter, these monthly assays were not used on the plant statements.

Blast Baghouse Furn

This inventory was in bins, stockpile, pits and flue intake. The bin inventory is measured and computed as explained in the 1948 audit. The cars from stockpile are weighed and average moistures and assays used for these removals as well as for the remaining inventory. The pits at the baghouse are estimated each month. The flue intake is kept at 50,000 pounds as a fixed inventory. The pit and intake inventories are added to the bin and car inventories, however, and carry the same current monthly assays.

Lead Bullion

The in transit and plant inventories of lead bullion are essentially the same as reported in the 1948 audit. The plant closed on August 27th so no assays of early September shipments were available to use on the on-hand inventories, as is the usual practice. Estimates of Bismuth, Silver and Gold assays were used, slightly lower than the in transit assays, which were available. The lead assays of both inventories were taken from the estimated settlement sheets, as follows: Using the last available settlement figures from the A. S. and R. Company, the total of the Lead, Bismuth and Dore (Silver and Gold %) assays is taken without change and the actual Bismuth and Dore assays are deducted to get the Lead Assays. This assumes that the total of the four assays is unchanged on both inventories.

PNYC 00012297

LEAD PLANTVALUATION OF INVENTORIESStockpiles and Stock Bins

The method of valuing these inventories has changed since the 1948 audit. The silver and gold are no longer reduced to 34.75 cents and \$34.00 per ounce, respectively, when added to the stockpile. All lots are now added at actual costs and charges but the gold cost is divided by \$34.91 to arrive at a new paid-for ounces figure. Thus, all gold paid-for ounces go into stockpiles and stock bins at \$34.91 per ounce. As before, cars out of stockpile and stock bins are given average contents and values. At month end, inventories of all lots are recapped and silver and gold total paid-for ounces are revalued at 34.75 cents and \$34.00 per ounce, allowing the difference to fall into treatment. Therefore, the individual stockpile records carry actual costs and charges with gold at \$34.91 per ounce but the total inventory as used on statements is revalued for both silver and gold. This is useful when lots are transferred between plants because original costs are then needed.

Actual freight and refining charges, zinc and zinc costs and treatment charges are used as totaled on the Stockpile Recap Sheet.

The lead and copper valuations now are made on a "normal base" method along with the lead and copper in the by-products inventory. On May 31, 1949 this method was started using the May 31, 1946 inventory as a base when the government controlled price was lifted. The May 31, 1949 inventory was called normal. Also included in the base were old Copper Plant inventories on hand at that plant in 1946 but transferred to the Lead Plant on January 1, 1949.

PNYC 00012298

Stock Piles and Stock Rins - Continued

Following are specific inventories as computed since May 31, 1949.

Date		L E A D				C O P P E R		
		Paid for Pounds	Cents Per Pound	Amount		Paid for Pounds		
5/31/46	Stock Pile	5,418,636	6.500	\$ 352,211.57		248,883		
	By-Products	447,058	4.500	20,117.61		21,779		
		2,125,740	6.500	138,173.25		1,417,168		
5/31/49	Stock Pile	Base 1,176,109	6.500	\$ 76,447.09	Base	(1)	9,893	
	By-Products	Base 2,107,763	6.500	137,004.60	Base		21,079	
		Base 447,058	4.500		Base	(3)	554,674	
		Base (2,7) 90,807	4.500	24,203.93		(2)	47,520	
						(2)	3,690	
						(2)	742,820	
						(3)	439,176	
	Total	3,821,737		\$ 237,655.62			2,041,052	
12/31/49	Stock Pile and By-Products Increase	(5) 3,821,737	12.000	\$ 237,655.62		(3)	1,531,375	
		470,035		56,404.20		(4)	49,721	
		4,291,772		\$ 294,059.82			1,668,797	
12/31/50	Stock Pile and By-Products	3,821,737		\$ 237,655.62		(2)	697,109	
	Increase	(5) 282,517	17.000	48,027.89	Base	(6)	585,646	
	Total	3,539,220		\$ 189,627.73			1,10,676	
8/31/51	Stock Pile	1,176,109	6.500	\$ 76,447.09		(1)	9,893	
	Increase	(5) 1,828,061	17.000	310,770.37		(5)	110,500	
		3,004,170		\$ 387,217.46			150,393	
	By-Products	(7) 537,865	4.500	\$ 24,203.93			21,079	
		2,107,763	6.500	137,004.60			554,674	
	Increase	(5) 215,115	17.000	36,569.55		(2)	478,374	
		(8) 2,430,513	5.128	\$ 124,638.98		(5)	172,508	
	August 31, 1951 - Total	5,434,683	9.418	\$ 511,856.44		(8)	881,619	
							1,032,012	

PNYC 00012299

LEAD PLANTVALUATION OF INVENTORIES - ContinuedStock Piles and Stock Dike - ContinuedBase Period Inventory - May 31, 1946

This inventory contained quantities of lead and copper at two distinct sets of prices, both government controlled and both used under the prior method of valuation. The early prices were 4.5¢ and 8.5¢ while the last controlled prices were 6.5¢ and 11.775¢, both for lead and copper respectively.

Beginning Inventory - May 31, 1949

The stock pile and by-product inventories were valued separately on a last-in, first-out basis using January 1, 1949 quantities.

(1) This stock of copper was incorrectly valued. It should have been carried at 11.039¢ per pound.

(2) Old copper plant inventories were transferred to the Lead Plant on January 1, 1949 and these amounts were still on hand at May 31, 1949. Values are at transferred costs.

(3) Excess copper (459,176 pounds) over January 1, 1949 amount (554,674) pounds was valued at average current sales price. This excess was lost at year end, however.

Year End Inventories - 1949 and 1950

The stock pile and by-product inventories were here valued as one unit but separate bases were used regardless of physical inventories of each.

(2) In 1950 the old copper plant inventory was being reduced at the current rate of use although much of it had been recovered in the previous year and not written down. Some of the write-off was being made at 10.5¢ per pound which was higher than the original inventory as shown at May 31, 1949.

(4) Even though the May 31, 1949 gain of 459,176 pounds was lost at December 31, 1949, another gain was shown (86,921 pounds) which was the difference between the stock pile gain and the by-product loss. The value per pound was the average stock pile cost for 1949.

(5) Increases and decreases are at current market prices.

(6) This copper increase was valued at May and June 1950 average sales prices as remained on the last-in, first-out basis.

Current Inventory - August 31, 1951

A return has now been made to valuing the two inventories separately with each having its own normal base from the May 31, 1949 inventory.

(1) This is to be written down to 11.039¢ per pound on October 31, 1951.

(2) This balance of old copper plant inventory is well above the actual amount still on hand. The removal at 10.5¢ has reduced the value to 9.727¢ per pound. This is to be written down to the actual pounds of old copper plant copper still on hand by December 31, 1951. The August 31, 1951 book inventory was 197,943 pounds at 10.5¢ per pound transferred cost.

(7) The lead content of old copper plant inventories has been fully recovered and, Mr. Floyd plans to eliminate this part of the base inventory (90,807) pounds at 4.5¢ by December 31, 1951.

(8) The practice of decreasing (borrowing) from base inventory at current prices shows a possibility of a very low value even though it would be called a "below normal" inventory. It was suggested to Mr. Floyd that he value the decreases at the last added base costs per pound, at least at December 31st, of each year. Then the system could be classified as a last-in, first-out method. He stated that this would give him a bad looking profit and loss statement if and when inventories dropped but he agreed that this is a necessary evil of this valuation system. He and the Auditor agree that there is need for written instructions on the desired method of valuation to be followed. The December 31, 1951 inventory should show a large increase over these base inventories because of the recent two month shut down.

PNYC 00012300

LEAD PLANTVALUATION OF INVENTORIES - ContinuedIn Process InventoriesRefining Costs

As in the past, a worked back inventory is used to apply a refining cost to materials in process. No converter bag house fume has been roasted since 1950 and Cadmium Fume Calcine is regarded as a by-product so there was no calcine in the August 31, 1951 inventory. Lead Bullion is valued in New York so the only "main line" product to be worked back was Sinter.

The Sinter weight and contents are worked back to the equivalent material necessary to produce them, using current Sinter plant recoveries. This necessary material is then broken down between custom ore and by-products using current lead ratios in materials treated at the Sinter plant as well as current assays on ore treated. The by-products carry the balance. The fixed Sinter cost per ton is applied to each of the two equivalent inventories.

The custom ore thus arrived at is added to custom ore in bins and each is given the fixed sampling cost. Ore in stock piles and stock bins does not carry sampling costs.

Current and fixed costs are compared as follows:

	Date of Fixed Cost	Cost Per Ton	
		Fixed	August 1951
Sintering	December 31, 1941	\$ 2.5063	\$ 9.283
Calcining	March - 1947	4.1316	(1)
Sampling	December 31, 1941	.4517	1.0779

(1) No lead calcining has been carried on since 1950. Cadmium Fume calcining cost does not apply to work in process costs as its calcine is a by-product.

Purchase Costs

Treated custom ore is computed on the inventory work sheet using receipts and original inventories with their paid for metals, costs and charges. The above equivalent inventory dry weight and contents from the worked back sheet are used on this work sheet along with metals paid for computed from the average paid for percentages of this total custom ore treated. The average values for lead and copper are the average prices for each in the total current receipts. Silver and gold are valued at 34.75¢ and \$34.00 per ounce, respectively. Freight and refining costs against lead and copper are computed using average current costs of treated custom ore. Treatment cost is also at the same cost per ton as current treated custom ores. No zinc content or cost is retained in this work in process inventory. Furthermore, no last-in, first-out principle is used for metals or costs.

By-Products

As before two schedules are used to value the by-product inventory. One is used for Dross Reverb Matte and Speiss, a copper product and the other for the balance of the by-products. Both are sales schedules and provide a near market value for these materials. Lead and copper on both schedules are valued on the "normal base" method explained above under Stock Piles and Stock Bins. Silver and Gold paid for are valued at 34.75¢ and \$34.00 per ounce, respectively. Zinc is not included nor valued.

The Matte and Speiss schedule is drawn up for valuation purposes only as it has no transfer schedule. Lead is 87 percent paid for and copper is 97 percent paid for after deducting four pounds per ton of material. Silver and gold are paid for at 99 percent and 94 percent respectively. The arsenic penalty is still 75¢ per unit of twenty pounds but the treatment charge has increased to \$21.296 per dry ton. Lead and copper price deductions have increased slightly.

The balance of the by-products plus the equivalent by-product amount from the Work-In-Process worked back sheet are valued on the by-product transfer schedule as in the past. Lead is 95 percent paid for after a one percent deduction, copper is 92-1/2 percent paid for with a minimum eight pounds per dry ton deduction, silver is 97 percent and gold is 94 percent paid for. Treatment charge is \$7.86 per dry ton and there are numerous other credits and charges.

PNYC 00012301

VALUATION OF INVENTORIES - ContinuedFinished Material

Lead Bullion is valued in New York but any lead bullion on hand in wells and kettles is credited with cost to finish - dressing expense. This credit is held on the Salt Lake statements until the following month. A fixed cost of \$1.7589 per ton is used which was the cost at December 31, 1941. As stated in the previous audit, it is assumed that the New York Office uses this credit when valuing this lead inventory.

RECEIPTSSLAG TREATING PLANTCombined Metals Reduction Company

Sixty-five percent of the purchased ore receipts at the Slag Treating Plant in August came from the Combined Metals Reduction Company stockpile at Jean, Nevada. The special contract for this material states the following terms:

Zinc and Lead	- 60 percent at 44 percent of average East St. Louis price for the week ending Wednesday, next preceding date of sampling of last car of each lot.
Treatment	- \$7.48 per dry ton F.O.B. International, Utah.
Splitting Limits	- Same as Lead Plant Contract
Weights	- Tootle Weights

SHIPMENTSLoaded Zinc Oxide

All zinc oxide is weighed and assayed as shipped. If consigned, it remains at such assays and when partially sold, it is sold at such assays. August 1951 shipments and sales were as follows:

American Chemet Corporation, East Helena, Montana

One car shipped and sold in August. Lead per pound - 8.4¢. Zinc per pound - 14.325¢. No consigned inventory on hand.

Consignment Shipments

One car shipped in August 1951 but no sales were made from it. Two sales of 2,950 pounds and 53,000 pounds were made at 12.875¢ per pound of oxide. One consignee had no sales in August.

Deleaded Zinc Fume returned to American Zinc Company

Eighty percent of the zinc content of American Zinc Company residue treated is returnable to them in deleaded zinc fume. In August 1951 approximately 270 tons of fume containing 379,492 pounds of zinc were returned, using averaged assays and their weights as received at Macboves, Texas. Tootle weights and assays are used on the books as shipped.

Deleaded Zinc Fume to International Minerals and Metals

All lots shipped to Bartlesville, Oklahoma in August 1951 were still in transit at August 31, 1951. The August settlement for previous shipments and the August shipments were completely audited for Tootle and Bartlesville weights, all assays, receiving dates and contract prices.

INVENTORIESStock Pile

There was no change in the stock pile during August 1951. Any accruals would be added at actual weights and assays. Removals would be taken out at actual weights and average pile assays.

Bins

Those bins were among those measured by the Fogson, Polcubet Auditors on September 1, 1951. Measurements, cubic foot volume and specific weights are used for these materials and the total weight is checked by in and out actual weights. Lot weights and assays are used on a first-in, first-out basis to accumulate the desired total weight. All measurements, computations and assays were audited in detail.

PNYC 00012302

SLAG TREATING PLANTINVENTORIES - ContinuedDeleaded Zinc Fume and By-Products

The fume inventory consisted of in transit to I. M. and M. Company, on hand company owned and on hand returnable to American Zinc Company. Most of the on hands are still reported by the operating department and are all handled as outlined in the previous audit, except the assay of the last lot of fume shipped in used for content of the fume on hand. The car and miscellaneous inventory was observed by the Auditor on October 1, 1951 with Mr. W. H. Floyd and later checked to the records. This did not include those reported by the operating department which were estimated. The auditor was present on November 1, 1951 when the Lead Plant Superintendent, the Slag Treating Plant Foreman and his assistant met and reviewed cleanings, deposits and operations since assuming on October 22, 1951. The Baghouse pits were viewed and estimated while all other by-product inventories were entirely estimated. The in process inventory at East Helena is computed but both systems seem to be reasonably accurate. The estimated inventories at Tooele include fume in the Chamber, Flue and Bag House, most of which is not available for measuring or viewing.

Consigned Zinc Oxide

Consigned stocks of zinc oxide were out of town and were not physically verified by the Auditor but consignee letters were audited to confirm sales and balances on hand. All consigned stocks retain the car assay as originally shipped.

One consigned balance of 20,775 pounds of oxide was on hand at August 31, 1951 out of a car shipped in June 1950. The consignee is the C. L. Duncan Company, 1101 - 17th Street, San Francisco, California. No sales had been reported since August 31, 1951 up to the date of this writing.

VALUATION OF INVENTORIES

The methods of valuing Slag Treatment Plant inventories have not changed since the 1948 audit. Ore in stock piles and bins is valued at actual lot costs. The lots are designated on the first-in, first-out basis. Bin ore also carries sampling cost at the current cost per ton. Deleaded zinc fume in transit to International Minerals and Metals Company and on hand at the plant are valued together on the I. M. and M. Company contract terms but with an estimated treatment cost as used on the preliminary settlement. Gold and silver are not paid for in this contract nor valued on any of these inventories.

Leaded zinc oxide at the plant is valued on the sales terms of fumes sent to the Lead Plant. Consigned stock was also valued at those same sales terms except that lead was carried at 16.04¢ per pound. Mr. Floyd stated that he would change this to follow the fume sales price which is the current market value. Gold and silver are paid for and valued at \$32.816 (100%) and 34.75¢ per ounce, respectively.

By-products which include dusts, cleanings, fumes etc., are valued at current running costs only. This includes sampling cost. A minor portion of these materials, some furnace cleanings, etc., are returned to the Lead Plant for retreatment but most continue on through the Slag Treating Plant. No deleading cost is applied because the only by-product in this section of the plant is either re-circulated or perhaps sold as a finished product with Leaded Zinc Oxide. Mr. Floyd was questioned about the omission of purchase cost on all by-products and he stated that there was no purchase cost during the early operation of this plant and he is using a last-in, first-out theory on this material, only. This inventory is almost entirely estimated and fluctuates very little.

ERRORS AND DISCREPANCIESSULPHIDE CONCENTRATORZinc Concentrates shipped to Anaconda

In checking the August settlement for Zinc Concentrates shipped to Anaconda, Montana, the addition to zinc price for zinc freight to East St. Louis was noted as being .7635¢ per pound, or \$15.27 per ton. This was not auditable from the information on hand at Tooele because the previous rate in March 1951 had been \$15.43 per ton and the last increase on April 4, 1951, was two percent, supposedly giving a new rate of \$15.74 per ton. The rate used in August 1951, however, was \$15.27.

Upon inquiry to Anaconda, Mr. R. N. Kelly replied that the Wachee Sampler had not been advised of a rate decrease in February 1951 to \$14.98 which would explain the two percent increase to \$15.27 in April 1951. Mr. Kelly also stated that Salt Lake was informed of the error but "decided that the amount involved did not warrant revising the settlements."

PNYC 00012303

FINCHES AND DISCREPANCIES - ContinuedLEAD PLANTApportionment of Total Treatment Cost

In prorating total costs to the six Anaconda Copper Mining Company materials treated and the one custom ore classification, the charge for treating cold slag at the Blast Furnaces is deducted from the total treatment cost as are the current Cadmium Fuming expense and the current reclaiming expense. This assumes the Anaconda materials do not contribute to these expenses and vice versa. Then the average cost per ton treated derived from this net cost is applied to the Anaconda materials treated and the balance of treatment cost is applied to the custom ore.

In August 1951 the deferred Cadmium and reclaiming costs were deducted from the total treatment cost instead of the current treatment portion of those operations. This gave a per ton treatment cost for Anaconda materials which was approximately 85¢ per ton lower than it should have been. It also left a larger treatment cost against custom ore than was correct. This will be corrected in November 1951 accounts.

SLAG TREATING PLANTDeleaded Fume to International Minerals and Metals

The freight bill, Bartlesville weight, on car U. P. 66460 of deleaded zinc fume shows a net weight of 112,900 pounds but using the gross and tareweights, the net should have been 111,900 pounds. Bartlesville weights are used on the settlement and for the freight charges but not on the Metallurgical Statements, as in transit inventories.

Inventory Value of Consigned Zinc Oxide

In valuing the consigned stock of zinc oxide, it was noted that the transfer value of lead fume was used except for the lead price. Current lead price is used in the schedule of lead fume transferred to the lead plant but an older price of \$16.04 was used in this case. Mr. Floyd stated that current price would be used henceforth. The August 31, 1951 inventory was understated by \$580.86.

GENERAL

With the above exceptions, only a few minor errors and discrepancies were discovered.

GENERAL COMMENTSLEAD PLANT COTTRELL FIRE

On Monday morning August 27, 1951, just before the 1951 strike started, a bad fire broke out in the Lead Sintering Plant Cottrell. It necessitated the rebuilding of the Cottrell and a portion of the Flue, which was started early in September. On October 22, 1951 enough of the job was completed to allow the Lead Plant to resume operations in part. The fire had shutdown all of the Lead Plant except the Sample Mill and the Fume Roasters. The Slag Treating Plant also was closed because of the loss of its major receipt, hot slag. Some deleading of fume on hand was continued in the Slag Plant kiln. The Suphide Concentrator was not affected and continued its normal operating runs.

COPPER PLANT WRITE-OFF

The copper plant was completely written off on January 1, 1949 as per instructions of Mr. E. O. Sovereign in his letter of January 17, 1949, to Mr. Floyd, Chief Clerk. The only remaining copper plant inventories on December 31, 1948 were by-products; Reverberatory Furnace Bottoms and Flue Dust and McDougall Roaster Bottoms and Flue Dust. No entry was available on the transfer as the inventories are carried on the New York books. The entire copper plant inventory of by-products was included in the Lead Plant by-products inventory on January 1, 1949. The contents and values of the transferred inventory were:

	<u>Weights</u>	<u>Value</u>
Lead	227,018 lbs	\$ 2,683.35
Copper	1,039,123 lbs	69,326.69
Silver	45,454.10 oz.	15,005.52
Gold	424.241 oz.	13,702.92
Total		<u>\$100,718.55</u>
Reclaiming Cost		<u>\$ 1,372.19</u>

PNYC 00012304

GENERAL COMMENTSCOPPER PLANT WRITE-OFF - Continued

No metallurgical statements have been prepared for the Copper Plant since 1948.

DATE OF RECEIPTS

As before, date of receipt depends entirely on availability of final settlement data when the estimated profit and loss figures are submitted to New York. This is usually the 12th of the following month. The Salt Lake and Toledo Offices agree on lots to be included and excluded at month's end. Any lots which had been physically received and dumped but were not to be included in the month's receipts are removed from the inventory where they were dumped. This is a confusing and easily erratic method of arriving at receipts and inventories but Mr. Floyd states that it is necessary because of the need for accuracy in the estimated profit and loss statement. He also has received instructions to include only final silver affidavit figures in his monthly profit and loss statements. The estimated profit and loss statement is also the final monthly statement.

ADJUSTMENTS TO ARRIVE AT FINAL RECOVERIES

It is still the practice to adjust, at will, various inventories and interplant shipments to arrive at more normal recoveries. In August 1951 numerous changes in weights and assays were in evidence but were not shown as adjustments. The majority of changes made were in Lead Plant secondary inventories but stock pile removals and interplant movements were also watched and adjusted when needed. Stock pile removals are given either actual assays or average stockpile assays, depending on desired results. The Sinter sent to the Blast Furnaces from the Sinter Plant is adjusted monthly to affect more reasonable recoveries at both plants but does not affect the overall Lead Plant recoveries. Also, the zinc content of hot slag sent to the Slag Treating Plant from the Lead Plant is often adjusted to get a more reasonable recovery at the Slag Treating Plant. On August 31, 1951 two Sinter Plant inventories were not used at all to help pull down an abnormally high recovery. Because of the shortage of materials and the impending strike, August was a cleanup month. Below is an example of three of the larger August 31st inventory adjustments, the two omissions and the Sinter transfer adjustment:

	<u>LEAD</u>		<u>COPPER</u>		<u>SILVER</u>		<u>GOLD</u>	
	<u>Lb</u>	<u>Pounds</u>	<u>Lb</u>	<u>Pounds</u>	<u>Oz. Per Ton</u>	<u>Ounces</u>	<u>Oz. per Ton</u>	<u>Ounces</u>
<u>Inventories:</u>								
Sinter - As Taken	27.00	428,501	2.00	31,741	19.25	15,275.26	.15	119.028
As Used	21.00	333,278	1.00	15,870	13.25	10,514.14	.15	119.028
Sinter Cleanings (1)								
- As Taken	31.35	981,505	2.01	62,900	20.705	32,408.34	.124	193.534
- As Used	27.55	759,149	.873	24,058	16.635	22,917.10	.1024	141.005
Dross Revert Spoils								
- As Taken	8.60	64,125	57.80	430,980	72.96	27,200.95	1.04	387.733
- As Used	8.60	64,125	47.80	356,415	42.96	16,016.35	.84	313.169
Total As Taken		1,474,131		525,621		74,884.55		700.295
Total As Used		1,156,552		396,343		49,447.59		573.202
Decrease		317,579		129,278		25,436.96		127.093
Omissions:								
Yard Cleanings	15.6	22,608	2.6	4,376	17.08	1,038.04	.12	7.293
Belt Cleanings	12.9	43,241	2.6	9,719	9.71	1,818.59	.09	16.856
Total Inventory Decrease		388,508		143,393		28,293.59		151.242
<u>Transfer</u>								
Sinter - As Taken	29.20	4,477,236	2.00	306,660	22.46	172,189.59	.24	1,839.960
- As Used	29.06	4,455,770	1.95	298,924	25.168	192,950.47	.278	2,131.287
Decreased		21,466		7,736		20,760.88		291.327

(1) The dry weight of this material was reduced 375,220 pounds.

PNYC 00012305

GENERAL COMMENTSADJUSTMENTS TO ARRIVE AT LOSSAL RECOVERIES - Continued

Examples of past unaccountable (x) losses, as published, are:

	<u>LEAD</u>	<u>COPPER</u>	<u>SILVER</u>	<u>GOLD</u>
Year - 1948	3.341%	.331%	.103%	4.179%
Year - 1950	3.748%	.340%	.273%	4.645%
August - 1951	6.941%	45.616%	5.737%	5.565%
January - June 1951	3.002%	3.948%	.407%	4.116%

(x) These are all losses except slag loss, which is nearly constant.

While it is true that the Tooele Plant has large fluctuations in contents of ores and concentrates treated, there should be a more uniform and more easily traceable method of leveling these recovery and loss percentages. This most preferable move would be more exact and complete inventories and better assays. There seem to be ample assays. Composites are hard to use because of the content fluctuations. After all this is done, then adjustments would be proper if needed. An abnormally high adjustment would then seem to call for an investigation if time allowed. In the Montana plant, adjustments are allowed every month and except June 30th and December 31st.

In a discussion with Mr. Charles Bardwell, Smelter Superintendent, and W. H. Floyd, Chief Clerk, the Auditor suggested that adjustments be limited to a few specific inventories when needed and that all adjustments be shown on the work sheets as such and shown to the management each month. This was readily agreed to by both men. In discussing inventory taking, Mr. Bardwell agreed with Mr. Floyd that the fluctuations of the contents of treated custom ores and concentrates are a major consideration at Tooele and that recovery fluctuations are bound to occur but in the long run losses are reasonably constant. He also stated that the point of loss occurrences are watched and controlled, making sure that these losses are not changing noticeably. Upon inquiry by the Auditor, Mr. Bardwell stated that he would be glad to have the operating department give special assistance to the clerk at December 31st of each year when they take inventories and he offered to submit more complete flux and bag house inventories each month at the Lead Plant, where all parties agreed, the inventories were low.

In time it is believed that these changes will make both departments more cognizant of the causes and effects of these fluctuations and perhaps will lead to their being partially solved.

EXCESS METAL RECOVERY FROM FURNACE BOTTOMS

Removal of the old Copper Plant Reverberatory Furnace bottoms from 1947 to October 1950 recovered some large excesses in metals over the original inventory. All excesses are treated but carry no metals or values. The final accounting showed the following excess metals recovery, as at October 31, 1950:

	<u>Lead Pounds</u>	<u>Copper Pounds</u>	<u>Silver Ounces</u>	<u>Gold Ounces</u>
Furnace No. 3.	560,175	130,740	26,214.34	3,975.129
Furnace No. 4	81,834	17,653	566.82	222.599

This is further support to the theory recently proven at other plants that the build-up of furnace bottoms over the period of operations tends to be considerably conservative.

The recoveries of past losses show up in higher current recoveries as in the case of any metals withdrawn from cold slag at the Blast Furnace Plant.

CONCLUSION

The Lead and Slag Treating Plants were shut down from August 27th to October 21, 1951, inclusive, as a result of a strike and a fire, both of which began on August 27, 1951. A new Lead Plant Sinter Cottrell was built during the shutdown.

All remaining Copper Plant inventories were transferred to the Lead Plant on January 1, 1949. No Copper Plant statements have been drawn up since that date.

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CONCLUSION

During the audit, the following major points were brought up and are discussed in more detail in the preceding report:

(1) The necessity of compiling a final profit and loss statement by the 12th of the following month makes it necessary to eliminate some receipts from the physical inventory.

(2) The Auditor observed the taking of inventory at four different dates. The operating department has offered to submit more data on monthly Lead Plant Flue Systems inventories. They also will assist in all December 31st inventories.

(3) Numerous adjustments were made in August interplant shipments and August 31st inventories. The plant management has agreed to limit those adjustments to a few specific materials and to show them on the work sheets.

(4) The New York Office is herein asked to clarify the desired inventory valuation procedure. The methods used are changed at will to facilitate recoveries and to hold low costs and all parties concerned desire written instructions.

Only a few errors and discrepancies were uncovered during the audit. The work sheets and statements audited appeared to be in good order and to follow the Anaconda Company Metallurgical standards with the above noted exceptions. The Metallurgical staff was cooperative and their work was neat and accurate.

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