

BRIEF REVIEW OF OPERATIONS AT THE GREAT FALLS PLANT AND AT
THE EAST HELENA SLAG TREATING PLANT FOR THE YEAR 1950

For convenience, this report has been divided into the following parts:

1. Copper Refineries
2. Zinc Plant
3. Rolling Mills (Anaconda Wire and Cable)
4. Ferromanganese Plant
5. General
6. Expenditures
7. Slag Treating Plant, East Helena

1. COPPER REFINERIES

The Electrolytic Copper Refinery operated at an average rate of 52.1% capacity, and an average current density of 12.6 amperes per square foot, producing 168,828,299 pounds of cathodes. There were 1,239,742 pounds of cathodes shipped during the year.

In addition to the cathodes produced from our own Electrolytic Copper Refinery, we received and treated in our Furnace Refinery 12,914,533 pounds of cathodes from Inspiration, Arizona.

The Anode Casting Plant operated 228 furnace days in 1950, producing a total of 155,142,993 pounds of copper anodes, including that from anode scrap and miscellaneous copper scrap, 24,990,653 pounds of Miami blister copper and 34,145,465 pounds

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of Kennecott blister copper. The No. 1 furnace in the Furnace Refinery Department operated continuously in anode production during 1950.

Shipment of blister copper from the Garfield plant of the American Smelting and Refining Company for account of Kennecott Copper Corporation, which was started in December, 1949, was continued through June, 1950. We received and treated 33,020,340 pounds from this source, plus 1,125,125 pounds on hand January 1, 1950, which gave a total treatment of 34,145,465 pounds, from which 33,592,036 pounds of returnable copper was produced.

The Furnace Refinery operated 313 days during the year, at an average rate of 50.7% capacity, producing 176,185,828 pounds of shapes. A total of 188,154,592 pounds of refined copper was shipped during the year.

The Scalping Plant operated 243 days in 1950, for a total of 257 shifts, producing 31,677,234 pounds of scalped wirebar. Shavings amounted to 2,680,665 pounds, or 8.46% of wirebar scalped, which was retreated through the Furnace Refinery. 8,904,851 pounds of scalped wirebar was delivered to the Rolling Mills at Great Falls, and 23,989,849 pounds was shipped to the American Brass Company during the year, including 3,905 pounds of silver. A total of 12,524,787 pounds of silver-bearing copper, containing 53,167 troy ounces of silver, was produced for the American Brass Company. 55,975 troy ounces of silver was used for this production, giving a loss of 2,8⁹₂₈ ounces for the year.

The distribution of copper shipped during the year was as follows:

<u>A.C.M. Copper</u>		
	<u>Pounds</u>	<u>Percent Of Total</u>
American Brass Company (Cathodes)	1,239,742	0.66
American Brass Company (Shapes)	40,720,838	21.64
A.C.M. Company (Warmers)	93,356	0.05
Great Falls Rolling Mills of Anaconda Wire and Cable Company	<u>136,355,750</u>	<u>72.47</u>
Total Company	178,409,686	94.82
Kennecott Shipments	<u>9,744,906</u>	<u>5.18</u>
TOTAL SHIPMENTS	188,154,592	100.00

2. ZINC PLANT

All units of the Zinc Plant operated at full load throughout the year with the exception of reduction in power during the months of July, August and September because of atmospheric temperature, and a further reduction in power for the period of August 4 to September 27 due to a shortage of feed.

The total production of zinc cathodes for the year was 331,331,799 pounds, of which 18,114,349 pounds came from the retreatment of zinc plant dross. 2,086,214 pounds of cathodes was produced from zinc oxide recovered from zinc casting plant bag-house. 17,872,582 pounds of zinc, as zinc dust, was returned to the Zinc Leaching Department for solution purification. 3,651,596 pounds of zinc dust was returned to the Purification Residue Plant for solution purification, and 1,024,836 pounds of zinc dust was used in the retreatment of purification residue for the recovery of cadmium.

The Casting Plant treated 331,369,082 pounds of Great Falls cathodes, producing slabs in an amount of 288,172,206 pounds. No Anaconda cathodes were treated. The Casting Plant also produced 22,549,013 pounds of zinc dust and 24,149,860 pounds of zinc dross (including baghouse zinc oxide) containing 19,853,395 pounds of zinc. Of the cathodes treated at the Casting Plant, 96,461,207 pounds was Company zinc, and 234,907,875 pounds was toll zinc. From Company cathodes was produced 84,296,977 pounds of slabs, and from toll cathodes was produced 203,875,229 pounds of slabs.

The net production of 288,172,206 pounds of slabs was cast as follows:

<u>A.C.M. COMPANY</u>	<u>POUNDS</u>
Slabs - High Grade	53,908,134
Slabs - Intermediate and Alloys	<u>30,388,843</u>
Total Company	84,296,977
<u>TOLL</u>	
Slabs - Prime Western	6,338,802
Slabs - High Grade	181,324,001
Slabs - Intermediate and Special Alloys	16,012,426
Slabs - Brass Special	<u>200,000</u>
Total Toll	203,875,229
TOTAL NET PRODUCTION	288,172,206

The zinc shipments from the Great Falls Plant, for account of Anaconda Company, for the year were distributed as follows:

	<u>TONS</u>	<u>PERCENT</u>
American Brass Company Plants	4,155	9.75
Others	<u>38,451</u>	<u>90.25</u>
TOTAL	42,606	100.00

The Zinc Plant produced during the year a total of 90,325.36 tons of residues for shipment, which contained 20,958,565 pounds of lead, 6,403,994 pounds of copper, 2,884,884 ounces of silver, and 12,656.225 ounces of gold. Included in this figure are 81,750.11 tons of regular zinc plant residue, and 8,575.25 tons of purification copper residue shipped to Anaconda. The 8,575.25 tons of purification copper residue is the result of treating purification residue from both Anaconda and Great Falls Zinc Plants. 9.78 tons of East Helena Slag Treatment Plant baghouse fume was sold locally during the year.

A total of 21,393 tons of lead bullion, resulting from Great Falls and Anaconda residue and Anaconda lead concentrate, was shipped to American Smelting and Refining Company at Omaha, Nebraska, for refining and with return of refined lead to Anaconda Sales Company.

The Cadmium Plant produced 1,917,289 pounds of metallic cadmium during 1950, of which 1,152,929 pounds was Company cadmium and 764,360 pounds toll cadmium. A total of 1,935,860 pounds, including that alloyed in debased zinc, was shipped during the year, of which 1,177,929.20 was for the Company and 757,930.60 was toll cadmium. On January 1, 1951, there was on hand at Great Falls a total of 33,208 pounds of finished cadmium, all of which was toll cadmium.

In the Indium Plant 119,716.78 ounces of indium was produced from "in process" materials during 1950. We had on hand at Great Falls 25,322.93 troy ounces of indium on January 1, 1950,

and 1,000.28 troy ounces at Utica, New York. The sales of indium for the year totaled 101,027.66 troy ounces. The total inventory as of January 1, 1951, was 45,012.33 troy ounces, of which 3,000.81 was at Great Falls.

In 1950 we produced 2,710 grams of gallium metal as a by-product of indium production and delivered 800.90 grams against Anaconda Sales Company sales. We had 1,909.10 grams of gallium on hand at Great Falls on January 1, 1951.

3,556 tons of purchased concentrate, 135,602 tons of toll concentrate, 34,822 tons of baghouse fume from the Slag Treatment Plant at East Helena, 265 tons of International Smelting and Refining Company cadmium-bearing fume from Tooele, 47 tons of Tooele fume purchased from American Chemet Company, and 57,056 tons of zinc concentrate from Anaconda, was treated in the roasters during the year. The following toll concentrates were treated:

<u>TOLL ZINC CONCENTRATES TREATED</u>	<u>DRY TONS</u>
American Zinc Company of Illinois	21,241
Federal Mining and Smelting Company	1,536
International Minerals and Metals Corporation	43,279
Combined Metals Reduction Company	49,066
U.S. Smelting, Refining and Mining Company	1,815
Philipp Brothers, Inc.	5,486
Eagle Picher Mining and Smelting Company	1,710
General Services Administration	10,288
National Zinc Company	<u>1,181</u>
Total	135,602

The calcine produced from these concentrates and fume, together with 54,636 tons of calcine, and 9,785 tons of purification residue from Anaconda was treated in the Leaching Plant.

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3. ROLLING MILLS DEPARTMENT (ANACONDA WIRE AND CABLE COMPANY)

The No. 1 Rod Mill operated 294 shifts and No. 2 Rod Mill operated 21 shifts during 1950.

The net rod production for the No. 1 Mill for the year was 136,483,051 pounds, and the gross production (including scrap and scale) was 140,948,955 pounds. The net rod production for the No. 2 Mill was 4,384,256 pounds, and the gross production was 4,524,372 pounds.

We produced 54,470,185 pounds of ox-off rods in 1950 as compared with a production of 30,812,950 pounds in 1949.

A new record high production of 5/16" rods was set on March 22, when 1,724 bars were rolled for a total weight of 538,914 pounds, the previous record of 1,700 bars rolled, with a weight of 530,285 pounds, having been established November 8, 1946. On March 23 the record was again broken when 1,770 bars were rolled for a total weight of 552,353 pounds.

On June 21 a new record for number of bars rolled was established when 1,805 bars were rolled into 5/16" rods in an eight-hour shift.

A new record for number of bars and total weight of copper rolled in a continuous 16-hour period was established on December 27 with 3,310 bars rolled for a total weight of 1,030,121 pounds. This record was broken again on December 28, when 3,342 bars, weighing 1,042,527 pounds were rolled.

In March the average daily production of 5/16" rods was also an all-time record, with 498,876 pounds per day, the previous

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high monthly record having been established in December, 1946, with 493,493 pounds per day. In April the record was again broken by an average daily production of 503,517 pounds. In April a record was also established for the average production of 3/8" rods with 507,575 pounds per day, as compared to the previous record of 481,014 pounds per day, established in December, 1949.

In March a new record in average daily production of rods of all sizes, on a one-shift basis, was set with an average production of 484,635 pounds per shift, the previous record having been 476,560 pounds per day, established in November, 1949.

It is particularly gratifying that these record productions were obtained without impairment of quality of finished product.

One wire drawing machine was equipped for drawing aluminum wire from purchased rods, and started production during the last half of the year. The production of wire, including wire made into strand, was 8,441,834 pounds. This includes 537,404 pounds of aluminum wire. There was also produced during the year 209,638 pounds of drawn rods, 6,948 pounds of twisted flat wire, and 7,208 pounds of flat wire, making a total wire and drawn rod production of 8,665,628 pounds. The strand production was 6,958,885 pounds.

4. FERROMANGANESE PLANT

Ferromanganese production at Great Falls was discontinued May 18, 1950, and the furnace remained down until October 2, 1950, when operations were resumed. The furnace lining was renewed during the shutdown period.

During the year 1950 the Ferromanganese Plant produced 4,253.362 long dry tons of ferromanganese, assaying 80.05% manganese. Shipments amounted to 4,220.058 long dry tons.

In January a new record for average daily production was set with a rate of 19.03 long tons per day, the previous record having been established in February, 1949. In February, 1950, the record was again broken with an average production of 19.27 long tons per day.

5. GENERAL

The annual report of Mrs. Dahl, our Industrial Nurse, shows that during the year she made 704 house calls, 332 calls to hospitals, and averaged 4 hours per day in the North Montana Clinic office, caring for approximately 500 patients and holding 252 baby clinics. In the homes she cared for a total of 420 patients; 115 men, 144 women, 100 pre-school children and 61 school children.

The A.C.M. Club golf course officially opened May 28, 1950. During the season 2,266 members registered for play and there were 449 card guests and 143 guests by fee. The average registration for the season was 571 per month.

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Forty bowling teams participated in the regular weekly schedule during the 1949-50 season, bowling at "Little's Lanes" in the city of Great Falls during the first four months of the year and at the new Employees Clubhouse during the months of October to December. The games bowled during the months of January - April, 1950, totaled 8,400. After the opening of the new clubhouse bowling alleys in October, 1950, a total of 88 men's teams and 16 women's teams participated in league play and during that time bowled 22,149 games.

The new Employees Club was formally opened December 17, 1950, with an "open house" to which all employees, their families and the general public were invited. Approximately 2,000 attended the opening.

A Christmas smoker held immediately after the opening of the Employees Club was attended by 837 men.

The total maturity value of bonds purchased by employees of the Great Falls Reduction Department through payroll purchase plan from January 1, 1950 to January 1, 1951, amounted to \$58,900 and the total maturity value of bonds purchased by Great Falls employees of the Anaconda Wire and Cable Company amounted to \$1,725 for the same period, giving a total of \$60,625 in bonds purchased through Company facilities by the Great Falls employees. The total maturity value of bonds purchased by employees at the East Helena Slag Treatment Plant during the year amounted to \$850.

Safety and First Aid Activities

We regret to record that there were four accidental deaths from arsine gas poisoning in the Great Falls Reduction Department in 1950. Thirteen departments went through the entire year without a lost-time injury of any kind. The accident rate for the year was 2.14 total accidents in 1950 against 2.20 in 1949, based on 10,000 shifts worked. The serious accident rate was 0.95 per 10,000 shifts worked as compared with 0.94 in 1949. The total number of accidents for the year amounted to 112, compared with 117 in 1949.

Safety Meetings were held in the various operating departments at regular intervals throughout the year. Many worthwhile suggestions for improvement of working conditions and safety were brought up at these meetings. Several new procedures were started in an effort to arouse interest in safety on the part of the individual employees, notably a system of awards for safety suggestions. The excellent suggestions entered in this competition seem to justify continuation of this program through 1951.

Regular weekly trips were made by the Safety and Welfare Engineer to the city hospitals to visit the sick and injured employees.

There were 3,542 employee visits to the First Aid stations for treatment of original injuries and 167 visits for treatment of illness.

Labor

During the year 1950 we hired 817 employees and had 942 separations, leaving a net loss of 125 employees.

Negotiations with the Unions for new contracts were held in the spring of 1950 and new contracts, effective July 1, 1950, were signed, granting wage increases of 5¢ per hour, plus some added benefits. Further negotiations were carried on in the fall and an additional wage increase of 10¢ per hour was granted, effective October 16, 1950.

During the first quarter of 1950 6% of our employees who are members of the Mill and Smeltermen's Union were scheduled to work on a 6-day basis. During the second quarter this figure dropped to 2%. In the third quarter it increased to 6% and in the fourth quarter it increased to 49%.

Of the A.F. of L. employees (craftsmen) in the first quarter 9% were scheduled to work a six-day week. During the second quarter this figure rose to 31%. By the third quarter of the year it had risen to 51% and by the fourth quarter reached 97.2%.

6. EXPENDITURES AGAINST APPROPRIATIONS

Construction and furnishing of the Employees Club was 98% completed at an expenditure of \$232,422.69.

Conversion of present Anode Casting Plant to a Copper Billet Plant was 98% completed at a cost of \$231,466.32.

Spare rotors for booster generator sets at the Zinc Plant substation were purchased at a cost of \$6,620.00.

The extension to the Zinc Dust Plant was finished at a cost of \$13,449.50.

Purchase and installation of a hammer mill for oversize calcine and conveyor from McDougal Roasters to calcine screen was authorized during 1950, but work was just started.

The extension to the south side of the Zinc Plant change house was completed at a cost of \$19,379.52.

Reconditioning and installation of a secondhand 90-lb. air compressor in the Zinc Plant Compressor Plant was 98% completed, with an expenditure of \$31,467.12, of which \$7,270.00 was second-hand equipment.

Purchase and installation of one Hance No. 2 grinding mill for copper samples at the sample mill was completed at a cost of \$760.41.

Purchase and installation of one Joy Manufacturing Company fan was 76% complete at a cost of \$625.16.

Construction of a shield around No. 8 roaster was 92% complete, with an expenditure of \$6,097.29.

Purchase and installation of a 1-H36 Ready Power Unit for installation in Yale & Towne fork truck at the Furnace Refinery was completed at a cost of \$1,325.39.

Installation of electric hoists for stripping operations in the Zinc Plant tankroom was 90% completed at a cost of \$233,024.95.

Construction of an extension to the Scale House at the Track Scales was 97% completed at a cost of \$3,425.64.

Purchase and installation of one 24" DeBothezat bifurcator fan was completed at a cost of \$682.73.

Construction of skimming door ventilating hoods on No. 1, 2, and 3 Zinc Casting furnaces was 80% completed at a cost of \$3,912.36.

Construction of a shield around No. 10 roaster was 67% completed at a cost of \$4,055.25.

Purchase and installation of three DeBothezat bifurcators at the Purification Residue Plant was 41% completed at a cost of \$2,330.85.

Installation of a safety gate at Floor D of the elevator in the Zinc Roasters was authorized but work had just started on this at the end of 1950.

Purchase and installation of a Rotoclone dust collecting unit for the Brickmasons Department was authorized but work had not started on this by the end of 1950.

Installation of equipment for separate leaching of East Helena fume and a 30-lb. air compressor at the Zinc Plant was 92% complete with an expenditure of \$50,908.88.

East Helena Slag Treatment Plant

Installation of automatic bag shakers and construction of one bay extension to the bag house at the East Helena Slag Treatment Plant were 99% completed at a cost of \$66,550.77.

Purchase and installation of a Rotoclone dust separator at the coal dryer of the East Helena plant was completed at a cost of \$6,441.92.

Installation of an automatic starter for synchronous motor on 15-lb. air compressor was authorized but work had just begun at the end of 1950.

Construction of housing around distributing and connecting flues at the East Helena bag house was 27% complete with an expenditure of \$2,112.17.

Purchase and installation of a Dravo cab cooler in the furnace charge crane at the East Helena Slag Treating Plant was authorized but work had not begun by the end of 1950.

Construction of a new shop and warehouse building at the East Helena Slag Treatment Plant was authorized but work had not begun by the end of 1950.

Rolling Mills Departments

The following expenditures were made against appropriations at the Rolling Mills Departments:

Purchase and installation of spare 30 H.P. motor for billet furnace fan was completed at a cost of \$724.

Purchase and installation of one hydraulic Arbor Press was 100% completed at a cost of \$1,513.35.

Extension of the fire line to the reel shops was completed at a cost of \$471.66.

Purchase and installation of a pipe and bolt threading machine was completed at a cost of \$673.34.

Extension of the Oxcoff Furnace ventilating system was 100% completed at a cost of \$2,199.35

Purchase and installation of a rod supply stand was 100% completed at a cost of \$1,187.63.

Construction of a concrete runway west of the mill was completed at a cost of \$3,225.31.

Construction of an extension to the Inspector's room was 100% completed at a cost of \$1,623.63.

One Model J-45-A automatic micro-weld butt welder was purchased and installed at a cost of \$663.42.

Installation of a combustion air fan for the billet furnace was completed at a cost of \$1,776.00.

Two welders J-7-CA and J-45-A were purchased and installed at a cost of \$2,068.74.

A Graham heat exchanger, storage tanks and heating equipment were purchased and installed at a cost of \$5,105.37.

A pump for circulating wire drawing compound was purchased and installed at a cost of \$3,310.86.

One I.R. pneumatic impact wrench was purchased at a cost of \$304.65.

One Scott tensile testing machine, Model J-5, was purchased and installed at a cost of \$1,295.94.

One Speedmatic saw was purchased at a cost of \$70.93.

Purchase and installation of a Watson double rigid strander was 94% completed at a cost of \$94,292.19.

Purchase and installation of a Watson Tubular high speed strander was 24% completed at a cost of \$8,313.21.

Purchase and installation of a Koegel six head rewinder was 99% complete at a cost of \$13,782.68.

Purchase and installation of a combination die stringer and pointer was 99% complete at a cost of \$4,545.61.

Extension to the Wire Warehouse was 16% complete at a cost of \$7,059.85.

Purchase and installation of an Oxcoff furnace scale conveyor was 99% completed at a cost of \$5,047.32.

Purchase and installation of automatic dumping mechanism for No. 1 Rod Mill coilers was 81% completed at a cost of \$3,586.78.

An appropriation of \$4,900.00 for a battery-driven, walk along Yale industrial truck was approved but only \$7.92 of this money was expended in 1950.

7. SLAG TREATING PLANT - EAST HELENA

There was treated during the year 201,131.47 tons of molten slag and skulls, assaying 14.184% zinc, and 20,763.79 tons of cold slag from the dump, assaying 11.884% zinc, making a total of 221,895.26 tons, assaying 13.969% zinc.

The production resulting was 37,754.89 dry tons of fume, assaying 69.020% zinc, showing a recovery of 84.069% of zinc content of slag treated.

34,766.93 tons of fume was shipped to Great Falls for treatment in the Zinc Plant; 16.01 dry tons was sold locally; 1,335.23 tons was shipped to the American Chemet Corporation; 274.36 tons was shipped to Eagle Picher Lead Company, and 946.02 tons was shipped to the Osark Smelting and Mining Company.

Figures for 1950 Annual Report
of Great Falls Reduction Plant

ELECTROLYTIC REFINERY	Pounds Copper		
Net Production	168	828	299
Cathodes Shipped - 1950	1	239	742
ANODE CASTING PLANT			
Production Refined Anodes - Great Falls	92	388	824
Miami Blister Copper			
Treated - Year 1950	24	861	765
Refined Anodes Produced	24	799	288
Kennecott Blister Copper			
Treated Year 1950 + Retreated Dry Weight	38	464	777
Refined Anodes Produced + Retreated	37	954	881
FURNACE REFINERY			
Net Production	163	284	212
Inspiration Cathodes			
Treated - Year 1950	12	914	533
Production - Year 1950	12	901	616
Furnace Refinery - Net Total	163	284	212
Production -- Year 1950	176	185	828
Furnace Refinery	158	484	924
Kennecott Copper	33	592	036
Miami Blister Copper	24	799	288
Inspiration Cathodes	12	901	616
TOTAL PRODUCTION	176	185	828
SCALPING PLANT			
Total Production - 1950	2	680	665
SHAVINGS			
Total Production - 1950	2	680	665

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Zinc Casting Plant - Year 1950
Summary of Treatment and Production

<u>TREATMENT</u>	<u>Pounds Zinc</u>		
Cathodes - Company Great Falls	96	461	207
Cathodes - Company - Anaconda		240	027
Total Company Cathodes	96	461	207
Cathodes - Toll	234	907	878
TOTAL TREATMENT - Cathodes	330	3618	1085
Total Treatment			
<u>PRODUCTION</u>			
Zinc Slabs - Company - Great Falls	84	296	977
Zinc Slabs - Company - Anaconda			
Total Company Zinc Slabs	84	296	977
Zinc Slabs - Toll	203	875	229
Molten Zinc	22	549	073
Zinc Dross	18	015	003
Zinc Oxide	2	072	471
TOTAL PRODUCTION	327	908	693
<u>Zinc Dross Produced for Retreatment</u>			
Zinc in Dross on Hand 12/31/50		367	103
Shipments to Roasting Plant	18	114	349
Total	18	481	452
Zinc in Dross on Hand 1/1/50		714	271
PRODUCED FOR RETREATMENT	17	767	181
<u>Zinc Oxide Produced for Retreatment</u>			
Zinc in Oxide on Hand 12/31/50		64	741
Shipments to Roasting Plant	2	072	471
Total	2	137	212
Zinc in Oxide on Hand 1/1/50		50	998
PRODUCED FOR RETREATMENT	2	086	214

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<u>Returnable Lead in Process</u>	<u>Pounds Returnable</u>		
<u>On-Hand in Process Returnable Lead, January 1st 1950</u>	6	357	000
<u>Delivered to A.S. & R. Co. East Helena - Jan. - Dec. Incl. Great Falls Zinc Residue</u>	15	952	815
<u>Great Falls Lead Dross</u>		354	547
<u>Anaconda Zinc Residue</u>	8	409	455
<u>Anaconda Lead Concentrates</u>	17	351	570
<u>Anaconda Lead Dross</u>	1	326	765
<u>Total Inventory and Deliveries</u>	49	752	152
<u>Refined Lead Returnable at Omaha</u>	42	786	392
<u>On Hand - In Process Returnable Lead - December 31, 1950</u>	6	965	760
<u>Refined Lead Returned by A.S. & R. Co., at Omaha, Nebraska and Sales by Anaconda Sales Company</u>			
<u>Returnable Lead - Refined</u>			
<u>On Hand - Refined Returnable Lead - January 1, 19⁵⁰49</u>	13	971	002
<u>Returned by A.S. & R. Company</u>	42	786	392
<u>Total On Hand and Returned</u>	56	757	394
<u>Deliveries by Anaconda Sales Company</u>	52	238	611
<u>On Hand - Refined Returnable Lead - December 31, 1950</u>	4	518	783

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Figures for 1950 Annual Report

Production	Tons Residue
Total	81750.11.

Residue Shipments To	A.S. & R. Co. East Helena	G.F. Purif. Residue to Ana Cu Plant	Bag House Fume Sale
Total	81467.75.	8575.25.	978.

Metals Produced	Total Tons	Lead	Copper	Silver	Gold
Residue	81750.11.	20273.220	1900428	277900903	11226546
Beta Naphthol Residue	-				
G.F. Purification Cu. Residue	8575.25.	685245	4503566	10587538.	390765
Slag Treating Plant					
Bag House Fume Sale	978.	1159			
Zinc Plant Production for 1950	9033514.	20959724	6403994	288488441	1265625

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Figures for 1950 Annual Report
of Great Falls Reduction Plant

<u>LEACHING AND ELECTROLYZING</u>	<u>Zinc Pounds</u>		
<u>Net Production - Cathodes to Casting</u>	308	542	249
<u>For Zinc Dust - For Leaching Plant</u>	17	872	582
<u>For Zinc Dust - For Purification Residue Plant</u>	3	651	595
<u>For Zinc Dust - For Cadmium Plant</u>	1	024	836
<u>Cathodes - For Shipment - For Zinc Dress</u>		16	777
<u>Cathodes - For Commercial Sale</u>			
<u>Cathodes - For Shipment - For Zinc Slabs</u>		223	260
<u>Cathodes for Leaching Plant</u>			
<u>TOTAL CATHODES PRODUCED</u>	331	331	299
<u>Zinc in Beta Naphthol Residue to Anaconda Zinc Plant</u>		—	

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At casting

CATHODES TREATED									
Net Slabs & Finger Production Company			Net Slabs Production Toll			Net Slabs & Finger Production Total			
On Hand 1/1/50						1814			05
Produced						331			331 29
To Account For						333			145 34
On Hand 12/31/50						1536			23
Treated						331			609 11
In Casting - Company						96			461 20
In Casting - Toll						234			907 87
In Shipment									240 03
In Leaching									

<u>Dry Lbs.</u>	<u>Zn Lbs.</u>
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Dry Weight	Zn Oxide to Roasting Plant	Zn Oxide to Leaching Plant	Zn Oxide for Shipment
Total	2766 607		

<u>Dry Lbs.</u>	<u>Zn Lbs.</u>
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Total	2785	512.	2086	214.
For Shipment A.S.Co.				
For Retreatment	2785	512.	2086	214.

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Figures for 1950 Annual Report
of Great Falls Reduction Plant

<u>COMPANY</u>	<u>Zinc Pounds</u>		
<u>Slabs - Anaconda Electric - Company</u>			
<u>Slabs - High Grade - Company</u>	53	908	134
<u>Slabs - Intermediate No. 1</u>	19	737	710
<u>Slabs - Anaconda S.C. No. 1</u>	10	651	133
<u>Slabs - Brass Special</u>			
<u> Total Company</u>	84	296	977
<u>TOLL</u>			
<u>Slabs - Special Zinc</u>			
<u>Slabs - Prime Western Interlocking</u>	1	094	000
<u>Slabs - High Grade (Special Zinc)</u>			
<u>Slabs - High Grade</u>	181	324	001
<u>Slabs - High Grade (Purchased by Anaconda)</u>			
<u>Slabs - Special Intermediate No. 1</u>			
<u>Slabs - Intermediate "R" "E" "K"</u>	4	309	960
<u>Slabs - Special Zinc Alloy "A" "B" "G"</u>	7	493	900
<u>Slabs - Prime Western</u>	5	244	802
<u>Slabs - Special Intermediate</u>		199	938
<u>Slabs - Brass Special</u>		200	000
<u>Slabs - Special Zinc Alloy - G.D.B.</u>			
<u>Slabs - Intermediate</u>	2	798	617
<u>Slabs - High Grade - Alloyed by A.C.M.C.</u>	1	010	068
<u>Slabs - High Grade - Alloyed by U.S.S.R. & M.C.</u>		199	943
<u> Total - Toll</u>	203	875	229
<u> TOTAL NET PRODUCTION</u>	288	172	206

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Figures for 1950 Annual Report
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ZINC IN CONCENTRATES RECEIVED

	Pounds		Zinc %	
Anaconda Concentrates	521	7501689	21	21
Bag House Fume	47	878552	19	25
Montana Purchased Concentrates		226449		09
Montana Toll Zinc		1602431		64
Salt Lake		2610786		105
Salt Lake - Toll Zinc	12	846772	5	17
Nevada Toll Zinc	37	720854	15	16
Arizona - Toll Zinc	47	185882	18	97
Colorado		299740		12
Colorado - Toll Zinc		2037542		82
California				
New Mexico				
Washington				
Washington - Toll Zinc	19	486274	7	83
Texas - Toll Zinc				
South America - Toll Zinc	5	280137	2	12
Mexico Toll Zinc	12	346107	4	96
Tri State - Toll Zinc		2980709		120
Kansas - ZINC - IN EXCHANGE for Fume		489797		20
Idaho - Toll Zinc		3016539		121

Total

248,759,230. 100.00.

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Dry Tons
Treatment

Anaconda Zinc Concentrates	57	056	41	.
Anaconda Zinc Calcine	54	636	43	.
Anaconda Purification Residue -	9	784	92	.
Purchased	3	556	39	.
American Zinc Company of Ill. - Zn Concentrates - Toll	21	240	61	.
Combined Metals Reduction Co. - Zn Concentrates - Toll	49	066	09	.
Eagle Picher Mining & Smelting - Zn Concentrates - Toll	1	710	47	.
Federal Mining and Smelting Co. - Zn Concentrates - Toll	1	535	78	.
General Services Administration - Bureau of Federal Supply Zn Concentr. - Toll	10	287	85	.
W.R. Grace and Sons				
International Minerals & Metals - Zn Concentrates - Toll	43	278	72	.
Philipp Brothers, Inc. - Zn Concentrates - Toll	5	485	67	.
U.S. Smelting	1	815	69	.
National Zinc Co. - Zn Concentrates - Toll	1	181	43	.
American Chemet Corporation - Tooele Zinc Fume		47	00	.
East Helena Fume	34	822	06	.
Tooele Fume		265	44	.

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**Figures for 1950 Annual Report
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	Tons of Great Falls Purif. Res. To Anaconda Copper Plant			Tons of Bag House Fume Sales			Tons of Zn Residue Loss in Transit To E. H.			Tons of Beta Naphthol Residue To Anaconda Zinc Plant					
Total	8	575	25			9	78			22	39			—	
Leached Blister Production	Dry Pounds			Bz. Silver			Os. Gold								
Total	4	64	305	27	22	163	49			48	873	964			
Shipped to Raritan															
Total	8	4	485	37	8	364	39			49	949	277			
Scrap Anodes to Raritan															
Total	None														
Miami Blis- ter Copper Treated	Dry Pounds			Copper Pounds			Ounces Silver			Ounces Gold			Returnable Copper Pounds		
Total	24	990	653	24	861	765	89	886	59	89	2342		24	799	288
Produced Anodes															
Total	24	997	824	24	799	288	89	886	59	89	2342				
Kennecott Blister Treated															
Total	34	145	465	33	677	400	303	657	00	27	800	300	23	592	036
Inspiration Cathodes															
Total Tr.	12	914	533	12	901	616							12	901	616

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