L E A D A N D Z I N C I N D U S T R Y

STATISTICS FOR 1962 COMPARED WITH OTHER YEARS

ARIZONA, UNITED STATES AND FREE WORLD

COMPILED BY

ARIZONA DEPARTMENT OF MINERAL RESOURCES
FAIRGROUNDS,
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August, 1963

LEAD INDUSTRY

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L E A D

PHYSICAL PROPERTIES *

Lead is one of the most important industrial nonferrous metals used in substantial quantities in the metallic form; it is also important for the properties it imparts to its alloys.

Is the softest and heaviest of the common metals. It can be rolled to a foil of less than 0.0005 inches in thickness but is not ductile enough to be drawn into fine wire. Very malleable. Lead cannot be hardened except by alloying.

Some of the physical properties of lead are as follows:

Symbol - Pb. Atomic Weight - 207.21. Spec. Gravity - 11.34

Melting Point - 327.35°C (621.2°F). Boiling Point 1,740°C (3164°F)

Specific Resistance (20°- 40°C) (68°- 104°F) - Microhm 20.65

Hardness (Mohs' scale) - 1.5. Tensile Strength #/sq.in. - 3,000

Crystal Structure - Face-centred cubic. Valences - +4 & +2

* U.S.B.M.'s "MATERIALS SURVEY" - September, 1952

Arizona Department of Mineral Resources

August, 1963

METAL DUTIES ON LEAD

According to the Tariff Act of 1930 amended.
Published by American Metal Market, "Metal Statistics, 1962", page 253.

Following rates in effect on January 1, 1962.

LEAD - Ore, on lead contained.	+ 3/4 c. lb.
In bullion or base bullion, pigs, bars, dross, reclaimed lead, *scrap lead, antimonial lead, * antimonial scrap lead, type metal, babbitt metal, solder and alloys not specially provided for on lead therein.	+ 1 1/16 c. lb.
Sheets, pipe, shot and wire.	1 5/16 c. lb.
White lead (Par. 72).	1.05 c. lb.
Litharge.	1 1/4 c. lb.
Red Lead.	1 7/8 c. lb.
Orange mineral.	2 c. lb.

* Import tax suspension expired June 30, 1958.

\+ Duty suspended, effective Feb. 12, 1952; reimposed on June 26, 1952.

LEAD INDUSTRY IN 1962

Prepared July 29, 1963 by Richard N. Spencer, Edith E. den Hartog, and Mary E. Graves, under the supervision of P. F. Yopes, Chief, Branch of Nonferrous Metals, Division of Minerals.

Mine output of recoverable lead in 1962 decreased 10 percent to 237,000 tons, production of primary refined and antimonial lead at primary refineries decreased 15 percent to 403,400 tons and production of secondary lead decreased 2 percent to 444,200 tons, according to the Bureau of Mines, United States Department of the Interior. Consumption of lead in battery uses increased 14 percent, but lead in gasoline antiknock additives decreased 1 percent. Lead consumption in other classifications was varied, most of which increased and some decreased slightly to moderately. Import quotas remained in effect during the entire year but some countries fell slightly short of filling their quotas. Deliveries to the supplemental stockpile were completed for the two barter contracts negotiated by the Commodity Credit Corporation (CCC) with Canada and Australia. Deliveries to the CCC and supplemental stockpile were 84,300 tons. The price of common grade lead (New York market) declined on January 5 from 10.25 cents to 10.00 cents; on February 1 declined to 9.75 cents; on February 9 declined further to 9.50 cents; then on November 1 advanced to 10.00 cents, a price that held for the remainder of the year

Public Law 87-347, to subsidize small lead-zinc mines, was implemented in 1962 by approval of funds. Participation in the program, by eligible producers, was retroactive for production from January 1, 1962. There were fewer applications for assistance under the program than had been anticipated; only $654,140 was disbursed to producers from the $4,500,000 appropriated by Congress. The program. was to continue 3 more years but at a diminishing scale.

The International Lead-Zinc Study Group met in Geneva, Switzerland in plenary session March 15 to 21 at which time it was suspended to reconvene May 28 to 31, and October 24 to 26. Efforts were continued to evaluate means to bring lead and zinc production and consumption into better balance, and the working group adopted measures to improve the quality of Study Group World Statistics for lead and zinc.

Production. - Mines in the United States produced 237,000 short tons of recoverable lead in 1962, 25,000 tons less than that produced in 1961 and 34,000 tons less than that produced in 1900; also the lowest production since 1900. Production was normal in 1962 up to July 28, at which time a labor strike closed all Missouri mines. The labor strike lasted the remainder of 1962 and continued into 1963, resulting in zero output from that area for the duration of the strike. Missouri had long been the principal lead-producing State, but this prolonged strike caused it to drop to second place.

The four largest lead producing States were Idaho, 84,100 tons; Missouri, 61,000 tons; Utah, 38,200 tons; and Colorado, 17,400 tons. Mines from these four States produced 200,700 tons or 85 percent of total output. The remaining 15 percent came from 17 States, with a combined production of 36,300 tons. Major mines in these minor producing States, with a combined total of 29,500 tons that represented 12 percent of total output, were located in Washington, Arizona, Virginia, Illinois, Montana, and Oklahoma. Mines in New Mexico, New York, Wisconsin,

Kansas and Nevada produced 5,300 tons or 2 percent of the total, and 1 percent came from the remaining six States. By area, the Western States supplied 68 percent of total production, the West Central States 27 percent, and States east of the Mississippi, 5 percent. The 25 leading lead-producing mines accounted for 91 percent of total domestic mine output; the 10 leading mines yielded 74 percent, and the 4 largest mines 46 percent.

Domestic primary lead smelters and refineries produced 377,900 tons of refined lead and 31,100 tons of lead in antimonial lead. Lead content of primary raw materials consumed for this production was 429,800 tons, and that of scrap material was 6,400 tons. Domestic ores were the source of 65 percent of refined lead produced from primary sources compared with 64 percent in 1961. Foreign ores and bullion were the source of the remainder. Primary lead smelters also produced 1,842 tons of refined lead from scrap, but secondary smelters produced 91,600 tons. Refined lead, plus remelt lead produced from all sources totaled 118,500 tons.

Total antimonial lead production at both primary and secondary smelters was 273,100 tons with a lead content of 256,800 tons; 33,300 tons from primary smelters and 239,800 tons from secondary smelters. Scrap was the source of 11 percent of primary smelter output; domestic ores furnished 49 percent and foreign ores 40 percent. Battery scrap accounted for 65 percent of the total lead-base scrap melted. The major product from smelting scrap was antimonial lead.

Secondary production decreased 2 percent. Lead-base, copper-base and tin-base scrap were source materials from which 444,200 tons of secondary lead was recovered. Secondary lead smelters recovered 92 percent of the total in 220 plants; primary smelters 1 percent in 5 plants; and manufacturers, foundries and secondary copper smelters, 7 percent. Secondary lead was again the largest source of United States lead supply accounting for 41 percent of the total. Imports furnished 37 percent, and domestic mine production 22 percent.

Consumption. - Lead consumption in 1962 was the largest since 1957. The general trend was downward for the first 7 months but in August it increased sharply and continued at a high level for the remainder of the year as battery demand became heavy. Consumption increased for 20 of the 25 use classifications of Bureau of Mines statistics. Lead consumption increased in two of the three largest uses; in batteries, 14 percent and in red lead and litharge, 6 percent; but use decreased 1 percent in gasoline antiknock additives.

Soft lead, primary and secondary, accounted for 64 percent of the total consumed, 27 percent was lead in antimonial lead, 4 percent was in alloys, 1.3 percent was in copper base scrap, 3.2 percent was in scrap that went directly into an end product, and 0.5 percent was lead recovered from ore in producing leaded zinc oxide and other pigments. Consumption ranged from a usual seasonal low in July of 79,600 tons to a high of 105,100 tons in October.

Of lead consumed during 1962, 72 percent was used in metal products; the major item was storage batteries which accounted for 38 percent of all lead consumed. Gasoline antiknock additives, 98 percent of the general classification chemicals, accounted for 15 percent of total lead consumption. Lead pigments used 9 percent of total lead, and 74 percent of that was for the manufacture of red lead and litharge. Two items of consumption related to the automobile industry, batteries and gasoline antiknock additives, represented 53 percent of total lead consumption.

The Association of Battery Manufacturers, Inc., reported shipment of 30.5 million replacement battery units and total battery shipments of 38.9 million units, an increase of 8 percent and 11 percent, respectively. Battery shipments were at a record high.

Nine States accounted for 73 percent of total lead consumed (excluding scrap) as follows: New Jersey 14 percent; Louisiana and Texas together 12 percent; Illinois, 11 percent; California, 10 percent; Indiana, 10 percent; Pennsylvania, 7 percent; New York, 5 percent; and Missouri, 4 percent.

Stocks. - Stocks of refined lead at primary producing plants decreased throughout the year, but from August 1 to yearend decreased 47,100 tons for a monthly average of 9,400 tons. Producer stocks of refined and antimonial lead decreased a total of 63,000 tons to a yearend inventory of 142,500 tons. Total yearend stocks, representing physical inventories at primary plants irrespective of ownership, but not including material in process or in transit, were 196,700 tons compared with 262,100 tons at the close of 1961.

Prices. - The quoted New York price for common lead was 10.25 cents on January 1 but on January 5 the price dropped to 10.00 cents. On February 1 the price dropped to 9.75 cents and on February 9 dropped again to 9.50 cents. This price remained in effect until November 1, at which date the price rose to 10.00 cents and this price continued in effect for the remainder of the year. The average sales price for lead in the United States during the year was 9.3 cents.

Quotations on the London Metal Exchange ranged from a high of £ 62.25 per long ton on April 3 (Equivalent to 7.82 cents per pound U. S. currency -- computed on the average monthly rate of exchange) to a low of £ 50.00 (6.26 cents per pound) on August 24. The quotation on December 31 was £ 54.38 per long ton (6.81 cents per pound), and the year's average was £ 56.32 (7.06 cents per pound).

Imports. - General imports of lead were 2 percent less than in 1961. Imports for consumption were 398,200 tons, an increase of 2 percent over 1961. Import quotas were not entirely filled for either ore and concentrates or metal. Pigs and bars accounted for 65 percent of imports for consumption, ores and concentrates 34 percent and scrap and bullion 1 percent. Australia, Mexico, Canada, Yugoslavia, Peru, and Spain, in that order, were the major suppliers of general imports of lead metal. The major suppliers of ores and concentrates were Republic of South Africa, Peru, Canada, Australia, Bolivia, and Honduras.

Exports. - Total lead exported was 7,500 tons in 1962, 36 percent less than that exported in 1961. All classes of exports decreased.

Tariff. - Import duties on pig lead and lead content of ores and concentrates remained unchanged at 1 1/16 cents and 3/4 cent a pound, respectively. Duties on scrap were the same as on pig lead.

World Production. World mine production increased for the third successive year; increased output was reported by all of the larger producing countries except the United States. World smelter production remained at the 1961 level of 2.7 million tons.

TABLE I

SALIENT U. S. LEAD STATISTICS FOR 1960, 1961 AND 1962

ARIZONA, UNITED STATES AND WORLD MINE PRODUCTION OF RECOVERABLE LEAD

Source: U. S. B. M. Unit: Short Tons

	Year 1960	Year 1961	Year 1962
Producers' Stocks Beginning of Period	171,079	250,142	262,102
U.S. Mine Production Recoverable Lead	246,669	261,921	236,956
Secondary Lead Recovered From Old & New Scrap	469,903	452,792	444,202
Imported Lead in Ore & Matte, Base Bullion	146,246	147,608	143,505
Imported Lead in Pigs, Bars	206,033	256,852	257,201
Imported Lead in Reclaimed Scrap, etc.	7,641	4,942	2,321
TOTAL SUPPLY	1,247,571	1,374,257	1,346,287
Producers' Stocks at End of Period	250,142	262,102	196,661
Exported Lead in Ore, Matte & Base Bullion	1,297	4,437	2,898
Exported Lead in Pigs and Bars	1,967	2,133	2,108
Exported Lead in Scrap	2,579	5,163	2,461
SUB-TOTAL	255,985	273,835	204,128
NET APPARENT CONSUMPTION	991,586	1,100,422	1,142,159
REPORTED CONSUMPTION	1,021,172	1,027,216	1,109,635
UNACCOUNTED FOR (Stockpiles, etc.)	29,586	73,206	32,524
PRODUCTION OF REFINED PRIMARY LEAD:			
From Domestic Ores & Base Bullion	228,899	288,078	245,645
From Foreign Ores & Base Bullion	153,537	161,487	130,418
ARIZONA MINE PRODUCTION	8,495	5,937	6,966
WORLD MINE PRODUCTION	2,560,000	2,660,000	2,765,000
U.S. MINE PRODUCTION AS % OF REPORTED CONSUMPTION	24.16%	25.50%	21.35%
MINE PRODUCTION & SECONDARY AS % OF " "	70.17%	69.58%	61.39%
AVG. PRICE OF LEAD - N. Y. (E. & M.J.)	11.948¢	10.871¢	9.631¢
AVG. PRICE OF LEAD - LONDON	9.04¢	8.03¢	7.06¢

Arizona Department of Mineral Resources August, 1963

TABLE II

MINE PRODUCTION OF RECOVERABLE LEAD IN THE UNITED STATES, BY STATES

Short Tons Source: U.S.B.M.
Years 1953-57 Average, 1958, 1959, 1960, 1961, 1962

State	1953-1957 (average)	1958	1959	1960	1961	1962
Arizona	10,414	11,890	9,999	8,495	5,937	6,966
Arkansas	-	-	38	-	-	-
California	6,471	140	227	440	103	455
Colorado	19,248	14,112	12,907	18,080	17,755	17,411
Idaho	68,807	53,603	62,395	42,907	71,476	84,058
Illinois	3,594	1,610	2,570	3,000	3,430	3,610
Kansas	4,954	1,299	481	781	1,449	970
Kentucky	154	516	409	558	656	743
Missouri	125,337	113,123	105,165	111,948	98,785	60,982
Montana	16,748	8,434	7,672	4,879	2,643	6,121
Nevada	4,613	4,150	1,357	987	1,791	771
New Mexico	3,692	1,117	829	1,996	2,332	1,134
New York	1,387	579	481	775	879	1,063
North Carolina	5	-	-	424	318	219
Oklahoma	11,433	3,692	601	936	980	2,710
Utah	46,194	40,355	36,630	39,398	40,894	38,199
Virginia	3,256	2,934	2,770	2,152	3,733	4,059
Washington	11,147	9,020	10,310	7,725	8,053	6,033
Wisconsin	1,957	800	745	1,165	680	1,394
Other States	15	3	-	23	27	58
TOTAL	339,426	267,377	255,586	246,669	261,921	236,956

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TABLE III

WORLD MINE PRODUCTION OF RECOVERABLE LEAD, BY COUNTRIES

IN THOUSAND SHORT TONS

Source: U.S.B.M.

Year	U.S.	Mexico	Canada	Peru	Australia	Rest of Free World	Total Free World	Communist Controlled Countries	Total World (Estimated)
1956	353	220	189	142	335	682	1,921	569	2,490
1957	338	237	181	151	373	728	2,008	602	2,610
1958	267	223	186	148	366	728	1,918	642	2,560
1959	256	210	187	127	354	707	1,841	689	2,530
1960	247	210	205	142	341	708	1,853	707	2,560
1961	262	200	233	148	300	708	1,851	809	2,660
1962	237	213	211	147	414	705	1,927	838	2,765

TABLE IV

TOTAL LEAD IMPORTED INTO THE UNITED STATES, AND EXPORTED FROM U. S.

Source: Bureau of The Census

Short Tons

	IMPORTS	EXPORTS	NET IMPORTS
Avg. 1948-1952	434,909	3,500	431,409
1953	552,278	4,547	547,731
1954	443,243	4,592	438,651
1955	462,208	4,720	457,488
1956	479,875	7,819	472,056
1957	532,055	6,130	525,925
1958	577,110	3,386	573,724
1959	411,087	4,121	406,966
1960	359,656	5,843	353,813
1961	409,402	11,733	397,669
1962	403,027	7,467	345,560

TABLE V

CONSUMPTION OF LEAD IN UNITED STATES

Source: U. S. B. M.

Year	Metal Products	Storage Batteries	Pigments	Tetra-ethyl Lead	Other Uses	Total
1953	501,482	367,575	129,590	162,443	40,514	1,201,604
1954	442,384	337,272	116,409	160,436	38,370	1,094,871
1955	495,320	380,033	131,435	165,133	40,723	1,212,644
1956	489,586	370,771	120,370	191,990	37,000	1,209,717
1957	448,948	361,015	115,361	177,001	35,790	1,138,115
1958	382,822	312,725	95,901	159,412	35,527	986,387
1959	407,520	380,732	103,671	160,020	39,206	1,091,149
1960	369,731	353,196	98,541	163,826	35,878	1,021,172
1961	359,302	367,998	94,824	169,802	35,290	1,027,216
1962	380,623	419,906	102,968	168,926	37,212	1,109,635

TABLE VI

U. S. LEAD CONSUMPTION - YEARS 1960, 1961 & 1962

Source: U. S. B. M.

	1960	1961	1962
Metal Products:			
Ammunition	43,577	45,837	47,779
Bearing metals	20,717	17,757	16,472
Brass and bronze	20,485	20,114	20,607
Cable covering	60,350	57,458	56,676
Calking lead	66,527	67,379	72,648
Casting metals	7,023	6,873	7,355
Collapsible tubes	8,705	11,220	11,972
Foil	3,684	2,968	3,720
Pipes, traps and bends	22,119	19,098	19,819
Sheet lead	26,607	28,102	28,540
Solder	60,013	54,838	66,873
Storage battery grids, posts, etc.	175,458	186,028	217,525
Storage battery oxides	177,738	181,970	202,381
Terne metal	1,765	965	1,402
Type metal	28,159	26,693	26,760
Total	722,927	727,300	800,529
Pigments:			
White lead	8,432	7,615	11,091
Red lead and litharge	74,901	72,022	76,325
Pigment colors	11,445	11,273	11,660
Other 1/	3,763	3,914	3,892
Total	98,541	94,824	102,968
Chemicals:			
Tetraethyl lead	163,826	169,802	168,926
Miscellaneous chemicals	2,806	2,588	2,715
Total	166,632	172,390	171,641
Miscellaneous Uses:			
Annealing	5,153	5,066	5,306
Galvanizing	1,383	1,444	1,146
Lead Plating	218	243	236
Weights and ballast	9,045	8,890	10,330
Total	15,799	15,643	17,018
Other uses, unclassified	17,273	17,059	17,479
Total Reported 2/	1,021,172	1,027,216	1,109,635

1/ Includes lead content of leaded zinc oxide production.
2/ Includes lead content of scrap used directly in fabricated products.

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TABLE VII

IMPORTS AND EXPORTS OF LEAD INTO AND FROM UNITED STATES

YEARS 1960, 1961 & 1962 — SHORT TONS

Source: U. S. Dept. of Commerce

Country of Origin	Year 1960	Year 1961	Year 1962
Ore, Matte, etc. (Lead Content)	145,961	147,186	138,906
Canada	26,447	34,361	27,728
Mexico	1,248	1,166	1,180
Guatemala	1,881	9,817	2,135
Honduras	4,906	5,512	5,489
Colombia	706	722	439
Peru	36,375	28,970	32,750
Bolivia	9,022	11,370	8,242
Republic of So. Africa	39,351	34,089	33,881
Australia	18,337	20,031	26,544
Other Countries	7,688	1,148	518
Base Bullion	293	422	4,599
Australia	-	-	2,514
Peru	40	60	2,080
Mexico	252	362	5
Canada	1	-	-
Pigs & Bars (Lead Content)	206,033	256,852	257,201
Canada	26,088	54,717	56,807
Mexico	69,931	81,328	65,892
Peru	25,197	26,195	22,115
Belgium-Luxembourg	610	-	2,980
W. Germany	551	842	914
Spain	4,115	8,529	4,104
Yugoslavia	30,027	30,347	31,909
Australia	46,783	54,891	72,133
Other Countries	2,731	3	347
Reclaimed Scrap, etc.	7,641	4,942	2,321
GRAND TOTAL IMPORTS	359,928	409,402	403,027
GRAND TOTAL EXPORTS	5,843	11,733	7,467
EXCESS IMPORTS	354,085	397,669	345,560

Arizona Department of Mineral Resources — August, 1963

Z I N C I N D U S T R Y

C O N T E N T S

ZINC INDUSTRY IN 1962

Zinc Industry, Annual 1962. Prepared August 14, 1963, by
A. D. McMahon, Esther B. Miller and Dora D. Rice, under the supervision of
P. F. Yopes, Chief, Branch of Nonferrous Metals, Division of Minerals.

The domestic zinc industry recorded substantial increases in mine production and consumption of refined metal in 1962, according to the Bureau of Mines, United States Department of the Interior. Smelter production also rose although a number of the major smelters curtailed operations in the third quarter to reduce stocks. The larger use of zinc-base die-casting alloys accounted for most of the increase in consumption. Producer's stocks dropped slightly from 146,900 to 144,700 tons but consumer's stocks were drawn down almost 17 percent to 80,200 tons.

Import quotas remained in effect, and general imports increased 12 percent for ore and concentrates and metal combined. Exports of slab zinc fell 28 percent to 36,100 tons.

The price of Prime Western zinc at East St. Louis declined from 12 cents per pound to 11.5 cents on April 3 and remained at this level through the yearend.

Government stockpiles contained approximately 1.6 million tons of zinc. No additions or withdrawals were made during the year.

The Lead-Zinc Stabilization program authorized by legislation late in 1961 was financed by appropriations approved by Congress in July 1962 and was implemented by the General Services Administration.

The International Lead-Zinc Study Group held three meetings at Geneva during the year.

Production. - Mines in the United States produced 505,500 tons of recoverable zinc in 1962, an increase of 9 percent and the highest annual output since 1957. Monthly production rose significantly in March and except for July, the higher rate was maintained throughout the year despite the strikes that closed mines in Missouri and Montana. States east of the Mississippi River produced 46 percent of total output; Western States, 51 percent; and West Central States, 3 percent.

Tennessee maintained its rank as the leading producing State although its production declined almost 13 percent. Output in Idaho increased about 8 percent and was the highest for any year since 1953. New York was the third largest producing State in the United States. Colorado output increased slightly but production in Montana rose to 37,700 tons as the Anaconda Co. reinstated its Elm Orlu-Black Rock block-caving project at the Badger State mine. In New Mexico, output of zinc declined 4 percent as The New Jersey Zinc Co. closed its Hanover mine in December.

Smelter output of slab zinc increased for the fourth consecutive year and was the highest for any year since 1957. Included in the 938,300 tons of slab zinc output was molten zinc used directly in alloying operations. Of the total, 879,400 tons was primary metal and 58,900 tons was redistilled secondary zinc. Primary output was 51 percent from domestic ores and 49 percent from foreign ores; 40 percent was electrolytic and 60 percent was distilled slab zinc. Of the 58,900 tons of redistilled secondary, primary smelters produced 71 percent and the remainder was obtained from secondary smelters.

Consumption. - Slab zinc consumption, as reported by 700 plants, was 1,031,800 tons, 11 percent higher than that in 1961 and only 8 percent below the record of 1,119,800 tons used in 1955. Zinc used in die castings and zinc-base alloys increased 24 percent and was the largest industry use, accounting for 41 percent of the total used. Slab zinc used in galvanizing steel products accounted for 38 percent, brass and bronze products 12 percent and rolled zinc, zinc oxide, light-metal alloys, desilverizing lead, wet batteries, zinc dust, chemicals, bronze powders and zinc in cathodic anodes accounted for the remaining 9 percent.

Stocks. - Smelter stocks of slab zinc were 146,900 tons at the beginning of the year. By the end of March inventories had declined to 139,000 tons but thereafter gradually increased to 168,900 tons by the end of September. At the end of the year they had declined to 144,700 tons. Inventories of slab zinc at consumer plants were 97,200 tons at the beginning of 1962. An almost steady decline during the first nine months brought the total to the low level of about 62,000 tons at the end of September, then it gradually increased to 80,200 tons by yearend. An additional 6,700 tons of slab zinc was in transit to consumer plants. At the average monthly rate of consumption, total consumer stocks plus metal in transit represented less than a 5-weeks supply.

There were no additions or releases of zinc from Government stockpiles in 1962. As of December 31, inventories were 1,257,000 tons in the national (strategic) stockpile and 324,000 tons in the supplemental stockpile for a total of 1,581,000 tons.

Prices. - The quoted price for Prime Western zinc at East St. Louis was 12 cents per pound at the beginning of the year but decreased to 11.50 cents on April 3. This quotation held for the remainder of the year.

On the London Metal Exchange the yearly average quotation was £67.457 (equivalent to 8.43 cents per pound computed at the exchange rate recorded by the Federal Reserve Board). For January the average was £70.213 (8.78 cents per pound). In February the average fell to £68.784 (8.67 cents) but increased slightly to £69.352 (8.74 cents) in March and to £69.428 (8.75 cents) in April. Thereafter monthly average quotations continued to drop until October when it rose to £66.030 (8.25 cents). By December the average was £67.030 (8.38 cents).

Foreign Trade. - Import quotas imposed October 1, 1958, by Presidential Proclamation 3257, dated September 22, 1958, remained in effect through 1962. Quotas limited annual competitive imports of unmanufactured zinc (not including zinc fume) to 379,840 tons in ores and concentrates and 141,120 tons as metal.

Quotas established were 80 percent of the average dutiable imports into the United States during 1953-57. Specific quotas based on a calendar quarter for zinc in ore were assigned as follows: Mexico - 35,240 short tons, Canada - 33,240 tons, Peru 17,560 tons and to all other countries combined - 8,920 tons. Quarterly quotas for zinc in blocks, pigs and slabs and in zinc-base scrap but excluding zinc dust were assigned as follows: Canada - 18,920 short tons, Belgium-Luxembourg - 3,760 tons, Mexico - 3,160 tons, Belgian Congo - 2,720 tons, Peru - 1,880 tons, Italy - 1,800 tons and to all other countries combined - 3,040 tons.

General imports (imports for immediate consumption plus entries into bonded warehouses) show all physical entries of unmanufactured zinc into the United States. General imports of zinc in ores and concentrates increased 12 percent to the highest level since 1959. Canada, Mexico, Peru, Australia, the Republic of South Africa and Honduras supplied the bulk of these imports. Slab zinc imports of metal rose to 142,000 tons and were supplied mostly by Canada, Belgium-Luxembourg, Mexico, Republic of the Congo, Peru and Federation of Rhodesia and Nyasaland.

Exports of slab zinc continued to decline to 36,100 tons. India received 90 percent and the Republic of Korea received about 3 percent of total exports.

Tariff. - Duty on slab zinc remained unchanged throughout 1962 at 0.7 cents per pound, 0.6 cent per pound on zinc contained in ore and concentrate, 0.75 cent per pound on zinc scrap, and 0.7 cent per pound on zinc dust. The duty on zinc fume continued at 15 percent ad valorem.

World production. - World mine production of zinc increased 3 percent to 3,870,000 tons. The United States, Canada, Australia, and Japan showed increased production. Declines in output were recorded for Mexico, Peru, Italy and Republic of the Congo.

Smelter production for the world was 3,650,000 tons compared with 3,560,000 tons in 1961. Of the major producing countries the United States, Canada, Australia, France and the United Kingdom reported increased production.

Z I N C

PHYSICAL PROPERTIES *

Zinc is a bluish white, hard, brittle metal with a microscopic crystalline structure when broken. The commercial metal is now known in the U. S. as slab zinc, rather than by the older term spelter.

The commercial importance of zinc is based largely upon its properties as a corrosion inhibitor especially as a protective coating on steel in galvanized products and upon its use in alloys. On account of low strength and brittleness, the pure metal, when used alone, has few uses except as sheet metal and other rolled forms.

Zinc compounds are important as pigments, fillers, and chemicals, with a wide range of end uses.

Symbol - Zn. Atomic Weight - 65.38. Specific Gravity - 7.13

Melting Point - ^{o}F - 787.03. Boiling Point, ^{o}F - 1,663

Electrical Resistivity - Microhm per c.c. - 5.916

Tensile Strength, cast, lb. per sq. in. - 9,000. Rolled - 21,000

Crystal Structure - close packed hexagonal. Valence - 2

* U.S.B.M.'s "MATERIALS SURVEY" - September, 1952

Arizona Department of Mineral Resources
September, 1963

METAL DUTIES ON ZINC

According to the Tariff Act of 1930, Amended.

Published by American Metal Market, "Metal Statistics, 1962" page 254.

Following rates in effect on January 1, 1962:

ZINC - Zinc-bearing ores, except pyrites with not over 3% zinc	* 0.6 c lb.
Slabs, blocks, pigs and zinc dust	* 0.7 c lb.
Sheets	1 c lb.
Sheets coated with other metals, except precious.	1 1/8 c lb.
Old, fit only for remanufacture	0.75 c lb.
Oxide, (dry powder)	0.6 c lb.
Oxide, (with oil or water)	1 c lb.
Die -Casting alloys (P.397 of T.C. 1958)	19%

TABLE I

SALIENT STATISTICS OF THE U. S. ZINC INDUSTRY

ARIZONA AND WORLD MINE PRODUCTION OF RECOVERABLE ZINC

YEARS 1960, 1961 & 1962

Source: U.S.B.M. Unit: Short Tons

	Year 1960	Year 1961	Year 1962
Producers' Stocks, Beginning of Period	156,210	185,882	145,540
U.S.Mine Production, Recoverable Zinc	435,427	464,390	505,491
Imports-Ores & Concts., Zinc Content	456,221	415,485	469,152
Imports-Zinc Metal	120,767	127,508	141,959
Redistilled Secondary	68,731	55,237	58,880
TOTAL SUPPLY	1,237,356	1,248,502	1,321,022
Producers' Stocks, End of Period	187,981	145,540	144,746
Exports - Slabs, Pigs, Blocks	75,144	50,054	36,102
SUB-TOTAL	263,125	195,594	180,848
APPARENT CONSUMPTION	974,231	1,052,908	1,140,174
REPORTED CONSUMPTION-SLAB ZINC	877,884	931,213	1,031,821
CONSUMED DIRECTLY IN ORES	88,275	93,000	96,600
TOTAL REPORTED ZINC CONSUMPTION	966,159	1,024,213	1,128,421
Production of Primary Slab Zinc			
By Sources: From Domestic Ores	336,875	419,206	448,095
From Foreign Ores	466,845	427,589	431,300
By Methods: Electrolytic	319,777	324,399	354,138
Distilled	483,943	522,396	525,257
ARIZONA MINE PRODUCTION	35,811	29,585	32,888
WORLD MINE PRODUCTION	3,510,000	3,720,000	3,870,000
U.S.Mine Prod.-% of Reported Consumption	45.07%	45.34%	47.96%
AVG. PRICE OF ZINC, E. ST. LOUIS (E.&M.J.)	12.946¢	11.542¢	11.625¢

Arizona Department of Mineral Resources September, 1963

TABLE II

MINE PRODUCTION OF RECOVERABLE ZINC, BY STATES, IN 1960-1962

Source: U.S.B.M. Short Tons

State	1960	1961	1962
Arizona	35,811	29,585	32,888
Arkansas	50	37	211
California	465	304	322
Colorado	31,278	42,647	43,351
Idaho	36,801	58,295	62,865
Illinois	29,550	26,795	27,413
Kansas	2,117	2,446	3,943
Kentucky	869	1,147	1,172
Missouri	2,821	5,847	2,792
Montana	12,551	10,262	37,678
Nevada	420	453	281
New Jersey	---	112	15,309
New Mexico	13,770	22,900	22,015
New York	66,364	54,763	53,654
Oklahoma	2,332	3,148	10,013
Pennsylvania	13,746	23,428	24,308
Tennessee	91,394	81,734	71,548
Utah	35,476	37,239	34,313
Virginia	19.885	29,163	26,479
Washington	21,317	20,217	21,644
Wisconsin	18,410	13,865	13,292
Oregon	---	3	---
Total	435,427	464,390	505,491

TABLE III

WORLD MINE PRODUCTION OF RECOVERABLE ZINC, BY COUNTRIES

In Thousand Short Tons - Source: U. S. B. M.

	U.S.	CANADA	MEXICO	PERU	ITALY	AUSTRALIA	REST OF FREE WORLD	TOTAL FREE WORLD	COMMUNIST CONTROLLED COUNTRIES*	TOTAL WORLD ESTIMATED
AVG. 1949-1953	622	343	228	117	106	225	569	2,210	390	2,600
1954	473	377	246	175	130	283	620	2,434	496	2,930
1955	515	433	297	183	132	287	776	2,623	587	3,210
1956	542	423	274	193	135	312	865	2,744	676	3,420
1957	532	414	268	170	145	326	917	2,772	738	3,510
1958	412	424	247	142	151	295	904	2,575	775	3,350
1959	425	396	291	158	145	279	880	2,574	786	3,360
1960	435	406	289	149	141	325	938	2,683	827	3,510
1961	464	416	296	194	146	323	947	2,786	934	3,720
1962	505	502	276	183	146	342	946	2,900	970	3,870

* Communist Controlled Countries: U.S.S.R., Bulgaria, E. Germany, Poland, N. Korea, China, Yugoslavia.

TABLE IV

TOTAL ZINC IMPORTED INTO UNITED STATES, AND EXPORTED FROM U. S.

Source: Bureau of Census - In Short Tons

	IMPORTS			EXPORTS	NET IMPORTS
	Ores	Blocks, Pigs or Slabs	TOTAL	Slabs, Pigs or Blocks	
1948-1952	307,274	115,976	423,250	46,277	376,973
1953	513,724	234,576	748,300	17,969	730,331
1954	455,427	156,858	612,285	24,994	587,291
1955	478,044	195,696	673,740	18,069	655,671
1956	525,350	244,978	770,328	8,813	761,515
1957	526,014	269,007	795,021	10,785	784,236
1958	462,008	195,199	657,207	1,736	655,471
1959	496,381	156,860	653,241	11,636	641,605
1960	456,221	120,767	576,988	75,144	501,844
1961	415,485	127,508	542,993	50,054	492,939
1962	469,152	141,959	611,111	36,102	575,009

TABLE V

CONSUMPTION OF SLAB ZINC IN UNITED STATES

Source: U.S.B.M. - Short Tons

	Galvanizing	Brass Products	Zinc Base Alloy	Rolled Zinc	Zinc Oxide	Other Uses	Total Consumption
1950	441,686	139,373	289,527	68,444	18,187	9,917	967,134
1951	400,279	143,292	296,434	64,085	18,223	11,658	933,971
1952	377,688	155,608	236,689	51,318	17,205	14,275	852,783
1953	406,988	178,182	307,445	54,649	20,675	17,988	985,927
1954	403,463	108,268	290,846	47,486	18,701	15,535	884,299
1955	451,141	146,243	430,807	51,589	22,433	17,599	1,119,812
1956	439,146	124,004	360,507	47,359	19,160	18,614	1,008,790
1957	367,757	112,390	376,039	41,269	20,428	17,737	935,620
1958	381,229	101,375	316,830	40,616	13,331	14,946	868,327
1959	361,027	129,278	389,331	42,949	18,248	15,364	956,197
1960	371,589	99,023	338,373	38,696	15,593	14,610	877,884
1961	**382,077**	**128,523**	**341,766**	**41,204**	**18,137**	**19,506**	**931,213**
1962	388,570	129,805	423,608	42,233	18,517	29,088	1,031,821

Arizona Department of Mineral Resources August, 1963

TABLE VI

SLAB ZINC AVAILABLE TO CONSUMERS

YEARS 1960, 1961 AND 1962

Source: U. S. B. M. Units; Short Tons

	Year 1960	Year 1961	Year 1962
SUPPLY:			
Stocks at Primary Smelters Jan. 1st. . . .	152,657	178,209	143,494
Stocks at Secondary Plants Jan. 1st. . . .	3,800	7,673	3,393
Production - Primary	803,720	846,795	879,395
- Secondary	68,731	55,237	58,880
Imports of Slab Zinc	120,767	127,508	141,957
TOTAL AVAILABLE	1,149,675	1,215,422	1,227,119
WITHDRAWN:			
Exports of Slab Zinc	75,144	50,054	36,102
Shipments to Gov't Account 1/	-	-	-
Stocks at Primary Smelters - End of Period	180,308	142,147	142,059
Stocks at Secondary Smelters End of Period	7,673	3,393	2,687
TOTAL WITHDRAWN	263,125	195,594	180,848
AVAILABLE TO CONSUMERS	886,550	1,019,828	1,046,271
REPORTED CONSUMPTION	877,884	931,213	1,031,821

1/ As reported by the American Zinc Institute.

U. S. CONSUMPTION OF SLAB ZINC

	1960	1961	1962
GALVANIZERS	371,589	382,077	388,570
DIE CASTERS	388,373	341,766	423,608
BRASS PRODUCTS	99,023	128,523	129,805
ROLLED ZINC	38,696	41,204	42,233
ZINC OXIDE & OTHER	30,203	37,643	47,605
TOTAL SLAB ZINC CONSUMPTION	877,884	931,213	1,031,821

Arizona Department of Mineral Resources September, 1963

TABLE VII

IMPORTS AND EXPORTS OF ZINC INTO AND FROM UNITED STATES

YEARS 1960, 1961 AND 1962

Source: A.B.M.S., U. S. Dept. of Commerce

Country of Origin	Year 1960	Year 1961	Year 1962
Ores (Zinc Content)	456,221	415,485	469,152
Australia	17,848	3,517	10,957
Bolivia	1,215	571	1,791
Canada	119,966	119,399	194,179
Guatemala	-	13,119	2,511
Honduras	4,714	6,857	7,048
Mexico	190,069	186,182	165,004
Peru	80,016	75,320	77,499
Spain	18,913	-	-
Republic of So. Africa	12,300	7,145	9,588
Other Countries	11,180	3,375	575
Blocks, Pigs, or Slabs	120,767	127,508	141,959
Australia	450	1,029	1,750
Belgian Congo	9,307	11,419	10,882
Belgium-Luxembourg	5,724	12,855	23,231
Canada	74,168	70,568	72,826
West Germany	2,680	778	1,162
Italy	3,517	1,820	992
Mexico	8,950	8,597	12,336
Peru	7,517	7,518	7,614
Rhodesia - Nyasaland	615	1,399	4,643
Yugoslavia	4,520	3,199	3,311
Other Countries	3,319	8,326	3,212
TOTAL IMPORTS	576,988	542,993	611,111
TOTAL EXPORTS (Slab Zinc)	75,144	50,054	36,102
EXCESS IMPORTS	501,844	492,939	575,009

Arizona Department of Mineral Resources August, 1963

ARIZONA LEAD AND ZINC PRODUCTION IN 1962

Source: U. S. B. M.

Iron King mine (Yavapai County), operated by the Shattuck Denn Mining Corp., was the principal lead and zinc producer in the State, with an output of 4,869 tons of lead and 15,735 tons of zinc, as quoted from the company annual report to stockholders. Production from this property represented 70 percent of the total State output of lead and 48 percent of the zinc. Nash and McFarland, the States second largest lead producer, operated the Flux mine in Santa Cruz County. B. S. & K. Mining Co., operator of the Atlas mine in Pima County was ranked third. The Cyprus Mining Corp.'s Old Dick Mine in Yavapai County, the Johnson Camp in Cochise County and the B. S. & K. Mining Co.'s Atlas mine were producers of zinc, next to Shattuck Denn's Iron King mine.

B. O. & W. Mining Co. shipped its first carload of lead-silver ore from Silver Belle-Martinez mines 15 miles northeast of Florence. Since taking over the property, first opened in 1870, the present group sank a new incline shaft and constructed a new 100-tons-per-day mill.

Arizona Silver, Inc., started mining and milling silver-lead ore from holdings on the east slope of Mineral Mountain, 18 miles northeast of Florence. Diamond drilling reportedly disclosed mineralization averaging 10 ounces of silver per ton and 18 percent lead.

See U.S.B.M.'s Table VII next page, showing details of Arizona's production of lead and zinc in 1962.

TABLE XVIII

MINE PRODUCTION OF GOLD, SILVER, COPPER, LEAD AND ZINC IN ARIZONA IN THE YEAR 1962

BY CLASS OF ORE IN TERMS OF RECOVERABLE METALS

Source: U.S.B.M. Final Figures

	Number of mines 1/	Material sold or treated (short tons)	Gold (troy ounces)	Silver (troy ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
Lode ore:							
Dry gold	5	1,725	75	328	51,700	----------	----------
Dry gold-silver	6	107,082	338	8,502	1,742,600	----------	----------
Dry silver	13	31,565	1	10,999	261,300	----------	----------
Total	24	140,372	414	19,829	2,055,600	----------	----------
Copper	41	78,868,147	117,362	4,571,370	1,200,945,700	1,200	577,900
Copper-lead-zinc	1	900	287	6,798	9,800	54,800	12,100
Copper-zinc	3	173,766	138	56,475	10,472,700	28,700	22,129,800
Lead	7	2,281	32	7,388	14,500	237,100	27,500
Lead-zinc	4	290,733	17,954	760,351	810,000	13,512,300	37,994,900
Zinc	1	19,435	6	9,882	42,700	97,900	5,030,500
Total	56	79,355,262	135,779	5,412,264	1,212,295,400	13,932,000	65,772,700
Other "lode" material: --							
Gold tailings and gold-silver tailings	2	22,706	931	15,449	56,700	----------	----------
Copper cleanup	(2/)	386	25	382	103,100	----------	----------
Copper precipitates	12	54,127	-------	---------	73,215,900	----------	----------
Copper tailings	1	10,000	--------	1,930	123,200	----------	----------
Uranium ore	----	---------	--------	3,727	634,100	----------	3,300
Total	15	87,219	956	21,488	74,133,000	----------	3,300
Total "lode" material -	83	79,582,853	137,149	5,453,581	1,288,484,000	13,932,000	65,776,000
Gravel (placer operations)	5	----------	58	4	----------	----------	----------
Total, all sources	88	79,582,853	137,207	5,453,585	1,288,484,000	13,932,000	65,776,000

1/ Detail will not necessarily add to totals because same mines produce more than 1 class of material.

2/ From properties not classed as mines.

Arizona Department of Mineral Resources

August, 1963

TREMENDOUS LOSSES SUFFERED BY LEAD-ZINC INDUSTRY IN U.S. AND ARIZONA

PRODUCTION AND VALUE OF LEAD AND ZINC IN PERIOD 1947-1952 COMPARED WITH 10-YEAR PERIOD, 1953-1962

The attached tables(II and III) indicate the tremendous losses suffered by the U. S. and Arizona lead-zinc industry during the past ten years, and it is not surprising that the U. S. Tariff Commission found, in three separate findings, "serious injury" to the industry due to excessive imports.

During the six-year period (1947-1952) U. S. lead production averaged 398,960 tons per year with a value of $126,422,000, and an average price of 15.844 cents per pound. For the ten-year period (1953-1962) the average annual lead production was only 296,564 tons with a value of $78,710,000, and an average price of 13.270 cents per pound. This was an annual loss of $47,712,000, a drop in price of 2.574 cents per pound, and a loss in annual production of 102,396 tons.

Arizona's loss for the corresponding periods was 15,852 tons of lead per year amounting to $5,470,000 per year.

For the six-year period (1947-1952) U. S. Zinc production averaged 638,559 tons per year with a value of $180,546,000, and an average price of 14.137 cents per pound. For the ten-year period (1953-1962) the average annual zinc production was 485,242 tons with a value of $113,401,000 and an average price of 11.685 cents per pound. The result an annual loss of $67,145,000, a drop in price of 2.452 cents per pound, and a loss in annual production of 153,317 tons of zinc.

Arizona's loss for the corresponding periods was 27,204 tons of zinc per year, amounting to $8,869,000 per year.

The combined annual U. S. loss of 255,713 tons of lead-zinc worth $114,857,000 would never have happened if the lead-zinc industry had been given sufficient protection against excessive imports of lead and zinc. The annual production of lead should be 400,000 tons, and of zinc 650,000 tons. Arizona's annual production of lead should be 25,000 to 30,000 tons, and of zinc 55,000 to 60,000 tons. The annual loss of Arizona's lead industry amounting to $5,470,000, and of Arizona's zinc industry amounting to $8,869,000 (total almost $15 million) have been tragic.

Arizona Department of Mineral Resources August, 1963

TABLE I

PRODUCTION OF LEAD AND ZINC IN ARIZONA

Year	No. of Mines Est. By U.S.B.M.	Tons Material Treated	Tons Lead Produced	Tons Zinc Produced	Value of Lead Produced	Value of Zinc Produced	Average Price Lead	Average Price Zinc
1948	189	797,292	29,899	54,478	$10,703,842	$14,491,148	17.9¢	13.3¢
1949	174	968,301	33,568	70,658	$10,607,488	$17,523,184	15.8¢	12.4¢
1950	139	888,099	26,383	60,480	$ 7,123,410	$17,176,320	13.5¢	14.2¢
1951	136	954,985	17,394	52,999	$ 6,018,324	$19,291,636	17.3¢	18.2¢
1952	112	819,752	16,520	47,143	$ 5,319,440	$15,651,476	16.1¢	16.6¢
1953	68	452,660	9,428	27,530	$ 2,470,136	$ 6,331,900	13.1¢	11.5¢
1954	45	346,313	8,385	21,461	$ 2,297,490	$ 4,635,576	13.7¢	10.8¢
1955	46	408,486	9,817	22,684	$ 2,925,466	$ 5,580,264	14.9¢	12.3¢
1956	46	452,191	11,999	25,580	$ 3,767,686	$ 7,008,920	15.7¢	13.7¢
1957	45	481,327	12,441	33,905	$ 3,558,126	$ 7,865,960	14.3¢	11.6¢
1958	31	388,987	11,890	28,532	$ 2,782,260	$ 5,820,528	11.7¢	10.2¢
1959	22	449,166	9,999	37,325	$ 2,299,770	$ 8,584,750	11.5¢	11.5¢
1960	22	515,075	8,495	35,811	$ 1,987,830	$ 9,239,238	11.7¢	12.9¢
1961	22	433,680	5,937	29,585	$ 1,291,000	$ 6,804,550	10.9¢	11.5¢
1962	16	487,115	6,966	32,888	$ 1,342,000	$ 7,630,016	9.6¢	11.6¢

Arizona Department of Mineral Resources

August, 1963

TABLE II

U. S. AND ARIZONA MINE PRODUCTION OF RECOVERABLE LEAD

VALUE OF PRODUCTION BY YEARS FROM 1947 TO 1962 INCLUSIVE

L E A D

Year	Avg.Price cts./lb	U. S. Mine Production Tons	U. S. Mine Production Value	Arizona Mine Production Tons	Arizona Mine Production Value
1947	14.673	384,221	$ 112,750,000	28,566	$ 8,383,000
1948	18.043	390,476	140,907,000	29,899	10,789,000
1949	15.364	409,908	125,957,000	33,568	10,315,000
1950	13.296	430,827	114,566,000	26,383	7,016,000
1951	17.500	388,164	135,857,000	17,394	6,088,000
1952	16.467	390,162	128,496,000	16,520	5,441,000
TOTAL		2,393,758	$758,533,000	152,330	$48,032,000
6 YR. Avg.	15.844	398,960	$126,422,000	25,388	$ 8,005,000
1953	13.489	342,644	$ 92,438,000	9,428	$ 2,543,000
1954	14.054	325,419	91,470,000	8,385	2,357,000
1955	15.138	338,025	102,340,000	9,817	2,972,000
1956	16.013	352,826	112,996,000	11,999	3,843,000
1957	14.658	338,216	99,151,000	12,441	3,647,000
1958	12.109	267,377	64,753,000	11,890	2,880,000
1959	12.211	255,586	62,419,000	9,999	2,442,000
1960	11.948	246,669	58,944,000	8,495	2,030,000
1961	10.871	261,921	56,947,000	5,937	1,291,000
1962	9,631	236,956	45,642,000	6,966	1,342,000
TOTAL		2,965,639	$787,100,000	95,357	$25,347,000
10 Yr. Avg.	13.270	296,564	$ 78,710,000	9,536	$ 2,535,000
Annual Loss 10 Yr Period		102,396	$ 47,712,000	15,852	$ 5,470,000

TABLE III

U. S. AND ARIZONA MINE PRODUCTION OF RECOVERABLE ZINC

VALUE OF PRODUCTION BY YEARS FROM 1947 TO 1962 INCLUSIVE

Z I N C

Year	Avg.Price cts./lb	U. S. MINE PRODUCTION Tons	U. S. MINE PRODUCTION Value	ARIZONA MINE PRODUCTION Tons	ARIZONA MINE PRODUCTION Value
1947	10.500	637,608	$ 133,898,000	54,644	$ 11,475,000
1948	13.589	629,977	171,215,000	54,478	14,806,000
1949	12.144	593,203	144,077,000	70,658	17,161,000
1950	13.866	623,375	172,874,000	60,480	16,772,000
1951	18.000	681,189	245,228,000	52,999	19,080,000
1952	16.215	666,001	215,984,000	47,143	15,288,000
TOTAL		3,831,353	$1,083,276,000	340,402	$ 94,582,000
6 Yr. Avg.	14.137	638,559	$ 180,546,000	56,734	$ 15,764,000
1953	10.855	547,430	$ 118,847,000	27,530	$ 5,977,000
1954	10.681	473,471	101,143,000	21,461	4,584,000
1955	12.299	514,671	126,599,000	22,684	5,580,000
1956	13.494	542,340	146,367,000	25,580	6,904,000
1957	11.399	531,735	121,225,000	33,905	7,730,000
1958	10.309	412,005	84,947,000	28,532	5,883,000
1959	11.448	425,303	97,377,000	37,325	8,546,000
1960	12.946	435,427	112,741,000	35,811	9,272,000
1961	11.542	464,390	107,200,000	29,585	6,829,000
1962	11.625	505,648	117,563,000	32,888	7,646,000
TOTAL		4,852,420	$1,134,009,000	295,301	$ 68,951,000
10 Yr. Avg.	11.685	485,242	$ 113,401,000	29,530	$ 6,895,000
Annual Loss 10 Yr.Period		153,317	$ 67,145,000	27,204	$ 8,869,000

TABLE IV

LEAD ZINC MINES AND MILLS IN ARIZONA

in operation April 1963

Company	Number Employed	District Mining	Congressional	County
B. S. & K. MINING CO.	15	Silver Bell	2	Pima
NASH & McFARLAND	25	Harshaw	2	Santa Cruz
OLD DICK	70	Bagdad	3	Yavapai
SHATTUCK DENN MINING CORP.	225	Big Bug	3	Yavapai
SILVER CROWN	10	Wagoner	3	Yavapai
7 OTHER SMALL	24		1,2,3	
	369			

Through the courtesy of The American Mining Congress and Clark L. Wilson - Chairman Emergency Lead-Zinc Committee, the Department of Mineral Resources is glad to present, in the following pages, the Remarks Presented Before the Idaho Mining Association By Mr. Wilson, at Wallace, Idaho, July 18, 1963.

REMARKS PRESENTED
BEFORE THE
IDAHO MINING ASSOCIATION
BY
CLARK L. WILSON - CHAIRMAN
EMERGENCY LEAD-ZINC COMMITTEE
WALLACE IDAHO - JULY 18, 1963

Remarks titled "The Outlook for Lead and Zinc" cover a broad field as they include much history as well as consideration of current and future events. I can assure you that the type of story you will hear today under such a title, will not dwell on statistics as such as is often the case with so-called outlook speeches, but I will comment on the influence and effects on our industry from interpretation of these statistics by Government agencies.

In this day and age, remarks of this type must include comments on the United State Government foreign trade policy that will eventually determine whether or not the domestic lead-zinc miner can stay in business. The continuing concern of the Executive departments for the welfare of foreign neighbors is in sharp contrast with their lack of action regarding our need for measures to reactivate and stabilize a necessary segment of the domestic lead-zinc mining industry.

Being in or interested in production of lead and zinc you probably have your own particular opinions and feelings on statistics, trade policy, and pronouncements on outlook; but I know that your overall interest is for some formula that will assure an expanding, profitable domestic mining industry in Idaho and in the surrounding states that contribute to the operation of some of your plant facilities.

These are objectives of the Emergency Lead-Zinc Committee and our interest is nationwide, as there are 20 states scattered from coast to coast that produce appreciable quantities of lead and zinc.

Some of the people we represent also operate smelters and refineries that process approximately 50% of the United States metal production, so while our primary concern is with the welfare of the miner, our interest and the effect of our activities spread on up the line to the well-being of integrated operations and all phases of the business from the profitable production of crude ore to marketing of the finished metal.

If you will pardon me for saying so, I believe those of us who serve or have served as mine operators or technicians within the industry, tend to become a bit provincial or should I say "have blind spots" in our interest and overall knowledge of the external affairs that affect a particular domestic lead-zinc mining operation. It's only natural to be more aware of the local problems of making the operation pay under the current market

price than to keep abreast of all the external factors that are involved in the price. I speak from experience, as my mining associations prior to this Washington assignment were all in the west, and it was difficult to have a proper appreciation of just what was happening throughout the country and the many factors that affect our business both nationally and on an international basis. These are the types of items I would like to discuss today.

Unless you are interested in the statistical reports you may not realize that 20 states produce sizable amounts of lead and zinc as cited above. The mention of Missouri may bring various mental pictures to mind, perhaps not even related to mining; but we shouldn't forget that here was the locale of some of the earliest lead mining in the country. It is the leading lead-producing district of the United States, one of the three leading districts in the world and has not yet realized its full production potential. At the same time, let's not overlook Idaho as the second largest United States lead mining State. You know about Idaho and will hear more about it and its even greater future in these sessions, so I don't need to elaborate.

Similarly, it's sometimes difficult to realize out here in the west that Tennessee is number one and New York alternates with Idaho as the second or third producer of zinc in the United States. Other eastern states also get in the act, but in the long-run, the west can take pride in its production of over 50% of domestic mine supplies of both metals and with adequate prices, its potential is, of course, even greater. This is what we are working for -- to keep the mines of the United States competitive in the world market.

This broad coverage of the country by the lead-zinc industry is fortuitous, as it not only generates new wealth in many states and assists economically by having metal supplies easily available for all major markets, but also it spreads the interest in our industry to many local, state, and national Government bodies. Also, we can't overemphasize the importance of lead and zinc to the national defense effort. Thus, we come down to two important items for discussion that affect our outlook -- economics and politics, and they are pretty hard to separate nowadays.

Not since 1956 has our mining industry approached a normal economic position from the standpoint of domestic production, as the market price has been substantially below a level we consider necessary to explore, develop, and mine a minimum domestic tonnage at a profit. The prices of 1956 were artificial, as they reflected Government intervention in the market through purchases of domestic production for the national stockpile and acquisition of foreign production through barter for the supplemental stockpile. It was common knowledge in early 1957 that these programs were coming to an end. They had stimulated excessive, unneeded imports that substantially boosted metal stocks and lowered prices. The industry has been laboring with these economic problems ever since. True, a limited

import quota was imposed in late 1958, but the '57-'58 imports had done their damage and the quotas were not sufficiently restrictive to provide corrective and effective controls. This, combined with reduced consumption, has kept mine production and prices at levels of "profitless prosperity." The inefficient operator, the high-cost producer, and in general the small miner dependent on one operation have gone. The larger lead-zinc mines have continued to operate as part of integrated operations, but not necessarily at a profit by themselves and generally have been forced to reduce expenditures for the exploration so vital to the maintenance and expansion of the industry.

It's interesting to note that during this 6-year period there have been local bumps or booms that provided some short-term encouragement to our miners, but unfortunately these were short-lived, and the prophets of continuing good times have had their troubles. I don't wish to appear to be critical of those who are looking for better days because we are all in that position. That is exactly what we are working for. I'm trying to say that we all know it's a wonderful experience to be on the upswing, but it is most difficult to project the complex international economic conditions that will maintain such a trend and have them actually materialize over an extended period of time.

This brings us back to the factors that affect our "outlook," and our proposals to even out these disastrous cycles experienced during the past 10 years. Living with the industry as you do, I'm sure you are familiar with the effort of the Emergency Lead-Zinc Committee to obtain a fair share of the domestic market for our own mines. This must be done by evening out the destructive fluctuations in lead-zinc prices that have stemmed from excessive imports as our markets have been too easily accessible to the foreign importer. We acknowledge the need for imports, but in reasonable quantities to augment our supply, not displace it.

This "battle" began in 1950 when the lead mining industry petitioned the Tariff Commission for escape clause action to re-establish import duties at 1930 levels or double our present 1963 rate. The 1930 rate was made effective early in 1951, not by Tariff Commission action but through cancellation of a trade concession with Mexico that automatically reinstated 1930 duty levels. However, in spite of this industry action in 1950, and our further protests, the tariffs on both lead and zinc were cut to present levels on June 6, 1951, through negotiation under the Trade Agreements Act. This started a long series of continual efforts of the lead-zinc mining industry to obtain recognition by the Executive Departments of our Government that domestic lead-zinc mines are essential to the national economy and security and must have the necessary import controls to encourage their operation.

I won't burden you with the detail of our effort, but it's worth noting the studies made of our industry by the Tariff Commission. Three times we have been examined under provisions of Section 332 of the Tariff Act of 1930. This type of report provides the Congress with an exhaustive

study of the condition within the domestic industry but does not provide authority to determine injury due to imports or suggest remedies in case of injury.

Of even greater importance, the industry has been the subject of further study by the Commission under two "escape clause" petitions, with unanimous findings of injury due to imports on both occasions and recommendations for import control.

You will recall that the Administration used stockpile purchases and barter in lieu of accepting the first Tariff Commission recommendation for increased tariffs. As mentioned previously, this postponed the day of reckoning and further aggravated a bad situation. As these programs were discontinued, the President proposed that Congress consider a sliding-scale tariff plan that never moved beyond Committee hearings. Following the second finding of injury under the Tariff Commission escape clause action the Administration proposed the "Seaton" stabilization subsidy bill that was not approved by the Congress.

This led to the import quota proclamation of 1958 that was authorized as a "temporary" measure, as we did not wish to alienate our foreign friends, and established quotas at levels much more generous to the importer than recommended by the Tariff Commission. The quotas have been subjected to three annual reviews that have acknowledged the continuing need for import control. In summary, our industry has been investigated eight times by the Tariff Commission, always with acknowledgment that imports are excessive. It is the only industry to obtain two unanimous findings of injury. It has tried all possible avenues of relief under Tariff Commission rules. It has continued to deteriorate, and it is still working to convince our State Department that effective action must be taken.

Any assistance from the Tariff Commission for import controls is now closed as far as our domestic industries are concerned. Congress, in passing the new Trade Expansion Act of 1962, has rewritten the language of the escape clause. This requires that a finding of import injury (1) to an industry, (2) to a company, or (3) to unemployed workers, must be "in major part" due to a trade concession. To date the Tariff Commission has rejected all applications for relief needed because of excessive imports, based on these new definitions of injury. These include applications from the following:

(1) the softwood lumber industry.
(2) the hatters' fur industry.
(3) household china, tableware and kitchenware industry.
(4) the earthenware industry.
(5) the whisky industry.
(6) an adjustment assistance request from unemployed zinc miners affected by a mine and mill closure due to excessive imports.
(7) an adjustment assistance request by a Company producing household china dinnerware.

(8) an adjustment assistance request filed by a Union on behalf of workers unemployed as a result of increased imports of transistor radios.
(9) an adjustment assistance request filed by a Union on behalf of unemployed workers of closed iron mines.

There are two other applications pending, and I'm willing to bet they will not be found eligible for relief. This previous avenue of help -- the escape clause -- meager though it was, due to rejection of findings by the Executive Department, is now closed. I'm sure Congress did not intend it to be this way; but such is the interpretation.

All this action by our industry with the Tariff Commission has been a constructive offense to improve our "outlook." During the past year the entire mining industry has been faced with a defensive action to counteract an image created by a Congressional Committee of "surpluses" and "unconscionable profits" in connection with one of Uncle Sam's greatest assets -- the stockpiles of strategic and critical materials.

I hope you all have copies and have studied "The Stockpile Story," published by The American Mining Congress, as this places the history, the accumulation, and the value of the various items in the several stockpiles in their proper perspective. It emphasizes that for years, since World War I, the Congress has recognized the need for a ready reserve of strategic materials. Action to acquire these items generally occurred during an emergency, and accentuated the difficulties of increasing domestic production and acquisition of stockpile reserves, resulting in a rapid increase of market prices and imposition of ceiling prices. In time of need, the Government has asked and received full cooperation of the mining industry in all-out production to meet defense needs and in return the Congress insisted on retaining control of stockpile releases to maintain the needed reserve materials and to eliminate any undue future disturbance to domestic and world markets.

The final report and summary of the Congressional Stockpile Committee investigation is nearing completion. We anticipate a recommendation for changes in present Congressional controls to permit releases by action of Executive Departments. I can assure you that should such action be suggested, it will be opposed as being injurous to the industry and also as being inconsistent with the original provisions of the stockpile law. Fortunately, we have friends in the Congress who agree with industry views.

We would remind the Congress that two-thirds of the stockpile value is contained in nine mineral commodities, including lead and zinc; and we are dependent on imports to some extent for all of these, particularly in case of a national emergency. Also present Congressional controls on disposals have eliminated in the past indiscriminate releases disturbing to domestic and world prices, but still have allowed for necessary disposals amounting to 13% of the total stockpile acquisition costs. Our "outlook" can be and is affected by Congressional authorization of disposals, but even more so by the mechanics of Departmental orders that can and do upset markets. The

recent cadmium sale fiasco is a good example.

We recognize that under our system of Government one Congress can't bind a future Congress to irrevocable action, but certainly the lessons of the past should be remembered by those who represent us now.

Looking at the lead-zinc stockpile statistics, we note a total lead reserve of 1,378,368 tons and 1,579,907 tons of zinc. The maximum objectives for a conventional (non-nuclear) war have varied from 1,500,000 tons in 1950 to a low of 178,000 tons set on June 30, 1958. Similar figures for lead are 1,154,000 in 1957 and 286,000 tons as of June 1958. The Office of Emergency Planning announced a week ago that objectives for conventional war were being reviewed and that objectives for both lead and zinc are now zero.

This infers that we need no stockpile reserve and can depend on current supplies from North American mines in case of a conflict that postulates no invasion or nuclear assult. It is difficult to accept this type of Government thinking as the recent Korean experience proved we can not always count on our good neighbors in time of trouble. Needs for a nuclear war and reconstruction are under study -- they have been for years, and I would guess they will be for some time to come. Any thought of evaluating stocks in relation to objectives should await determination of nuclear needs, and I believe the announcement of last week was premature and entirely out of order. These stockpile objectives have been established in the past by the Government experts without consulting the industry, and in spite of our offer of assistance. We object to accepting arbitrary figures without some knowledge of the factoring upon which they were determined.

The stockpile disposal problem is one item on which producers throughout the world are united, as even talk, much less action, has an adverse affect on world markets. At the last meeting of the International Lead-Zinc Study Group in Geneva, Switzerland, the foreign producers were insistent that the Study Group be consulted by the United States before lead-zinc disposals were considered. We may differ with the Study Group on other subjects, but on this we can agree. Stockpiling will continue to be an active "outlook" factor during the 88th Congress.

As previously mentioned, the outlook as viewed by representatives of the Executive Department is a controlling factor in your efforts to run a lead-zinc mining business. Their opinions and decisions have a direct affect on the relationship of our market prices with that of the rest of the world. We have had several opportunities this year to hear some of these opinions and they should be of interest to you.

Early this year the House Subcommittee on Mines and Mining, chairmaned by Congressman Ed Edmondson, held a briefing session on the state of the minerals industry. A representative from the Department of the Interior stated that with regard to lead and zinc "On the whole, 1962 was a very good year statistically, except for price." Our industry would define a "good

year" as one in which the miner can work, one in which our mines provide a fair share of our domestic lead-zinc requirements, and one in which the mining industry can prosper from a profitable operation based on a reasonable market price. A "good year" is not measured just on production and consumption statistics that may appear to some observers to be encouraging. The latter has resulted in "profitless prosperity" for the miner and if continued will eventually cause complete destruction of the domestic mining industry.

We find little appreciation from some of these Department staff representatives or little concern by them for development of new ore reserves or possibilities of the need for self sufficiency in natural resource production. They apparently don't understand or at least are not concerned about the effort that must be expended in exploration, the time and investment involved in finding and developing an ore body, the expense of ore production operations, the problems of pumping water and maintaining workings, and the necessity for the continuation of this cycle if we are to replace the minerals that are produced in this process. There is no feeling for the miners and their families, and for the many service people and businesses that are supported and depend upon a lead-zinc mining operation. To them, we are just a statistic -- so many tons of lead-zinc -- to be juggled against imports in the game of international relations. This is not business in the American tradition.

In May, Senator Gruening, Chairman of the Senate Interior Subcommittee on Minerals, Materials, & Fuels, held a similar session with lead and zinc coming in for considerable discussion. There were no short-term proposals of help for our industry in the comments of the Interior Department, as their report was on the high plane of suggestions for research needed to expand the knowledge of geological investigation, methods of transportation, and new uses of materials -- nothing that will get you a fair price in the near future.

The State Department really spelled out the policy that the Executive Department will live by unless and until the Congress tells them differently. I will discuss these policy pronouncements a bit later.

As you know, the ELZ Committee has been advocating a legislative solution to our problems as the only guarantee of long-term stability. Protection through trade concessions, such as the present inadequate quotas, is always subject to review and renewal and considered temporary by the State Department. For several years we have urged Congress to adopt a flexible tariff that would effectively maintain domestic mines and smelters, and provide needed supplies for the consumer.

Following the comments of the hearing referred to above, our friends in Congress -- 26 Senators and 21 Congressmen -- introduced a flexible quota bill designed to adjust imports on a quarterly basis to the amount of metal and concentrates needed to supply the difference between our domestic production consisting of mine production, secondary metal, and

stockpile releases and our domestic consumption. The flexible quota plan would apply whenever the price of either metal is above 13.5¢/lb. At market prices below this level, a more stringent absolute quota would be in effect.

The House Interior Subcommittee on Mines and Mining held a background hearing June 13 and 14 on lead and zinc and heard testimony by the industry on features of the bill, H.R. 6269, as introduced by Congressman Wayne N. Aspinall, and our other friends in Congress. State and Interior were asked to testify and the only suggestion from the Interior Department was another Tariff Commission hearing -- I must admit that such a proposal took some intestinal fortitude knowing we have already been investigated 8 times in 10 years and no effective results. I can assure you that absolutely the last action our industry needs is another investigation. Mr. Johnson of the State Department repeated his May statement referred to above with comments on lead and zinc as follows:

Experience with the quota system over the past 4½ years has not been entirely satisfactory for various reasons.

1. Quotas have aroused resentment in affected countries.

2. Quotas have not been flexible to meet changes in the pattern of world trade.

3. Despite restraints on trade, the combined price of lead and zinc has not risen since 1958 and production generally hasn't improved, although the industry is now in a better position due to the advantage of increased demand.

4. Lead and zinc smelters dependent on foreign supplies have had to curtail operations; however, on questioning, Mr. Johnson couldn't substantiate this point.

5. Manufacturers dependent on export markets were at a disadvantage under quotas as they could not import cheap foreign materials, ex-quota for re-export. Mr. Johnson forgot to mention that only one item is involved -- tetra-ethyl lead.

6. Despite these disadvantages, State does not recommend any change in the quota system at the present time, but would like to consider solutions on an international basis.

State regards any protection in excess of current levels as unwise for the following reasons:

1. Maximum allowable tariff would not offset low foreign production costs, particularly with the increased silver price that is assisting the foreign producer. (Mr. Johnson was in effect admitting the validity of Emergency Lead-Zinc Committee legislative objectives.)

2. Any form of protection exceeding that currently allowable would be contrary to objectives of Trade Expansion Act and would be directed principally against our neighbors -- Canada and Mexico. In later questioning, a State Department staff assistant admitted these countries were more troublesome than Russia in trade matters.

3. Additional protection would mean higher domestic prices reducing exports and encouraging substitutes.

His solution to our troubles is negotiation of a global nature through the International Lead-Zinc Study Group. Among the objectives of any agreement would be the reduction of trade barriers for lead and zinc in all countries, "enabling producers and consumers to have the widest possible access to markets."

He does not regard the future as being "entirely bleak." The corrective forces of normal economic developments will thus in themselves tend to bring about a better balance."

<u>These high-sounding phrases are not particularly reassuring to an industry that has been in trouble as long as that of the lead-zinc miner</u>.

Members of Congress, in questioning the Assistant Secretary of State, emphasized that the flexible quota approach would meet most of the objections he had cited and also clearly demonstrated that the State Department considers our problems "only within the framework of international relations."

Congressman Compton I. White, Jr., presented an excellent summary of the State Department testimony as follows:

> "I would like to say one thing in my own behalf, that I am not in agreement with the statement of Mr. Johnson. I do not think that it covers the situation particularly well, and I would also like to say that I think the gentleman should inform himself better with the conditions of the domestic lead-zinc industry and I think after so informing himself should reanalyze the statement he has made here today."

I can report to you that there is considerable favorable interest in the Congress in the flexible quota bill as it will reactivate the mines on a profitable basis, increase the supply of ores and concentrates available to the smelting industry and provide a stable price and stable and adequate supply of metals to the consumer. Your Idaho Congressional Delegation is supporting us in this effort, and we appreciate their assistance.

As promised, I've stayed away from statistics to discuss the case for our outlook, but we should note that the situation is a bit improved over a year ago with consumption of both metals up, particularly as the

automobile industry predicts one of its best years. I do believe some comments on experience in the lead industry over the past year will summarize this subject of outlook:

Admittedly, the current balance between supply and demand in this country is not too bad, as evidenced by the recent one-half cent increase in the price of lead. Consumption is running about 6% higher than last year, and since St. Joseph Lead Company, the largest lead producer, has not fully recovered from the effects of its strike, the current picture is not as serious as it was during most of last year when the price was 9.50¢ per pound. These temporary situations have occurred before, but inevitably we come back to the question of how best to control the unneeded imports when more metal is being produced in the Free World than is being consumed. The domestic mines today are providing only 60% of the requirements for primary metal due to the increase in imports from abroad, whereas prior to World War II these mines were the source of 85% - 90% of refined primary lead production in the United States, and as late as ten years ago, were furnishing over 80%. During these years there have been cycles of good and poor lead consumption, but throughout it all, one fact remains -- the position of the domestic lead miner has steadily deteriorated.

As the United States lead price plunged to 9.5¢ during 1962, the London Metal Exchange continued a decline that had been in progress since mid-1960. I doubt that anyone would have predicted that this London Metal Exchange price would drop to a low point of about 6.25¢/lb., representing the price in the world market, but it happened in the late summer of 1962. Low-priced imports put further pressure on the United States market, offseting reduced domestic production caused by the strike at the largest lead mine in the United States.

It was not until world prices began to recover that the United States prices improved. This is another of the cycles that plague the industry. We have long-since learned by bitter experience that each of the down-swings takes its toll of domestic operations that are forced out of business.

With the industrialization that is sweeping the nations of the world, the problems of the domestic lead-zinc mining and smelting industry will not be solved until Congress legislates the proper import controls to improve our prices and increase our domestic mine production. As a final word, after Congress takes this action, they must then insist that their solution is accepted by the President -- on this depends the future healthy outlook for the entire domestic lead and zinc industry.

I urge your active support of the effort of your own Senators and Congressmen in enactment of the flexible quota lead-zinc import control legislation.

"THE MINING RECORD", DENVER REPORTS STRONG PLEAS BY WESTERNERS FOR LEAD-ZINC IMPORT QUOTAS*

"A phalanx of powerful western U. S. Senators rolled their drums ominously at the Kennedy administration's lead-zinc policy recently in Washington and gave every appearance they were lining up strength for an all-out drive to push through the Senate a bill further restricting imports of these metals.

"Senator Clinton Anderson (D.N.M.), made it clear the 'Federal Agencies' spokesmen scheduled to testify would be asked some pointed questions.

"Backing up Senator Anderson were Senator Alan Bible (D. Nev.), Senator Henry M. Jackson (D. Wash.) chairman of the full Interior Committee, and Senator Ernest Gruening (D. Alaska), chairman of the Minerals sub-committee, before which the hearing was held.

"Others staunchly backing this latest lead-zinc tariff drive, included Senator Gordon Allott and Peter H. Dominick, both Republican Senators from Colorado Senator Howard Edmondson (D. Okla.) and Senator Wallace F. Bennett (R. Utah).

"Among the co-sponsors of S.1534, the tariff-quota bill under consideration, were nearly an additional score of Senators. Senator Anderson was unusually strong in his criticism of the Administration's position upholding the current lead-zinc quotas which were put into effect in the Fall of 1958 by the Eisenhower Administration when that decision was substituted for a Tariff Commission recommendation for high tariffs.

"The Interior Department was singled out for special treatment by the Senators sitting on the Subcommittee. They "strongly urged' Interior to bring in some 'documentation' to uphold their refusal to endorse a system of tariff-quotas proposed in the last session of Congress and now in S.1534.

"Other Federal Agencies which already have filed statements opposing Senator Anderson"s bill are the Treasury and State Departments.

"This swings the lead-zinc hearing back onto familiar and often trod ground. The State Department's view, against such a bill is based on the belief that Latin American and other nations would consider a tariff-quota system as a direct affront. This view has been consistently upheld by the White House for about 12 years".

*Denver, Colorado, September 5, 1963