

THE MINERAL INDUSTRY OF WASHINGTON

This chapter has been prepared under a Memorandum of Understanding between the U.S. Bureau of Mines, U.S. Department of the Interior, and the Washington Division of Geology and Earth Resources for collecting information on all nonfuel minerals.

In 1995, for the 3d consecutive year, the State of Washington ranked 20th in the Nation in total nonfuel mineral production value,¹ according to the U.S. Geological Survey (USGS). The estimated value for 1995 was \$613 million, a 7% increase from that of 1994. This followed a 12.8% increase from 1993 to 1994 (based on final 1994 data). The State accounted for more than 1.5% of the U.S. total nonfuel mineral production value.

Washington's increased mineral value in 1995 resulted mainly from estimated 35% and 25% increases, respectively, for crushed stone and magnesium metal. Overall, the increase in mineral value was lessened somewhat by decreases in portland cement, gold, and construction sand and gravel. While metals, especially gold and magnesium metal, represented around one-third of the State's nonfuel mineral value, construction sand and gravel, portland cement, crushed stone, and lime accounted for about 60%. Other commodity values that increased in 1995 were diatomite and silver. Decreases occurred in lime, industrial sand and gravel, olivine, common clays, gemstones, and masonry cement.

Based on USGS estimates of the quantities produced in the 50 States in 1995, Washington climbed from fourth to third in diatomite production and from sixth to fifth in fire

clays. The State remained 2d of the 3 States that produce magnesium metal, 5th in construction sand and gravel, 6th among the 14 gold-producing States, and 10th in silver. Approximately the same quantity of olivine was mined and processed in Washington as in North Carolina, the only other State that produced the mineral. Although not among the top 10 producing States, Washington mines and manufacturing plants, nonetheless, produced significant quantities of crushed stone, common clays, lime, and portland cement. Washington continued to lead the Nation in the production of primary aluminum with an estimated 986,000 metric tons,² a 2% increase from that of 1994. The State accounted for nearly 30% of the country's total primary aluminum production. Raw steel also was produced in the State, both metals being processed from materials received from other foreign and domestic sources.

According to the Washington State Division of Geology and Earth Resources, the State's gold mining industry was fairly active during 1995. The only major gold mine in operation for all of 1995 was owned by Echo Bay Minerals Co. Most of Echo Bay's ore came from the Lamefoot deposit, the rest from the completion of mining of the Overlook deposit. The company continued exploratory work on its K-2 deposit.

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN WASHINGTON^{1 2}

Mineral	1993		1994		1995 ^a	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Clays ³ thousand metric tons	238	\$1,370	246	\$1,140	242	\$1,070
Gemstones	NA	24	NA	1,050	NA	208
Gold ⁴ kilograms	7,110	82,500	⁵ 7,410	⁵ 91,800	⁵ 7,270	⁵ 87,300
Lime thousand metric tons	213	W	239	W	W	W
Peat metric tons	W	W	3,000	111	W	W
Sand and gravel (construction) thousand metric tons	⁶ 40,200	⁶ 158,000	39,600	165,000	38,000	162,000
Silver ⁴ metric tons	14	1,940	W	W	W	W
Stone (crushed) thousand metric tons	13,200	68,600	15,500	86,100	20,600	118,000
Combined value of cement, clays (fire), diatomite, lead (1993), magnesium metal, olivine, sand and gravel (industrial), stone [dimension (1993, 1995), dimension miscellaneous (1994)], zinc (1993), and values indicated by symbol W	XX	193,000	XX	⁷ 225,000	XX	244,000
Total	XX	505,000	XX	⁷ 570,000	XX	613,000

^aEstimated. ^bPreliminary. ^cRevised. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" data. XX Not applicable.

¹Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

²Data are rounded to three significant digits; may not add to totals shown.

³Excludes certain clays; kind and value included with "Combined value" data.

⁴Recoverable content of ores, etc.

⁵Placer canvassing discontinued beginning 1994.

Hecla Mining Co.'s gold and silver operation, the Republic unit, closed in January 1995 after reserves were depleted from the Golden Promise deposit. The closure came less than a month after Asamera Minerals Inc.'s Cannon Mine at Wenatchee shut down in December 1994. The two mines together produced more than 4,660 kilograms (150,000 troy ounces) of gold in 1994. Hecla also announced the signing of an earn-in agreement with Santa Fe Pacific Gold Corp. to explore and develop the Golden Eagle deposit at Republic. The Golden Eagle reportedly has an identified mineral inventory of 10.3 million tons (11.3 million short tons) of material with an average grade of 3.43 grams per ton (0.1 troy ounce per ton) of gold. Asamera Minerals sold its mill at the Cannon Mine; the mill and all other buildings except the mine office were removed from the mine site. The company was negotiating to sell the office building to the Wenatchee School District.

Battle Mountain Gold Co. completed and submitted in July a draft environmental impact statement (EIS) for its Crown Jewel deposit. More than 3,400 comments were received for the draft EIS. Following revisions, a final EIS will be released and the process for obtaining permits to mine will begin.

Resource Finance Corp. continued underground exploration at the Pend Oreille Mine, a zinc, lead, silver, and cadmium deposit in the northeast corner of the State. The company was waiting for more favorable zinc prices before reopening the mine.

The major change in the industrial minerals sector in 1995 involved Nanome Aggregates, Inc., which discontinued its Washington operations. The company was best known for production of a wide variety of naturally colored terrazzo floor chips from quarries near Valley in Stevens County.

¹The terminologies "nonfuel mineral production" and related "values" encompass variations in meaning, depending on the minerals or mineral products. Production may be measured by mine shipments, mineral commodity sales, or marketable production (including consumption by producers) as is applicable to the individual mineral commodity.

All 1995 USGS mineral production data published in this chapter are estimated as of Dec. 1995. Estimates for some commodities, e.g., construction sand and gravel, crushed stone, and portland cement, are periodically updated. To obtain the most recent information please contact the appropriate USGS mineral commodity specialist. Call MINES FaxBack at (703) 648-4999 from a fax machine with a touch-tone handset and request Document No. 1000 for a telephone listing of all mineral commodity specialists or call USGS information at (703) 648-4000 for the specialist's name and number.

²All tons are metric unless otherwise specified.

TABLE 2
WASHINGTON: CRUSHED STONE¹ SOLD OR USED BY PRODUCERS IN 1994, BY USE²

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Macadam	W	W	\$6.82
Riprap and jetty stone	360	\$2,730	7.57
Filter stone	100	462	4.62
Other coarse aggregate	W	W	7.38
Coarse aggregate, graded:			
Concrete aggregate, coarse	W	W	3.87
Bituminous aggregate, coarse	302	1,020	3.36
Bituminous surface-treatment aggregate	30	129	4.30
Railroad ballast	99	562	5.68
Other graded coarse aggregate	W	W	4.78
Coarse and fine aggregates:			
Graded road base or subbase	717	2,580	3.60
Unpaved road surfacing	1,090	2,630	2.40
Terrazzo and exposed aggregate	163	1,650	10.10
Crusher run or fill or waste	364	2,030	5.57
Other coarse and fine aggregates	W	W	13.20
Other construction materials ³	932	8,900	9.55
Agricultural:			
Agricultural limestone	(4)	(4)	27.50
Poultry grit and mineral food	(4)	(4)	32.20
Chemical and metallurgical:			
Lime manufacture	(4)	(4)	16.50
Flux stone	37	515	13.90
Special:			
Mine dusting or acid water treatment	(4)	(4)	13.70
Asphalt fillers or extenders	9	23	2.56
Other fillers or extenders	(4)	(4)	104.00
Unspecified:⁵			
Actual	4,360	22,800	5.24
Estimated	6,860	31,000	4.52
Total	15,500	86,100	5.54

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."

¹Includes dolomite, granite, limestone, limestone-dolomite, marble, miscellaneous stone, sandstone, traprock, and volcanic cinder and scoria.

²Data are rounded to three significant digits; may not add to totals shown.

³Includes stone sand (bituminous mix or seal), and screening (undesignated).

⁴Withheld to avoid disclosing company proprietary data; included with "Total."

⁵Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 3
WASHINGTON: CRUSHED STONE SOLD OR USED, BY KIND¹

Kind	1993				1994			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone ²	'7	W	W	W	10	2,140	\$23,600	\$11.00
Dolomite	'4	'318	'\$1,370	'\$4.31	4	281	1,120	3.99
Marble	—	—	—	—	2	W	W	5.46
Granite	'12	'640	'3,450	'5.39	11	234	1,030	4.38
Traprock	'118	'9,800	'45,400	4.63	117	10,700	47,900	4.48
Sandstone	'3	W	W	'4.16	4	W	W	3.99
Volcanic cinder and scoria	3	W	W	W	3	W	W	9.02
Miscellaneous stone	'6	'437	'2,120	'4.85	8	475	2,560	5.40
Total	XX	13,200	68,600	5.20	XX	15,500	86,100	5.54

¹Revised. W Withheld to avoid disclosing company proprietary data; included with "Total." XX Not applicable.

²Data are rounded to three significant digits.

³Includes "Limestone-dolomite," reported with no distinction between the two.

TABLE 4
WASHINGTON: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1994, BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3		Unspecified within all districts	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction aggregates:								
Coarse aggregate (+1 1/2 inch) ²	625	4,470	10	W	7	W	—	—
Coarse aggregate, graded ³	W	W	W	W	W	W	—	—
Fine aggregate (-3/8 inch) ⁴	W	W	—	—	—	—	—	—
Coarse and fine aggregate ⁵	2,150	12,100	W	W	W	W	—	—
Other construction materials	352	1,950	241	1,610	775	2,540	—	—
Agricultural ⁶	—	—	(?)	(?)	(?)	(?)	—	—
Chemical and metallurgical ⁸	—	—	—	—	(?)	(?)	—	—
Special ⁹	—	—	(?)	(?)	(?)	(?)	—	—
Unspecified: ¹⁰								
Actual	3,280	18,900	435	1,650	435	1,040	209	1,230
Estimated	4,080	18,600	208	833	2,580	11,600	—	—
Total	10,500	56,100	987	13,000	3,850	15,800	209	1,230

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."

¹Data are rounded to three significant digits; may not add to totals shown.

²Includes filter stone, macadam, riprap and jetty stone, and other coarse aggregate.

³Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and other graded coarse aggregate.

⁴Includes stone sand (concrete), and screening (undesignated).

⁵Includes graded road base or subbase, terrazzo and exposed aggregate, unpaved road surfacing, crusher run (select material or fill), and other coarse and fine aggregates.

⁶Includes agricultural limestone and poultry grit and mineral food.

⁷Withheld to avoid disclosing company proprietary data; included in "Total."

⁸Includes flux stone and lime manufacture.

⁹Includes asphalt fillers or extenders, mine dusting or acid water treatment, and other fillers or extenders.

¹⁰Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 5
WASHINGTON: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1994, BY MAJOR USE CATEGORY¹

Use	Quantity (thousand metric tons)	Value (thousands)	Value per ton
Concrete aggregate (including concrete sand)	10,900	\$52,000	\$4.77
Plaster and gunite sands	241	883	3.66
Concrete products (blocks, bricks, pipe, decorative, etc.)	402	5,450	13.60
Asphaltic concrete aggregates and other bituminous mixtures	1,840	9,000	4.89
Road base and coverings	6,240	27,800	4.46
Fill	7,770	20,200	2.59
Snow and ice control	218	847	3.89
Other ²	367	1,740	4.73
Unspecified: ³			
Actual	3,190	10,300	3.21
Estimated	8,400	36,400	4.34
Total or average	39,600	165,000	4.16

¹Data rounded to three significant digits; may not add to totals shown.

²Includes filtration and railroad ballast.

³Includes production reported without a breakdown by end use and estimates for nonrespondents.

TABLE 6
WASHINGTON: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 1994, BY USE AND DISTRICT¹

(Thousand metric tons and thousand dollars)

Use	District 1		District 2	
	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products ²	7,870	45,800	1,150	3,990
Asphaltic concrete aggregates and road base materials ³	13,600	47,900	1,410	5,430
Snow and ice control	82	454	32	129
Other miscellaneous uses ⁴	302	1,510	43	71
Unspecified: ⁵				
Actual	1,360	4,400	725	2,640
Estimated	5,260	23,500	2,640	10,200
Total	28,400	124,000	5,990	22,500
	District 3		Unspecified within all districts	
	Quantity	Value	Quantity	Value
Concrete aggregate and concrete products ²	2,530	8,510	—	—
Asphaltic concrete aggregates and road base materials ³	880	3,710	—	—
Snow and ice control	104	264	—	—
Other miscellaneous uses ⁴	23	160	—	—
Unspecified: ⁵				
Actual	1,110	3,220	—	—
Estimated	443	2,480	66	241
Total	5,080	18,300	66	241

¹Data rounded to three significant digits; may not add to totals shown.

²Includes plaster and gunite sands.

³Includes fill.

⁴Includes filtration and railroad ballast.

⁵Includes production reported without a breakdown by end use and estimates for nonrespondents.