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 1994, for the 2d consecutive year, the State of Washington ranked 20th in the Nation in total nonfuel mineral value,[1] according to the U.S. Bureau of Mines (USBM). The estimated value for 1994 was $556 million, a 10% increase compared with that of 1993. This followed a 7.5% increase between 1992 and 1993. The State accounted for more than 1.5% of the U.S. total. The increases in mineral value the past 2 years resulted mainly from the rising values of magnesium metal, crushed stone, portland cement, and construction sand and gravel. The increases in these commodities offset a 15% decrease in gold in 1993 and small decreases in several other mineral commodities in 1994. While metals, especially gold and magnesium metal, represented more than one-third of the nonfuel mineral value, construction sand and gravel, portland cement, crushed stone, and lime together accounted for more than 60% of the total value. Compared with 1993, the mineral commodity values for the following increased: construction sand and gravel, magnesium metal, crushed stone, gold, portland cement, diatomite, industrial sand and gravel, gemstones, silver, zinc, masonry cement, and lead. Decreases occurred in lime, olivine, common clays, peat, and dimension stone.

Based on USBM estimates of the quantities of minerals produced in the United States during 1994, Washington climbed from third to second of the 3 magnesium metal-producing States; produced approximately the same quantity of olivine as North Carolina, the only other State that produced the mineral; and had a significant increase in the production of gemstones. The State remained 4th of the 4 States producing diatomite; 5th in the production of construction sand and gravel; 6th of the 13 U.S. gold-producing States; and 8th of 9 States that produced lead. Washington remained tied with California for 10th in silver production, while dropping from 8th to 9th in the production of zinc. Washington mines produced significant quantities of crushed stone and lime, while similar production of portland cement was achieved at manufacturing plants within the State. While the estimated production of primary aluminum dropped by an estimated 8%, Washington continued to lead the Nation. The State accounted for nearly 30% of the U.S. total primary aluminum production, all of the metal being processed from materials received from foreign sources.

According to the Washington State Department of Natural Resources, significant changes occurred in or were reported by Washington's gold mining industry in late 1994. The Cannon Mine in Wenatchee, operated by Asamara Minerals (U.S.) Inc., ceased operation in mid-December because reserves at the mine were depleted. Since 1986, when it opened, the Cannon Mine reportedly produced more than 37,320 kilograms (1.2 million troy ounces) of gold. Hecla Mining Co. announced its Republic Unit, which had operated continuously since 1938, would close in early 1995 following the depletion of reserves in the Golden Promise deposit. Hecla was expected to continue exploring its extensive holdings in the Republic district. Echo Bay Minerals Co. began mining at its

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN WASHINGTON[1]

Mineral		1992		1993		1994[p]	
		Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Clays[2]	thousand metric tons	306	$1,889	238	$1,373	153	$1,080
Gemstones		NA	379	NA	24	NA	2,000
Gold[3]	kilograms	8,802	97,619	7,108	82,469	[4]7,280	[4]84,500
Lime	thousand metric tons	W	W	213	W	W	W
Sand and gravel (construction)	do.	37,134	140,994	[e]40,200	[e]158,000	43,500	174,000
Silver[3]	metric tons	W	W	14	1,939	12	1,660
Stone (crushed)	thousand metric tons	[e]12,247	[e]63,200	13,204	68,648	[e]15,500	[e]84,500
Combined value of cement, fire clay, diatomite, lead, magnesium metal, olivine, peat, sand and gravel (industrial), stone (dimension), zinc, and values indicated by symbol W		XX	164,958	XX	192,740	XX	209,000
Total		XX	469,039	XX	505,193	XX	[5]556,000

[e]Estimated. [p]Preliminary. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" data.
XX Not applicable.
[1]Production as measured by mine shipments, sales, or marketable production (including consumption by producers).
[2]Excludes certain clays; kind and value included with "Combined value" data.
[3]Recoverable content of ores, etc.
[4]Placer canvassing discontinued beginning 1994.
[5]Data do not add to total shown because of independent rounding.

Lamefoot deposit, northeast of Republic, following receipt of mining permits in late November. Echo Bay also initiated an exploratory underground access into its K-2 deposit, near Curlew. Battle Mountain Gold Co. continued working on a draft environmental impact statement, expected to be ready by mid-1995, for its Crown Jewel deposit, near Chesaw. In other major metals mining activity, Resource Finance Corp. conducted additional underground and developmental drifting for potential zinc, lead, silver, and cadmium ore bodies, especially in the Yellowhead horizon at the Pend Oreille Mine, but the company had not yet announced any plans to mine the deposit.

[1]The term value means the total monetary value of nonfuel minerals as represented by either mine shipments, mineral commodity sales, or marketable production as is applicable to the individual mineral commodities.

TABLE 2

WASHINGTON: CRUSHED STONE[1] SOLD OR USED BY PRODUCERS IN 1993, BY USE

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Coarse aggregate (+1 1/2 inch):			
Macadam	84	$562	$6.69
Riprap and jetty stone	332	2,714	8.17
Filter stone	32	135	4.22
Other coarse aggregate	W	W	3.53
Coarse aggregate, graded:			
Concrete aggregate, coarse	395	2,112	5.35
Bituminous aggregate, coarse	937	7,800	8.32
Bituminous surface-treatment aggregate	348	1,370	3.94
Railroad ballast	176	1,132	6.43
Other graded coarse aggregate	W	W	6.14
Fine aggregate (-3/8 inch):			
Stone sand, concrete	25	141	5.64
Stone sand, bituminous mix or seal	6	31	5.17
Screening, undesignated	55	270	4.91
Other fine aggregate	W	W	1.57
Coarse and fine aggregates:			
Graded road base or subbase	2,695	11,653	4.32
Unpaved road surfacing	1,377	5,516	4.01
Terrazzo and exposed aggregate	283	1,424	5.03
Crusher run or fill or waste	690	1,705	2.47
Other coarse and fine aggregates	50	186	3.72
Other construction materials	432	2,233	5.17
Agricultural:			
Agricultural limestone	([2])	([2])	27.56
Poultry grit and mineral food	([2])	([2])	20.26
Chemical and metallurgical: Flux stone	([2])	([2])	14.64
Special:			
Asphalt fillers or extenders	([2])	([2])	2.20
Other fillers or extenders	([2])	([2])	98.99
Paper manufacture	([2])	([2])	103.40
Unspecified:[3]			
Actual	2,211	8,803	3.98
Estimated	2,940	12,751	4.34
Total[4]	13,204	68,648	5.20
Total[5 6]	14,555	68,648	4.72

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."
[1]Includes dolomite, granite, limestone, limestone-dolomite, miscellaneous stone, sandstone, traprock, and volcanic cinder and scoria.
[2]Withheld to avoid disclosing company proprietary data; included with "Total."
[3]Includes production reported without a breakdown by use and estimates for nonrespondents.
[4]Data may not add to totals shown because of independent rounding.
[5]One short ton is equal to 907 kilograms or 2,000 pounds. To convert metric tons to short tons, divide metric tons by 0.907185.
[6]Total shown in thousand short tons and thousand dollars.

TABLE 3

WASHINGTON: CRUSHED STONE SOLD OR USED, BY KIND

Kind	1991				1993			
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Unit value
Limestone[1]	10	1,380	$10,767	$7.80	6	530	$9,631	$18.17
Dolomite	5	8		W	3	W	W	29.80
Granite	22	724	3,125	4.31	11	631	3,397	5.38
Traprock	r187	r8,870	r41,168	r4.64	116	9,589	44,925	4.69
Sandstone	r20	r112	r568	r5.07	4	1,480	6,223	4.20
Volcanic cinder and scoria	8	137	W	W	3	W	W	5.15
Miscellaneous stone	28	714	2,848	3.98	8	609	2,342	3.84
Total[2]	XX	r11,945	r59,751	r5.00	XX	13,204	68,648	5.20
Total[3 4]	XX	r13,167	r59,751	4.54	XX	14,555	68,648	4.72

rRevised. W Withheld to avoid disclosing company proprietary data; included with "Total." XX Not applicable.
[1]Includes "limestone-dolomite," reported with no distinction between the two.
[2]Data may not add to totals shown because of independent rounding.
[3]One short ton is equal to 907 kilograms or 2,000 pounds. To convert metric tons to short tons, divide metric tons by 0.907185.
[4]Total shown in thousand short tons and thousand dollars.

TABLE 4

WASHINGTON: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 1993, BY USE AND DISTRICT

(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)[1]	443	3,436	21	55	11	16	—	—
Coarse aggregate, graded[2]	1,061	9,141	W	W	W	W	—	—
Fine aggregate (-3/8 inch)[3]	W	W	—	—	W	W	—	—
Coarse and fine aggregate[4]	3,219	12,657	524	2,045	1,352	5,783	—	—
Other construction materials	165	807	266	1,337	625	2,422	230	1,288
Agricultural[5]	—	—	([6])	([6])	([6])	([6])	—	—
Chemical and metallurgical[7]	—	—	—	—	([6])	([6])	—	—
Special[8]	—	—	([6])	([6])	([6])	([6])	—	—
Unspecified:[9]								
Actual	1,496	6,268	456	1,946	258	589	—	—
Estimated	2,458	10,400	175	1,279	308	1,072	—	—
Total[10]	8,843	42,709	1,527	14,083	2,604	10,568	230	1,288
Total[11 12]	9,748	42,709	1,683	14,083	2,870	10,568	254	1,288

W Withheld to avoid disclosing company proprietary data; included with "Other construction materials."
[1]Includes filter stone, macadam, riprap and jetty stone, and other coarse aggregate.
[2]Includes concrete aggregate (coarse), bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and other graded coarse aggregate.
[3]Includes stone sand (concrete), stone sand (bituminous mix or seal), screening (undesignated), and other fine aggregate.
[4]Includes graded road base or subbase, terrazzo and exposed aggregate, unpaved road surfacing, crusher run (select material or fill), and other coarse and fine aggregates.
[5]Includes agricultural limestone and poultry grit and mineral food.
[6]Withheld to avoid disclosing company proprietary data; included with "Total."
[7]Includes flux stone.
[8]Includes asphalt fillers or extenders, other fillers or extenders,and paper manufacture.
[9]Includes production reported without a breakdown by use and estimates for nonrespondents.
[10]Data may not add to totals shown because of independent rounding.
[11]One short ton is equal to 907 kilograms or 2,000 pounds. To convert metric tons to short tons, divide metric tons by 0.907185.
[12]Total shown in thousand short tons and thousand dollars.