USGS
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2005 Minerals Yearbook

WASHINGTON

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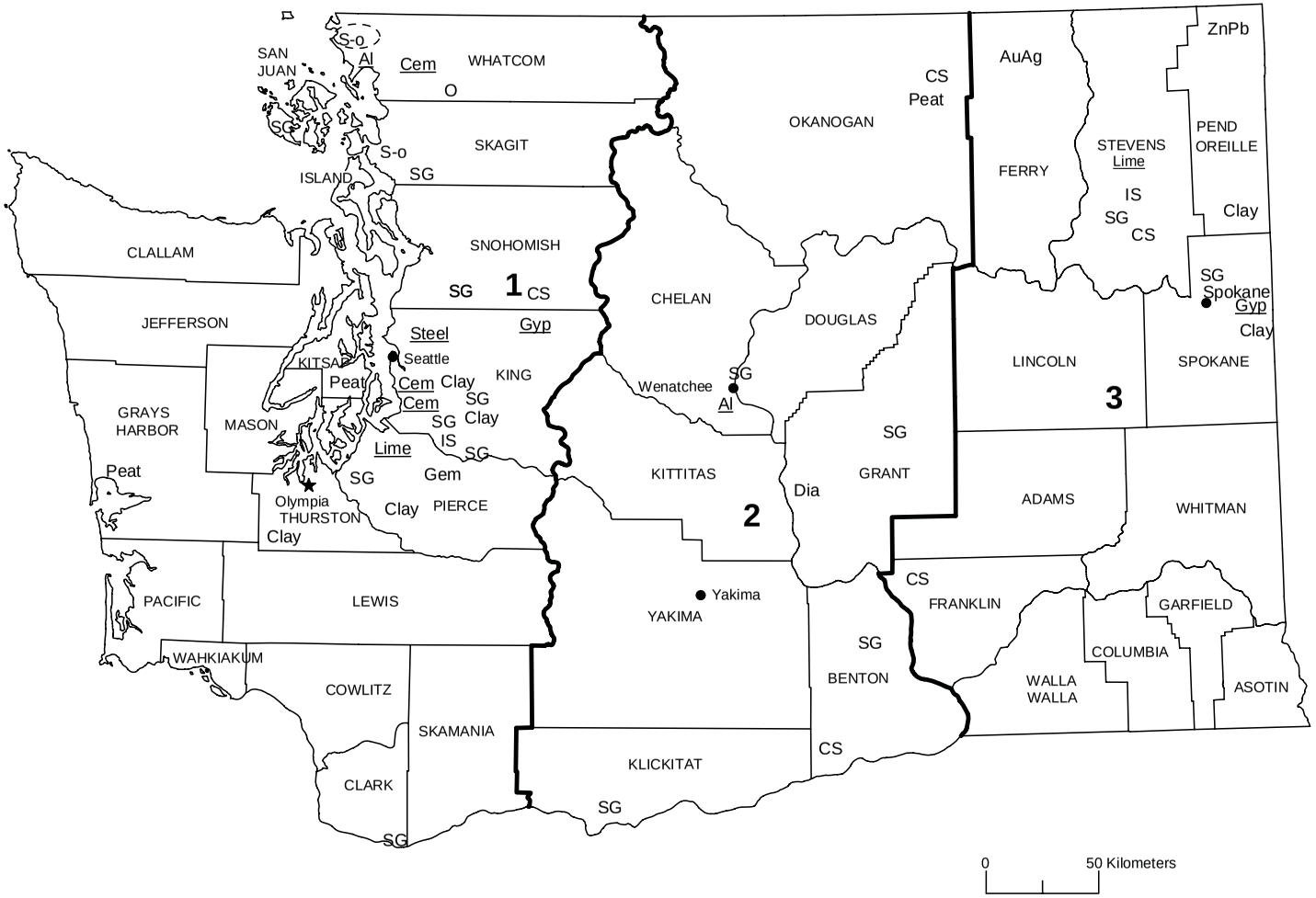
WASHINGTON



LEGEND

- County boundary
- ★ Capital
- ● City
- 1 —— Crushed stone/sand and gravel districts

MINERAL SYMBOLS
(Major producing areas)

Al	Aluminum plant
AuAg	Gold and Silver
Cem	Cement plant
Clay	Common clay
CS	Crushed stone
Dia	Diatomite
Gem	Gemstones
Gyp	Gypsum plant
ISG	Industrial sand and gravel
Lime	Lime plant
O	Olivine
Peat	Peat
S-o	Sulfur (oil)
SG	Construction sand and gravel
Steel	Steel plant
ZnPb	Zinc and lead

Source: Washington State Division of Geology and Earth Resources/U.S. Geological Survey (2005)

The Mineral Industry of Washington

In 2005, Washington's nonfuel raw mineral production was valued[1] at $633 million, based upon annual U.S. Geological Survey (USGS) data. This was a nearly 25% increase of $126 million from that of 2004, which was up 28%, or $111 million, from 2003. The State continued to be 30th in rank among the 50 States in total nonfuel mineral production value and accounted for more than 1% of the U.S. total value.

In 2005, based upon value, Washington's leading nonfuel mineral commodities were, in descending order of value, construction sand and gravel, crushed stone, portland cement, zinc, and gold; the two aggregate commodities accounted for 60% of the State's total nonfuel mineral value. Substantial increases took place in the values of the first four, offset only somewhat by a more than 25% decrease in the value of gold. The largest increase took place in construction sand and gravel. A 15% increase in production led to a $55 million, or nearly 24% increase in the commodity's value. The third-largest increase in value was in that of crushed stone; a 14% increase in production resulted in a nearly $21 million, or 28% increase in its value (table 1). This was followed by portland cement; although portland cement production decreased slightly, its value rose by more than $8 million. Smaller yet significant increases also took place in the production and values of lime, lead, olivine, and industrial sand and gravel; only the values of gold and silver decreased in 2005.

Production of zinc substantially increased at Teck Cominco Limited's Pend Oreille Mine in northeastern Washington, the State's only active zinc and lead mine. The value of zinc rose more than $30 million from that of 2004; lead production and value also increased significantly. In 2004, primary metal mine production had resumed in the State with the opening of the Pend Oreille Mine and as well as the resumption of gold and silver production at Kinross Gold Corp.'s Kettle River Mine near Curlew in Ferry County. Teck Cominco began commercial zinc and lead production in August 2004; Kinross Gold, having recommenced operations at Kettle River in late 2003, resumed gold and silver production there in 2004.

In 2005, mainly owing to lower ore grades and recovery rates, the production and values of gold and silver at Kettle River (the Emanuel Creek deposit) dropped off. Mining at Emanuel Creek was completed in November and the mill temporarily shutdown. With the mine on care and maintenance beginning in November 2005, the remaining staff focused on the permitting and engineering of the Buckhorn gold deposit in northcentral Washington, approximately 70 kilometers by road from the Company's Kettle River mill. Kinross anticipated production to commence at Buckhorn following finalization of its acquisition of Crown Resources Corp. (owner of Buckhorn) and completion of the mine permitting, then in process (Kinross Gold Corp., 2006§[2]).

In 2005, Washington was the only State that produced olivine, and it continued to be second in the quantities of cadmium (byproduct) of 4 producing States, fourth of 4 diatomite-producing States, fourth among 5 States in the quantities of lead produced, and sixth of 10 gold-producing States. Washington rose to 2d from 3d in zinc production in 2005, and to 8th from 9th in construction sand and gravel; it decreased to 10th from 9th in the production of silver. Additionally, significant quantities of crushed stone, portland cement, and industrial sand and gravel continued to be produced in the State. Primary aluminum and raw steel were produced in the State, but both metals were processed from materials acquired from foreign and other domestic sources. In 2005, with a more than 60% increase in primary aluminum production, the State rose in rank to 8th from 11th among 12 producing States. Much of this increase in production was the result of the reopening of Alcoa, Inc.'s mid-State smelter in Wenatchee, idled since July 2001. On October 1, a labor agreement was reached between Alcoa, the United Steelworkers of America (USWA), and the Aluminum Trades Council of Wenatchee, WA, the two latter entities of which represented approximately 400 idled workers at the Wenatchee smelter (Alcoa, Inc., 2004a). Seven days later, the affected workers voted to accept the agreement, after which the company took immediate steps to begin ramping up two of the facilities four potlines and restart the smelter (Alcoa, Inc., 2004b). By the end of January 2005, the two potlines were operating and, as planned, were in full operation by mid-2005, representing approximately 93,000 metric tons per year of primary aluminum (Alcoa, Inc., 2005).

Internet References Cited

Alcoa, Inc., 2004a (October 1), Alcoa and unions reach accord on Wenatchee, saving 400 jobs, accessed October 5, 2007, at URL http://www.alcoa.com/ingot/en/news/releases/wenatchee.asp.

Alcoa, Inc., 2004b (October 8), Alcoa unions in Wenatchee vote to accept agreement; company to begin re-start efforts at idle facility, accessed October 9, 2007, at URL http://www.alcoa.com/locations/usa_wenatchee/en/news/releases/restart.asp.

Alcoa, Inc., 2005 (September 6), Power failure disrupts Wenatchee, WA production, accessed October 9, 2007, at URL http://www.alcoa.com/global/en/news/news_detail.asp?pageID=20050906005772en&newsYear=2005.

Kinross Gold Corp., 2006, 2005 annual report—Kinross Gold Corporation, accessed August 2, 2007, at URL http://www.kinross.com/investors/financials/pdf/05-ar.pdf.

[1]The terms "nonfuel mineral production" and related "values" encompass variations in meaning, depending upon the 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 2005 USGS mineral production data published in this chapter are those available as of December 2006. All USGS Mineral Industry Surveys and USGS Minerals Yearbook chapters—mineral commodity, State, and country—can be retrieved over the Internet at URL http://minerals.usgs.gov/minerals.

[2]References that include a section mark (§) are included in the Internet Reference Cited section.

TABLE 1
NONFUEL RAW MINERAL PRODUCTION IN WASHINGTON[1, 2]

(Thousand metric tons and thousand dollars unless otherwise specified)

Mineral	2003		2004		2005	
	Quantity	Value	Quantity	Value	Quantity	Value
Clays, common	83	204	W	W	W	W
Gemstones	NA	44	NA	44	NA	44
Sand and gravel, construction	40,700	216,000	41,500	227,000	47,200	282,000
Stone, crushed	12,000	73,700	12,100 r	75,500 r	13,900	96,300
Combined values of cadmium byproduct in zinc concentrates (2004-05), cement (portland), diatomite, gold (2004-05), lead (2004-05), lime, olivine, peat, sand and gravel (industrial), silver (2004-05), stone (dimension miscellaneous [2004-05]), zinc, (2004-05), and values indicated by symbol W	XX	107,000	XX	205,000	XX	255,000
Total	XX	396,000	XX	507,000 r	XX	633,000

rRevised. NA Not available. W Withheld to avoid disclosing company proprietary data. Withheld values included in "Combined values" data. XX Not applicable.
[1]Production as measured by mine shipments, sales, or marketable production (including consumption by producers).
[2]Data are rounded to no more than three significant digits; may not add to totals shown.

TABLE 2
WASHINGTON: CRUSHED STONE SOLD OR USED, BY KIND[1]

Kind	2004			2005		
	Number of quarries	Quantity (thousand metric tons)	Value (thousands)	Number of quarries	Quantity (thousand metric tons)	Value (thousands)
Limestone[2]	18	2,000	$12,700	18	2,120	$13,200
Dolomite	23	201	916	29	198	854
Marble	2	230	1,670	2	217	1,520
Granite	7	862	5,260 r	5	539	3,890
Sandstone	3	W	W	3	W	W
Traprock	56	8,070 r	51,700 r	56	9,300	62,400
Volcanic cinder and scoria	1	70	387	1	42	298
Slate	1	W	W	1	W	W
Miscellaneous stone	6	311	1,080	11	1,050	7,300
Total	XX	12,100 r	75,500 r	XX	13,900	96,300

rRevised. W Withheld to avoid disclosing company proprietary data; included in "Total." XX Not applicable.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes limestone-dolomite reported with no distinction between the two.

TABLE 3
WASHINGTON: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2005, BY USE[1]

(Thousand metric tons and thousand dollars)

Use	Quantity	Value
Construction:		
Coarse aggregate (+1½ inch):		
Macadam	W	W
Riprap and jetty stone	123	1,120
Filter stone	25	240
Other coarse aggregates	828	4,310
Total	976	5,670
Coarse aggregate, graded:		
Bituminous aggregate, coarse	(2)	(2)
Bituminous surface-treatment aggregate	46	484
Railroad ballast	272	1,990
Other graded coarse aggregates	564	3,840
Total	882	6,310
Fine aggregate (-⅜ inch):		
Screening, undesignated	(3)	(3)
Other fine aggregate	(3)	(3)
Total	86	969
Coarse and fine aggregate:		
Graded road base or subbase	719	4,580
Unpaved road surfacing	613	3,350
Crusher run or fill or waste	(3)	(3)
Roofing granules	(3)	(3)
Other coarse and fine aggregates	298	2,140
Total	1,870	11,600
Other construction materials	69	306
Agricultural, limestone	(4)	(4)
Chemical and metallurgical:		
Cement manufacture	(4)	(4)
Lime manufacture	(4)	(4)
Flux stone	(4)	(4)
Chemical stone	(4)	(4)
Glass manufacture	(4)	(4)
Special, asphalt fillers or extenders	(4)	(4)
Unspecified:[5]		
Reported	4,390	31,100
Estimated	4,500	30,000
Total	8,910	61,200
Grand total	13,900	96,300

W Withheld to avoid disclosing company proprietary data; included with "Other coarse aggregate."
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Withheld to avoid disclosing company proprietary data; included with "Other graded coarse aggregate."
[3]Withheld to avoid disclosing company proprietary data; included in "Total."
[4]Withheld to avoid disclosing company propreitary data; included in "Grand total."
[5]Reported and estimated production without a breakdown by end use.

TABLE 4
WASHINGTON: CRUSHED STONE SOLD OR USED BY PRODUCERS IN 2005, BY USE AND DISTRICT[1]

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3		Unspecified districts	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Construction:								
Coarse aggregate (+1½ inch)[2]	W	W	W	W	W	W	--	--
Coarse aggregate, graded[3]	W	W	W	W	W	W	--	--
Fine aggregate (-⅜ inch)[4]	W	W	W	W	W	W	--	--
Coarse and fine aggregate[5]	1,000	6,520	496	2,960	375	2,130	--	--
Other construction materials	57	250	--	--	12	56	--	--
Agricultural[6]	--	--	--	--	W	W	--	--
Chemical and metallurgical[7]	W	W	--	--	W	W	--	--
Special[8]	--	--	--	--	W	W	--	--
Unspecified:[9]								
Reported	789	5,800	2,120	15,000	1,410	9,930	58	360
Estimated	3,500	24,000	505	3,500	38	264	432	2,300
Total	7,760	50,500	3,210	22,200	2,450	20,900	490	2,650

W Withheld to avoid disclosing company proprietary data; included in "Total." -- Zero.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes filter stone, macadam, riprap and jetty stone, and other coarse aggregate.
[3]Includes bituminous aggregate (coarse), bituminous surface-treatment aggregate, railroad ballast, and other graded coarse aggregate.
[4]Includes screening (undesignated) and other fine aggregates.
[5]Includes crusher run or fill or waste, graded road base or subbase, roofing granules, unpaved road surfacing, and other coarse and fine aggregates.
[6]Includes agricultural limestone.
[7]Includes cement and lime manufacture, chemical stone, flux stone, and glass manufacture.
[8]Includes asphalt fillers or extenders.
[9]Reported and estimated production without a breakdown by end use.

TABLE 5
WASHINGTON: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2005,
BY MAJOR USE CATEGORY[1]

Use	Quantity (thousand metric tons)	Value (thousands)	Unit value
Concrete aggregate (including concrete sand)	11,300	$80,600	$7.16
Plaster and gunite sands	66	1,490	22.64
Concrete products (blocks, bricks, pipe, decorative, etc.)	14	145	10.36
Asphaltic concrete aggregates and other bituminous mixtures	1,670	15,100	8.99
Road base and coverings[2]	8,300	49,000	5.91
Fill	9,770	38,800	3.97
Snow and ice control	107	721	6.74
Railroad ballast	187	1,290	6.89
Other miscellaneous uses[3]	246	2,420	9.85
Unspecified:[4]			
Reported	8,140	48,400	5.94
Estimated	7,440	43,900	5.90
Total or average	47,200	282,000	5.97

[1]Data are rounded to no more than three significant digits, except unit value; may not add to totals shown.
[2]Includes road and other stabilization (lime).
[3]Includes roofing granules.
[4]Reported and estimated production without a breakdown by end use.

TABLE 6

WASHINGTON: CONSTRUCTION SAND AND GRAVEL SOLD OR USED IN 2005, BY USE AND DISTRICT[1]

(Thousand metric tons and thousand dollars)

Use	District 1		District 2		District 3	
	Quantity	Value	Quantity	Value	Quantity	Value
Concrete aggregates (including concrete sand)	10,400	74,400	794	5,730	62	452
Concrete products (blocks, bricks, pipe, decorative, etc.)[2]	W	W	W	W	W	W
Asphaltic concrete aggregates and other bituminous mixtures	1,230	9,720	W	W	W	W
Road base and coverings[3]	5,330	33,100	1,960	11,100	1,010	4,810
Fill	9,560	38,000	191	735	19	106
Snow and ice control	24	180	W	W	W	W
Railroad ballast	132	853	W	W	W	W
Other miscellaneous uses[3]	319	3,990	366	5,070	221	1,310
Unspecified:[4]						
Reported	2,540	18,500	1,960	10,800	3,640	19,100
Estimated	6,540	38,600	308	1,810	591	3,480
Total	36,100	217,000	5,590	35,200	5,540	29,200

W Withheld to avoid disclosing company proprietary data; included in "Other miscellaneous uses."

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes plaster and gunite sands.

[3]Includes road and other stabilization, lime.

[3]Includes roofing granules.

[4]Reported and estimated production without a breakdown by end use.