

# Mineral Industry Surveys

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## IRON ORE IN DECEMBER 2004

U.S. mine production and shipments for 2004 surpassed revised figures for 2003 by 12.6% and 18.7%, respectively, according to the U.S. Geological Survey.

U.S. mine production of iron ore in December 2004, on a daily average basis, was almost 9% lower than that of the prior month. Average daily production was 144,000 metric tons per day (t/d), 14,000 t/d less than the figure for November 2004.

Shipments in December 2004, on a daily basis, were almost 3% lower compared with those of November 2004. Mine stocks at the end of December 2004 were about 700,000 metric tons (t) less than the corresponding stock figures on November 30.

U.S. imports of iron ore in November 2004 were 8% greater than exports, with imports exceeding exports by only 59,000 t.

**Prices.**—According to reports, early indications are that world prices for iron ore will increase significantly in the coming fiscal year. In January 2004, Arcelor Group and Companhia Vale do Rio Doce (CVRD) agreed to the largest increase in price for fines since the early 1980s with an 18.6% increase in f.o.b prices. Prices for coking coal, another of the key inputs for steelmaking, from Australia to some of the major Asian steel producers rose 125% in late December (Metal Bulletin, 2005).

Metals analysts continued to predict iron ore price rises of between 25% and 50% when annual contract negotiations are scheduled to conclude on April 1, 2005. Rio Tinto Ltd. (Australia) reportedly was seeking a 50% increase in iron ore prices from Nippon Steel Corp. in current negotiations and CVRD was considering a 90% price rise for iron ore to European consumers (Denning, 2005<sup>1</sup>; Quinn, 2005<sup>§</sup>; The Sydney Morning Herald, 2005<sup>§</sup>).

**Exploration and Development.**—Strong demand continued to drive the intense interest in iron ore project development. Aztec Resources Limited (Australia) signed a memorandum of understanding (MOU) with an undisclosed Japanese company for 0.5 million metric tons per year (Mt/yr) of iron ore from Aztec's Koolan Island project off the north coast of Western Australia. The MOU covered ore supply for the lesser of 10

years or life of mine. Another MOU was signed with China Metal Products Import/Export Corporation, a subsidiary of China MinMetals Corporation, for 0.33 Mt/yr of iron ore for the lesser of 15 years or life of mine (Aztec Resources Limited, 2005<sup>§</sup>; Mining Journal, 2004a).

On December 22, Aztec announced successful conclusion of an A\$5 million placement to obtain funds for completion of a bankable feasibility study on the Koolan Island deposit. Early indications are that the deposit's total resources are 39.5 million metric tons (Mt) at 64.8% iron content (Aztec Resources Limited, 2004<sup>§</sup>).

Kumba Resources Ltd., a 66.6% subsidiary of Anglo American plc, lost arbitration to Hancock Prospecting Ltd. for retaining its 50% share of the Hope Downs iron ore project. Hope Downs is a US\$1.3 billion, 25-Mt/yr iron ore project in Western Australia's Pilbara Range planned for production in 2007. Kumba Resources filed an appeal with the Supreme Court of Western Australia to overturn the arbitration hearing and regain the 50% interest from its joint venture partner, Hancock (Mining Journal, 2004b; Bromby, 2005<sup>§</sup>).

New Millennium Capital Corp. (NML) announced partial results of a drilling program on its 80%-owned LabMag iron ore project in Labrador, Canada, 30 kilometers west of Schefferville, Quebec. Partial results from 9 of the 72 holes drilled in 2004 indicated that high-quality concentrate of 69% iron and less than 3% silica could be produced from the material represented by the drill core. The drill program was designed to define a potential indicated resource of 660 Mt of iron ore, sufficient to operate a 10-Mt/yr mining and concentrating complex for at least 20 years (New Millennium Capital Corp., 2005<sup>§</sup>).

**Domestic Update.**—Cleveland-Cliffs Inc. submitted an A\$605 (US\$465) million purchase offer for Portman Limited (Australia), Australia's third leading iron ore producer. An additional stamp duty of A\$28.3 million was to be paid to the State of Western Australia by Cliffs for the purchase. The offer had been unanimously recommended by Portman's board of directors and was expected to be finalized by the end of February 2005. Portman currently produces 5 Mt/yr of high-grade iron ore from the Koolyanobbing operations and had plans

<sup>1</sup>References that include a section mark (§) are found in the Internet References Cited section.

to invest A\$55 million to increase production to 8 Mt/yr by 2006 (Portman Limited, 2005§; Perry, 2005§).

**World Production Update.**—BlueScope Steel Ltd. (Australia) entered into a long-term agreement to purchase at least 4 Mt/yr of iron ore from BHP Billiton Limited (Australia). The contract runs to June 2009, and pricing will reflect market conditions (Johnston, 2005§).

Rio Tinto plc (Australia) announced full-year production figures for 2004. Rio Tinto's share of saleable quantities of iron ore plus pellets were, as follows—Channar (60%-owned), 5.9 Mt; Corumba, Brazil, 1.3 Mt; Eastern Range, 3.0 Mt; Hamersley, 65.4 Mt; Iron Ore Company of Canada (59%-owned), 6.5 Mt; and Robe River (53%-owned), 25.7 Mt. Rio Tinto's share of total mine production was 107.8 Mt, a 5% increase from that of 2003 (Rio Tinto plc, 2005§).

BHP Billiton announced full-year production figures for 2004. BHP Billiton's share of saleable quantities of iron ore (wet) were, as follows—Area C Joint Venture (JV) (85%-owned), 11.6 Mt; Goldsworthy JV (85%-owned), 4.8 Mt; Jimblebar, 6.5 Mt; Mt. Newman JV (85%-owned), 23.9 Mt; Samarco, Brazil, (50%-owned), 7.8 Mt; and Yandi JV (85%-owned), 34.5 Mt. BHP Billiton's share of total mine production was 89.1 Mt, a greater than 12% increase from that of 2003 (BHP Billiton Limited, 2004§, 2005§).

Companhia Vale do Rio Doce (CVRD) was analyzing four potential new pellet plants at the end of 2004. Under consideration were a new 7-Mt/yr pellet plant at the joint venture complex in Espirito Santo State, a 6-Mt/yr plant at 100%-owned Mineração Brasileira Reunidas S.A. in Minas Gerais State, a new 7-Mt/yr pelletizing plant at Samarco Mineração S.A. (a 50%-owned joint venture) in Brazil's Iron Quadrangle, and an expansion to 8.5 Mt/yr at the 50%-owned pellet plant in Bahrain (Kinch, 2005).

**Transportation.**—Shipments of iron ore in U.S.-flag vessels on the Great Lakes rebounded significantly in 2004. Iron ore cargos for the steel industry registered a 19% increase in 2004 compared with those of 2003. U.S.-flag lake vessels loaded 46.4 Mt of iron ore in 2004, an increase of 7.4 Mt compared with those of 2003. However, 2004 iron ore shipments were only 2.5% ahead of the commodity's 5-year average (Lake Carriers' Association, 2005).

The Governor of Wisconsin announced a long-term commitment to construction of a new lock at Sault Ste. Marie (MI). Wisconsin will provide \$117,000 per year from State transportation funds as its portion of a multi-state partnership with the Federal Government. The U.S. Army Corps of Engineers plans to increase Great Lake shipping capacity by replacing two small locks which are seldom used with one new 1,000-foot lock (BusinessNorth.com, 2005§).

The last ocean vessel of the 2004 shipping season left the Port of Duluth (MN)-Superior (WI) on December 17. Lake traffic through the locks was to shut down on January 15. According to the U.S. Army Corps of Engineers, traffic through the locks will recommence on March 25, 2005 (Skillings Mining Review, 2005).

According to Drewry Shipping Consultants Limited, as of the end of the third quarter 2004, seaborne time charter rates on Panamax-size and Capesize vessels had increased 99% and 90%, respectively, from 1 year prior. Planned deliveries of new vessels in 2005-08, increasing the existing Panamax fleet by 22%, were expected to lower freight rates (Hennessy, 2004).

## References Cited

- Hennessy, Jill, 2004, Ship demand growing swiftly: Mining Journal, December 10, p. 18-20.  
Kinch, Diana, 2005, CVRD studies 7M tpy pellet for export plant at Tubarao: Metal Bulletin, no. 8875, January 10, p. 26.  
Lake Carriers' Association, 2005, Major rebound in U.S.-flag shipping on the Great Lakes in 2004: Lake Carriers' Association, January 19, 1 p.  
Metal Bulletin, 2005, Iron ore and coking coal hit the big time: Metal Bulletin, no. 8875, January 10, p. 23.  
Mining Journal, 2004a, Aztec MoU: Mining Journal, December 17, p. 5.  
Mining Journal, 2004b, Hancock wins Hope Downs pre-emptive: Mining Journal, December 23/31, p. 1, 9.  
Skillings Mining Review, 2005, 2004 Duluth port/St. Lawrence Seaway closings: Skillings Mining Review, v. 94, no. 1, January, p. 19.

## Internet References Cited

- Aztec Resources Limited, 2004 (October 25), Aztec Resources announces 59% increase in iron ore resource from 25 to 39 million tonnes at Koolan Island, Western Australia, West Perth, Western Australia, accessed January 21, 2005, via URL <http://www.aztecresources.com.au>.  
Aztec Resources Limited, 2005 (January 18), Memorandum of understanding, West Perth, Western Australia, accessed January 21, 2005, via URL <http://www.aztecresources.com.au>.  
BHP Billiton Limited, 2004 (January 29), BHP Billiton production report for the quarter ended 31 December 2003, accessed February 8, 2004, via URL <http://www.bhpbilliton.com>.  
BHP Billiton Limited, 2005 (January 27), BHP Billiton production report for the quarter ended 31 December 2004, accessed February 4, 2005, via URL <http://www.bhpbilliton.com>.  
Bromby, Robin, 2004 (January 13), South Africans battle Rinehart for Hope Downs control, The Australian, accessed January 18, 2005, via URL <http://www.theaustralian.news.com.au>.  
BusinessNorth.com, 2005 (January 14), Doyle commits Wisconsin to Soo Locks expansion project, accessed January 18, 2004, via URL <http://www.businessnorth.com>.  
Denning, Liam, 2005 (January 25), Iron ore producers go on the attack about pricing, accessed January 25, 2005, via URL <http://news.ft.com/cms/s>.  
Johnston, Eric, 2005 (January 26), Bluescope completes long-term iron ore contract with BHP, accessed January 27, 2005, via URL <http://money.iwon.com/jsp/nw>.  
New Millennium Capital Corp., 2005 (January 12), New Millennium Capital Corp. announces the first drill core analysis results after completion of 2004 drilling activities on the LabMag iron ore project in Labrador, accessed January 13, 2005, via URL <http://biz.yahoo.com/ccn>.  
Perry, Jacqueline, 2005 (January 19), Cliffs wants mine in Australia, accessed January 21, 2005, via URL <http://www.miningjournal.net>.  
Portman Limited, 2005 (January 12), Cleveland-Cliffs and Portman announce agreed offer for Portman, accessed January 21, 2005, via URL <http://www1.portman.com.au>.  
Quinn, Michael, 2005 (January 18), Iron ore suppliers to throw out rule book, accessed January 21, 2005, via URL <http://www.miningnews.net>.  
Rio Tinto plc, 2005 (January 19), Fourth quarter 2004 operations review, news release, 23 p., accessed February 4, 2005, via URL <http://www.riotinto.com/media/downloads/pressreleases>.  
The Sydney Morning Herald, 2005 (January 14), Rio Tinto stays mum on ore talks, accessed January 14, 2005, via URL <http://www.smh.com.au/news>.

TABLE 1  
U.S. PRODUCTION AND SHIPMENTS OF IRON ORE<sup>1,2</sup>  
(Exclusive of ore containing 5% or more of manganese)

(Thousand metric tons)

Period	Production		Shipments	
	Monthly	Year to date	Monthly	Year to date
2003:				
December <sup>r</sup>	3,810	48,600	5,200	47,100
2004:				
January	4,270	4,270	3,920	3,920
February	4,230	8,500	1,190	5,100
March	4,130	12,600	2,710	7,810
April	4,630	17,300	5,260	13,100
May	4,800	22,100	5,300	18,400
June	4,470	26,500	5,880	24,200
July	4,950	31,500	5,550	29,800
August	4,500	36,000	5,670	35,500
September	4,420	40,400	5,420	40,900
October	5,110	45,500	4,780	45,700
November	4,730	50,200	5,110	50,800
December	4,450	54,700	5,150	55,900

<sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits.

<sup>2</sup>Excludes byproduct ores.

TABLE 2  
U.S. PRODUCTION, SHIPMENTS, AND STOCKS OF IRON ORE IN DECEMBER<sup>1,2</sup>

(Thousand metric tons)

State	Production		Shipments <sup>3</sup>		Stocks <sup>4</sup>	
	2004	2003	2004	2003	2004	2003
Michigan	1,130	899	1,240	1,160	1,450	1,460
Minnesota	3,320	2,920 <sup>r</sup>	3,910	4,040 <sup>r</sup>	1,540 <sup>5</sup>	2,400 <sup>r</sup>
Total	4,450	3,810 <sup>r</sup>	5,150	5,200 <sup>r</sup>	2,990	3,860 <sup>r</sup>

<sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Excludes byproduct ore.

<sup>3</sup>Includes rail and vessel.

<sup>4</sup>Includes mines, plants, and loading docks.

<sup>5</sup>An imbalance of production and shipments compared with stock changes indicates an inventory adjustment at the mines.

TABLE 3  
CANADA: SHIPMENTS OF IRON ORE<sup>1</sup>

(Thousand dry metric tons)

Period	Newfoundland	Quebec	British Columbia	Total
2003:				
November	2,260	1,190	5	3,450
December	1,740	1,060	6	2,800
Year total	19,800	13,300	69	33,200
2004:				
January	1,150	839	5	1,990
February	1,070	589	7	1,660
March	1,250	1,030	6	2,290
April	1,650	858	5	2,520
May	1,920	1,740	7	3,660
June	1,970	981	8	2,960
July	1,710	1,380	10	3,110
August	698	1,120	8	1,830
September	124	1,220	5	1,350
October	635 <sup>r</sup>	1,570	7	2,210 <sup>r</sup>
November	1,390	958	10	2,360

<sup>r</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

Source: Natural Resources Canada.

TABLE 4  
CONSUMPTION AND STOCKS OF IRON ORE AND BLAST FURNACE PRODUCTION OF  
HOT METAL AT U.S. IRON AND STEEL PLANTS<sup>1,2</sup>

(Thousand metric tons)

	Consumption of ores and agglomerates, January <sup>3</sup>			
Consumption by source	2004	2003		
United States ores	4,670	3,780		
Canadian ores	401	428		
Other foreign ores	439	707		
Total	5,510	4,920		
Consumption by process				
Blast furnaces	5,010	4,370		
Steel furnaces	3	39		
Agglomerating plants <sup>4</sup>	492	510		
Miscellaneous <sup>5</sup>	--	--		
Total	5,510	4,920		
	Stocks of ores and agglomerates, January 31 <sup>3</sup>			
Storage point	2004	2003		
Furnace yards	NA	11,100		
Receiving/transfer docks	NA	1,430		
Total consumer	11,700	12,600		
	Blast furnace production of hot metal			
	December		January-December	
	2004	2003	2004	2003
Hot metal and pig iron produced in blast furnaces	3,380 <sup>e</sup>	3,390	40,700 <sup>e</sup>	39,100
No. of blast furnaces operating on the last day of the month	NA	30	XX	XX

<sup>e</sup>Estimated. NA Not available. XX Not applicable. -- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes agglomerates.

<sup>3</sup>Data after January 2004 is not available at the time of publication.

<sup>4</sup>Iron ore and iron ore concentrates consumed in agglomerating plants not located at the mine or plant site.

<sup>5</sup>Sold to nonreporting companies or used for purposes not listed.

Sources: American Iron Ore Association (consumption of iron ore 2003) and American Iron and Steel Institute (production of hot metal and pig iron).

TABLE 5  
U.S. EXPORTS OF IRON ORE, BY COUNTRY OF DESTINATION AND TYPE<sup>1,2</sup>

(Thousand metric tons)

Country of destination and type of product	2004				
	1st quarter	2nd quarter	3rd quarter	October	November
Canada	958	2,860	2,300	534	710
China	59	83	129	--	--
Mexico	1	(3)	1	1	1
Slovakia	--	53	134	--	--
Trinidad and Tobago	--	--	29	--	--
Yugoslavia	--	52	--	--	--
Other	1	1	1	(3)	(3)
Total	1,020	3,050	2,590	535	711
Pellets	1,020	2,960	2,420	531	707
Concentrates	2	19	2	1	(3)
Direct shipping ores	(3)	65	169	(3)	3
Other	1	2	(3)	3	(3)
Total	1,020	3,050	2,590	535	711

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes agglomerates.

<sup>3</sup>Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 6  
U.S. IMPORTS FOR CONSUMPTION OF IRON ORE, BY COUNTRY AND TYPE<sup>1,2</sup>  
(Exclusive of ore containing 20% or more manganese)

Country of origin and type of product	2004					2003
	November		Year to date			January-November
	Thousand metric tons	Value <sup>3</sup> (thousand dollars)	Thousand metric tons	Value <sup>3</sup> (thousand dollars)	Value <sup>3</sup> (dollars per ton)	Thousand metric tons
Australia	--	--	(4)	24	54.15	128
Brazil	240	7,090	4,530	126,000	27.79	4,760
Canada	427	13,700	4,980	162,000	32.57	6,200
Chile	37	957	197	5,110	25.97	296
Finland	65	5,740	76	6,190	81.18	9
Italy	--	--	(4)	5	991.80 <sup>5</sup>	--
Mexico	--	--	49	1,220	24.83	24
Norway	--	--	4	148	38.22	4
Paraguay	1	30	1	30	54.15	--
Peru	--	--	32	578	18.05	77
South Africa	--	--	104	4,100	39.29	--
Spain	--	--	(4)	3	39.91	--
Sweden	--	--	111	4,520	40.87	88
Uruguay	--	--	(4)	5	2,400.00 <sup>5</sup>	--
Venezuela	--	--	199	14,600	73.38 <sup>5</sup>	21
Total	770	27,500	10,300	325,000	31.57	11,600
Concentrates	61	1,530	950	22,200	23.36	957
Coarse ores	1	30	4	188	42.33	24
Fine ores	100	2,020	2,710	61,100	22.59	2,140
Pellets	579	23,200	6,500	229,000	35.21	8,110
Briquettes	--	--	56	10,500	188.39	--
Other agglomerates	29	700	59	1,430	24.26	357
Roasted pyrites	--	--	8	332	43.38	7
Total	770	27,500	10,300	325,000	31.57	11,600

-- Zero.

<sup>1</sup>Data, with the exception of the dollars per ton column, are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes agglomerates.

<sup>3</sup>Customs value. Excludes international freight and insurance charges.

<sup>4</sup>Less than 1/2 unit.

<sup>5</sup>May include hot-briquetted iron, direct-reduced iron, or other specialty product.

Source: U.S. Census Bureau.

TABLE 7  
U.S. IMPORTS FOR CONSUMPTION OF IRON ORE IN NOVEMBER 2004<sup>1,2</sup>  
(Exclusive of ore containing 20% or more manganese)

(Thousand metric tons)

Country of origin	Type of product						Total
	Concentrates	Coarse ores	Fine ores	Pellets	Briquettes and other agglomerates	Roasted pyrites	
Brazil	--	--	98	142	--	--	240
Canada	24	--	2	372	29	--	427
Chile	37	--	--	--	--	--	37
Finland	--	--	--	65	--	--	65
Paraguay	--	1	--	--	--	--	1
Total	61	1	100	579	29	--	770

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes agglomerates.

Source: U.S. Census Bureau.

TABLE 8  
U.S. IMPORTS FOR CONSUMPTION OF PELLETS, BY COUNTRY<sup>1</sup>

Country of origin	2004					2003
	November		Year to date			January-November
	Thousand metric tons	Value <sup>2</sup> (thousand dollars)	Thousand metric tons	Value <sup>2</sup> (thousand dollars)	Value <sup>2</sup> (dollars per ton)	Thousand metric tons
Brazil	142	5,090	2,430	82,800	34.03	2,720
Canada	372	12,400	4,000	140,000	35.06	5,390
Finland	65	5,740	65	5,740	88.20	--
Total	579	23,200	6,500	229,000	35.21	8,110

<sup>1</sup>Data, with the exception of the dollars per ton column, are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Customs value. Excludes international freight and insurance charges.

Source: U.S. Census Bureau.

TABLE 9  
U.S. IMPORTS FOR CONSUMPTION OF IRON ORE,  
BY CUSTOMS DISTRICT<sup>1, 2</sup>  
(Exclusive of ore containing 20% or more manganese)

(Thousand metric tons)

Customs district (code no.)	November	January-November	
	2004	2004	2003
Baltimore, MD (13)	206	3,210	2,910
Boston, MA (04)	--	(3)	--
Buffalo, NY (09)	2	7	7
Charleston, SC (16)	--	(3)	106
Chicago, IL (39)	117	1,280	1,090
Cleveland, OH (41)	241	2,170	2,990
Detroit, MI (38)	24	148	226
Great Falls, MT (33)	--	(3)	--
Houston - Galveston, TX (53)	--	57	72
Laredo, TX (23)	--	8	20
Los Angeles, CA (27)	--	--	(3)
Miami, FL (52)	--	(3)	--
Mobile, AL (19)	--	84	75
New Orleans, LA (20)	179	3,270	4,010
New York City, NY (10)	--	--	(3)
Nogales, AZ (26)	--	(3)	--
Ogdensburg, NY (07)	--	--	1
Philadelphia, PA (11)	--	58	82
San Francisco, CA (28)	1	1	--
Tampa, FL (18)	--	--	16
Total	770	10,300	11,600

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Includes agglomerates.

<sup>3</sup>Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 10  
U.S. IMPORTS FOR CONSUMPTION OF PELLETS,  
BY CUSTOMS DISTRICT<sup>1</sup>

(Thousand metric tons)

Customs district (code no.)	November	January-November	
	2004	2004	2003
Baltimore, MD (13)	136	1,270	1,050
Charleston, SC (16)	--	--	105
Chicago, IL (39)	35	232	--
Cleveland, OH (41)	241	2,130	2,990
Detroit, MI (38)	24	148	226
Houston-Galveston, TX (53)	--	52	55
Laredo, TX (23)	--	8	20
Mobile, AL (19)	--	--	59
New Orleans, LA (20)	142	2,660	3,610
Total	579	6,500	8,110

-- Zero.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.