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IRON ORE IN OCTOBER 2004

U.S. mine production of iron ore in October 2004, on a daily average basis, was 14% higher than that of the prior month, according to the U.S. Geological Survey. Average daily production was 168,000 metric tons per day (t/d), almost 21,000 t/d greater than in September 2004.

Shipments on a daily basis were almost 15% lower compared with those of September 2004. Mine stocks at the end of October 2004 were 483,000 metric tons (t) greater than the corresponding stock figures at the end of the previous month.

U.S. imports of iron ore in September 2004 exceeded exports by 102,000 t.

Exploration and Development.—An intense interest in mine development is being driven by continued strong markets for iron ore. Viet Nam Steel Corporation, Lao Cai Mineral Company (Vietnam), and Kunming Steel Corporation (China) plan to jointly exploit the Quy Xa Mine in Vietnam's northern Lao Cai Province. Quy Xa holds an estimated reserve of 120 million metric tons (Mt) of iron ore. Feasibility studies for the 1.5-to-3.0-million-metric-ton-per-year (Mt/yr) mine and associated metallurgical complex in Lao Cai Province are expected to be completed in the second quarter of 2005 (China Daily, 2004§[1], Vietnam News Agency, 2004§).

Australia's Fortescue Metals Group Ltd. announced a 14% increase in resources for its Christmas Creek property in Western Australia's Pilbara Region. Based on additional drilling results, Fortescue increased indicated and inferred resources at Christmas Creek to 850 Mt at 56.7% iron content from an earlier estimate of 744 Mt at 56.4% iron content (MineBox, 2004§).

In November, Fortescue signed two binding agreements for development of its Pilbara resources. The first, with China Harbour Engineering Group, will provide financing, design, and construction for large-scale works to include dredging, train unloading, ore stacking, blending, and ship loading facilities at Anderson Point in Port Hedland, Western Australia. The second agreement was with China Metallurgical Construction (Group) Corporation for the mine and beneficiation plant at Christmas Creek. These agreements combined with a previous agreement to finance, design, and construct railway infrastructure brought commitment of Chinese financing and construction support to A$1.85 billion for Fortescue's iron ore and infrastructure projects (Fortescue Metals Group Limited, 2004§).

Baffinland Iron Mines Corporation reported the results of the first batch of drill core from its 2004 drill program at its Mary River iron ore deposits on Baffin Island, Nunavut Territory, Canada. Drilling in the 1960s indicated a resource of 120 Mt at about 68% iron content. An additional drilling program was scheduled for 2005 to delineate further resources required to support a direct-shipping iron ore operation with a capacity of 10 Mt/yr (Baffinland Iron Mines Corporation, 2004§).

Metal Bulletin reported that Rio Tinto Limited will be granted the Simandou iron ore concession in Guinea (West Africa). Simandou is one of the last great undeveloped iron deposits in the world with an estimated 1,000 Mt of iron ore at 65% iron content. Rio Tinto expected to complete a pre-feasibility study on the project by late 2006 (Swindells, 2004).

Domestic Production Update.—In October, Ispat International N.V. (Rotterdam, The Netherlands) agreed to acquire LNM Holdings N.V., while Ispat International and International Steel Group Inc. (United States) approved an agreement to merge. The newly combined company will be renamed Mittal Steel Co. N.V. The new company will be the world's largest and most global steel company (Skillings Mining Review, 2004). Ispat International is the 100% owner of Ispat Inland Inc., parent company of Ispat Inland Mining Company with production capacity of about 2.7 Mt/yr from its Minorca Mine and plant in Minnesota.

The State of Minnesota planned to provide $20 million in debt financing for the Mesabi Nugget, LLC plant to be built near Hoyt Lakes, MN. Two $10 million loans were separately approved by Minnesota's Iron Range Resource Agency and the Minnesota Minerals 21st Century Fund. Mesabi Nugget announced that it expects to begin construction in April 2005

[1]References that include a section mark (§) are found in the Internet References Cited section.

and production by September 2006 from the Erie plant (Mining Engineering, 2004a).

U.S. Steel Corporation planned to spend $24 million on its taconite plant at Keewatin, MN (See Iron Ore in September 2004.). This expenditure was to be for environmental upgrades including a wet scrubber to remove dust that is currently being vented at the plant. The plant was acquired by U.S. Steel in May 2003 when it purchased the assets of National Steel (Mining Engineering, 2004b).

World Production Update.—BHP Billiton plc's hot-briquetted iron plant at Port Hedland, Western Australia was placed on care and maintenance. An explosion with one fatality and three serious injuries earlier this year caused suspension of the operation (Mining Journal, 2004a).

Samarco Mineração S.A. (Brazil), as part of a $550 million expansion, planned to construct a third pellet plant, build an additional 396-kilometer slurry pipeline, and improve existing mine facilities. The new 7-Mt/yr plant will raise pellet production capacity to 21 Mt/yr. The feasibility study of this project is expected to be completed before the end of 2004 for submittal to shareholder approval. If approved, the new plant could be in operation by mid-2007 (Kirk, 2004).

Pohang Iron & Steel Co. Ltd. (Posco) of South Korea and Companhia Vale do Rio Doce (CVRD) of Brazil signed a new long-term sales contract on November 17. The agreement calls for CVRD to supply 103 Mt of iron ore over a 10-year period beginning in March 2005 (Metal Bulletin, 2004b).

Additional domestic consumption of Brazilian iron ore was expected as the result of the signing of a Memorandum of Understanding (MOU) between CVRD and ThyssenKrupp Stahl A.G. of Germany. The objective of the MOU was to construct a 4.4-Mt/yr integrated slab plant in the State of Rio de Janeiro, Brazil (Companhia Vale do Rio Doce, 2004§).

Beijing Antaike Information Development Co., Ltd. released the latest statistical reports for imports, exports, and production of iron ore for China. In 2004, through October, 167 Mt of iron ore was imported—38% more than that of the same period for the previous year. Exports through October 2004 have been only 3,431 metric tons and Chinese domestic production was 222 Mt through October 2004—an almost 14% increase over the same period of the previous year.

Luossavaara-Kiirunavaara Aktiebolag (LKAB) is adding a new pelletizing plant, which should be operational by yearend 2006. LKAB will spend $378 million on the new plant at its Malmberget Mine in Sweden. In its first phase, the new plant will increase LKAB's pellet capacity by 2 Mt/yr, thus maintaining the company's market share in an expanding iron ore market (Metal Bulletin, 2004a).

Transportation.—Shipments of 4.4 Mt of iron ore made October another strong month for iron ore trade on the Great Lakes. This was an increase of 14% compared with the year-to-date figures for transport from Upper Great Lakes and St. Lawrence Seaway ports to Great Lakes destinations in 2003. This comparison with 2003 indicates the dramatic change in the U.S. iron ore industry over the past year; however, a better long-term indicator shows a more than 1% decrease in Lake transport when comparing October 2004 year-to-date data with average year-to-date figures for the past 5 years (Lake Carriers' Association, 2004).

China's Baosteel Shanghai Group Corp. has agreed to lease two capesize vessels capable of carrying 300,000 t of cargo, fuel, and stores. The ships, to be built by China Ocean Shipping Group Co., are planned to be commissioned in 2008 and would carry Brazilian iron ore to China. Eight capesize ships were currently under construction worldwide and two of these have been leased to Japan's JFE Steel Corp. (Mining Journal, 2004b).

World freight shipping prices were at record levels in 2004. Much of this relates to China's rapidly growing demand for iron ore and other mineral commodities. One estimate of shipping costs for largest-sized dry cargo vessels showed an increase of more than 1600% since September 2001 (Australian Broadcasting Corporation ABC Radio Australia, 2004§).

References Cited

Kirk, W.S., 2004, Samarco moves ahead with third pellet plant: Skillings Mining Review, v. 93, no. 11, November, p. 6.

Lake Carriers' Association, 2004, Strong demand for iron ore keeps U.S.-flag Great Lakes fleet busy in October: Lake Carriers' Association, December 17, 1 p.

Metal Bulletin, 2004a, LKAB boosts pellet capacity at Malmberget: Metal Bulletin, no. 8869, November 22, p. 26.

Metal Bulletin, 2004b, Posco and CVRD sign long-term ore deal: Metal Bulletin, no. 8869, November 22, p. 26.

Mining Engineering, 2004a, Industry watch, news brief: Mining Engineering, v. 56, no. 11, November, p. 14.

Mining Engineering, 2004b, Scrubber addition keeps taconite plant alive: Mining Engineering, v. 56, no. 11, November, p. 12.

Mining Journal, 2004a, Boodarie plant halt: Mining Journal, November 12, p. 1.

Mining Journal, 2004b, Chinese weld iron-ore partnership: Mining Journal, November 12, p. 5.

Swindells, Steve, 2004, Rio closes in on Simandou iron ore concession deal: Metal Bulletin, no. 8866, November 1, p. 28.

Skillings Mining Review, 2004, Ispat International to acquire LNM Holdings; ISG to merge with Mittal Steel: Skillings Mining Review, v. 93, no. 11, November, p. 3, 10.

Internet References Cited

Australian Broadcasting Corporation ABC Radio Australia, 2004 (December 5), Shipping costs increase, Australian Broadcasting Corporation ABC Radio Australia, accessed December 8, 2004, via URL http://abc.net.au/ra/news/stories/s1258284.htm.

Baffinland Iron Mines Corporation, 2004 (November 29), Baffinland releases high grade iron assays for the Mary River project, Toronto, Ontario, Canada, Baffinland Iron Mines Corporation, press release, 6 p., accessed December 1, 2004, via URL http://www.baffinland.com/news.

China Daily, 2004 (August 9), Vietnam, China join hands to explore iron ore, China Daily, accessed January 5, 2005, via URL http://www.chinadaily.com.cn/english/doc/2004-08/09/content_363595.htm.

Companhia Vale do Rio Doce, 2004 (December 3), CVRD signs memorandum of understanding with ThyssenKrupp, Rio de Janeiro, Brazil, Companhia Vale do Rio Doce, media release, 1 p., accessed December 8, 2004, via URL http://www.cvrd.com.br/.

Fortescue Metals Group Ltd., 2004 (November 5), China to fund new A$1.85 billion Australian iron ore and infrastructure project, West Perth, Western Australia, Fortescue Metals Group Ltd., media release, 5 p., accessed December 1, 2004, via URL http://www.fmgl.com.au.

MineBox, 2004 (November 19), Fortescue Christmas bonus, accessed December 1, 2004, at URL http://www.minebox.com.

Vietnam News Agency, 2004 (November 22), Viet Nam, China to cooperate in iron ore mining, accessed December 1, 2004, via URL http://www.vnagency.com.vn.

TABLE 1

U.S. PRODUCTION AND SHIPMENTS OF IRON ORE[1, 2]

(Exclusive of ore containing 5% or more of manganese)

(Thousand metric tons)

Period	Production		Shipments	
	Monthly	Year to date	Monthly	Year to date
2003:				
October	4,190	40,600	4,370	38,200
November	4,140	44,700	4,540	42,700
December	3,740	48,500	5,170	47,900
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	5,210	45,600	4,780	45,700

[1]Data are rounded to no more than three significant digits.

[2]Excludes byproduct ores.

TABLE 2

U.S. PRODUCTION, SHIPMENTS, AND STOCKS OF IRON ORE IN OCTOBER[1, 2]

(Thousand metric tons)

State	Production		Shipments[3]		Stocks[4]	
	2004	2003	2004	2003	2004	2003
Michigan	1,400	1,140	1,100	966	1,620	1,720
Minnesota	3,810	3,050	3,680	3,410	2,340 [5]	3,920
Total	5,210	4,190	4,780	4,370	3,960	5,640

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

[2]Excludes byproduct ore.

[3]Includes rail and vessel.

[4]Includes mines, plants, and loading docks.

[5]An imbalance of production and shipments compared with stock changes indicates an inventory adjustment at one of the mines.

TABLE 3
CANADA: SHIPMENTS OF IRON ORE[1]

(Thousand dry metric tons)

Period	Newfoundland	Quebec	British Columbia	Total
2003:				
September	1,710	1,240	7	2,950
October	2,080	1,500	6	3,580
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

[1]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[1, 2]

(Thousand metric tons)

	Consumption of ores and agglomerates, January[3]	
Consumption by source	2004	2003
United States ores	4,670	3,780
Canadian ores	401	428
Foreign ores	439	707
Total	5,510	4,920
Consumption by process		
Blast furnaces	5,010	4,370
Steel furnaces	3	39
Agglomerating plants[4]	492	510
Miscellaneous[5]	--	--
Total	5,510	4,920

	Stocks of ores and agglomerates, January 31[3]	
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			
	October		January-October	
	2004	2003	2004	2003
Hot metal and pig iron produced in blast furnaces	3,380 [e]	3,200	34,000 [e]	32,400
No. of blast furnaces operating on the last day of the month	NA	30	XX	XX

[e]Estimated. NA Not available. XX Not applicable. -- Zero.

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

[2]Includes agglomerates.

[3]Data after January 2004 is not available at the time of publication.

[4]Iron ore and iron ore concentrates consumed in agglomerating plants not located at the mine or plant site.

[5]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[1, 2]

(Thousand metric tons)

Country of destination and type of product	2004				
	1st quarter	2nd quarter	July	August	September
Canada	958	2,860	913	766	619
China	59	83	71	--	58
Mexico	1	(3)	(3)	1	(3)
Slovakia	--	53	108	--	26
Trinidad and Tobago	--	--	--	29	--
Yugoslavia	--	52	--	--	--
Other	1	1	(3)	(3)	(3)
Total	1,020	3,050	1,090	796	703
Pellets	1,020	2,960	1,020	762	642
Concentrates	2	19	1	1	(3)
Direct shipping ores	(3)	65	75	33	61
Other	1	2	(3)	(3)	(3)
Total	1,020	3,050	1,090	796	703

[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes agglomerates.
[3]Less than 1/2 unit.

Source: U.S. Census Bureau.

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

Country of origin and type of product	2004					2003
	September		Year to date			January-September
	Thousand metric tons	Value[3] (thousand dollars)	Thousand metric tons	Value[3] (thousand dollars)	Value[3] (dollars per ton)	Thousand metric tons
Australia	--	--	(4)	24	54.15	128
Brazil	391	12,100	3,700	102,000	27.50	3,950
Canada	363	10,400	4,240	139,000	32.76	4,760
Chile	--	--	107	2,810	26.23	238
Finland	--	--	8	332	42.57	9
Mexico	(4)	2	49	1,220	24.83	24
Norway	--	--	--	--	--	4
Peru	--	--	32	578	18.05	42
South Africa	--	--	104	4,100	39.29	--
Spain	--	--	(4)	3	39.91	--
Sweden	51	2,590	111	4,520	40.87	(4)
Venezuela	--	--	56 [5]	10,500	188.39	21
Total	805	25,100	8,410	265,000	31.49	9,170
Concentrates	242	6,230	770	18,000	23.40	674
Coarse ores	--	--	4	153	39.43	24
Fine ores	97	1,840	2,140	48,600	22.68	1,760
Pellets	467	17,000	5,400	186,000	34.54	6,410
Briquettes	--	--	56	10,500	188.39	--
Other agglomerates	(4)	2	30	730	24.45	293
Roasted pyrites	--	--	4	207	48.83	7
Total	805	25,100	8,410	265,000	31.49	9,170

-- Zero.
[1]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.
[2]Includes agglomerates.
[3]Customs value. Excludes international freight and insurance charges.
[4]Less than 1/2 unit.
[5]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 SEPTEMBER 2004[1, 2]

(Exclusive of ore containing 20% or more manganese)

(Thousand metric tons)

	Type of product						
Country of origin	Concentrates	Coarse ores	Fine ores	Pellets	Briquettes and other agglomerates	Roasted pyrites	Total
Brazil	77	--	70	244	--	--	391
Canada	114	--	27	223	--	--	363
Mexico	--	--	--	--	(3)	--	(3)
Sweden	51	--	--	--	--	--	51
Total	242	--	97	467	(3)	--	805

-- Zero.

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

[2]Includes agglomerates.

[3]Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 8

U.S. IMPORTS FOR CONSUMPTION OF PELLETS, BY COUNTRY[1]

	2004					2003
	September		Year to date			January-September
Country of origin	Thousand metric tons	Value[2] (thousand dollars)	Thousand metric tons	Value[2] (thousand dollars)	Value[2] (dollars per ton)	Thousand metric tons
Brazil	244	8,790	2,000	67,000	33.56	2,280
Canada	223	8,240	3,400	119,000	35.12	4,130
Total	467	17,000	5,400	186,000	34.54	6,410

[1]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.

[2]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[1, 2]
(Exclusive of ore containing 20% or more manganese)

(Thousand metric tons)

Customs district (code no.)	September 2004	January-September 2004	January-September 2003
Baltimore, MD (13)	147	2,730	2,410
Buffalo, NY (09)	1	5	7
Charleston, SC (16)	--	(3)	106
Chicago, IL (39)	148	879	824
Cleveland, OH (41)	214	1,770	2,400
Detroit, MI (38)	--	123	152
Great Falls, MT (33)	--	(3)	--
Houston - Galveston, TX (53)	24	52	55
Laredo, TX (23)	--	--	20
Los Angeles, CA (27)	--	--	(3)
Mobile, AL (19)	--	80	75
New Orleans, LA (20)	219	2,720	3,100
New York City, NY (10)	--	--	(3)
Nogales, AZ (26)	(3)	(3)	--
Ogdensburg, NY (07)	--	--	1
Philadelphia, PA (11)	51	55	28
Total	805	8,410	9,170

-- Zero.
[1]Data are rounded to no more than three significant digits; may not add to totals shown.
[2]Includes agglomerates.
[3]Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 10
U.S. IMPORTS FOR CONSUMPTION OF PELLETS,
BY CUSTOMS DISTRICT[1]

(Thousand metric tons)

Customs district (code no.)	September 2004	January-September 2004	January-September 2003
Baltimore, MD (13)	--	1,060	832
Charleston, SC (16)	--	--	105
Chicago, IL (39)	8	196	--
Cleveland, OH (41)	214	1,730	2,400
Detroit, MI (38)	--	123	152
Houston-Galveston, TX (53)	24	52	55
Laredo, TX (23)	--	--	20
Mobile, AL (19)	--	--	59
New Orleans, LA (20)	219	2,230	2,790
Total	467	5,400	6,410

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

Source: U.S. Census Bureau.