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IRON ORE IN MARCH 2000

U.S. mine production of iron ore in March 2000 was 1% higher than that of the prior month, according to the U.S. Geological Survey. Shipments increased by 196% and mine stocks increased by 20%. Year-to-date consumption through March was more than 2 million tons (Mt) higher that of the same period of 1999. Consumption and trade data for March 2000 will be included in a subsequent issue.

LTV to close mine

LTV Steel Company, Inc., a subsidiary of The LTV Corporation, on May 24, announced its intention to close permanently the operations of LTV Steel Mining Company (LTVSMC) (LTV Corporation, May 24, 2000, LTV Steel announces intention to close Minnesota iron mining operations: Cleveland, OH, PRNewswire, accessed May 24, 2000, at URL http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=105&STORY=/www/story/05-24-2000/0001226860). LTVSMC is located at Hoyt Lakes, MN, employs approximately 1,400 people and produced about 7 Mt of pellets in 1999.

LTV Steel said that its blast furnaces are experiencing lower levels of productivity and higher costs as a result of operating problems related to poor taconite pellet quality. The pellet poor quality is the result of deteriorating ore quality and the obsolete shaft furnaces used in the pelletizing plant. LTVSMC operates the only remaining shaft furnaces in the North American taconite pellet industry. These maintenance-intensive furnaces are not competitive with modern straight grate or grate kiln furnace operations, which produce better quality pellets at lower cost. Replacement of the shaft furnaces and other related changes would require investments of about $500 million within 3 years, and a total investment of about $700 million in the next 10 years. The company said that such an investment cannot be justified and would not resolve the problems of poor quality ore reserves.

Another major problem at the mine is the high stripping ratio. Stripping is the removal of layers of soil and waste rock that cover the ore. The more overburden that must be stripped to expose the crude ore, the higher the stripping ratio and, consequently, the higher the production costs. The iron formation on the Mesabi Range dips at an angle of about 8°. Mining must follow the iron formation down dip and, as it proceeds, the overburden becomes thicker. Because LTVSMC is the oldest continuously operating taconite mining operation on the Minnesota Iron Range, and has some of the deepest pits, it has considerably more stripping to do. Having more material to move increases production costs. During the period 1996 through 1998, the other six Mesabi Range iron ore producers moved an average of 4.9 metric tons (t) of overburden and waste rock for every ton of ore produced. LTVSMC moved 8 t for each ton of ore produced. For this and other reasons, LTVSMC has had low productivity for years. During the period 1991 through 1998, LTVSMC produced 2.5 t of pellets per employee hour compared with 5.0 t per employee hour for the other Minnesota taconite producers. In 1998, the figures were 2.5 t and 5.4 t, respectively.

LTVSMC suspended stripping operations on May 28, 2000. Approximately 120 people will be laid off in the third quarter related to this action. Mining, crushing, pelletizing, and shipping operations are expected to continue for about 1 year with final termination of operations in the middle of 2001. LTVSMC has examined possibilities for additional reserves, but any available rich reserve is too far from the taconite plant or too deep to mine economically, according to company officials (Bloomquist, Lee, Duluth News-Tribune, Rukavina wants DNR to look for better ore, accessed May 26, 2000, at URL http://www.duluthnews.com/today/dnt/ore htm).

In the late 1930's, Erie Mining Co. was organized to determine if the low-grade ore, taconite, could be mined economically (Gedeon, 2000). In the late 1940's and early 1950's, Erie operated a pilot plant to evaluate taconite production. Erie began production on a commercial scale in September 1957. LTV acquired full ownership of the facility in mid-1986 and has produced more than 312 Mt of taconite pellets. The mine was originally designed to produce 7.5 million tons per year (Mt/y). Capacity was increased to 10.3 Mt/y in 1967 and production peaked at 11.3 Mt/y in 1973. LTV Steel Mining's current capacity

is 8.1 Mt/y; total U.S. capacity is 65.9 Mt/y.

LTV Steel intends to purchase its replacement taconite pellets from Minnesota and other North American sources, primarily through Cleveland-Cliffs Inc. Total purchases may exceed 50 Mt over the 10-year contract. Cleveland-Cliffs Inc., which manages the Hoyt Lakes operation, is likely to increase taconite pellet production at Hibbing Taconite, which it manages, and Northshore Mining Co., which it owns. Northshore currently has the capacity to produce another 2 Mt of taconite concentrate. So even as LTV closes, both Northshore Mining and Hibbing Taconite could expand (Bloomquist, Lee, and Brochu, Ron, May 25, 2000, Duluth News-Tribune, LTV's Hoyt Lakes plant closing; 1,400 jobs gone—First round of layoffs to begin in August; operation will close by summer 2001, accessed May 25, 2000, at URL: http://www.duluthnews.com/today/dnt/ltv.htm). LTVSMC will continue to be a 25% owner of the Empire Mine in Michigan, managed by Cleveland-Cliffs.

The closure came as a surprise to most people on the Mesabi Range. Iron ore consumption was rising, reaching 18.5 Mt for the first 3 months of 2000 compared with 16.3 Mt for the same period in 1999, and, as recently as January, LTVSMC reached an agreement with Minnesota Power that would extend an electrical power agreement for the taconite plant until October 31, 2005 (Duluth News-Tribune, January 21, 2000, MinnPower, LTV extend contract, accessed January 21, 2000, at URL http://www.duluthnews.com/today/dnt/biz/ltv.htm). It also has invested $20 million in the facility annually since 1995 (Bloomquist, Lee, and Brochu, Ron, May 25, 2000, Duluth News-Tribune, LTV's Hoyt Lakes plant closing; 1,400 jobs gone—First round of layoffs to begin in August; operation will close by summer 2001, accessed May 25, 2000, at URL: http://www.duluthnews.com/today/dnt/ltv.htm). Most workers dismissed by LTVSMC will be hard-pressed to find employment that offers comparable pay in the immediate area.

LTVSMC employees will be offered two job options. Over the next 5 years, LTV Steel needs about 1,900 replacement employees at LTV Midwest steel facilities. LTVSMC employees will also receive preferential hiring at Cliffs' Minnesota and Michigan iron ore operations. About 560 workers, 40% of LTVSMC's workforce, are immediately eligible for pensions. That will leave about 840 workers looking for jobs. The closure will have a major effect on the local economy. The average income of the miners, including benefits, was $65,000 annually. According to Minnesota Department of Economic Security, the average weekly wage earned by a mine worker in St. Louis County, where the operation is located, during the second quarter of 1999 was $913.05 (Passi, Peter, May 25, 2000, Duluth News-Tribune, Jobs for displaced workers likely won't be on a par with LTV's, accessed May 25, 2000, at URL http://www.duluth news.com/today/dnt/ec.htm). That is 80% more than the overall average weekly wage earned by workers in the county—$506.02.

Reference Cited

Gedeon, C.C., 2000, History lessons: Skillings Mining Review, v. 89, no. 18, April 29, p. 4-7.

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

(Thousand metric tons)

Period	Production		Shipments	
	Monthly	Year to date	Monthly	Year to date
1999:				
March	5,145	14,624	2,619	5,699
April	4,846	19,470	6,265	11,965
May	5,473	24,943	6,117	18,082
June	5,047	29,990	5,935	24,017
July	5,249	35,239	5,942	29,959
August	3,872	39,111	5,572	35,531
September	3,334	42,445	5,380	40,911
October	4,439	46,884	5,298	46,209
November	5,231	52,115	5,616	51,825
December	5,295	57,410	6,046	57,871
2000:				
January	4,955	4,955	3,822	3,822
February	4,986	9,940	962	4,784
March	5,028	14,968	2,846	7,630

1/ Excludes byproduct ore.

TABLE 2
U.S. PRODUCTION, SHIPMENTS, AND STOCKS OF IRON ORE IN MARCH 1/

(Thousand metric tons)

District	Production		Shipments 2/		Stocks 3/	
	2000	1999	2000	1999	2000	1999
Lake Superior:						
Michigan	1,048	1,319	807	600	3,731	4,897
Minnesota	3,979	3,826	2,039	2,019	9,478	10,047
Total	5,028	5,145	2,846	2,619	13,209	14,944

1/ Excludes byproduct ore.
2/ Includes rail and vessel.
3/ Includes mines, plants, and loading docks.

TABLE 3
CANADA: SHIPMENTS OF IRON ORE

(Thousand dry metric tons)

Period	Newfoundland	Quebec	British Columbia	Total 1/
1999:				
February	459	528	6	992
March	455	642	5	1,101
April	1,485	1,236	7	2,727
May	2,236	1,316	10	3,562
June	1,210	1,356	7	2,573
July	2,102	1,266	6	3,373
August	1,164	1,390	6	2,561
September	2,636	1,150	8	3,794
October	1,717	1,623	7	3,347
November	2,485	1,387	9	3,881
December	1,515	1,468	8	2,991
Year total	18,032	15,036	85	33,153
2000:				
January	857	1,131	9	1,997
February	1,475	716	7	2,197

1/ Data may not add to totals shown because of independent rounding.

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/

(Thousand metric tons)

	Consumption of ores and agglomerates			
	February		January-February	
Consumption by source	2000	1999	2000	1999
United States ores	4,679	4,186	9,806	8,801
Canadian ores	605	428	1,250	935
Foreign ores	600	433	1,215	941
Total 2/	5,884	5,047	12,271	10,677
Consumption by process				
Blast furnaces	5,342	4,505	11,141	9,621
Steel furnaces	4	5	9	10
Agglomerating plants 3/	537	535	1,121	1,044
Miscellaneous 4/	--	--	--	--
Total 2/	5,884	5,047	12,271	10,677

	Stocks of ores and agglomerates
	February 29
Storage point	2000	1999
Furnace yards	11,547	13,689
Receiving/transfer docks	2,235	2,356
Total consumer	13,783	16,045

	Blast furnace production of hot metal			
	February		January-February 5/	
	2000	1999	2000	1999
Hot metal and pig iron produced in blast furnaces	3,923	3,449	8,262	7,198
No. of blast furnaces operating on the last day of the month	36	34	XX	XX

XX Not applicable. -- Zero.
1/ Includes agglomerates.
2/ Data may not add to totals shown because of independent rounding.
3/ Iron ore and iron ore concentrates consumed in agglomerating plants not located at the mine or plant site.
4/ Sold to nonreporting companies or used for purposes not listed.
5/ May include revisions for previous month.

Sources: American Iron Ore Association (consumption of iron ore) 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/

(Thousand metric tons)

Country of	1999			2000	
destination and type	3rd quarter	4th quarter	December	January	February
Canada	1,806	1,521	425	445	112
Mexico	(2/)	(2/)	(2/)	(2/)	(2/)
Other	2	9	4	8	(2/)
Total 3/	1,808	1,530	429	454	113
Pellets	1,796	1,498	424	445	112
Other	13	31	5	9	1
Total 3/	1,808	1,530	429	454	113

1/ Includes agglomerates.
2/ Less than 1/2 unit.
3/ Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census.

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

Country of origin and type of product	2000 February Thousand metric tons	2000 February Value 2/ (thousand dollars)	2000 January-February Thousand metric tons	2000 January-February Value 2/ (thousand dollars)	2000 January-February Value 2/ (dollars per ton)	1999 January-February Thousand metric tons
Australia	--	--	54	693	12.83	123
Brazil	553	15,923	969	26,009	26.84	556
Canada	269	8,855	652	20,853	31.98	296
Finland	--	--	--	--	--	3
Mexico	--	--	1	10	10.00	1
Norway	1	49	1	49	49.00	--
Peru	25	362	25	362	14.48	(4/)
Spain	--	--	--	--	--	(4/)
Sweden	98	3,057	98	3,057	31.19	--
Trinidad and Tobago 3/	--	--	25	2,282	91.28	--
Venezuela	--	--	47	1,433	30.49	72
Total 5/	945	28,246	1,872	54,748	29.25 6/	1,051
Concentrates	--	--	--	--	--	79
Fine ores	221	5,610	505	10,955	21.69	600
Pellets	699	20,861	1,341	42,008	31.33	333
Briquettes	--	--	--	--	--	35
Other agglomerates	25	1,775	26	1,784	68.62	1
Roasted pyrites	--	--	--	--	--	3
Total 5/	945	28,246	1,872	54,748	29.25 6/	1,051

-- Zero.
1/ Includes agglomerates.
2/ Customs value. Excludes international freight, insurance, and other c.i.f. charges.
3/ All or part of these data have been referred to the Bureau of the Census for verification.
4/ Less than 1/2 unit.
5/ Data may not add to totals shown because of independent rounding.
6/ Weighted average calculated by dividing total value by total tonnage.

Source: Bureau of the Census.

TABLE 7
U.S. IMPORTS FOR CONSUMPTION OF IRON ORE IN FEBRUARY 2000
(Exclusive of ore containing 20% or more manganese) 1/

(Thousand metric tons)

Country of origin	Type of product: Concentrates	Coarse ores	Fine ores	Pellets	Briquettes and other agglomerates	Roasted pyrites	Total 2/
Brazil	--	--	220	308	25	--	553
Canada	--	--	--	269	--	--	269
Mexico	--	--	1	--	--	--	1
Peru	--	--	--	25	--	--	25
Sweden	--	--	--	98	--	--	98
Total 2/	--	--	221	699	25	--	945

-- Zero.
1/ Includes agglomerates.
2/ Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census.

TABLE 8
U.S. IMPORTS FOR CONSUMPTION OF PELLETS, BY COUNTRY

Country of origin	2000 February Thousand metric tons	2000 February Value 1/ (thousand dollars)	2000 January-February Thousand metric tons	2000 January-February Value 1/ (thousand dollars)	2000 January-February Value 1/ (dollars per ton)	1999 January-February Thousand metric tons
Brazil	308	8,587	494	14,021	28.38	163
Canada	269	8,855	652	20,853	31.98	133
Peru	25	362	25	362	14.48	--
Sweden	98	3,057	98	3,057	31.19	--
Trinidad and Tobago 2/	--	--	25	2,282	91.28	--
Venezuela	--	--	47	1,433	30.49	37
Total 3/	699	20,861	1,341	42,008	31.33 4/	333

-- Zero.
1/ Customs value. Excludes international freight, insurance, and other c.i.f. charges.
2/ All or part of these data have been referred to the Bureau of the Census for verification.
3/ Data may not add to totals shown because of independent rounding.
4/ Weighted average calculated by dividing total value by total tonnage.

Source: Bureau of the Census.

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

(Thousand metric tons)

Customs district	February 2000	January-February 2000	January-February 1999
Baltimore, MD (13)	99	486	457
Chicago, IL (39)	--	27	79
Houston - Galveston, TX (53)	31	31	26
Los Angeles, CA (27)	--	--	(2/)
Mobile, AL (19)	302	646	37
New Orleans, LA (20)	514	682	448
Nogales, AZ (26)	--	1	1
Philadelphia, PA (11)	--	--	3
Total 3/	945	1,872	1,051

-- Zero.
1/ Includes agglomerates.
2/ Less than 1/2 unit.
3/ Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census.

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

(Thousand metric tons)

Customs district	February 2000	January-February 2000	January-February 1999
Baltimore, MD (13)	25	230	133
Houston - Galveston, TX (53)	31	31	26
Mobile, AL (19)	275	620	37
New Orleans, LA (20)	368	461	137
Total 1/	699	1,341	333

1/ Data may not add to totals shown because of independent rounding.

Source: Bureau of the Census.