Coal extraction data

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Climate Mitigation Services
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WESTMORELAND COAL COMPANY
A Trusted Name in Coal Since 1854

Westmoreland Coal Company

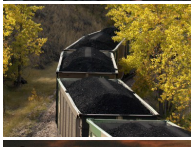
www.westmoreland.com Colorado Springs, Colorado USA

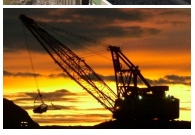
yellow column indicates original reported units

Production / Extraction data

Year	Lignite		Bituminous		Total Coal	
	Gross production	Gross production	Gross production	Gross production	Gross production	Gross production
	Million tons/yr	Million tonnes/yr	Million tons/yr	Million tonnes/yr	Million tons/yr	Million tonnes/yr
1854			0.06 company history		0.1	0.1
1855			0.07 interpolated		0.1	0.1
1856			0.09 company history		0.1	0.1
1857			0.10 interpolated		0.1	0.1
1858			0.12 interpolated		0.1	0.1
1859			0.13 interpolated		0.1	0.1
1860			0.15 interpolated		0.1	0.1
1861			0.16 interpolated		0.2	0.1
1862			0.18 interpolated		0.2	0.2
1863			0.19 interpolated		0.2	0.2
1864			0.21 interpolated		0.2	0.2
1865			0.22 interpolated		0.2	0.2
1866			0.24 interpolated		0.2	0.2
1867			0.25 interpolated		0.3	0.2
1868			0.27 interpolated		0.3	0.2
1869			0.28 company history		0.3	0.3
1870			0.38 interpolated		0.4	0.3
1871			0.49 interpolated		0.5	0.4
1872			0.59 interpolated		0.6	0.5
1873			0.69 interpolated		0.7	1
1874			0.79 interpolated		0.8	1
1875			0.90 interpolated		0.9	1
1876			1.00 interpolated		1.0	1
1877			1.10 interpolated		1.1	1
1878			1.20 interpolated		1.2	1
1879			1.31 interpolated		1.3	1
1880			1.41 interpolated		1.4	1
1881			1.51 interpolated		1.5	1
1882			1.62 interpolated		1.6	1
1883			1.72 interpolated		1.7	2
1884			1.82 interpolated		1.8	2
1885			1.92 interpolated		1.9	2
1886			2.03 interpolated		2.0	2
1887			2.13 interpolated		2.1	2
1888			2.23 interpolated		2.2	2
1889			2.33 interpolated		2.3	2
1890			2.44 interpolated		2.4	2
1891			2.54 interpolated		2.5	2
1892			2.64 interpolated		2.6	2
1893			2.75 interpolated		2.7	2
1894			2.85 interpolated		2.8	3
1895			2.95 interpolated		3.0	3
1896			3.05 interpolated		3.1	3
1897			3.16 interpolated		3.2	3
1898			3.26 interpolated		3.3	3
1899			3.36 interpolated		3.4	3
1900			3.46 interpolated		3.5	3
1901			3.57 interpolated		3.6	3
1902			3.67 interpolated		3.7	3
1903			3.77 interpolated		3.8	3
1904			3.88 interpolated		3.9	4
1905			3.98 interpolated		4.0	4
1906			4.08 interpolated		4.1	4
1907			4.18 interpolated		4.2	4
1908			4.29 interpolated		4.3	4
1909			4.39 interpolated		4.4	4
1910			4.49 interpolated		4.5	4
1911			4.59 interpolated		4.6	4
1912			4.70 interpolated		4.7	4
1913			4.80 company history		4.8	4
1914			4.70 interpolated		4.7	4
1915			4.60 interpolated		4.6	4
1916			4.50 interpolated		4.5	4
1917			4.40 interpolated		4.4	4
1918			4.30 interpolated		4.3	4
1919			4.20 interpolated		4.2	4
1920			4.10 interpolated		4.1	4
1921			4.00 interpolated		4.0	4
1922			3.90 interpolated		3.9	4

Westmoreland Coal founded in 1854





Westmoreland AnnRpt images

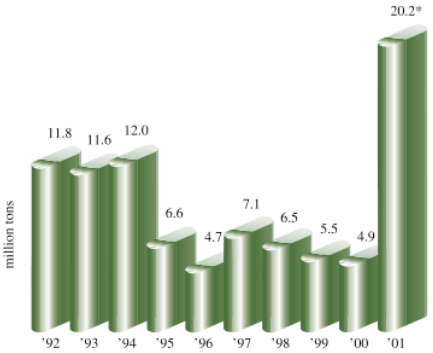
	Absaloka Mine	Rosebud Mine	Jewett Mine	Beulah Mine	Savage Mine
Subsidiary	Westmoreland Resources, Inc.	Western Energy Company	Texas Westmoreland Coal Co.	Dakota Westmoreland Corporation	Westmoreland Savage Corporation
Location	Hardin, MT	Colstrip, MT	Jewett, TX	Beulah, ND	Sidney, MT
Coal Reserves and Deposits (million tons)	81	205	55	47	7
2008 Annual Production (million tons)	6.4	13.1	6.5	3	0.36
Disturbed Acres	4,513	16,800	16,118	5,125	556
Reclaimed Acres	2,760	7,583	11,921	3,605	209
Number of Draglines	1	4	4 plus bucketwheel	2	1
Major Customers	Xcel Energy, Western Fuels Assoc., Mid-west Energy, Rocky Moun-tain Power	Colstrip 182 owner, Colstrip 384 owner, Minnesota Power	NRG Texas Power LLC	Otter Tail, MDU, Minnkota, Northwestern Public Service	MDU, Sidney Sugars
Delivery	Truck/Rail	Truck/Rail/ Conveyor	Conveyor	Conveyor/Rail	Truck
Approx. Heat Content (BTU/lb.)	8,687	8,529	6,587	7,002	6,553
Approx. Sulfur Content (%)	0.68	0.74	0.79	0.76	0.55
Year Opened	1974	1968	1985	1963	1958
Employees	150	404	337	157	11
Total Tons Mined Since Inception (million tons)	162	410	174	97	14

www.westmoreland.com production and legacy table

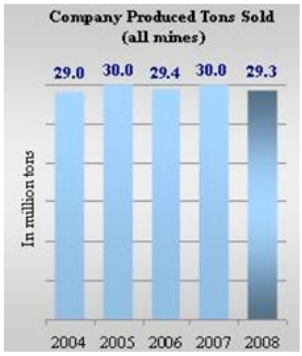
	B	D	E	G	H	J	K
86	1923			3.80	interpolated	3.8	3
87	1924			3.70	interpolated	3.7	3
88	1925			3.60	interpolated	3.6	3
89	1926			3.50	interpolated	3.5	3
90	1927			3.40	interpolated	3.4	3
91	1928			3.30	interpolated	3.3	3
92	1929			3.20	interpolated	3.2	3
93	1930			3.10	interpolated	3.1	3
94	1931			3.00	assumed	3.0	3
95	1932			3.15	interpolated	3.1	3
96	1933			3.29	interpolated	3.3	3
97	1934			3.44	interpolated	3.4	3
98	1935			3.58	interpolated	3.6	3
99	1936			3.73	interpolated	3.7	3
100	1937			3.88	interpolated	3.9	4
101	1938			4.02	interpolated	4.0	4
102	1939			4.17	interpolated	4.2	4
103	1940			4.31	interpolated	4.3	4
104	1941			4.46	interpolated	4.5	4
105	1942			4.61	interpolated	4.6	4
106	1943			4.75	interpolated	4.8	4
107	1944			4.90	interpolated	4.9	4
108	1945			5.04	interpolated	5.0	5
109	1946			5.19	interpolated	5.2	5
110	1947			5.34	interpolated	5.3	5
111	1948			5.48	interpolated	5.5	5
112	1949			5.63	interpolated	5.6	5
113	1950			5.77	interpolated	5.8	5
114	1951			5.92	interpolated	5.9	5
115	1952			6.06	interpolated	6.1	6
116	1953			6.21	interpolated	6.2	6
117	1954			6.36	interpolated	6.4	6
118	1955			6.50	interpolated	6.5	6
119	1956			6.65	interpolated	6.6	6
120	1957			6.79	interpolated	6.8	6
121	1958			6.94	interpolated	6.9	6
122	1959			7.09	interpolated	7.1	6
123	1960			7.23	interpolated	7.2	7
124	1961			7.38	interpolated	7.4	7
125	1962			7.52	interpolated	7.5	7
126	1963			7.67	interpolated	7.7	7
127	1964			7.82	interpolated	7.8	7
128	1965			7.96	interpolated	8.0	7
129	1966			8.11	interpolated	8.1	7
130	1967			8.25	interpolated	8.3	7
131	1968			8.40	assumed	8.4	8
132	1969			11.94	Keystone Manual	11.9	11
133	1970			11.3		11.3	10
134	1971			8.4		8.4	8
135	1972			9.1		9.1	8
136	1973			8.8		8.8	8
137	1974			7.6	Keystone Manual	7.6	7
138	1975			7.9		7.9	7
139	1976			7.8	interpolated	7.8	7
140	1977			7.8	interpolated	7.8	7
141	1978			7.7	interpolated	7.7	7
142	1979			7.6	Keystone Manual	7.6	7
143	1980			7.7	interpolated	7.7	7
144	1981			7.8	interpolated	7.8	7
145	1982			8.0	interpolated	8.0	7
146	1983			8.1	interpolated	8.1	7
147	1984			8.2	interpolated	8.2	7
148	1985			8.3	interpolated	8.3	8
149	1986			8.4	interpolated	8.4	8
150	1987			8.6	Westmoreland AnnRpts	8.6	8
151	1988			9.1		9.1	8
152	1989			10.2		10.2	9
153	1990			10.6		10.6	10
154	1991			10.1		10.1	9
155	1992			11.8		11.8	11
156	1993			11.6		11.6	11
157	1994			12.0		12.0	11
158	1995			6.6		6.6	6
159	1996			4.7		4.7	4
160	1997	Westmoreland		7.1		7.1	6
161	1998	lignite		6.5		6.5	6
162	1999	million tons		5.5		5.5	5
163	2000	9.07		17.50	Westmoreland AnnRpt	26.57	24
164	2001	6.90		13.30		20.20	18
165	2002	8.77		16.93		25.70	23
166	2003	9.46		18.24		27.70	25
167	2004	9.96		19.22		29.18	26
168	2005	10.24		19.75		29.99	27
169	2006	10.02		19.32		29.34	27
170	2007	10.25		19.76		30.01	27
171	2008	9.90		19.22		29.12	26
172	2009	8.01		16.24		24.25	22
173	2010	9.90		19.44		29.34	27
174							
175	Total	102	-	866	na	968	878
176							
177			0.3414		2000-2010 subtotal:	301.4	million tons
178	Coal Types:	Lignite:	34.00%	Subbituminous	66.00%	Metallurg./Anthrac.	0.00%
179							

Rosebud opened in 1924 (AnnRpt2000)
and 300 Mt mined since 1924

CMS has data for Westmoreland coal production for only a few years starting in 1854 and noted in the production column at left ("company history"), and interpolated between known years. While the estimated production for individual years are likely not accurate, the total production 1854-2010 is reasonable, given that Westmoreland produced 857 million tons fromthe five mines detailed in the table above (which opened from 1958 through 1974); furthermore, Westmoreland states that its Rosebud Mine produced 300 million tons since 1924, and the company was producing 4.8 million tons as early as 1913. Westmoreland is encourged to provide accurate annual production data for each year since 1854.



COMPANY PRODUCED TONS SOLD
*includes only 8 months from newly acquired mines.
Westmoreland Annual Rpt 2001



Westmoreland SEC Form 10-K for 2008

Westmoreland
Total 2000-04
million tons
11.80
11.60
12.00
6.60
4.70
7.10
6.50
5.50
26.57
20.20
25.70
27.70
29.18
29.99
29.34
30.01
29.39

Total 1854-2008
million tons
lignite & bituminous
914.40

29.0	NMA	
30.0	NMA	
29.4	NMA	
30.0	NMA	
29.4	NMA	
24.2	NMA	
25.1	NMA	

2000 AnnRpt, p.15 heating values
26.57 6,611 to 8,700
15.3 >8,500 (Mont mines)

100.00%

Cell: D11
Comment: Rick Heede:
Coal production by coal mining companies and state-owned enterprises, including subsidiaries of oil and gas companies.
Coal types produced are not ordinarily reported by coal operators (except for metallurgical coal). We distinguish, where possible and reasonably well known, between hard (bituminous and subbituminous) and soft (lignite or peat) coals, especially for the larger companies operating in regions such as Australia and India where soft coals are predominant. Soft coals have lower carbon content per tonne than do hard coals.

Cell: B17
Comment: Rick Heede:
Westmoreland Coal website "Our Legacy;" 1854: "The Company is formally organized to mine coal in the Irwin Basin of Westmoreland County, Pennsylvania. The business of the Company centers on the gas coal market. The Larimer #1 mine opens shipping 56,223 tons and earning 8% on its initial investment."
www.westmoreland.com/about-us/our-legacy

Cell: B19
Comment: Rick Heede:
"Westmoreland contributes indirectly to the growth of the American gaslight industry by furnishing coal to 22 gas companies. By 1861, it is supplying 69 gasworks from Maine to Georgia. Production swells from 90,000 tons to 280,000 tons in 1869. The Pennsylvania Railroad to Philadelphia and Baltimore ships all of the Company's coal."

Cell: B76
Comment: Rick Heede:
1913: "The Company's peak production of 4.8 million tons rapidly depletes the Irwin Basin and electricity, natural gas, and petroleum products destroy the gaslight market."

Cell: H94
Comment: Rick Heede:
As a conservatism, CMS has assumed that Westmoreland coal production declined from 4.8 million tons (company data) in 1913 to the depression year 1931, and rose gradually to 8.4 million tons in 1968 (equal to Keystone Coal Industry Manual estimate for 1971, though Keystone estimated production in 1969 and 1970 at over 11 million tons). The reusulting total production from teh company's founding in 1854 to 2010 is likely conservative. See text box for details.

Cell: B127
Comment: Rick Heede:
1964: "The old Westmoreland Coal Company is merged into the Stonega Coke and Coal Company, but is re-titled the Westmoreland Coal Company to retain the name that was then the oldest in the industry. Virginia Coal and Iron Company absorbs Westmoreland Inc., which later becomes Penn Virginia Corporation, a land, mineral rights, and investment company."

Cell: B133
Comment: Rick Heede:
1970: "Westmoreland Resources, Inc. is formed to mine coal in Montana on the Crow Tribe land in Big Horn County, Montana."

Cell: G137
Comment: Rick Heede:
1974 and 1975 production data from keystone Coal Industry Manual for 1976, p. 520.

Cell: B139
Comment: Rick Heede:
1976: "Colorado Westmoreland, Inc., is incorporated to mine steam coal in the Grand Mesa coalfields near Paonia, Colorado to begin development of its Orchard Valley Mine."

Cell: G150
Comment: Rick Heede:
Production data for 1987-1994 from Westmoreland Coal Company Annual reports.

Cell: G155
Comment: Rick Heede:
Westmoreland Annual Rpt 2001, chart on page 6. There is conflicting data in its various annual reports, perhaps between "company produced tons sold" (as in this column chart) and other reports that list coal production by mine.

CMS will use this data in our column "G", even though Westmoreland's coal production may have been substantially higher in some years than reported here.

Cell: M155
Comment: Rick Heede:
Westmoreland Annual Rpt 2001, chart on page 6. There is conflicting data in its various annual reports, perhaps between "company produced tons sold" (as in this column chart) and other reports that list coal production by mine.
CMS will use this data in our column "G", even though Westmoreland's coal production may have been substantially higher in some years than reported here.

Cell: B158
Comment: Rick Heede:
Westmore history, Modern Era: "Mid-1990s: Company divests of Eastern operations and moves to Colorado."

Cell: G163
Comment: Rick Heede:
Westmoreland Annual Rpt 2000, p. 15: 26.57 million tons, of which 15.3 Mt has heating values 8,500-8,700 Btu/lb

Cell: M163
Comment: Rick Heede:
Coal production in 2000 reported as 4.9 million tons in 2004 annual report (p. 13) but as 26.57 Mt in the 2000 annual report (p. 15).

Cell: G164
Comment: Rick Heede:
Coal production 2001-2004 from Westmoreland (2005) Annual Report, pp. 11 and 13.

Cell: M164
Comment: Rick Heede:
Coal production 2001-2004 from Westmoreland (2005) Annual Report, pp. 11 and 13.

Cell: B167
Comment: Rick Heede:
Westmoreland hisotry, Modern Era: "Westmoreland celebrates its 150th anniversary. It has become the 10th largest coal producer in the U.S., mining over 27 million tons in 2003."

Cell: G167
Comment: Rick Heede:
Note: Based on 2004 production by coal mine and coal type, we allocate total production for 2000-2004 on the basis of 34.2 percent lignite (6,400-7,000 Btu/lb) production (TX and MT) and 65.8 percent to

subbituminous (8,500-8,700 Btu/lb) thermal coal.

Cell: M168
Comment: Rick Heede:
Westmoreland SEC Form 10-K for 2005, page 6.

Cell: M169
Comment: Rick Heede:
Westmoreland SEC Form 10-K for 2008, page 4: coal sales (chiefly to power plants and sugar mills).

Cell: D171
Comment: Rick Heede (Feb10):
Form 10-K for 2008, page 21: 9.90 million tons of lignite, 6,590 to 7,000 Btu/lb (Jewett Mine in TX, Beulah Mine in ND, and Savage Mine in MT).

Cell: G171
Comment: Rick Heede (Feb10):
Form 10-K for 2008, page 21: 19.22 million tons of sub-bituminous (8,530 to 8,690 Btu/lb) coal produced (Absaloka Mine in MT, and Rosebud Mine in MT).

Cell: D172
Comment: Rick Heede:
Form 10-K pdf report pg 5, tons sold, sum of Savage, Jewett, and Beulah mines, sum for 2008 is 7.4, not 9.9

Cell: G172
Comment: Rick Heede:
Form 10-K pdf report pg 5; tons sold from Rosebud and Absaloka mines; note same sum for 2008 is 17.7, not 19.22

Cell: J172
Comment: Rick Heede:
Form 10-K 2011 pdf report pg 33, tons sold, no differentiation as to type

Cell: G175
Comment: Rick Heede:
CMS has production data for 1854, 1856, 1859, 1913, and 1969 forward, and interpolates between known production dates. Westmoreland website states that cumulative production from inception through ~2008 totaled 857 million tons, and our total 1954-2008 totals 842 million tons, hence ~15 million tons low (which we do not adjust).

See the table reproduced above (note: this lists Rosebud's "current complex", but previous editions of the same table shows Rosebud opened in 1924 (e.g., AnnRpt 2000: Rosebud alone has produced 300 to 404 million tons, depending on which Westmoreland rpt is cited).
CMS methodology: subtract 0.2 million tons from the last documented production year in 1968, and repeat back to 1924.

Cell: E177
Comment: Rick Heede:
This number is based on lignite vs sub-bituminous coal production for 2000-2004 and 2008 and applied to 2005-2007.